



**Asia-Pacific  
Economic Cooperation**

**Diagnostic Report on Competitiveness  
and Overall Market Structure of Port  
Industry in Papua New Guinea**

**Economic Committee**

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## Acronyms and Abbreviations

ADB	Asian Development Bank
AES	Avenell Engineering Systems
APEC	Asia-Pacific Economic Cooperation
BBM	Building Blocks Model
CCFR	Consumer and Competition Framework Review
CPI	Consumer Price Index
CSO	Community Service Obligation
DoT	Department of Transport
ICCC	Independent Consumer and Competition Commission
ISPS	International Ship and Port Facility Security Code
KCH	Kumul Consolidated Holdings Limited
MES	Minimum Efficient Scale
NAQIA	National Agriculture Quarantine and Inspection Agency
NCD	National Capital District
NEC	National Executive Council
NMSA	National Maritime Safety Authority
PNG	Papua New Guinea
PNGPCL	Papua New Guinea Ports Corporation Limited
POM	Port Moresby
RFP	Request for Proposal
SOE	State-Owned Enterprise
TEU	Twenty-foot Equivalent Unit
THC	Terminal Handling Charge
Treasury	Department of Treasury

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## Executive Summary

This report provides a diagnosis on the current competition environment in Papua New Guinea's (PNG) ports sector. It finds that the PNG ports sector lacks competition and recommends regulatory and policy settings to further enhance competition outcomes within the port industry.

**While the small scale of operations, the geographic pattern of ports in PNG and the unique rights of landowners provide some natural constraints on competition, we have identified two areas where possible competitive outcomes could be improved:**

- The information made available to this Review suggests that cargo handling within larger ports, such as Lae and Port Moresby (POM), has generally been competitive until recently. However, in the absence of well-specified access rules, the issuance of access permits for cargo handlers by PNG Ports Corporation Limited (PNGPCL) appears arbitrary and has the potential to restrict competition. Stakeholders expressed specific and immediate concerns during interviews. PNGPCL, in a written submission, disputed that access agreements were having a detrimental effect on competition.
- It was also noted that the process for securing future terminal concessions for Lae and Port Moresby presents competition concerns. The draft concession contracts have not been reviewed for their compliance with the Independent Consumer and Competition Commission (ICCC) Act.

We conclude that PNG could consider improving competition in the ports sector in two respects:

- Third party access arrangements at PNGPCL facilities should be investigated. If the ICCC finds undue barriers to entry, the process for allowing access to ports for third-party service providers should be subject to greater external oversight, with clear regulated standard terms of access.
- Concession contracts for the significant new concessions at Lae and Port Moresby should be aligned with the competition policy objectives. Where such contracts grant exclusive rights to the concession holder, the ICCC will need to be satisfied that such exclusivity is justified. The ICCC is also best placed to ensure that the service standards for the concession holder are consistent with consumer interests. Therefore, we recommend that the ICCC review the terminal concession agreement for compliance with the ICCC Act before it is finalised.

More generally, we conclude that outcomes in the PNG ports sector would be improved if the regulation of the natural monopoly aspects of the sector is streamlined and made more consistent with the objectives of economic efficiency. The current regulatory framework suffers from ambiguity. The existence of two different economic regulation frameworks under the ICCC Act and the Prices Regulation Act, as well the definition of what constitutes a 'regulated industry' under the Harbours Act, may create uncertainty, conflicting objectives and over-lapping responsibilities. Therefore, we conclude that the legislative framework, the Harbours Act in particular, be reviewed and amended accordingly.

The performance of PNGPCL under the current regulatory regime, including the apparent inefficiencies in investment decisions, suggest that a new approach may be needed.

## Other factors may be restraining the performance of the sector

Other factors that are relevant to the performance of ports in PNG include:

- Customs and quarantine processes
- The governance of state-owned enterprises
- Cross-subsidies within PNGPCL, which will impact its performance
- Infrastructure quality as a limiting factor on efficient port operations

## We recommend structural and regulatory changes to improve sector performance

We recommend three specific immediate steps to secure competition and protect the interests of consumers in the PNG ports sector:

- **Independent Consumer and Competition Commission (ICCC) oversight of terminal concessions at PNGPCL's ports could help protect the long-term interests of consumers.** The available information suggests that there are significant efficiency risks if future concession arrangements between PNGPCL and terminal operators do not become subject to regulatory oversight.

For the terminal concession currently under negotiation, the ICCC should review final contractual terms for consistency with the ICCC Act. This assessment should examine the draft terminal contract for consistency with the requirements of PNGPCL's Regulatory Contract and for consistency with the long-term interests of consumers. In Section 5, we have provided further guidance on how this assessment should be structured. Where the terms of the contract are found to be inconsistent with the ICCC Act, the ICCC should ensure necessary modifications are made to the contract, or that back-stop arrangements are put in place, such as a third-party access code. Given the risk that the review of the final contractual terms may require changes in the contract, we would recommend that PNGPCL may wish to consider reducing regulatory risk by engaging with the ICCC earlier in the process.

Ideally, in future concession negotiations, in addition to the review of the contractual terms, the ICCC should have a role in certifying the procurement process for concessions to ensure that concession agreements are truly the result of a competitive, commercial process.

Further, as port concessions are a new and significant addition to the PNG ports sector, the ICCC should undertake a capacity building exercise to equip its organisation for effective regulation in this area.

- **Third party access arrangements should be reviewed.** There are indications that stevedore access to key port facilities is being restricted to the detriment of competition. We recommend that the ICCC conduct an inquiry under the ICCC Act to firmly establish whether stevedore access is being unduly restricted at PNGPCL facilities, and what regulatory actions, if any, should be taken to facilitate efficient levels of competition at PNG's ports. We understand that the ICCC intends to review stevedore and handling services in 2018.
- **Enhancing the ICCC's powers could address key competition risks and safeguard consumers.** In our view, there may be gains from increasing the ICCC's powers whilst also providing further safeguards for regulated entities. Our analysis finds that the Harbours Act may be overly restrictive, and should,

therefore, be reviewed and amended so that the ICCC has power to regulate wherever economic regulation is required.

We also suggest that economic regulation could be concentrated in one competition act. This act should outline clear and consistent principles and thresholds for imposing economic regulation on businesses involved in the ports sector.

The ICCC should be able to regulate to protect:

- Third party access to monopoly infrastructure, where competition is practicable
- Consumers, where competition is not practicable.

We also suggest that legislation should specify a wider suite of regulatory options, such as introducing negotiate-arbitrate mechanisms and third-party access regimes, so that there is a more flexible regulatory toolkit to address the varying competition issues throughout the PNG ports sector.

The regulatory framework needs to be fully equipped to address potential monopolistic behaviour, while also minimising impacts on investor confidence.

The current Consumer and Competition Framework Review appears to be an ideal process for considering our suggestions for enhancing economic regulation of the ports sector.

We further recommend structural and other regulatory reforms that would help lift the performance of PNG's ports sector:

- **PNGPCL could be restructured into a platform for competition in port services.** PNGPCL should adopt a port landlord model where all its major ports' operations, maintenance and development would be contracted to the private sector, under concession arrangements negotiated and monitored by PNGPCL. If possible, ports should be split into competing terminals.

Where PNGPCL continues to operate ports, third party access on reasonable terms should be guaranteed to maximise intra-port competition. At smaller PNGPCL ports, we believe that competition for the market could be better used in PNG, as many of these ports lack scale for effective competition within the port.

- **PNG should also complete its planned reforms of maritime regulation.** PNGPCL regulating its competitors ultimately creates competition concerns. We recommend that port policy is concentrated in the Department of Transport, and port-related licensing, safety, and environmental regulation is concentrated in a division of the National Maritime Safety Authority. Where PNGPCL or another business currently holds these responsibilities, they should be transitioned to those agencies. This reform may include removing harbourmaster and certain harbour maintenance obligations from PNGPCL.
- **Governance of PNGPCL should be improved.** Specifically, PNGPCL should have greater autonomy over its business, with the board being accountable for the company's performance. Government should not be directly involved in running businesses in the port sector.
- **Community Service Obligation (CSO) reform should be progressed, but with care.** The requirement that PNGPCL operate several loss-making ports



likely affects its operational performance. PNGPCL is required to keep these ports open for social and economic development reasons.

Reform to explicitly subsidise loss-making ports should be carried out with care to avoid unintended consequences. For example, some of these ports may in fact contribute to the economic viability of larger hubs ports in PNG. Therefore, full subsidies may result in scarce public funds being used to inefficiently subsidise PNGPCL.

We suggest that the government use the new CSO contracting framework to explore new ways of improving the performance and quality of these ports, such as public private partnerships and alliances with local governments.

- **The performance of the ports sector is subject to external influences.** Efficiency within the ports sector is influenced by a range of external factors. For instance, the performance of PNG's border control agencies influences the efficiency with which ports sector functions are conducted. It is important to remain mindful that not all inefficiencies experienced within the PNG ports sector will be internally driven. Maintaining an awareness of the broader regulatory and operating environment will ensure regulation is optimally targeted.
- **Significant on-going investment in port infrastructure will be needed.** Ports will continue to play a significant role in supporting PNG's economy. Significant on-going investment to modernise existing infrastructure will be needed over the medium-term. Therefore, continued government investment will be required over the medium-term. As ports are costly, inter-generational assets, use of the government's balance sheet to enable further development should be considered. All major projects should, of course, be supported by robust and conservative business cases. Investment for investment's sake is not in the long-term interests of consumers.

Private sector investment will also be critical. To maximise value and minimise risk to the government, partnerships with the private sector should be used where sensible. The government should ensure policies do not undermine investor confidence. Economic regulation frameworks need to be designed with this factor in mind.

# 1 Introduction

Maritime transport is critical to the success of the Papua New Guinean (PNG) economy.

Asia-Pacific Economic Cooperation (APEC) has engaged Castalia to assess the structure and efficiency of the PNG ports sector. This report outlines our findings on the state of competition and efficiency in the PNG ports sector, and our final recommendations.

This report has four key components:

- First, we outline the purpose of this project and our progress to date
- Second, we provide an overview on the PNG ports sector. This overview includes our general understanding of the market structure, as well as the regulatory framework and issues
- Third, we conduct our benchmarking analysis and outline of key conclusions on the competition, efficiency and regulatory issues in the PNG ports sector
- Fourth, based on our conclusions from the benchmarking analysis, we recommend a series of practical measures to improve the regulation and efficiency of the PNG ports sector.

## **We have benchmarked the PNG ports sector against a structural and performance framework**

To diagnose any competition and efficiency issues, and to formulate recommendations, we have chosen to structurally benchmark the:

- Level of competition in the PNG ports sector
- Regulatory framework, as it relates to competition in the ports sector.

We have supported this structural analysis with available information on sector performance.

Our assessment of whether competition is occurring in PNG, to the extent that it practicably can, is structured into three benchmarking dimensions:

1. **Competition between ports:** this benchmark assesses competition between port facilities within PNG
2. **Competition within ports:** this benchmark assesses competition for various port services within major ports in PNG
3. **Competition for the market:** this benchmark assesses whether port operations or services are contracted out wherever possible and efficient through open competitive tenders.

If competition is less than practicable across any of these dimensions, then there are structural competition problems within the ports sector.

However, if competition is at or above the level of competition we would expect, then this would suggest that any inefficiencies in the sector may have other causes.

One such cause may be the operation of the regulatory framework. This framework is critical both for supporting competition, where competition is practicable, and for managing the negative effects of limited competition, where it is not. We examine the operation of the regulatory mechanism in detail.

Other causes of under-performance may include other aspects of government policy, including the operation of the customs service. Our benchmarking of competition and regulation may not capture all such causes of potential inefficiency in the PNG ports and maritime sector. Therefore, where we identify other material issues that may be affecting the performance of the ports sector, we have set these out at the end of the benchmarking analysis.

### **Our view is that the performance of the ports sector can be improved**

Based on our benchmarking analysis, we have identified possible defects in competition and regulation as well as other issues that may be adversely affecting the performance of the ports sector. To address the issues highlighted in Section 4 of this Report, we recommend:

- Action by the competition regulator to address the competition concerns raised in Section 4
- Reform of key regulatory frameworks to improve PNGPCL's accountability and the economic regulation framework
- Structural reform of PNGPCL, so that it can act as an enabler of greater competition across the ports sector.

Further investment in ports infrastructure is necessary to improve sector performance. Improvement in the regulatory framework and structural reform of PNGPCL would lay the foundation for such investment.

Our recommendations are detailed in Section 5. They include further targeted recommendations to address competition and regulatory concerns, and to improve the performance of the ports sector.

We expect the ICCC and other stakeholders will be able to use our findings and recommendations to develop a competition policy for PNG's ports sector.

## 2 Project Overview

PNG's Independent Consumer and Competition Commission (ICCC) and Department of Treasury (Treasury) are leading agencies on economic regulation and reform in PNG. Both agencies wish to promote policies and laws that support PNG's economic development. The ICCC is responsible for the economic regulation of the port industry. It wishes to further understand any barriers to participation in the industry, and limitations on the efficiency and reliability of supply of regulated ports services.<sup>1</sup>

Given the importance of the ports sector for economic growth, the ICCC has asked APEC for assistance in reviewing the competitiveness of the port industry.

APEC has, therefore, engaged Castalia to develop a "Diagnostic Report" on the port industry in PNG.

This Diagnostic Report assesses the market structure and any deficiencies, impediments, or structural issues that require improvement to increase economic benefits to PNG.

Castalia's approach to developing the Diagnostic Report (as set out in our original proposal) has been to:

- Identify and Gather Data (Task 1)
- Benchmark Port Performance (Task 2)
- Assess Competition and Policy Settings (Task 3)
- Develop and Consult on Recommendations (Task 4).

This Diagnostic Report outlines our preliminary conclusions from each task.

### 2.1 Progress to Date

Key project milestones to date have been:

- Project inception phone call with ICCC: 8 June 2016
- Formal contract signing: 9 June 2016
- Industry survey plan developed and information request provided to ICCC: 17 June 2016
- Information requests sent to port stakeholders: 14-18 July 2016
- Castalia visit and meetings with port stakeholders: 8-12 August 2016.
- Completion and submission of the Survey Completion Report on Competitiveness and Overall Market of the Port Industry in Papua New Guinea: 22 August 2016.
- Completion and submission of the Draft Diagnostic Report: 3 October, 2016.
- Castalia visit and meetings with PNG stakeholders on the Draft Diagnostic Report: 24-26 October 2016.

We are now at the final stage of the project. The Final Diagnostic Report builds on stakeholder feedback from our second round of consultation, including written submissions from stakeholders received through to early December 2016, and final comments made in January and February 2017. This report clearly establishes our

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<sup>1</sup> Regulated ports services include, Berthing, Berth Reservations, Wharfage, Stevedoring Access and a number of port services used in connection to these services.

recommendations; outlines our findings of each stage of our work on relative performance, competition, and policy settings; and suggests an implementation plan for making the proposed changes.

### 3 Overview of PNG Ports Sector

This section provides an overview of:

- Key terminology and concepts relating to the ports sector
- The structure of the PNG ports sector
- The regulatory framework governing the PNG ports sector.

Section 4 draws upon information outlined in this section to complete the benchmarking analysis.

#### 3.1 Ports Overview

Ports are infrastructure assets that can be organised in various ways. The ownership structure of ports and the services provided are often a feature of historical circumstances, characteristics of each individual port, the customers it serves, and its scale. The typical main parties and port features are:

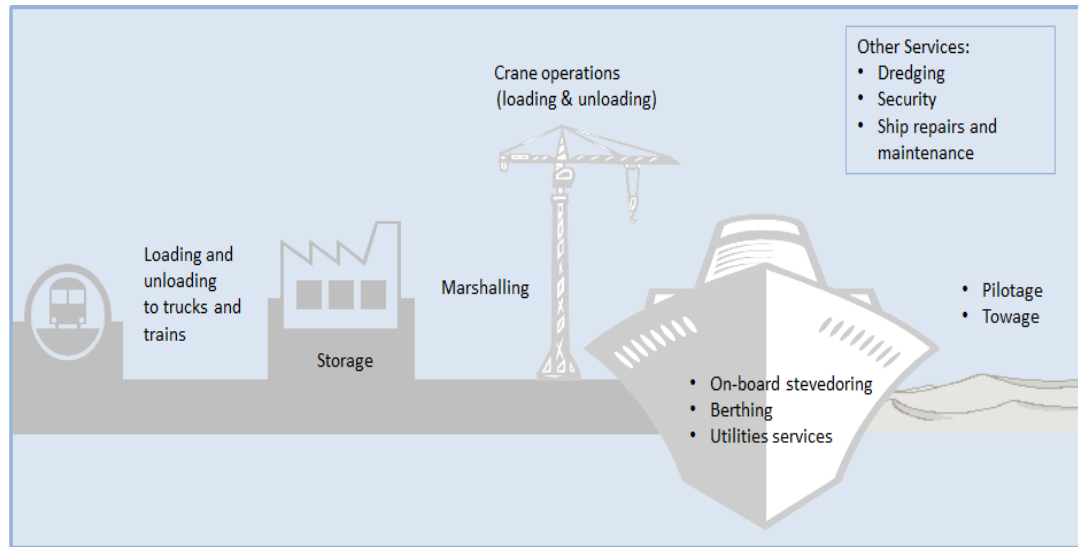
- **Port authority/landlord.** A port authority or landlord is the organisation responsible for the planning, authorisation, coordination, and control of services within the port. In some instances, it will also provide services. The port landlord is the entity that owns the land on which the port is constructed and will usually own the essential infrastructure (for example, the quays and breakwaters) as well. Typically, the port authority is also the port landlord, although the landlord may be a separate entity in the case of privatised ports.
- **Port infrastructure.** Infrastructure is necessary for any form of port activities. Infrastructure may include navigation aids, breakwaters, berths, wharves, cranes, storage and office areas, utility services, and internal roads and other transport connections. Operational and other infrastructure such as buildings may be owned and provided by the port landlord or by a different entity, typically under a long-term lease.
- **Port services.** To use a port, a range of intermediary services are often required, which can be provided by the port itself or by independent intermediary parties.

**Table 3.1: Examples of Key Port Services**

Services to the Ship	Services to Cargo
<ul style="list-style-type: none"> <li>▪ Pilotage (guided navigation through the harbour)</li> <li>▪ Towing</li> <li>▪ Dredging</li> <li>▪ Mooring</li> <li>▪ Supplies</li> <li>▪ Repairs</li> <li>▪ Cleaning / refuse collection</li> <li>▪ Security</li> </ul>	<ul style="list-style-type: none"> <li>▪ Stevedoring (cargo handling)</li> <li>▪ Marshalling (assembling cargo for loading, or landside pick-up)</li> <li>▪ Storage</li> <li>▪ Freezing (also known as reefer)</li> <li>▪ Security</li> </ul>

Source: Lourdes Trujillo and Gustavo Nombela. Privatisation and Regulation of the Seaport Industry.  
[http://documents.worldbank.org/curated/en/973281468740398501/104504322\\_20041117155008/additional/multi-page.pdf](http://documents.worldbank.org/curated/en/973281468740398501/104504322_20041117155008/additional/multi-page.pdf)

**Figure 3.1: Overview of Intra-Port Services**



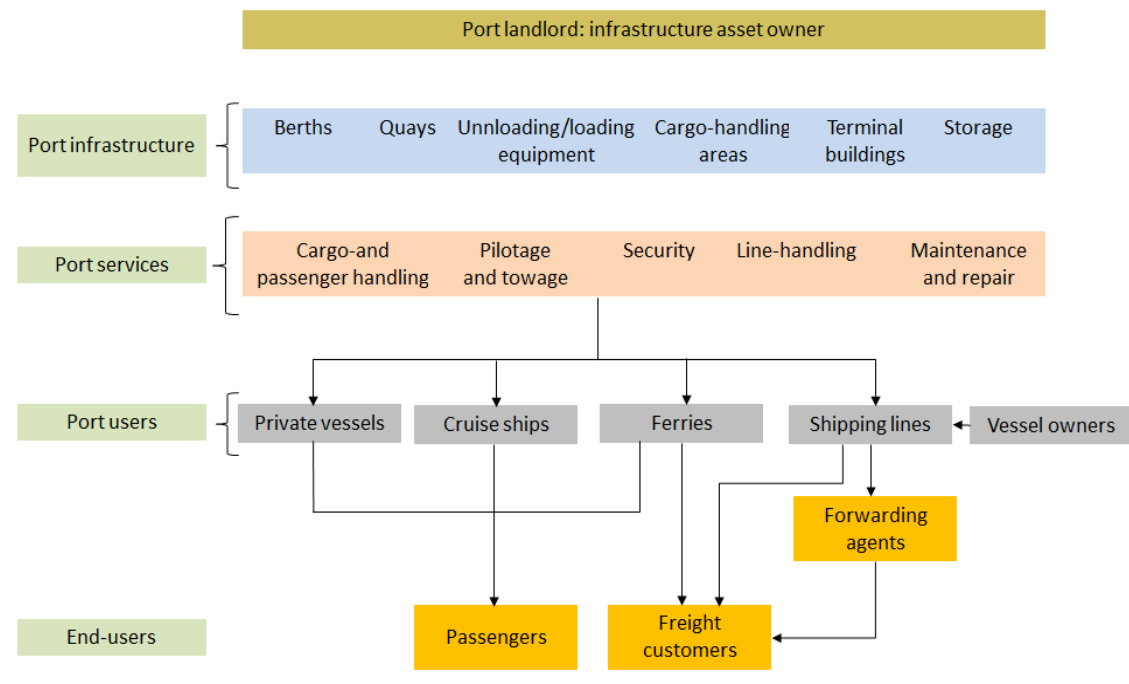
- **Port terminal.** A port terminal is a facility within the port that moves cargo off ships and then on to landside transport (and vice versa). A terminal facility can have multiple berths and may handle different types of cargo. The terminal may be operated by the port authority or landowner, or by a third-party under a concession arrangement.
- **Port users.** A wide range of customers make use of ports, including freight shippers, ferries, cruise ship operators, and private vessels.
- **End-customers.** The ultimate users of port services are passengers who have made a journey or freight customers who consume a good that has been shipped through a port.
- **Harbourmaster.** The harbourmaster is an officer who oversees vessel movements, safety, security, and environmental issues within a port.

In addition, there are three different classes of cargo that a port might handle:

- **Container.** Cargo carried in metal boxes, typically either 20 feet in length (TEU) or 40 feet.
- **Bulk.** Cargo moved in bulk quantities, which can include liquid bulk (such as petroleum-based products, chemicals, and edible oils) and dry bulk (including commodities such as sugar, forestry products, fertilizer and cement).<sup>2</sup>
- **Breakbulk.** Loose, non-containerised cargo stowed directly into a ship's hold, such as large construction equipment.

<sup>2</sup> Some bulk products can also be containerized.

**Figure 3.2: Port Sector Value Chain**



## 3.2 PNG Ports Sector Overview

The industry is dominated by certain key players, specifically PNGPCL for port operations and the Steamships group for stevedoring and towage. Further, ownership of many of the operations throughout PNG’s maritime sector ultimately links back to the Swire Group. However, there are several smaller operators, including private ports and coastal shipping companies. Ports and stevedoring form part of several vertically integrated businesses.<sup>3</sup>

### 3.2.1 PNG’s ports

We understand that close to 80 percent of PNG’s international and domestic cargo goes through PNGPCL owned ports (refer to Table 3.3: List of PNGPCL Ports and Cargo Volumes for a list of these ports).<sup>4</sup> However, there is some competition for coastal shipping between the major centres of Lae and POM, with private wharf facilities operating in POM (the Avenell Engineering Systems (AES) wharf) and Lae (the Bismark wharf). Several private ports handle specialist international cargo and commodity products.

Certain ports in PNG are ‘declared’ ports. Declaration serves two purposes. First, it allows PNGPCL to regulate safety across all port operations within a ‘declared’ port – even where the port facility is not owned by PNGPCL. For example, PNGPCL regulates safety for all users of Fairfax Harbour in POM, including the private ports in that harbour. Second, declaration also allows for the economic regulation of PNGPCL as part of the regulated essential port services industry (see Section 3.3).

<sup>3</sup> For example, the private ports at Lihir and Napa Napa are respectively integrated into a mining operation and refining operation. Bismark Maritime runs integrated stevedoring and coastal shipping operations from its private wharf facilities in Lae and POM, and Consort Shipping also has subsidiary stevedoring and storage services.

<sup>4</sup> Logistics Cluster. Papua New Guinea Port Assessment. March 2014. <http://dlca.logcluster.org/display/public/DLCA/2.1+Papua+New+Guinea+Port+Assessment>

### PNGPCL operates 16 ‘declared’ ports

PNGPCL owns twenty-two ‘declared’ ports, 16 of which are operational. These are PNG’s main ports, and handle containerised and breakbulk cargo as well as some passenger services.

**Figure 3.3: PNGPCL Ports**



Source: PNGPCL <http://www.pngports.com.pg/index.php/operations/port-information>

The ports of POM, Lae, and Kimbe are profitable, and Madang and Rabaul are breakeven. The remaining eleven ports are loss-making and are cross-subsidised from the three profitable operations. This policy is known as Community Service Obligations (CSO), and is required by direction from the National Executive Council (NEC) (which is the Cabinet). Infrastructure at small ports is said to be lacking. However, PNGPCL has projects under way to improve these facilities.<sup>5</sup> According to the Association of Licensed Stevedores, several of the smaller PNGPCL ports are currently being run by privately owned companies.

Lae and POM are PNG’s most significant ports. Neither port is equipped with fixed harbour cranes. However, we understand at POM there is one mobile harbour crane, and at Lae there are three. At POM there are also three rubber tyre gantries (for stacking and moving containers) and seven at Lae. Apparently, none of this equipment is in working order.

The POM port is transitioning to a new port at Motukea, POM. Coastal shipping has already moved to this new port, with the international terminal due for completion by October 2017. A major port extension has recently been completed in Lae (the Lae Tidal Basin), which is currently used by Consort Shipping. Phase 2 of the Tidal Basin is likely to go ahead in the near future subject to funding. PNGPCL is trying to find an international partner to operate concessions at these new facilities.

**Table 3.2: Contextual and Performance Data on PNGPCL Lae and POM Facilities**

Metric	Lae	POM
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<sup>5</sup> Oxford Business Group. New ports and upgrades boost Papua New Guinea's maritime trade potential. 2016. <https://www.oxfordbusinessgroup.com/analysis/turning-tide-new-ports-and-upgrades-are-boosting-maritime-trade-potential>



Total TEU 2015 (international and coastal)	193,656	79,111
Total coastal TEU	57,569	22,402
Bulk Cargo Revenue Tonnes 2015	3,705,278	1,473,805
Vessel calls 2015	1,073	1,471
Berthage (approx.)	400 metres	130 metres (Downtown) and 480 metres (Motukea)
Average vessel turnaround time	30 hours	16 hours
Lead time to export (approx.)	5 days	5 days
Truck turnaround time (approx.)	40 minutes	40 minutes

Source: Castalia Industry Survey and PNGPCL performance information supplied by the ICCC

PNGPCL provides and maintains berths, and provides harbour management services (such as dredging and navigation aids within ‘declared’ ports), security, berth reservation, stevedore licensing, non-exclusive pilotage, storage space, and utilities. Other operational services are provided by stevedore companies. About 60 percent of PNGPCL’s revenue comes from regulated ‘essential services’, which includes berthage, wharfage, berth reservation, and stevedoring access. The balance of its revenue comes from pilotage and utilities charges, labour pool charges, and some storage and leasing charges.

PNGPCL is a State-Owned Enterprise (SOE), owned and supervised by Kumul Consolidated Holdings Limited (KCH), but with accountabilities directly to the NEC (which approves PNGPCL’s annual budgets and investment plans). PNGPCL faces difficult operational challenges. It is expected to pay a dividend to the Government, as well as provide CSOs set by the Government and operate within the price path and service standards set by the ICCC for essential port services.

Historically, PNGPCL’s port charges appear to have been some of the most competitive in the Pacific Islands, as 2007 data in Figure 3.4 below suggests. Industry participants have stated that PNGPCL’s port charges are still comparatively reasonable, despite substantial price increases. Price increases since 2010 have been well above inflation, on the back of a major capital expenditure programme. In the 2010 to 2014 regulatory period Tier 1 prices were increased at a rate of 10 percent per year and Tier 2 prices were increased at 20 percent per year.<sup>6</sup> Over that period, inflation averaged around five percent.<sup>7</sup>

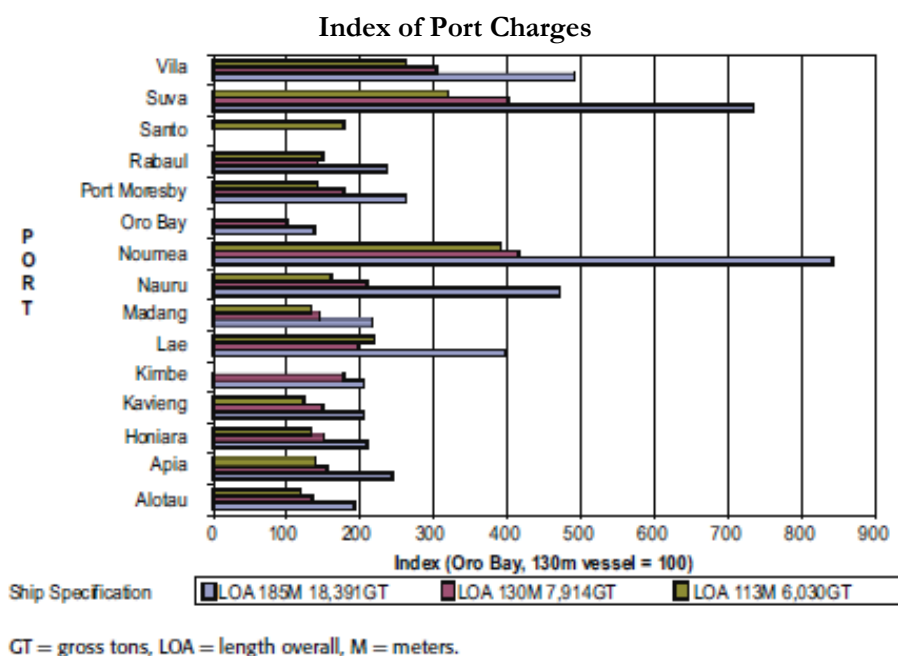
Our stakeholder engagement indicated that there was room to improve PNGPCL’s performance. One shipping line did comment that it was broadly satisfied with the service provided by PNGPCL. . While PNGPCL has made improvements to certain ports, we understand that infrastructure at many ports is still in poor condition. PNGPCL has also invested in expensive cargo handling equipment that has hardly been used. Queries were also received around whether it would have been more effective for PNGPCL to have

<sup>6</sup> See ICCC. Review of the PNG Ports Regulatory Contract: Final Report. 10 March 2015, at [11.6].

<sup>7</sup> World Bank. 2016. World Bank Open Data: Papua New Guinea; Inflation. <http://data.worldbank.org/indicator/FP.CPI.TOTL.ZG?end=2015&locations=PG&start=2010>.

undertaken more modest improvements to existing port infrastructure, rather than investing in entirely new facilities at Lae and POM.

**Figure 3.4: Comparison of Port Charges in the Pacific**



Source: ADB. Oceanic Voyages: Shipping in the Pacific. 2007

PNGPCL expressed a view that because of the private ports and facilities operating at Lae and POM (discussed below) it faced competition at both those ports. PNGPCL, therefore, believes that the framework for its economic regulation should shift to a more light-handed approach.

PNGPCL also has delegated regulatory functions from the Department of Transport (discussed in Section 3.3). PNG Harbours Management Services is the PNGPCL division responsible for carrying on these regulatory functions.

**Table 3.3: List of PNGPCL Ports and Cargo Volumes**

PNG Port Location	TEU Volumes 2015 (percentage)	Bulk Cargo Revenue Tonnes 2015 (percentage)
Lae	193,656 (55)	3,705,278 (51)
POM	79,111 (23)	1,473,805 (20)
Kimbe	12,091 (3)	535,715 (7)
Rabaul	18,702 (5)	419,043 (6)
Madang	10,899 (3)	261,890 (4)
Wewak	8,850 (3)	182,304 (2)
Alotau	5,974 (2)	171,193 (2)
Oro Bay	5,842 (2)	193,804 (3)
Buka	6,637 (2)	62,396 (1)
Kieta	3,058 (1)	59,492 (1)

Kavieng	3,717 (1)	72,080 (1)
Vanimo	1,301 (0)	80,702 (1)
Lorengau	1,413 (0)	60,683 (1)
Daru	0 (0)	18,943 (0)
Aitape	0 (0)	1,263 (0)
Samarai*	0 (0)	0 (0)

Note: \*This port is operated under an agency agreement

### Private facilities within PNGPCL Ports

There are several ‘private facilities’ within PNGPCL’s ports, such as independently operated wharfs (at Madang, POM, and Lae). These facilities can be distinguished from PNG’s standalone private ports (see Table 3.4), several of which also operate within the same ‘declared’ areas as PNGPCL ports.

### Private ports in PNG are focused around extractive industries

There are also numerous private ports throughout PNG, principally focussed around an extractive industry and integrated into a specific company’s operations (although we understand several receive general cargo as well).

There are private ports within the ‘declared’ port of POM. The Napa Napa Port is owned and operated by Puma Energy, and supplies crude oil to PNG’s only refinery. Fuel is distributed from this port to 17 terminals located in PNGPCL ports throughout the economy. The AES private port is also located within the declared POM area. It moves coastal and project cargo and has a lot of warehousing but is limited by a draught of 6 metres. We understand that, with dredging, the AES port could increasingly compete with the new PNGPCL facility at Motukea for international cargo. Indeed, AES has indicated expansion plans.<sup>8</sup> A private operator; Curtain Brothers, also retains ownership of the slipway at the Motukea Port and handles specialist project cargo.

There is some ambiguity over the relationship between PNGPCL and private ports within a ‘declared’ port area. These ports appear to be fully autonomous operations, sharing the same harbour as a PNGPCL port. However, where the whole harbour is a ‘declared’ port, PNGPCL is currently responsible for harbour safety and management across both PNGPCL and private operations. Puma Energy stated that their operations they were fully autonomous from PNGPCL. It has recently upgraded their facilities so they can handle Suezmax ships. Puma is currently investigating whether these ships could safely pass into the harbour, which would potentially require navigation lights to be installed. There is currently a disagreement around whether PNGPCL or Puma Energy had to pay for these lights, even though navigation aids are the responsibility of PNGPCL within the ‘declared’ harbour. PNGPCL had suggested that the earliest it would install lights would be in 5 years’ time.<sup>9</sup>

The inland river port at Kiunga was mentioned by several stakeholders. The port was originally built for mining, but now accepts general cargo at one berth (although ownership

<sup>8</sup> AES. Presentation: AES Industrial Park & Port. 9-10 September 2014. <http://www.pngadvantageconference.com/wp-content/uploads/2014/09/Ravuvu.pdf>

<sup>9</sup> Possible solutions to these coordination issues within declared port areas include adoption of a ports management policy by the government, and a memorandum of understanding between the NMSA and port operators regarding the construction of navigation infrastructure. Our recommendations are further outlined in Section 5.

is claimed by both Steamships and the North Fly River Development Corporation). Ok Tedi mining also operates a berth, and a third berth is currently being built by Curtain Brothers. Kiunga receives international cargo on vessels direct from Townsville. This port is not 'declared'.

Two private ports (Lihir and Misima) have been 'declared' by the Government, and are therefore subject to safety oversight by PNGPCL's harbour management division. It is unclear whether Misima is operational. It is not in the Department of Transport's (DoT) list of private ports.

**Table 3.4: List of Privately Run Ports and Wharves**

<b>Private Run Port Location</b>	<b>Owner/ Operator (s)</b>
Bialla (West New Britain Province)	Hargy Oil Palm Limited (private port)
Kiunga (Western Province)	Ok Tedi Mine Limited (private berth), ownership of second berth in dispute between Steamships and the North Fly River Development Corporation, and third berth under construction by Curtain Bros
Motukea – POM (NCD)	Curtain Bros (private slipway)
Roku - POM (NCD)	AES (private port)
Napa Napa – POM (NCD)	Puma Energy (private port)
Kimbe (West New Britain Province)	Stetting Bay Lumber (private port)
Kumul Marine Terminal (Gulf of Papua)	Oil Search (private port)
Lea Lea (NCD)	Exxon Mobil (private port)
Alotau (Milne Bay Province)	Alotau Government (private wharf)
Vanimo (Sandaun Province)	Vanimo Forest Products Ltd (private port)
Lihir (New Ireland Province)	Newcrest Mining Ltd (private port)
Lae (Morobe Province)	Bismark Maritime (private wharf), Frabelle Fishing Corporation (private wharf) and PNG Taiheiyō Cement Ltd (private wharf)*
Marengo (Madang Province)	Marengo Mining (PNG) Limited (private port)
Basamuk (Madang Province)	Ramu Nickel Management (NCC) Ltd (private port)
Madang (Madang Province)	Madang Timbers Limited (private wharf), Jants P/L Madang (private wharf) and RD Tuna Cannery Limited (private wharf)*
Rabaul (East New Britain Province)	Coconut Products Taboi Oil Mill (private port)

Note: \*These wharves are located within PNGPCL declared ports.

### **There are a great number of locally-owned and maintained smaller ports**

We understand that over 200 smaller wharves and jetties are owned and maintained by provincial and local governments, however the overall state of this infrastructure is said to be poor as well.

### 3.2.2 Stevedores

Stevedores manage cargo logistics and handling at PNGPCL’s ports. The stevedores are contracted by the shipping lines. Stevedoring charges are no longer monitored by the ICCC. PNGPCL grants licences and access agreements to stevedores at its ports. Several stakeholders we interviewed noted that, until recently, the stevedore licence was sufficient for port access, but we understand that a separate port access agreement is now increasingly required. However, a stakeholder stated that there was high degree of market concentration with anti-competitive implications. PNGPCL submitted that these access agreements have been in place for many years, and govern health and safety as well as insurance and solvency requirements for stevedores.

In Lae there are three major stevedoring operations: Riback (51 percent landowner shareholders, 49 percent Consort owned), Lae Port Services (part of JV Stevedoring), and United Stevedores. Riback has a 45 percent share of the international cargo at Lae, and Lae Port Services has 55 percent. Bismark Maritime also provides stevedoring for coastal shipping at Lae and POM, as does United Stevedores. Several landowners in Lae also hold stevedoring licences, but are not actively stevedoring. The reason for landowners obtaining stevedoring licences while not operating as stevedores is unclear but may be a strategic move so that they can protect their respective shareholding in the existing joint venture companies.

United Stevedores and a sister company of Port Services are the two major participants in the POM market. Bismark Maritime also provides stevedoring services in POM. However, we understand the PNGPCL has refused to grant Port Services an access agreement for Motukea, meaning there is only one stevedore operating at the new port in POM. This may be the case for the Lae Tidal Basin as well.

Port Services forms part of the Steamships group of stevedoring companies, JV Stevedoring. The Steamships group is 70 percent owned by Swires. Each JV Stevedoring company at each port is a joint venture with local landowners (51 percent steamships, 49 percent landowners), with operations at Port Moresby, Madang, Kavieng, Kiunga, Oro Bay, Kimbe, and Alotau. At some of these ports, the JV Stevedoring companies are the only provider. Steamships also owns a complementary landside logistics company operating throughout PNG called East West Transport.

Stevedoring equipment is understood to be of good quality, but at the smaller end of the scale. Further, we understand that at the smaller PNGPCL ports, the cargo throughput does not commercially justify the stevedoring equipment that is, in fact, available. Permanent staff have to be employed at these ports, even when work is sporadic. JV Stevedoring relies on its operations at larger ports to support the viability of operations at smaller ports. In addition, some of the stevedoring companies perform minor repairs and maintenance themselves at PNGPCL ports to protect their equipment from wear.

At the smaller outer ports, local businesses provide stevedoring services on an ad-hoc basis. Vertically integrated private ports would provide stevedoring as an internal business unit.

**Table 3.5: Known Stevedore Operations in PNG**

Port	Companies
Lae	JV Stevedoring (Lae Port Services) Riback United Stevedores Bismark Maritime (private wharf)

POM	JV Stevedoring United Stevedores Bismark Maritime (it is presumed that Bismark stevedores the AES wharf)
Madang	JV Stevedoring Bismark Maritime
Alotau	JV Stevedoring Palm Stevedoring & Transport Ltd
Rabaul	ENB Port Services Pty Ltd Islands Cargo Services Pty Ltd (Century Shipping)
Kavieng	JV Stevedoring
Kimbe	JV Stevedoring New Britain Shipping Ltd
Kiunga	JV Stevedoring
Wewak	Sepik Coastal Agency
Oro Bay	JV Stevedoring
Lorengau	RK & VJ Knight Shipping Agencies Ltd
Vanimo	Vanimo Agencies & Stevedoring Pty Ltd

Source: Best available information from Castalia's PNG mission and the PNGPCL website

### 3.2.3 Pilotage services

PNGPCL is the dominant provider of pilotage services. Historically, PNGPCL was the sole provider of pilotage services at declared ports. However, pilotage services have recently been liberalised, which has seen around three operations break away from PNGPCL. The private port at Lihir has its own pilot.

Swire Shipping confirmed that liberalised pilotage arrangements had allowed them to negotiate a new deal for pilotage services with PNGPCL, reducing their costs.

Private pilots are required to be examined and qualified to the same level as PNGPCL pilots. A committee composed of National Maritime Safety Authority (NMSA) and industry representatives administers licensing. However, PNGPCL submits that oversight of the pilotage industry may be lacking.

### 3.2.4 Towage services

Towage services are licensed by PNGPCL and the main provider of towage services is the Steamship's subsidiary Pacific Towing, which operates at POM, Lae, Madang, Kimbe and Rabaul. However, there are a variety of other providers, including Islands Salvage & Towage, which operates at Rabaul, and Pacific Development Contractors, which operates in Biella, Kimbe, Lae and services Alotau and Oro. Several shipping lines, including Bismark Maritime and Consort Shipping, also own and operate their own tugs.

### 3.2.5 Mooring

Mooring (line handling) services are also licensed by PNGPCL. They appear to be supplied by a mixture of towage providers and specialist mooring providers.

**Table 3.6: Known Mooring Operations in PNG**

Port	Companies
Lae	Pacific Towing Limited Madang Mooring
POM	Pacific Towing Limited
Madang	JV Stevedoring Bismark Maritime
Rabaul	Pacific Towing Limited
Kavieng	JV Stevedoring
Kimbe	JV Stevedoring New Britain Shipping Ltd
Oro Bay	Biyama Mooring Services Saugo & Sons

Source: Pacific Towing (PNG) Limited

### 3.2.6 Repairs

Curtain Brothers operates a dry dock facility at Motukea in POM. This facility was constructed relatively recently.

### 3.2.7 Storage

Storage is provided free at PNGPCL facilities for 5 days for international and domestic cargo, both arriving and outgoing.<sup>10</sup> After 5 days, storage begins to attract charges. Some shipping lines, logistics companies, and stevedores provide onsite storage, and offsite and bonded storage at Lae and POM. The new terminals at Lae and Motukea have greatly expanded onsite container storage capacity.

**Table 3.7: Storage Providers at Lae and POM**

POM	Lae
<ul style="list-style-type: none"> <li>▪ PNGPCL</li> <li>▪ East West Transport (bonded)</li> <li>▪ Express Freight Management (bonded)</li> <li>▪ Welink (bonded)</li> <li>▪ Hi Lift Inscape (bonded)</li> <li>▪ GFS SP Brewery</li> </ul>	<ul style="list-style-type: none"> <li>▪ PNGPCL</li> <li>▪ Express Freight Management (bonded)</li> <li>▪ Consort (bonded)</li> <li>▪ Riback (bonded)</li> <li>▪ Trukai</li> <li>▪ Ela Motors, Goodman Fielder, Coke</li> </ul>

Source: ICCG “PNG Ports Corporation Limited – Midterm Review of Competition: Final Report and Findings” (August, 2012) at 57

### 3.2.8 Shipping lines

The shipping lines are the key customers for the ports. Wharfage, berthage, pilotage, and stevedoring charges are paid by the shipping lines and passed through to their customers.

<sup>10</sup> PNGPCL. Schedule of 2016 Essential Ports Services Tariffs. 2016. <http://www.pngports.com.pg/docs/tariff/2016/Schedule-of-2016-Essential-Port%20Services-Tariffs.pdf>

The major international shipping lines include Swire, Maersk, Sofrana, Mariana Shipping and ANL, which transit ports in PNG. Carpenters Shipping also ships between PNG and Asia. International freight prices are significantly higher than those for Australia. PNG's cabotage system generally prevents these lines from engaging in coastal shipping, although there are exceptions. Stakeholders we spoke to doubted that PNG's geographic location and TEU throughput would justify an international transshipment hub at either of Port Moresby or Lae.

Key players in the coastal shipping market include Consort (which also ships to Townsville, Australia) and Bismark Maritime. Consort's services are more comprehensive, with Bismark choosing to compete on routes between significant centres. Most of the vessel fleets can operate with the limited infrastructure available, with their own crane equipment (geared ships). One stakeholder noted that most geared ships arriving in PNG are modern, large vessels with high capacity on deck cranes. We understand that the ICCC is considering a review into competition in the coastal shipping industry in 2018.

Servicing PNG's smaller ports is expensive for the shipping lines, with low cargo volumes and high fuel usage from calling into multiple ports. Some ports only received around 30 TEUs in any shipment, when 100 TEUs would be closer to viability.

### 3.3 Regulatory Framework Overview

The regulatory environment is also critical to the successful operation of the PNG ports sector and, therefore, our benchmarking analysis. This subsection outlines:

- Key legislation
- Key regulatory participants
- Key regulatory issues and developments.

#### 3.3.1 Key legislation

The critical legislation governing commerce in the ports sector are the:

- **ICCC Act 2002**, which gives the ICCC the power to regulate monopolies and prevent anti-competitive conduct, otherwise known as economic regulation. Box 3.1 below provides a high-level overview of economic regulation under the ICCC Act.
- **Harbours Act 1963 and Harbours Amendment Act 2002**, which govern port operations throughout PNG. Under the Harbours Act, 'regulated entities' providing 'essential port services' at 'declared' ports need to be licenced.

The Harbours Act also defines the regulated 'essential port services industry' for the purposes of the ICCC Act.<sup>11</sup> An essential port service effectively means providing port facilities for unloading or loading vessels at a 'declared' port, or providing berths and berth reservation systems at a 'declared' port.<sup>12</sup>

- **Prices Regulation Act**, which allows the ICCC to monitor and set prices for certain goods and services. Stevedore prices are monitored through this Act. However, we understand this legislation is currently being tested before the courts. Consequently, the current review into the stevedoring and handling sector is on hold. Therefore, the ICCC is currently unable to monitor stevedoring prices until this legal dispute is resolved.

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<sup>11</sup> Harbours Act, s 25A.

<sup>12</sup> Harbours Act, s 1 Interpretation.



### **Box 3.1: Economic Regulation Under the ICCC Act**

The ICCC Act is PNG's key competition and economic regulation legislation.

#### **Price-Quality Control**

Under Part III of the Act, either the Minister for Treasury or the ICCC can declare an entity to be a 'regulated entity'. The Minister or the ICCC may also declare goods or services supplied by the entity to be 'regulated' goods or services.

The main threshold for Ministerial declaration is that the entity:

- Is in a 'regulated industry',
- Is an SOE (or recently was an SOE or has assets transferred to it by an SOE).

When declaring an entity to be regulated, the Minister can also declare certain goods and services supplied by that entity to be 'regulated' goods and services.

The main threshold for ICCC declaration is that the entity:

- Is in a 'regulated industry',
- Has a substantial degree of market power,

And declaration meets the objectives of the ICCC.

An example of a regulated industry is the essential ports services industry, declared under the Harbours Act.

Where an entity has already been declared 'regulated', the ICCC can also declare additional good and services provided by that entity to be 'regulated' where the market power test is met.

Once an entity has been declared it must enter into a 'regulatory contract' with either the Minister or the ICCC (whoever 'declared' the entity). This contract must:

- Have a term not exceeding 10 years,
- Regulate the supply prices,
- Specify the service standards and penalties that apply if their service standards are not met,
- Specify pricing policies and principles to be adopted in a subsequent regulatory contract, and

The Act specifies a process for determining contracts, and provides for an appeals process.

#### **Anti-Competitive Conduct**

Under Part VI of the ICCC Act contains broad prohibitions on anti-competitive conduct. In particular, section 58 prohibits a person that has a substantial degree of market power from taking advantage of that market power for the purpose of restricting entry into a market, or for preventing and deterring competitive conduct in that market.

It has been suggested that section 58 could be used to ensure third party access to monopoly facilities on competitive terms. However, it has never used for this purpose before in PNG.<sup>13</sup> The CCFR 'Second Issues Paper' has also noted the difficulty in applying abuse of market power tests.<sup>14</sup>

Sources: ICCC Act and ICCC. A Short Summary of the ICCC Act. 4 March 2014.

[http://www.iccc.gov.pg/images/Short\\_Summary\\_Of\\_the\\_ICCC\\_Act.pdf](http://www.iccc.gov.pg/images/Short_Summary_Of_the_ICCC_Act.pdf)

<sup>13</sup> Consumer and Competition Framework Review. Issues Paper 2: Competitive Markets and Fair Trading. March 2016. [media.wix.com/ugd/43809e\\_f0cd499f2a4040f6b280f71cd82bc3b9.pdf](http://media.wix.com/ugd/43809e_f0cd499f2a4040f6b280f71cd82bc3b9.pdf) at 33.

<sup>14</sup> Ibid, at 12.

PNGPCL was ‘declared’ a ‘regulated entity’ under the ICCC Act under a 2002 Ministerial Declaration. Under this declaration, stevedoring access and the following ‘essential port services’ were declared to be ‘regulated’:<sup>15</sup>

- Berth Reservation Services
- Berthing Services
- Wharfage.

Under this framework, the ICCC and PNGPCL have entered into a regulatory contract that sets PNGPCL’s price-path and service standard expectations. The current regulatory contract commenced on 2015 and is set to expire by 2019. Under the contract, PNGPCL is also required to set stevedore access fees on a reasonable and fair basis. PNGPCL also provides services that are not regulated, such as storage, and these services fall outside the regulatory contract.

### 3.3.2 Key regulatory participants

The main regulatory stakeholders we have identified are:

- **The NEC**, which sets government policy and strategy, and appears to give directions to SOEs
- **The Treasury**, which is the Government’s lead advisor on economic strategy and competition policy. The Treasury is currently conducting the Consumer and Competition Framework Review (CCFR) (outlined below) and is spearheading reform of CSO policy (also outlined below)
- **KCH**, which owns all SOEs, monitors performance and manages major capital projects on behalf of SOEs
- **ICCC**, which is PNG’s economic and competition regulator and is a key stakeholder for the CCFR Review
- **Department of Public Enterprise and State Investment**, which advises the Minister of SOEs on SOE strategy and policy
- **DoT**, which is the Government’s primary transport policy and strategy. The Department also approves and supervises private port operations outside of declared ports, and manages International Ship and Port Facility Security Code (ISPS) compliance across all ISPS ports in PNG
- **PNGPCL**, through its Harbour Management Services Limited division. PNGPCL has been delegated certain regulatory roles under the Harbours Act by the DoT, including supervising compliance with the provisions of the Harbours Act for all ‘declared ports’ and managing those harbours. We also understand that PNGPCL approves all new wharf infrastructure in PNG
- **NMSA**, which regulates ship safety nationwide and maritime safety outside of ‘declared’ ports and licences (including the provision of navigation aids, which is contracted to private party under a PPP arrangement)
- **PNG Customs**, which provides border protection and trade facilitation services, and collects duties and taxes

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<sup>15</sup> ICCC. Regulated Industries: Ports. <http://www.iccc.gov.pg/index.php/regulated-industries/ports>.

- **National Agriculture Quarantine and Inspection Authority (NAQIA)**, which monitors biosecurity at ports
- **Department of National Planning and Monitoring**, which sets strategic direction for government investment
- **Conservation and Environment Protection Authority**, which issues permits for activities that modify the environment
- **Provincial Governments**, which own and operate numerous small wharves and jetties, and invest in transport infrastructure. We understand that provincial governments also have maritime safety responsibilities for smaller boat operators, and approve private port developments in their provinces.

### **3.3.3 Key regulatory issues and developments**

This section outlines the key relevant regulatory issues and developments that we identified in our Post-Survey Port.

#### **Regulation of port operations is divided amongst multiple organisations**

There are different areas of responsibility for ports regulation. The line of demarcation between port management and oversight is both complex and sometimes ambiguous.

At a national level, PNGPCL is responsible for Government-owned infrastructure and harbour management at ‘declared’ ports. PNGPCL also approves the design of proposed private ports. In contrast, provincial governments are typically responsible for regulating private ports and smaller jetties and wharves, with the DoT also playing a role. Moreover, International Ship and Port Facility Security Code (ISPS) compliance is currently the DoT’s responsibility. Several private ports qualify as ISPS ports in addition to PNGPCL ports. In addition, there are private facilities operating within declared PNGPCL ports.

The DoT believes that PNGPCL’s regulatory role creates issues. They suggest PNGPCL has an advantage over its competitors, due to its regulatory responsibilities. In addition, PNGPCL is responsible for regulating itself. Stevedores and private facility owners have to supply PNGPCL with information about their activities within declared ports. According to the DoT, this may make those parties reluctant to fully cooperate with the regulator, as the regulator, PNGPCL, is also a potential competitor.

The National Transport Strategy identifies the need for institutional reform in the ports sector and revision of relevant legislation (possibly into separate Ports Operation and Safety Acts). A key priority is the need to separate the regulatory functions that have been delegated to PNGPCL by the Secretary of Transport into a different entity. The SOE Department itself believed that it could eventually functionally separate PNGPCL if the DoT was unable to progress its reform agenda.

There is an on-going reform process to concentrate several regulatory functions in the NMSA. We understand reform of pilot licensing and regulation has already taken place, and responsibility for ISPS compliance would be transferred to the NMSA by 2018/19 from the DoT.

#### **The ICCC regulatory framework is under review**

The on-going Consumer and Competition Framework Review (CCFR) is examining the ICCC Act 2002, including the current economic regulatory settings for ports and general competition law. The Treasury noted that it was awaiting an imminent report as part of the review, which will contain recommendations for reform. The Treasury has encouraged us to review the CCFR material. PNGPCL suggested we review its detailed submission to

the Treasury. However, we have not been able to access PNGPCL's submission given possible confidentiality issues.

The ICCC expressed concern that its regulatory powers were too constrained. The ICCC wants to open the scope of regulatory oversight to include private ports. The ICCC has received several complaints about high prices at the private inland Kiunga port, but has been powerless to act. The definition of 'essential port services industry' in the Harbours Act appears to constrain economic regulation under the ICCC Act to 'declared ports'. Most private ports have not been declared under the Harbours Act.

The ICCC has encountered difficulty in expanding regulation to services supplied by other private port operators. Section 33 of the ICCC Act would appear to allow for the ICCC to declare additional services to be 'regulated' services, provided the statutory requirements are met. However, in the view of the ICCC, the interactions between the definition of 'essential port services industry' in the Harbours Act and section 33 of the ICCC Act makes it difficult to declare any further port services. The CCFR 'Third Issues Paper' has noted that the difficulties encountered by the ICCC around declaring additional services:

*... raises the issue of whether the process by which services are declared allows appropriate scope for the ICCC to target service regulation to areas of significant market power, while also providing PNG Ports with regulatory certainty and sufficient opportunity to make submissions and challenge the decisions of the ICCC.<sup>16</sup>*

The ICCC's ability to supervise terminal concession arrangements between PNGPCL and private operators is also unclear. PNGPCL has indicated that the ICCC will be consulted as and when necessary, most likely towards the end of negotiation process. However, there is a risk that such "last minute" consultations may increase regulatory risk. In principle, the ICCC has three broad ways in which it may address any competition or regulatory concerns arising out of the terminal concession agreements:

- It may regulate the concession holder directly after the concession contract is signed. However, it may be difficult to apply the mechanisms under the existing framework to the terminal concession holder, and it is likely that it might require changes to the Harbours Act or the creation of a third-party access code to be formulated under the ICCC Act. Moreover, since the concession contract will already be in place, *ex post* regulation of the concession holder may lead to a conflict between regulation and the contract.
- It may continue to regulate PNGPCL and treat the terminal concession contract as being an input into PNGPCL's performance of its regulatory obligations. In this case, if the contract creates competition concerns, PNGPCL will be responsible for addressing them. For example, if PNGPCL is subject to a third-party access framework, it would be accountable for any restrictions on access that may be imposed by the terminal concession holder. However, such an approach could be difficult to enforce.
- Finally, it is possible to treat concession contracts obtained through competitive procurement as a form of economic regulation in itself. In this instance, the terms of contract and the procurement process both matter, since once the contract is locked in it would override any other regulations and serve as the regulatory instrument. PNGPCL indicated that the procurement process was competitive. However, the government also needs to be satisfied that the

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<sup>16</sup> CCFR. Issues Paper 3. Industry Regulation and Price Oversight. March 2016. [media.wix.com/ugd/43809e\\_46267e8ef23048a98a3151e7ef346135.pdf](https://media.wix.com/ugd/43809e_46267e8ef23048a98a3151e7ef346135.pdf) at 14.

concession contract delivers on the objectives of economic efficiency and realising the benefits of competition where competition is possible.

**There is consensus that Community Service Obligations (CSOs) are problematic**

A key concern raised by government stakeholders and PNGPCL during our stakeholder engagement was the impact of the CSO obligations on PNGPCL's operational efficiency and pricing. There is recognition that significant cross-subsidies were compromising the effectiveness of PNGPCL's business.

Steps are being taken to address the issues posed by CSOs. Recently, the Government had approved a new CSO policy, which is to be piloted with the National Airport Corporation. The Treasury confirmed that the long-term goal is for the Government to directly fund CSOs, rather than rely on cross-subsidisation within SOEs (as occurs currently within PNGPCL). The impact of CSOs is also being addressed by the CCF Review, particularly its effect on SOE's operational efficiencies. One stakeholder noted that the operation of the CSO ports helped support the viability of PNGPCL's business at the more profitable ports.

## 4 Benchmarking Analysis

In this section, we conduct the benchmarking analysis of the level of competition in PNG's ports sector. This analysis has structural and performance dimensions.

At a structural level, we benchmark the PNG ports sector to see if:

- Competition is occurring where one would expect it to occur, given structural limitations, such as geography and scale.
- The regulatory framework is appropriately encouraging competition, or managing the effects of limited competition.

We also use available information on the performance of industry participants and the regulatory framework to help gauge whether the sector meets the structural benchmarks.

In addition, we outline other material information on sector performance to build a more complete picture of how well the sector is operating, and to help identify the source of any inefficiencies in the sector.

Altogether, this approach aligns with our methodology for assessing competition and policy settings in our Request for Proposal (RFP) Response. Our methodology is further described in Section 4.1.

Where competition and the regulatory framework depart from our benchmarks, we use this information to develop our recommendations in Section 5. These recommendations are based on measures that will improve incentives on industry participants to enhance the efficiency of the PNG ports sector for the long-term benefit of consumers.

### 4.1 Benchmarking Methodology

Our benchmarking analysis has three core components:

1. Structural analysis of the level of competition in the PNG ports sector
2. Structural analysis of the regulatory framework
3. Performance analysis of the PNG ports sector as a whole.

#### **First, we conduct a structural analysis of competition in the PNG ports sector**

This analysis asks if competition is taking place, to the extent practicable in PNG, given scale and geographic limitations? We have benchmarked competition across three dimensions:

- **Competition between ports.** This dimension assesses whether ports compete, or could possibly compete, with each other for the same types of cargo and vessels.
- **Competition within ports.** This dimension assesses whether there is competition within the ports themselves (intra-port competition) to provide key port services, such as cargo handling. Even if there is lack of competition between ports, introducing competition within the port can help drive efficiencies. We examine whether this competition is occurring to the extent that should occur in the circumstances of PNG, such as low cargo volumes.
- **Competition *for* the ports market.** This dimension assesses whether the effect of competition is replicated through regular tendering to provide the service. This dimension is particularly relevant where there is lack of competition between ports or between intra-port services. We, therefore, examine if this

form of competition is being used where possible in PNG, and if it is being used effectively.

### **Second, we conduct a structural analysis of the regulatory framework**

Given the state of competition across the ports sector, we then assess whether the regulatory regime is fit for purpose. This analysis involves evaluating whether the regulatory framework:

- Supports competition, where competition is possible
- Effectively prevents abuse of market power, where competition is not possible.

This analysis will put particular emphasis on the economic regulation framework. Ports often have natural monopoly characteristics requiring regulatory intervention to prevent monopoly pricing, and encourage to service quality.

### **Third, we overlay our structural benchmarking with available information on the performance of the PNG ports sector**

Where we have additional information on the operational and regulatory performance of the ports sector, we have included this information in our benchmarking analysis. This information may explain certain performance deficiencies. Conversely, it may confirm that the existing level of competition is working effectively.

### **Our analysis presumes that competition will best promote efficient pricing and service quality**

Our benchmarking analysis is based on the presumption that competition, or the threat of competition, for a service will lead to efficient pricing and performance by the competing service providers. Competition drives innovation and discourages inefficiently high pricing.

Given the lack of data on port performance, we are relying on this presumption as a measure of whether the PNG ports sector is operating as effectively as possible. However, where possible, we have used the performance and pricing information we have available to evaluate whether the particular port or port service is operating effectively under current arrangements.

The World Bank has outlined three dimensions of competition involving port services, which are captured within our methodology:

1. **Inter-port competition**, which arises when two or more ports compete for the same cargo.
2. **Intra-port competition**, which refers to a situation where two or more service providers compete within the same port area. This competition could take place at various levels within the ports value chain. For example, competition could be between two terminals within a port, or between stevedores within one terminal.
3. **Intra-terminal competition**, which refers to two or more (usually stevedoring, but could include other port services) companies competing within the same terminal. According to the World Bank, this situation is rare and usually only exists within small ports operating under the service port model with independent stevedores.

To form a view on the level of competition in a particular market, we will use available evidence on the number of participants, their market share, barriers to entry and any countervailing power from consumers.

To form a view on the structural limitations of the market, we will use available evidence and theory on the impact of geography and scale on the economics of the port industry.

### **There is no ‘one size fits all’ model**

What may be a widely used international model for port organisation, may not be appropriate or realistic for the circumstances of PNG. Therefore, we have developed our structural benchmarks with this context in mind.

### **Other factors may affect sector performance**

Our benchmarking analysis focuses on diagnosing competition and the efficacy of the regulatory framework. Therefore, it may fail to capture other factors relevant to the performance, such as infrastructure quality. Where we have identified material relevant issues from our research, mission to PNG, and survey responses, we also outline them at the end of this section.

## **4.2 Competition between Ports**

Workable competition between ports in PNG would imply that ports are operating efficiently, given market circumstances. Therefore, there would be no need for economic regulation to control pricing. However, limited competition between ports is not unusual. Ports often exhibit natural monopoly characteristics. Geography and lack of scale can make it inefficient or impossible to duplicate the basic port service for a particular market.

Our impression is that inter-port competition within PNG is limited. However, in our view, this finding does not represent a structural problem with inter-port competition. Given that PNG’s cargo volumes are relatively low, and geographic limitations, limited competition between ports is unsurprising.

Almost all international cargo goes through a PNGPCL port, with the remainder going through vertically integrated private ports, such as the Napa Napa oil refinery and various mining and forestry ports. This means there is limited competitive tension for international shipping.

Coastal shipping between main centres is also dominated by PNGPCL facilities, with private operators providing niche facilities. However, there may be workable competition for coastal shipping in POM and Kiunga. There may be some limited competition at Lae as well. In fact, given the scale of these facilities, the level of competition for handling coastally shipped cargo is in fact higher than one might expect.

### **4.2.1 Benchmark**

This benchmark asks whether there is competition, or the potential for competition, between ports in PNG for similar cargo. This benchmark specifically aims to identify whether the level of competition is what one would expect given geographic and scale limitations. In other words, is the level of competition between ports what is possible in the PNG context?

A lack of competition does not preclude efficiency. However, it does require the use of the other mechanisms (discussed in Section 4.2 to Section 4.4) to put in place incentives for the efficient operation of, and investment in, port services. Regulation is typically required when the service either displays natural monopoly characteristics or is serviced by a legal monopoly, for example, created through an exclusive contract.

### **Competition between ports is not always efficient**

Ports should only compete against each other when this leads to overall gains in welfare. If scale is too small, then costs to consumers could rise as expensive facilities are duplicated



inefficiently. In this circumstance, a single port is likely to be the most efficient outcome for society.

International studies have analysed what degree of competition is feasible between operators in different situations, in order to assess when regulation is required. It is difficult to establish threshold values valid for every port and type of cargo, but for containers there is some consensus among experts about the figures shown in Table 4.1 that set out the minimum scale before there is sufficient competition to consider lower or no regulation<sup>17</sup>.

**Table 4.1: Type of Competition and Level of Traffic (TEUs)**

Intra-terminal	30,000
Inter-terminal	100,000
Inter-port	300,000

Source: Kent and Hochstein 1998

No port in PNG exceeds 300,000 TEUs (see Table 3.3). Ken and Hochstein, therefore, suggests that it would be inefficient to duplicate any port in PNG. Regardless, we believe entry of private ports should still be possible in PNG, if this entry is justified by market forces. The Ken and Hochstein figures are a guide, and not a rule.

#### 4.2.2 PNG assessment

Our impression is that inter-port competition within PNG is limited, which gives PNGPCL significant market power at PNG's main coastal towns and cities.

#### **There is limited inter-port competition in PNG, giving PNGPCL market dominance**

We form the view that PNGPCL has significant market power because:

- **PNGPCL has a very large market share.** It owns and operates an extensive network of container and general cargo ports throughout PNG, which together handle over 80 percent of the nation's cargo. PNGPCL's market dominance is likely to be particularly strong with bulk cargos. Bulk terminals require high levels of freight-specific infrastructure investment to efficiently handle commodities like grain and coal. As a result, there is less competition amongst ports to provide these handling facilities.
- **The potential for substitution is low.** Air freight is prohibitively expensive. There is no national rail and road network in PNG, which means importers and exporters cannot easily switch between ports and thereby create competitive tension. For example, if there was a good quality road between Madang, Lae, and the Highlands then Lae and Madang might be able to compete. However, that is currently not possible. Therefore, geography plays a significant role in preventing the possibility of different ports competing against one another in PNG.
- **The threat of entry is low.** The cost of constructing a new port is high and subject to geographic limitations. However, there are several privately constructed facilities in PNG, suggesting that entry is possible at a certain level.

<sup>17</sup> Kent, P.E. and Hochstein, A (1998). Port reform and privatization in conditions of limited competition: the experience in Colombia, Costa Rica and Nicaragua. *Journal of Maritime Policy Management*. Vol. 25, no. 4, at 313-333.

We also have no evidence suggesting that there are material regulatory barriers to entry.

- **There is limited countervailing power from consumers.** Shipping lines simply pass through costs to their customers. Given the lack of substitutes, the demand for PNGPCL's services is likely to be inelastic. PNGPCL could, therefore, charge high prices before it starts to significantly reduce demand for its services.
- **Most private ports and wharves tend to be vertically integrated facilities, and do not compete directly with PNGPCL.** Although some of these facilities handle general cargo, most ports do not compete for cargo in upstream and downstream markets unrelated to the vertically integrated business that owns the port. Several companies have built these facilities to enable mining and forestry operations or to handle specialist cargos, such as cement or fuel. As these facilities exist to serve only one customer, and they are owned by that customer, they do not necessarily present competition concerns.

Competition concerns can arise if third parties also use, or want to use, these private facilities, and these facilities have market power.

#### **However, there may be some competition at three locations**

There appear to be three ports where there is some level of competition for coastal cargo: Lae, POM, and Kiunga (private port). Given the scale of each of these ports, the level of competition could in fact be considered surprisingly high. None of these locations handle close to 300,000 TEU per annum, the threshold suggested by Ken and Hochstein for efficient inter-port competition.

At Lae and POM there are private facilities handling coastal container and break-bulk cargo. However, according to the ICCC's Midterm Competition Review, the market share of PNGPCL's facilities at Lae and POM dwarfs that of the smaller private facilities in the area.

Competition for coastal shipping may be more robust in POM than in Lae due to the new AES port, which is part of a large industrial park. The private facility at Lae appears to be a small wharf next to the PNGPCL port, which handles Bismark Maritime's coastal shipping. In POM, the AES port handles all coastal cargo for Bismark Maritime and project and charter fleet for Consort Shipping. Consort's main coastal liner shipping service is handled at PNGPCL's Motukea facility, with other coastal cargo still handled in Downtown POM. AES has said that they do not compete with PNGPCL, although it is unclear whether this comment was referring to international shipping.<sup>18</sup> We understand that the AES port is limited by shallow draught. This limitation could be addressed by dredging, and the port has indicated plans to construct a deep water international port.<sup>19</sup>

Altogether, the impact of the AES port suggests that there may be some level of effective competition between AES and PNGPCL to handle coastal shipping. There may be a genuine threat of entry into the market for handling international shipping in POM.

Finally, there seems to be competition, or the threat of competition at the port of Kiunga. The port of Kiunga is composed of two separately owned private berths, with another under construction by an additional operator. We understand that there are concerns that

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<sup>18</sup> David James, Business Advantage PNG. AES preparing for the next economic upturn. 20 April 2016. <http://www.businessadvantagepng.com/aes-preparing-for-the-next-economic-upturn/>

<sup>19</sup> AES. Presentation, above n 8.

pricing is extremely high for cargo at this port. However, the costs of operating, including risk, are also likely to be high. And the existence of three separately owned berths indicates that there should be competitive pressure in Kiunga.

### **4.3 Competition within Ports**

The available evidence suggests there is likely to be limited effective competition between ports in PNG. However, even if a port itself is a monopoly, a variety of services within the port can be unbundled and turned into markets: for example, towage, pilotage, mooring, and stevedoring.

PNG exhibits some elements of port unbundling at the main PNGPCL ports, particularly for cargo handling services. Indeed, some ports appear to have a relatively high degree of competition given their scale. However, we believe intra-port competition at major PNGPCL ports could still be enhanced. Recent changes to stevedoring access appear to be increasing barriers to entry, and there may be a case for introducing competing terminals within the PNGPCL ports at Lae and POM.

Intra-port competition at major PNGPCL ports could also be under threat. The future terminal concessions in Lae and POM potentially threaten current levels of competition. Whether or not this will harm consumer welfare depends on how effective the terminal concession arrangements are designed to produce innovation and efficiency gains that are shared with consumers. This issue is also addressed in Section 4.4.

#### **4.3.1 Benchmark**

This benchmark assesses whether there is competition within PNGPCL for various port services, such as cargo handling, mooring, and pilotage. Structural factors will affect whether competition could occur. Some services by their nature may not be amenable to direct competition, such as port maintenance or security. For others, lack of scale may make true competition unviable.

The focus of this benchmark is also specifically on PNGPCL ports. Most private facilities are vertically integrated business units, and, therefore, pressure to operate their port facilities efficiently comes from internal company pressures rather than direct competition at the port.

#### **Where intra-port competition is possible, it should be supported by the regulatory framework**

Port efficiency depends as much on competition between service providers within the boundaries of a port (intra-port competition) as on competition between different ports. The importance of intra-port competition and the possibility that port owners will frustrate competition has led to the regulation of access to port infrastructure internationally.

As outlined in Section 4.1, there is a general presumption in economics that efficient service provision is most likely to be achieved where services are delivered in a competitive, or at least a contestable, environment. Separation of potentially competitive port services from port infrastructure development and regulation is a prerequisite for development of an effective competitive environment for these services.

Therefore, where there is sufficient scale, services should be unbundled. Stevedoring and marshalling should be procured by the shipping lines via a competitive market, with open entry by stevedoring companies into the ports as long as they meet operational and safety standards.

#### **Cargo handling is particularly critical**

The benchmarking analysis in this section will put particular emphasis on cargo handling (stevedoring and marshalling). We understand that cargo handling is typically the most significant cost incurred in using a port. Handling charges can form more than 80 percent of the bill of a vessel that arrives to a port for loading and unloading.<sup>20</sup> Efficient cargo handling enables cargo to move quickly across the port, reducing costs and allowing more ships to use the port facilities.

Intra-port competition for cargo handling has been cited as a reason for high productivity at New Zealand’s Port of Tauranga. It is the only New Zealand port to leave cargo handling to competing third party stevedores, and the port’s crane throughput is the highest in New Zealand.

### **Intra-port competition is not always optimal**

Sufficient scale is critical for to the success of intra-port competition. If the market is too small for multiple competitors, then competition can result in inefficient underinvestment in capital equipment to improve productivity and reduce costs. Table 4.2 outlines the tension between introducing competition for an intra-port service, and between simple tendering for one entity to provide that service for a specific period (that is, competition for the market).

A 2008 study into the Port of Adelaide noted that “[a]n important condition of intra-port competition is that the market should be double Minimum Efficient Scale (MES) before it is viable and sustainable for a second operator to enter the market. MES is reached when marginal and average costs no longer decrease when capacity is expanded.” Another study has noted that the scale needed to achieve MES for container terminal is large.<sup>21</sup>

The information at outlined in Table 4.1 suggests that if container traffic is below 30,000 TEUs per year, it does not make sense to have intra-port competition. The market is too small.

**Table 4.2: Advantages and Disadvantages of Intra-Port Competition and Competition for the Market**

Option 1: Intra-port competition		Option 2: Competition for the market	
Advantages	Disadvantages	Advantages	Disadvantages
Competitive tension drives down costs and increases incentives for efficiency and good service	Duplication of functions Congestion and confusion on the port with several operators Lack of scale economies may reduce incentives to	Greater economies of scale, reducing costs for consumers Greater scale may encourage provider to invest in more expensive capital equipment	Costs of negotiating and monitoring contract Performance incentives may not be optimal Incumbent may be reluctant to invest in optimal levels of

<sup>20</sup> Beatriz Tovar, Lourdes Trujillo and Sergio Jara-Díaz. Organization and regulation of the port industry: Europe and Spain. <http://www.cec.uchile.cl/~dicidet/sjara/OrganizationAndRegulation.pdf> at 6.

<sup>21</sup> Department of Transport, Energy & Infrastructure. Review of Significant Ports in South Australia under the Competition and Infrastructure Reform Agreement. 2008. [http://www.dpti.sa.gov.au/\\_data/assets/pdf\\_file/0003/34752/v6-Report\\_on\\_CIRA\\_Clause\\_4\\_Review\\_of\\_Port\\_Adelaide.pdf](http://www.dpti.sa.gov.au/_data/assets/pdf_file/0003/34752/v6-Report_on_CIRA_Clause_4_Review_of_Port_Adelaide.pdf) at 18

invest in optimal levels of capital

technology due to future retendering  
Incumbent may have informational advantage in future tenders

### The tool port model can be used to overcome disadvantages of intra-port competition

Where there is competition between stevedores, stevedores can lack incentives to invest in more expensive or fixed capital equipment. This situation can be inefficient if it prevents investment in productivity enhancing equipment would lead to overall efficiency gains to society. That is, if the benefits of investment exceed the costs to society from undertaking that investment.

One model for overcoming this constraint is the tool port model. The port authority invests in the capital equipment, such as cranes and gantries, and then leases it out to stevedore operations. Effectively the port provides the tools to enable increased productivity at the port, without sacrificing intra-port competition.

The Asian Development Bank (ADB) suggests this model might be optimal for Pacific Island ports. However, the ADB acknowledges that:<sup>22</sup>

*“Like all models, the tool port has its weaknesses. The most important is the absence of the direct link between the operator and the owner that is most likely to achieve infrastructure and equipment changes to improve overall operation.”*

#### 4.3.2 PNG assessment

Generally, PNG appears to meet some elements of best practice on the evidence available, although we have reservations. Table 4.3 outlines our impression of the state of intra-port competition for key port services in PNG, given the information we have available.

**Table 4.3: Port Services Amenable to Unbundling or Tendering**

Port Service	Cargo and passenger handling	Pilotage and towage	Security	Mooring	Maintenance and repair	Storage
PNG Situation	No information on passenger handling.  Cargo handling at major ports appears to be relatively efficient and, for the scale of port operations in	Pilotage and towage appears to be competitive at most of PNGPCL’s main ports, although PNGPCL holds a large share of the pilotage market and Pacific	No information.  Possibly provided by PNGPCL employees.	There appears to be competition at most large to medium PNGPCL ports.	PNGPCL responsibility.  We understand that infrastructure quality is an issue and PNGPCL is slow to remediate problems.	Partially competitive.  PNGPCL may have some market power. However, at main ports there appear to be several providers.

<sup>22</sup> ADB. Oceanic Voyages: Shipping in the Pacific. 2007.  
<https://www.adb.org/sites/default/files/publication/29760/shipping-pacific.pdf> at 53.

PNG, competitive.	Towing holds a large share of the towage market.  Smaller ports generally have only one service provider.				
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### **There is evidence that cargo handling is competitive at main ports**

There appears to be multiple stevedore companies competing against each other at the main PNGPCL ports. In PNG, stevedoring and marshalling are the responsibility of licensed private-sector operators. Several different stevedores operate at Lae and POM, with market share in main Lae port split between Riback and JV Stevedores. In addition, there appear to be multiple stevedores at Madang, Alotau and Rabaul. The fact that there may be only one stevedore provider at PNGPCL’s smaller ports is unsurprising, given the low cargo volumes at these ports.

The level of intra-port competition for cargo handling in PNG is about where one would expect in the circumstances, or possibly higher. The high number of stevedore operations in PNG, relative to cargo volumes, appears to confirm the ABD’s assessment that competition for the provision of cargo handling services can be achieved at low cargo volumes.<sup>23</sup> Productivity and pricing data outlined below also appears to confirm that there is effective competition at main PNGPCL ports.

We caution that competition may be less intense than it might otherwise appear. The ICCC has previously found a lack of competition amongst stevedores.<sup>24</sup> We understand JV Stevedores has complete market share at the international terminal in POM, with United Stevedores having complete market share at the Lae Tidal Basin and Motukea. Moreover, there is common ownership of United Stevedores, JV Stevedores, and Riback. The involvement of local landowner interests in stevedoring may also reduce the potential for new entrants, as a landowner partner is essential for labour supply. Moreover, new entrants would need to invest in forklifts, reach stackers and possibly cranes before they could service shipping lines. This represents a structural barrier to entry.

### **Cargo handling performance appears to be good, where there is competition**

The ADB has identified open competition for stevedoring in PNG as a factor in PNGPCL’s superior productivity performance relative to other Pacific Island ports. This appears to be supported by productivity data supplied by the industry (see Table 4.4). According to the ADB, the “Pacific standard” rate is 10–12 lifts per hour, which is roughly one third of that expected at a modern, well-equipped container terminal. However, this

<sup>23</sup> ADB. Oceanic Voyages. Above n 22, at 52.

<sup>24</sup> The National. ICCC: Monopoly in Cargo Handling. December 23, 2013. [www.thenational.com.pg/iccc-monopoly-in-cargo-handling/](http://www.thenational.com.pg/iccc-monopoly-in-cargo-handling/)

low rate appears to be down to use of geared ships and lack of mounted cranes at PNG facilities, rather than inefficient stevedores.

The relatively open threat of entry may also explain relatively low stevedoring charges compared with those at other Pacific Island ports. Stakeholders indicated pricing (at Lae) ranged between 100-150 kina per TEU (this is between AU\$43 to AU\$64, or US\$32 to US\$47). The 2003 data in Table 4.4 shows stevedoring charges hovering around the US\$20 mark. Given that the consumer price index has increased 72 percent from 2003 to 2015<sup>25</sup>, this would suggest that real increases in stevedore charges have not been dramatically above the rate of inflation, or even possibly below. In Australia, average revenue (a proxy for prices) per 20 TEU in 2015 was AU\$216.50.<sup>26</sup> A shipping line we interviewed also suggested that they had negotiated a price reduction from their stevedores, suggesting countervailing power.

**Table 4.4: TEU Productivity for Geared Ships – Hook On / Hook Off**

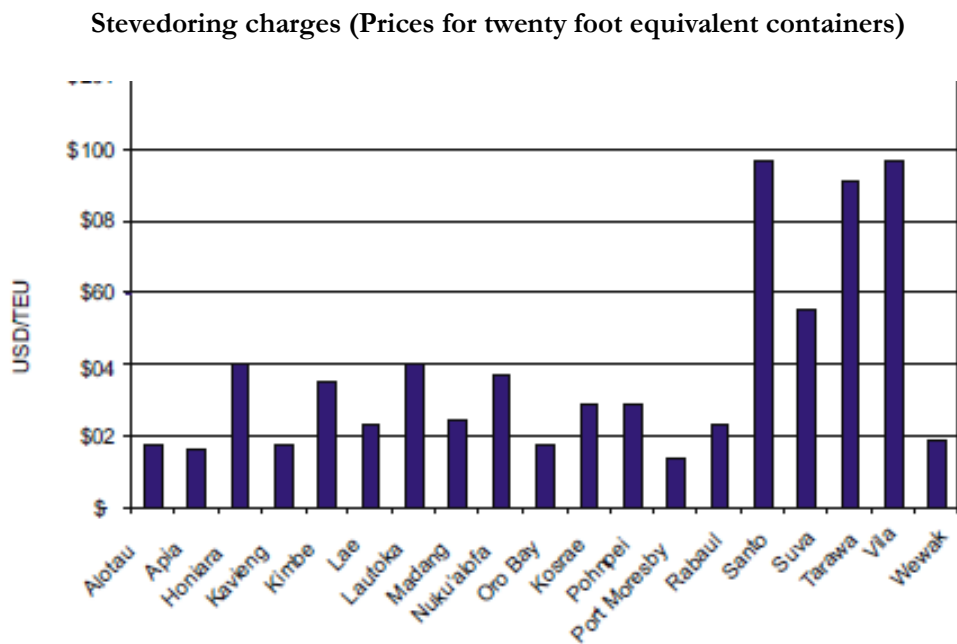
	Ports	Avg. Actual TEU/hour/hook
Solomon Islands	Honiara	6
Fiji	Lautoka	6
	Suva	10
Australia	Melbourne	15
NZ	Tauranga	12
	Marsden Point	12
PNG	LAE	12
	POM	14

Source: Industry data

<sup>25</sup> World Bank. 2016. World Bank Open Data: Papua New Guinea; Inflation. <http://data.worldbank.org/indicator/FP.CPI.TOTL.ZG?end=2015&locations=PG&start=2010>.

<sup>26</sup> Australian Competition & Consumer Commission. October 2015. Container Stevedoring Monitoring Report no 17. <https://www.accc.gov.au/system/files/Container%20stevedoring%20monitoring%20report%202014-15%20-%20word%20version.pdf>

**Figure 4.1: Comparison of Stevedoring Charges in the Pacific**



Source: Oceanic Voyages: Shipping in the Pacific, Asian Development Bank 2007

### **Barriers to entry may be increasing for cargo handlers**

Until relatively recently, regulatory barriers to entry were low, according to stevedores we interviewed. The stevedore simply had to obtain a licence from PNGPCL and prove a basic level of capability. However, PNGPCL has introduced access agreements for stevedores. These agreements appear to have been used to restrict stevedore access to the new port in Motukea and the Lae Tidal Basin. Instead, United Stevedores appears to have a monopoly of both facilities. Shipping lines are, therefore, unable to contract freely with different stevedores at these facilities. This reduces incentives on stevedores to both improve service quality and price competitively.

PNGPCL believes that there is no evidence that access agreements are detrimental to competition. It submits that access agreements have been in place for many years, and that they are purely designed to support safe and efficient operations on the wharf.

A further issue, is that under the new terminal concession arrangements at Lae and POM, third-party stevedores may be refused access to these facilities.

It is unclear to us whether the stevedore access requirements in the PNGPCL regulatory contract guarantee licensed stevedores access to PNGPCL facilities, or whether the access requirements simply require a fair and reasonable price to be set when access is granted.

### **The tool port model has not been successful in PNG**

The evidence suggests that PNGPCL's recent experiment with the tool port model has been unsuccessful. In late 2011, PNGPCL invested in mobile harbour cranes and second-hand rubber tired gantries at Lae and POM, with a view to leasing this equipment to stevedores. The aim was to improve productivity. One stakeholder noted that issues with training, operating systems and repositioning the mobile harbour cranes meant that their performance was no different to ship cranes. Further, we understand that this equipment has not been used since 2013, with all equipment now in disrepair. Stevedores have instead continued to use their existing equipment.



In 2015 and 2016, a consortium of stevedores offered to repair the mobile harbour cranes at their own cost, but these offers were not accepted by PNGPCL. While we understand it would be cost-effective to repair the cranes, the rubber tired gantries apparently arrived in PNG in a poor condition with repair costs per gantry estimated at \$700,000 USD.

### **For other port services, there are differences in the level of competition**

Private sector involvement in the operation of PNGPCL ports is extensive. However, with the evidence we have available it is difficult to assess the state of competition, including whether entry is permitted for all services. It is also difficult to gauge whether competition is occurring at normal levels in the circumstances. Our impression is that for:

- **Pilotage**, there is a level of workable competition, and there is threat of entry. Recent deregulation has allowed several small-scale participants to enter the market, and we understand this new competition has allowed shipping lines to renegotiate their pilotage contracts. PNGPCL still appears to be the dominant player in the market.
- **Towage**, there is also a level of workable competition, and there is some threat of entry. Pacific Towing is the dominant player in the market but faces competition at Lae, Kimbe and Rabaul. It is the only provider in POM. Some smaller ports also appear to only have one service provider, which is consistent with the small scale of operations at these ports. Pacific Towing submitted that its service levels were high and that its tariffs were competitive. However, we have been unable to verify this independently. Pacific Towing also did not view regulatory requirements as prohibitive, describing the PNGPCL licence fee as reasonable.

The main barriers to entry appear to be the limited scale of the market and the costs of establishing a towing operation. Pacific Towing has submitted that there is insufficient work to commercially justify its deployment of a tug to Madang. Pacific Towing also submitted that for a competitor to enter the POM market, it would require approximately USD \$10 million investment in three suitable tugs, which is unlikely to be economic on current shipping volumes unless tariffs increased significantly or Pacific Towing exited that market.

- **Storage**, PNGPCL may have a degree of market power. Although PNGPCL provides 5 free days' storage, if customs or administrative requirements mean cargo is unable to leave a port within that timeframe, PNGPCL may be able to engage in monopoly pricing. However, evidence in the ICCC's 2013 Midterm Competition Review suggests there are a variety of competing facilities at Lae and POM,<sup>27</sup> including onsite depots leased from PNGPCL and offsite private bonded storage facilities. The bonded facilities enable customs and NAQIA processes to take place outside of PNGPCL port grounds, but create additional transport costs.
- **Mooring**, there is likely to be a similar level of competition as towage. There appear to be several different mooring providers at Lae, Kimbe, Madang and Oro, although Pacific Towing may be the sole provider at POM and Rabaul. Pacific Towing submitted that barriers to entry are not prohibitive.
- **Maintenance, utility and security services**, PNGPCL provides these services itself. As PNGPCL is in charge of overall ports operations from the quay to the

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<sup>27</sup> ICCC. 29 August 2012. PNGPCL Midterm Competition Review Final Report, at 57.

gate, and owns the basic infrastructure, this situation is unsurprising. We would not expect intra-port competition for these services, as it is more efficient for one party to be responsible for providing them. However, security and maintenance services could be contracted out, thereby introducing competition for the market. Indeed, we understand that some stevedores perform maintenance voluntarily, as PNGPCL can be slow to remedy defects such as pot holes.

### **There are no competing terminals at PNGPCL facilities**

Ken and Hochstein estimate that inter-terminal competition can efficiently occur where port volumes exceed 100,000 TEU. Volumes at Lae are almost 200,000 TEU, whereas volumes at POM are just under 80,000. This suggests that greater competition could be introduced at Lae, and potentially at POM in the near future as volumes grow. Indeed, the new Lae Tidal Basin and Motukea facilities may enable competing terminals. The Lae Tidal Basin and existing port could be separated into competing operations. With the completion of the international terminal at Motukea, this facility could also be separated into two terminals.

Whether this structural change to enhance competition at PNG's two key ports would be efficient, or commercially sound, requires further investigation.

## **4.4 Competition for the Market**

Competition for the market is a mechanism for replicating the effects of competitive market. It involves the port operator regularly tendering for the right to supply a service, such as cargo handling, to a particular market for a period of time.

PNGPCL is currently experimenting with introducing 'competition for the market' to operate the overseas cargo terminals at Lae and POM. Whether this arrangement presents an improvement on the status quo is difficult to assess. It is still under negotiation.

We are concerned about the procurement and regulation of these future terminal concessions. They raise competition and efficiency issues, which the regulator should ideally have the powers to address and monitor.

Competition for the market can also be introduced for specific port services. A regular tender could be conducted for companies to provide stevedoring, towage, pilotage, and many other port services. We believe there is potential for this approach to be widely used throughout PNGPCL ports, where intra-port competition is lacking.

### **4.4.1 Benchmark**

Where there is only one supplier of a particular service, periodic tendering to be the supplier of that service can create incentives for the provider to operate efficiently and control pricing. This tendering can be for particular services within the supply chain, such as the right to tow vessels, or for a large segment of the supply chain, such as the right to operate a terminal.

This benchmark examines whether competition for the market is being used at ports where effective inter-port or intra-port competition is not occurring. This benchmark also looks at whether the design of any terminal operation arrangements is likely to be efficient. Contract design is critical to incentivising a private concession holder to operate efficiently.

There is a tension between introducing competition for the market, which allows for economies of scale, and introducing competition within the market, which incentivises competitive pricing and cost reduction. Both mechanisms may be successful in similar

circumstances. However, where intra-port competition is simply not taking place, then competition for the market is likely to be the best solution to address market power.

As with intra-port competition, our analysis focuses on PNGPCL facilities. Most private facilities are vertically integrated business units, and, therefore, pressure to operate their port facilities efficiently comes from internal company management rather than direct competition at the port level.

### **Competition for the market is best practice for operating medium to large ports**

For medium to large ports, the landlord port model is best practice. Under the landlord port model, the port owner contracts for a third party to manage and operate the terminal (a terminal concession).

The success of this model depends on contract design and enforcement. The contract is itself a form of economic regulation. For a terminal concession to be successful the concession holder must face incentives to:

- Efficiently operate the terminal
- Efficiently invest in the maintenance and improvement of the terminal
- Efficiently price for terminal services (and not engage in rent seeking behaviour).

Concessions certainly offer numerous potential benefits:

- The concession holder to be held to account for performance. Terminal agreements usually include terminal and stevedoring performance rates, which are benchmarked and tested regularly to ensure the port's customers are being serviced adequately. The threat of financial penalties and of one day losing the concession also encourages the concession holder to perform.
- International operators can also bring experience from other jurisdictions to help improve port operations, port marketing. They can be better equipped to assess whether capital investment is justified.
- Contracts can also be designed to penalise breaches of health and safety targets. Safety standards are important when incentive based contracts encourage greater volume through put, which could lead to standards being compromised.
- The problems of poor maintenance and failure to upgrade facilities and equipment can be effectively addressed through concessions. The ADB states this has been clearly demonstrated in the Philippines “where the private concessions have been able to maintain their facilities while the common-user facilities have steadily deteriorated, despite attempts to rehabilitate them.”<sup>28</sup>

However, there are potential disadvantages:

- It is difficult to specify all performance standards in a contract. Where the contract is incomplete or where the terminal holder has better information than the port authority or competition regulator, it may be able to reduce service levels without penalty. Monitoring contractual performance and resolving disputes is an additional cost.

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<sup>28</sup>ADB. 2000. Developing Best Practices for Promoting Private Sector Investment in Infrastructure: Ports. <https://www.adb.org/sites/default/files/publication/27906/ports.pdf>, at 36.

- Contractual risk, and the threat of one day losing the concession, may incentivise to the concession holder to underinvest in port infrastructure and equipment.
- The concession holder may hold market power. It may operate the only terminal in the market. They may also operate other concessions at other national or international ports, which may increase their dominance in the market. The concession holder may restrict intra-port competition as well, by restricting third-party access to the terminal. This market power creates the prospect of monopoly pricing and reduced service levels, to the detriment of consumers.

Whether a concession arrangement is likely to improve performance will depend on how well it establishes incentives to maximise the potential advantages of this arrangement.

**Where competition is not feasible, competition for the market should also be introduced for other port services**

Competition for the market may also exist for other port services. Indeed, even within a concession, the concession holder can itself tender for various port services.

Given the small scale of many port operations in PNG, competition for the market may be a better option than trying to mandate intra-port competition at every port. Where scale is small, competition risks creating duplication and may inefficiently reduce scale economies. In contrast, the competition for the market is a mechanism to create the efficiencies of competition (through regular tendering and contract design) while preserving any economies of scale. The ADB has noted that:

*Outsourcing of marine services and dredging has improved efficiency in those activities where open competition was not possible, but outsourcing of cargo-handling services has had mixed results because of problems of introducing modern equipment as mentioned above. Management contracts have had limited success because they do not resolve problems of equipment procurement and maintenance or restrictive labor practices<sup>29</sup>*

However, as with terminal concessions, there is potential for competition for the market to create market power within particular port services. For example, if one company is awarded the exclusive right to providing mooring services at a monopoly port, that company can set prices at an inefficiently high level. Contractual arrangements are critical to help ensure that the company does not engage in excessive pricing.

**4.4.2 PNG assessment**

PNG is still at the early stages of introducing competition for the market. This form of competition does not appear to be used widely at publicly owned ports. Although, this situation could be about to change for terminal operations at Lae and POM. And, we have concerns about the procurement and regulation of these future concessions. Overall, there is scope to make greater use of this form of competition at ports throughout PNG.

**The terminal concessions at Lae and POM are an opportunity**

PNGPCL is for the first time introducing ‘competition’ for the overseas cargo market for new international terminals at Lae and POM. However, the details of these arrangements are under negotiation, and are, therefore, confidential.

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<sup>29</sup> ADB. Developing Best Practices. Above n 28, at 36.

It is too early to assess whether this is likely to be effective. Whether the arrangements are likely to be effective will depend on contract design and clarity on interactions with the regulatory framework.

These arrangements have the potential to improve the performance of PNG's two major ports. In particular, the long-term nature of the concession suggests that the concession holder will be encouraged to invest in infrastructure to improve port performance, such as mounted harbour cranes.

### **The concession arrangements create material competition concerns**

We do, however, have several concerns from the information we have available. These concerns lead us to conclude that the concession arrangements is one of the most pressing competition issues in the PNG ports sectors, and include:

- The complex joint venture type arrangements, where incumbents buy minority shares in order to participate in the concessions, might reduce current levels of competition. If all incumbent stevedores have direct ownership stakes in the joint venture with the terminal operator, then this presents competition concerns. Stevedores may be able to co-ordinate pricing and service levels, and new entrants may not be able to access the joint venture, and would, therefore, be excluded from market for cargo handling. When the concession is eventually retendered, this shared ownership arrangement may also reduce competitive tension.
- The concession holder may enjoy potentially anti-competitive privileges. For example, one stakeholder was concerned that the concession holder would be given the right to require that shipping lines use of the concession terminal, instead of the existing terminal Lae.
- The operator may also be awarded the exclusive right to provide cargo handling services, thereby reducing intra-port competition.
- The per square metre rental for both concessions is double that of a recent concession in Australia, which suggests that the terminal handling charge (THC) will need to be significant for the operator to recover its costs. The THC will be passed straight through by shipping lines to their customers and then on to consumers. Whether or not the per square metre rental is justified is a matter for further investigation by the competition regulator.
- There is potential for PNGPCL to use the terminal concessions to increase its revenues and overall costs to consumers. Not all services provided by PNGPCL are regulated under the PNGPCL regulatory contract. For example, while berthage and wharfage charges are regulated, storage charges are not. This means PNGPCL could charge monopoly prices to rent its facilities to a terminal operator, while still collecting wharfage and berthage charges. The concession holder, which is currently not a regulated entity, will simply pass the land rental charges through to consumers through a terminal handling charge. If this occurs, this would lead to an overall increase in charges to the consumer.
- It is unclear how PNG's economic regulation framework will manage the pricing and competition concerns that arise from these concession arrangements. We discuss this issue further when we benchmark PNG's regulatory arrangements.
- Even though the 25-year term may improve incentives for the concession holder to invest in productivity enhancing infrastructure, it potentially reduces

the incentive to perform as the threat of losing the tender to a competitor is limited.

The 25-year period is also likely to see significant change in the PNG economy. The agreement will have to be adaptive because the ports sector will have to evolve and expand to meet the needs of a more developed economy and changing technologies.

### **Greater efficiencies could be extracted through competitive tendering for the provision of port services**

PNGPCL does not appear to make wide use of competition for the market. We understand one or two PNGPCL-owned ports are operated under agency. The Association of Licensed Stevedores has noted that several of the smaller outer ports are currently run by privately owned companies. However, we have no insight into the nature of these arrangements. We also have no insight into whether PNGPCL contracts out services such as ports administration, security and maintenance.

At medium to large ports, the apparent lack of tendering in PNG may reflect that certain key services, such as pilotage, towage, mooring, cargo handling and storage, appear to be competitively provided at some ports. Therefore, competition for the market would not be needed at these ports.

With smaller ports, our assessment of intra-port competition has indicated a lack of competition in cargo handling, mooring and towage markets. Greater use of competition for the market may be a solution. Low cargo volumes at PNG's smaller publicly owned ports suggest that inter-port and intra-port competition is unlikely to occur in the foreseeable future. Therefore, policy response should recognise that competition for the market might be a superior option than trying to encourage competition between and within small ports.

## **4.5 Regulatory Efficacy**

Effective regulation is critical to ensuring ports sector participants face appropriate incentives to operate safely and efficiently.

Our benchmarking exercise concludes that, even though there have been policy improvements, PNG's regulatory framework is complex and uncertain. There are regulatory conflicts of interest and unclear accountabilities. The economic regulation framework could also be optimised.

### **4.5.1 Benchmark**

There should be clear regulatory accountabilities and powers. We agree with the ADB that effective regulation requires:<sup>30</sup>

- Transparent and acceptable regulatory procedures
- An established regulatory body that is separated from the port management
- A level of regulation that does not prevent commercial behaviour.

### **Regulatory arrangements should promote competitive neutrality, and should not create conflicts of interest**

Commercial participants in the port industry should not be tasked with regulating themselves or competitors. Port and maritime policy should be the DoT's responsibility, safety and environmental regulation should be maritime regulator's responsibility, and

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<sup>30</sup> ADB. 2000. Developing Best Practices. Above n 28, at 44.

operations should be the responsibility of the enterprise. An autonomous harbourmaster should be tasked with regulating the safety and access of all users in a particular harbour. However, operational regulation (such as access arrangements) that relate to the commercial functioning of the port should be the responsibility of the facility manager.

### **Economic regulation needs to be credible, adaptive, and proportionate**

Our diagnosis of PNG ports sector is that there is relatively weak competition across many components of the sector. A flexible and proportionate economic regulation framework is, therefore, important in the PNG context.

The economic regulator should be independent and have clearer operating principles.

Where competition is occurring, or could occur, it is important that the regulator is able prevent collusion and other anti-competitive actions that do not demonstrably increase welfare. In this context, economic regulation is an important tool for preserving third-party access on fair, commercial terms to bottleneck facilities like ports.

Where competition is weak or non-existent, there should be clear thresholds for declaring, varying, and removing regulatory arrangements for a particular industry or entity. The regulator should have the powers to protect consumer interests, while also minimising impacts on the legitimate interests of investors. Therefore, there should be procedural safeguards, including an appeals process, to give confidence to regulated entities.

The regulator should have access to a full suite of regulatory options, including information disclosure, access undertakings, price-quality control, and negotiate-arbitrate arrangements. Price-quality control is an expensive and imperfect form of regulation, so it is important that the regulator has other tools available where the circumstances do not justify the costs of this form of regulation.

### **Concession arrangements are a form of economic regulation**

The framework for economic regulation must provide clear mechanisms for managing the competition issues associated for concession arrangements. Indeed, it is the concession agreement itself that is typically the main vehicle for controlling the pricing and performance of the concession holder.

The interests of the port landlord are, however, not necessarily aligned with those of consumers. Therefore, there is an important role for regulation to play in managing any competition concerns associated with concessions. It is critical that this role is clearly defined before any contracts are negotiated to avoid duplication between the regulatory framework and contract's terms.

There are two potential ways a concession arrangement can be supervised from a competition perspective:

1. The economic regulator oversees the procurement process and measures the contract against regulatory principles. Under this model, the regulator:
  - Certifies that the bidding process has been fair and competitive to give confidence that the port owner has obtained the best possible arrangement from tenderers
  - Assesses the contract against regulatory principles that emphasise competition and the long-term interests of consumers. For example, where a port has an MES for intra-port competition, it may be detrimental to long term consumer welfare for a concession arrangement to prevent third party access to a monopoly port facility. However, in some instances, exclusivity

may be the most efficient option. Another issue, is that the landlord may set an excessive rental for the concession, which the concession holder can simply pass through to consumers. Regulatory supervision of the terms may guard against this issues.

- Continues to exercise backstop economic regulation functions in areas where the contract is silent.
2. The economic regulator supervises the port landlord or concession holder's pricing and performance directly through a regulatory determination.

We prefer the first option as it reduces the risk of duplication in the regulatory process. Moreover, if the economic regulator sets prices and performance terms over what is agreed in the contract, then the port landlord may have to compensate the concession holder for adverse decisions. This situation would effectively transfer risk to the PNG taxpayer.

#### **4.5.2 PNG assessment**

There is certainly room to improve the efficacy of PNG's regulatory framework. PNG's comprehensive set of regulatory institutions, including PNGPCL's relatively sophisticated price quality control regime, is offset by several departures from regulatory best practice. The regulatory environment is complex and uncertain. And the economic regulation framework could be enhanced to improve regulatory flexibility whilst increasing investor confidence. The past performance of PNGPCL under price-quality control suggests that a change in regulatory approach could be explored to help lift its future performance.

#### **There are regulatory ambiguities and conflicts of interest**

There appears to be confusion in PNG on who is responsible for regulating what. Regulatory responsibilities for ports are divided between the DoT, provincial and local governments, the NMSA, and PNGPCL. Whilst divided responsibilities will be inevitable to a degree, there appears to be scope to better concentrate regulation in one independent regulator.

There are also regulatory conflicts of interest. The DoT has delegated key regulatory responsibilities to PNGPCL. PNGPCL appears to be responsible for approving private port proposals, safety and environmental regulation within declared harbours, and licensing stevedores. As part of its harbourmaster role, PNGPCL is responsible for maintaining harbour navigation structures, which can lead to disputes where private facilities also benefit from this infrastructure. For example, the private NapaNapa port wants additional navigation systems installed in POM to allow larger ships to enter Fairfax Harbour. However, PNGPCL is responsible for providing this infrastructure, and is reluctant to invest.

Altogether, these arrangements create competition concerns and a conflict of interest within PNGPCL. If the DoT had not delegated these responsibilities to PNGPCL, it would otherwise carry out these regulatory responsibilities, whilst also supervising sector policy and regulatory performance. That arrangement might also reduce accountability.

PNG has been taking steps to improve its regulatory arrangements. PNG is concentrating several regulatory functions in the NMSA. We believe this is a positive step, as it brings clarity and accountability to regulatory arrangements, and removes previous conflict of interest.

#### **The economic regulation framework could be enhanced**

PNG already has a relatively sophisticated economic regulation framework. The ICCC is an independent, technical organisation with experience administering price-quality control



regimes and general antitrust law. The ICCC Act contains a basic level of procedural safeguards, as well as efficiency-based principles for regulation, which should give some certainty for regulated businesses.

Given that PNGPCL has a high degree of market power and its relatively large size, price-quality control under a Building Blocks Model (BBM) framework is arguably appropriate. Similarly, the Napa Napa port facility is an example of bottleneck infrastructure in the market for downstream petroleum products. Current ICCC supervision of oil prices, therefore, seems justifiable.<sup>31</sup>

Although PNG appears to get several fundamentals right, we have the following concerns:

- **Regulatory options appear to be inflexible.** The ICCC effectively only has two options for regulating a particular port service: price monitoring and price-quality regulation. These options essentially represent two extremes. There are other regulatory options in between, such as different forms of information disclosure, access undertakings, and negotiate-arbitrate. While section 58 of the ICCC Act could be used as an effective third party access regime, there appears to be no explicit third-party access framework.

Further, the definition of ‘regulated industry’ for the ports sector appears to limit the economic regulation of ports to ‘declared’ ports under the Harbours Act, instead of all port operations that present competition concerns. The ICCC has also expressed a view that expanding economic regulation to additional services supplied by PNGPCL would require fundamental changes to the regulatory framework.

- **Port concessions could be regulated through several different mechanisms under the current framework, but it is not obvious which is most applicable.** We can see three possible options for regulating the price and quality of terminal concessions:
  - The terminal handling charge is treated as a wharfage or berthage-related service under the Harbours Act and is thereby regulated under the ICCC Act, either through PNGPCL or through the concession holder if it becomes a ‘declared’ entity. This mechanism is not our preferred option.
  - The concession holder’s pricing is regulated as a stevedoring-related service under the Prices Regulation Act.
  - The ICCC uses its powers under the ICCC Act to set a code of practice for concession pricing and third-party access.<sup>32</sup> The code of practice mechanism could be used to create a monitoring framework consistent with our preferred option for regulating concessions.

An additional regulatory possibility is for the terminal concession agreement to be challenged under Part VI of the ICCC Act, possibly on the basis of using market power to restrict competition in relevant markets. However, we understand that section 58 has never been used before in PNG to guarantee third party access to monopoly facilities on reasonable terms, and it can be difficult to use general competition law provisions to effectively regulate monopoly behaviour.

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<sup>31</sup> ICCC. 2016. Fuel Prices. <http://www.iccc.gov.pg/index.php/prices-productivity/fuel-prices>

<sup>32</sup> ICCC Act, s 40.

It is not obvious which mechanism would be chosen. Ideally, the regulatory framework applying to concessions should be clear before any negotiations take place between a port owner and potential concession holders.

The concession arrangements currently being negotiated by PNGPCL is one of the most pressing competition issues in the PNG ports sector. Therefore, the ICCC's role in regulating these arrangements should be urgently clarified.

- **There is no explicit principle of proportionality.** Section 5 of the ICCC Act contains a list of worthy efficiency-based objectives and principles for the ICCC. However, the Act does not contain a principle stating that economic regulation should be proportionate to the costs and benefits of introducing regulation. Such a principle might improve certainty for business, and provide better guidance to the regulator. In particular, it is not clear if the ICCC's information gathering powers under the ICCC Act and Prices Regulation Act allow the introduction of a light-handed price information disclosure mechanism in situations where more heavy-handed regulation is not justified. An information gathering power is not equivalent to a systematic process of regularly gathering information on a regulated business, organising that information and publishing it for stakeholder review.<sup>33</sup>
- **The regulatory framework risks creating co-ordination issues.** The ICCC appears to have the power to set maximum prices under two different pieces of legislation, which have different thresholds and principles. The ICCC Act focuses on promoting competition, thereby regulating pricing of access to monopoly services by third party providers. The Prices Regulation Act is targeted at regulating and monitoring prices of specific goods and services, such as certain foodstuffs, for broader public interest purposes.

While regulations under these distinct frameworks can be made to be consistent, the differences in the frameworks could also lead to contradictory outcomes in the PNG ports sector. The same service or entity could potentially be regulated under either piece of legislation. The difference in objectives between the two pieces of legislation could make the regulatory framework less certain for industry participants, and could introduce a degree of regulatory arbitrariness.

Another possible coordination issue is that the definition of 'regulated industry' under the ICCC Act that is relevant to ports, is in fact defined under the Harbours Act. This Harbours Act definition of 'regulated industry' as the 'essential port services industry' would appear to restrict economic regulation to those ports that have been 'declared' under the Harbours Act.<sup>34</sup> Only the relevant minister can 'declare' a port under the Harbours Act.<sup>35</sup> Expanding the scope of economic regulation to additional ports would, therefore, appear to require coordination between the ICCC and the relevant minister.

- **The effectiveness of the price-quality control framework for PNGPCL is open to question.** In the 2010-2014 regulatory period, prices for certain key PNGPCL tariffs have increased significantly in real terms. We understand this price growth has been driven by significant capital expenditure at new facilities in Lae and Motukea, as well as investment in cargo handling equipment. There

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<sup>33</sup> See ICCC Act, ss 127-128 and Prices Regulation Act, s 12.

<sup>34</sup> See Harbours Act, s 1 Interpretation.

<sup>35</sup> Harbours Act, s 2 Declaration of Ports.

were different perspectives amongst stakeholders on whether the high levels of capital expenditure were justified or spent effectively. If not, consumers may have sustained significant price increases for inefficient levels of investment. However, for the new regulatory period from 2015-2019, price increases are likely to be less than one percent per annum in real terms.

Moreover, there appears to be room to enhance PNGPCL's operational performance. During our missions to PNG we heard concerns around the overall infrastructure quality at PNGPCL ports as well as PNGPCL's investment in expensive equipment that has hardly been used. The ADB has recently noted that the "Regulatory contracts for PNG Ports and PNG Power have helped to ensure strong revenue growth but, in the view of the regulator, have not produced expected efficiency gains"<sup>36</sup>, including investment in unused cargo handling equipment and ongoing issues with infrastructure quality. Price-quality regulation can struggle to overcome informational asymmetries. It is difficult for the ICCC to objectively measure the quality of infrastructure or to hold PNGPCL to account for overall port performance when this relies on shipping lines and stevedores as well. Overall, these factors suggest that a new approach to regulating or operating publicly-owned port assets could be considered to enhance performance.

- **The ICCC's ability to monitor cargo handling prices is unclear.** This uncertainty is obviously not ideal from a regulatory efficacy perspective. A comprehensive long-term data set of stevedore prices would provide valuable information for future competition studies.

Overall, these points suggest that there is room to improve PNG's economic regulation framework.

#### 4.6 Other Factors Relevant to Performance

The level of competition between, within and for ports is not the only influence on the effective functioning of a ports sector. Neither is the regulatory framework governing ports operations and economic behaviour. Our visit to PNG and industry survey identified the following factors that may be relevant to the efficiency or cost of maritime transport in PNG:

- **Customs and NAQIA processes likely contribute to material inefficiencies.** Stakeholders that we interviewed considered that customs and quarantine processes were inefficient. Issues cited included payment systems and limited business hours. This view appears to be verified by the World Bank "Ease of Doing Business Survey", which shows that the cost and time for customs processes in PNG is significantly above that of the Asia-Pacific region. The Association of Licensed Stevedore Contractors has noted that Customs and NAQIA are taking steps to upgrade systems and that a container x-ray facility has recently been built in POM.

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<sup>36</sup> ADB. 2016. Finding Balance 2016: Benchmarking the Performance of State Owned Enterprises in Island Countries. <https://www.adb.org/sites/default/files/publication/192946/finding-balance-2016-soe.pdf>, at 21.

**Table 4.5: PNG Border Compliance in Context**

Indicator	PNG	East Asia & Pacific	OECD High Income
Cost to export: Border compliance	675	396	160
Time to export: Border compliance	72	51	15
Cost to import: Border compliance (USD)	810	421	123
Time to import: Border Compliance	72	59	9

Source: World Bank. 2016. Ease of Doing Business: Papua New Guinea.  
<http://www.doingbusiness.org/data/exploreeconomies/papua-new-guinea/#trading-across-borders>

- **The accountability framework for PNGPCL could be enhanced.** The ADB’s recent assessment of PNG’s SOEs suggests that recent reforms to SOE accountability legislation are a backward-step.<sup>37</sup> In our view, SOEs should be largely independent of government influence. Operational and financial decisions should be left to management and the SOE’s Board. The SOE’s Board should be accountable for those decisions. Transparency around financial and operational performance is **critical** to ensuring that the SOE can be effectively supervised by officials and private sector analysts.

However, recent reforms give the Minister of SOEs broad powers, subject to NEC endorsement, to direct an SOE concerning its operations, remuneration levels, tenders, engagement of consultants, and other matters. The NEC now signs off on SOE budgets and investment plans. The reforms have also failed to strengthen the commercial mandate of SOEs, “stating only that their annual plans must demonstrate that they will maintain an excess of assets over liabilities and will be able to meet their debts when they fall due”.<sup>38</sup>

The effect of these reforms is to give NEC direct governance control over the SOEs. As noted by the ADB, these reforms are unusual and increase the risk of political considerations overriding commercial targets, as elected members of NEC exert their authority over the operation of the SOEs.

There also appears to be a lack of transparency around SOE performance, both at an operational and financial level. Recent annual reports for PNGPCL appear to be unavailable.<sup>39</sup> Annual reports that are available also contain limited

<sup>37</sup> ADB. 2016. Finding Balance 2016. Above n 36, at 23.

<sup>38</sup> Ibid, at 23.

<sup>39</sup> PNGPCL. 2016. Publications. <http://www.pngports.com.pg/index.php/publications>

information on operational key performance indicators. PNGPCL does not appear to have public statement of intentions, or performance expectations.

- **Cross-subsidies within PNGPCL may undermine its performance.** Stakeholders all agree that PNG’s long-standing CSO policy creates significant distortions within PNGPCL. However, we would note that PNGPCL’s ports form a network. Loss making parts of the PNGPCL network may support the profitability of main hub ports. This arrangement is only inefficient if the marginal costs of operating a port exceeds the marginal benefit that the port provides to the wider network.

The Government has adopted a new policy acknowledging that CSOs should be directly funded by the Government, and not through cross-subsidies. However, this policy is only at the trial stage. The ADB notes that “the introduction of the CSO contracting framework provides a mechanism to end the cross-subsidisation that entrenches sector monopolies in the ports”.<sup>40</sup>

- **Infrastructure quality is considered to be a handbrake on efficient port operations.** Despite significant spending to improve ports infrastructure by PNGPCL in recent years, we understand that there are still basic maintenance issues that can hamper cargo handling activities. However, investment in new ports infrastructure at Lae and Motukea have, or will, improve congestion into medium term. Apparently, congestion at Lae has greatly reduced due to the Lae Tidal Basin. Congestion at POM has also improved with the new Motukea facility and completion of LNG development.

A more fundamental issue is that PNG relies on geared ships to move almost all cargo in PNG. Continued reliance on these ships will mean a higher cost-structure in PNG relative to other APEC economies. Although PNG is apparently serviced by relatively modern vessels, geared ships are typically smaller, and are, therefore, more expensive per unit of cargo. Larger ships, which are cheaper per unit, can only be attracted with mounted harbour cranes. These cranes could also potentially increase TEU handling productivity significantly. One shipping agent identified shore cranes as a key change that could accelerate vessel and container operations and reduce shipping costs. However, they are expensive, require maintenance and a willing operator. Indeed, several stakeholders strongly doubted that investment in shore cranes could be justified on current volumes. They are only likely to be suitable, if at all, for Lae and POM. Given the experience of PNGPCL’s investment in expensive handling equipment, any investment should proceed cautiously.

- **Guaranteed berth windows are unavailable.** We understand that PNGPCL does not provide shipping lines with guaranteed berth windows. Guaranteed berth windows are common practice internationally, as scheduled shipping operations are planned far in advance. The absence of guaranteed berth windows can create a ‘race to the pilot’, which wastes fuel, and increases uncertainty and costs for shipping lines. However, the Association of Licensed Stevedoring Contractors submits that often extreme weather in Lae could make berth windows difficult to maintain without compromising health and safety.

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<sup>40</sup> ADB. Finding Balance. Above n 36, at 24.

- **The investment climate is challenging.** We understand that there are issues with unsecure land tenure, corruption,<sup>41</sup> and currency restrictions. These factors likely undermine investor confidence and require a higher return on capital to invest in the PNG ports sector. The consequence is underinvestment in long-life assets, and relatively higher prices for consumers where investment does occur.

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<sup>41</sup> Transparency International. 2016. Corruption Measurement Tools. <https://www.transparency.org/country/#PNG>

## 5 Recommendations

The results of our benchmarking analysis suggest there is room to improve the performance of the PNG ports sector at both an operational and regulatory level. Our main recommendations are:

- Investigation into third-party access arrangements at PNGPCL facilities
- Reform of key regulatory frameworks to improve PNGPCL's accountability and the economic regulation framework for the whole ports sector
- Structural reform of PNGPCL, so that it can act as an enabler of greater competition across the ports sector
- Further investment in ports infrastructure to improve sector performance.

Our recommendations address the competition and performance concerns raised in Section 4 of this Report. However, there is no one perfect model for addressing competition issues in the ports sector. There are trade-offs between encouraging more competition between and within ports, or, instead, introducing competition for a particular market, or using regulation to replicate the effects of competition altogether. In formulating our recommendations, we have attempted to balance these different options using both the principles outlined in our benchmarking analysis, and our knowledge of what might be workable in PNG.

To address our concerns relating to competition and economic regulation, we recommend the following:

- **The ICCC should undertake an inquiry into third party access arrangements at PNGPCL ports.** Stakeholder interviews held during our missions to PNG indicated that PNGPCL may be excluding certain stevedores from accessing the new port facilities at Lae and POM. However, PNGPCL appears to dispute this. The ICCC should pro-actively use its powers of inquiry to determine whether stevedoring access is being unduly restricted at these facilities, and whether regulatory intervention is needed to ensure efficient levels of intra-port competition amongst cargo handlers at POM and Lae. For example, the ICCC could set a code for third party access to PNGPCL facilities, if third party access requirements in the current PNGPCL regulatory contract are found to be inadequate.

We understand that the ICCC intends to conduct a review into stevedoring and handling services in 2018. We support this review, and recommend that this review look comprehensively at the state of competition within the stevedoring sector, including stevedore pricing and access arrangements.

- **The ICCC should also urgently clarify its role in regulating terminal concessions at PNGPCL-owned ports.** The imminent port concession agreements for the international cargo terminals at Lae and POM are the most pressing competition issue in the ports sector. The terminal concession arrangements offer the possibility of improved port performance for the long-term benefit of consumers. However, given the terminals at Lae and POM will likely have a high degree of power in the market for international cargo, there is the prospect that PNGPCL and the terminal operator will engage in monopoly pricing.

Monopoly behaviour is evidently not in the long-term interest of consumers, and pricing principles and monitoring should be in place to prevent abuse of

market power. The ICCC should urgently determine whether it has the necessary power to protect consumer interests, and take necessary and practicable steps within its powers to protect those interests.

We suggest that ICCC should be able to have a say in the concession contract from the perspective of competition. For example, the ICCC should determine whether the terms of the contract are consistent with the principles of the ICCC Act and the PNGPCL regulatory contract.

We understand that the ICCC will have the opportunity to review any final terminal concession contract and a supporting cost-benefit analysis. In its review, the ICCC should assess whether the concession agreement is consistent with the regulatory and competition principles in the ICCC Act. In Box 5.1, we provide guidance on how that assessment might be conducted. We also suggest that the ICCC appoint an independent expert to review the cost-benefit analysis.

If the ICCC finds deficiencies in the contract, such as inefficient restrictions on third-party access or excessive pricing for unregulated services, we suggest it work with PNGPCL and the concessionaire to establish a third-party access code or a memorandum of understanding to address these concerns. We also note that a “last minute” review by the ICCC—when the negotiations are all but completed—may create regulatory and commercial risks since it may require PNGPCL to re-open negotiations with the concession holder. Since the review of the concession contract from a competition and regulatory perspective is essential, we would urge PNGPCL to engage with the ICCC earlier in the process.

Moreover, as terminal concessions are new to PNG, we also suggest that the ICCC undertake capacity building within its organisation:

- A stocktake of the ICCC’s powers to address competition concerns associated with port concessions should be undertaken. As we noted in Section 4.5.2, several mechanisms appear to be available. The stocktake could include developing guidelines on how the ICCC will address third-party access disputes.
- ICCC staff should receive appropriate training on the effective economic regulation of port concessions. For example, it could convene a capacity building workshop led by qualified international experts.

In the future, we also recommend that the ICCC become involved early in the procurement process of any additional terminals concessions. As we discussed in Section 4.5.1, regulation through the concession contract is our preferred mechanism for ensuring competition concerns are addressed. If the competition regulator is involved in the procurement of port concessions from the beginning, there is a greater chance that the procurement process and contract design will be undertaken in accordance with the long-term interests of consumers.



### **Box 5.1: Guidelines for Review of Terminal Concession Agreement**

We suggest that the ICCC's review of any terminal concession agreement would have two core elements:

- First, an assessment of the agreement's compliance with the PNGPCL regulatory contract. Where the concessionaire is essentially taking on PNGPCL's role in providing regulated essential port services, the ICCC should review whether the contract adequately ensures that the concessionaire will comply with any ICCC determination relating to these services, such as maximum prices and the required service levels.

If the regulatory assessment demonstrates non-compliance with the regulatory contract, the ICCC should recommend measures to ensure the contract appropriately mirrors its regulatory determinations.

We also note that a long-term concession contract runs the risk of forestalling future adjustments to the regulatory contract: for example, if the ICCC contemplates some changes to the regulatory contract at the next re-set, but the terms are locked in the long-term concession, it may become difficult for the ICCC to evolve and improve the regulatory regime. Any conflict between contractual terms and regulatory requirements creates risk and reduces efficiency. Hence, the concession contract and the regulatory contract either need to be aligned to ensure that future improvements in the regulatory contract feed through into the commercial arrangements, or any restrictions on future evolution of the regulatory contract must be subject to a cost-benefit analysis.

- Second, an assessment of the economic effects of the concession agreement. This assessment would effectively be a cost-benefit analysis.
  - The assessment of costs would look at the negative effects of any decrease in competition and increase in prices to consumers. For example, a concession contract may potentially restrict third-party access for stevedores. Such a restriction would reduce competition. However, potentially, competitively procured terminal operation concession could offset reduction in competition in the market through the effects of competition for the market and the benefits of scale. Such effects need to be carefully tested.
  - The assessment of costs and benefits would seek to establish any likely changes in productive, allocative and dynamic efficiencies from the new terminal concession compared to the on-going application of the regulatory contract.

If the economic assessment demonstrates that the likely costs will outweigh any likely benefits, the ICCC should take steps to ensure:

- Intra-port competition is preserved, if the assessment demonstrates that any lessening in current levels of competition is not outweighed by the economic benefits of the agreement
- Prices are regulated, if the assessment demonstrates new terminal charges are inefficiently high.

Finally, the ICCC has an important role in monitoring and regulating terminal concessions. Careful judgement will, of course, be required. Heavy-handed regulatory intervention may deter concession holders from wanting to operate in PNG. Therefore, regulatory arrangements need to carefully balance the public interest in preventing excessive pricing, and the potential welfare gains from having more efficient port operations.

- **The Harbours Act should be reviewed and amended.** Our review has identified issues with the operation of the Harbours Act due the definition of ‘essential port services’. The Act appears to prevent the ICCC from applying economic regulation to all ports operators and services where evidence of monopoly behaviour is established. We recommend that the ICCC work with the DoT to review and rewrite the Harbours Act so that economic regulation can be applied to all participants in the PNG ports sector, where the thresholds for imposing economic regulation are met.
- **PNG should use the current CCFR process to enhance economic regulation of the ports sector more broadly.** Whilst we recommend specific changes to the Harbours Act, we suggest that there is a case for a broader, first principles assessment of the economic regulation framework as it applies to the ports sector.

The economic regulation framework should clearly define the conditions for regulation. There are two different possible objectives for economic regulation, which will apply differently in the circumstances:

- First, there is regulation to preserve third party access to monopoly facilities, where competition with those facilities is practicable. This regulation might apply to stevedoring services at large ports.
- Second, there is regulation for consumer protection where competition is not practicable. Price limits and performance standards are examples of this type of regulation. This regulation might apply to berthing charges at monopoly ports, or other port services at small ports where competition is not practicable.

We suggest that economic regulation should be concentrated in one competition act. This would help address the prospect of regulatory coordination issues arising from two different price control acts, with two different thresholds for application.

This competition act should be designed with flexibility and neutrality in mind. There should be clear principles and controls for imposing economic regulation on PNG businesses. The legislation should specify a full suite of regulatory options, so there is a proportionate regulatory response for material competition issues. At the same, the legislation should contain clear thresholds and safeguards to provide certainty to business on when and how they will be regulated by the ICCC.

A revised economic regulation framework might contain the following elements:

- Additional safeguards for imposing economic regulation, such as a requirement that the ICCC hold a public inquiry into whether the declaration criteria have been met, before regulation can be imposed or amended.
- An explicit requirement that economic regulation be proportionate to the costs, risks and benefits of regulating a service or entity.
- A clear spectrum of economic regulation mechanisms, including:
  - ♦ Information-disclosure (which could include price monitoring, or disclosure of pricing methodologies)

- Negotiate-arbitrate (which could include a third-party access regime)
- Access undertakings (which would allow for facilities to voluntarily commit to certain pricing and access arrangements)
- Codes of practice
- Price-quality control.

We suggest that PNG should consider adopting an explicit third-party access regime for ports with monopoly power, both private and public. This model would give primacy to negotiated outcomes between ‘declared’ monopoly port operators and port users, with compulsory arbitration if the parties cannot agree of access terms. There would need to be strong safeguards and clear principles to provide certainty and to protect the legitimate interests of investors in private ports. PNG could also leverage the Australian experience with third party access regimes when considering how this model might work effectively in PNG.

**Box 5.2: Principles for Third Party Access Regulation in Australia**

The Australian “Competition Principles Agreement” between the Commonwealth and State Governments sets out principles for regulating third party access to significant infrastructure, such as ports. Under this framework, access should only be regulated if:

1. It would not be economically feasible to duplicate the facility.
2. Access to the service is necessary to permit effective competition in a downstream or upstream market.
3. The safe use of the facility by the person seeking access can be ensured at an economically feasible cost and, if there is a safety requirement, appropriate regulatory arrangements exist.

Source: Council of Australian Governments <http://www.coag.gov.au/node/52>

We suggest that price monitoring should continue for port services where there are competition concerns, such as with cargo handling at smaller PNGPCL ports. The threat of more intense regulation in the future, if there is evidence of excessive pricing, can be used to discourage rent-seeking behaviour. This approach can also be used for other services where there is evidence of significant market power, and where more intrusive regulation would be disproportionate in the circumstances.

Finally, the economic regulatory framework needs to avoid duplication between port concession contracts and the regulatory framework. We suggest that the ICCC should have upfront powers to supervise the procurement of concession contracts at monopoly facilities, and backstop powers to regulate where these contracts do not fully address pricing, performance and competition objectives.

In addition to the above recommendations, which relate to immediate competition concerns, we recommend the following additional actions to improve the performance of the ports sector:

- **PNGPCL could be restructured into a platform for competition in port services.** To improve port performance and competition, we recommend PNGPCL should be required to adopt the landlord port model. PNGPCL could be tasked with optimising the use of its land assets, including port planning. This way, PNGPCL can use its knowledge of port operations to effectively

represent the public interest in a well-functioning ports sector, whilst leaving operations to competing private providers. This competition could be within PNGPCL ports, or through regular tenders for the right to service a port market.

Structural reform on PNGPCL could have the following elements:

- The operation and development of all major PNGPCL ports could be contracted to the private sector, under terminal concessions negotiated and monitored by PNGPCL (that is, competition for the market). These arrangements would need clear performance measures to hold operators to account, and safeguards to guard against monopoly pricing. Pricing for terminal rentals should also be reasonable, both to encourage as much competition for the concession role as possible and to protect consumers from excessive pricing.
- Where PNGPCL awards terminal concessions, competition could be increased by introducing competing terminals at both Lae and POM. Moreover, intra-port competition could be maintained by requiring the concession holder to allow third party access to the concession. However, whether these arrangements are practicable will involve a judgement call around whether one service provider is more efficient than several service providers in the context.
- For smaller ports, PNGPCL, on behalf of the Government, could consider entering into a public private partnership (or partnerships) for the operation, upgrade, and maintenance of those ports. This model might lift the quality and performance of these ports, and recognises that government support is necessary to keep these ports operational. The NMSA has recently entered into a similar arrangement for the maintenance of maritime navigation infrastructure in PNG, so there is precedent. Indeed, if private companies are already operating some of these smaller ports, then this model might already be in place.
- PNGPCL could operate under a charter or statement of expectations tasking it with improving the commercial performance of publicly owned ports whilst protecting the consumer interest. This arrangement might help better resolve the current conflict of interest whereby PNGPCL is incentivised to charge high rentals to terminal concession holders, but also represents the public interest in negotiating terminal concession arrangements.
- To protect against monopoly pricing by terminal concession holders, the ICCC could also monitor contract design and pricing to ensure they reflect a fair commercial return. A set of pricing principles for terminal concessions could be agreed upon between the ICCC and PNGPCL.
- Where PNGPCL continues to operate ports, third party access on reasonable terms could be guaranteed in order to maximise intra-port competition. And where intra-port competition is not feasible, PNGPCL could maximise use of competition for the market through regular procurement for port services.

Structural reform of PNGPCL would require careful reconsideration of the price-quality control framework currently governing PNGPCL. For example, if PNGPCL moved towards the landlord port model, it may be necessary to

progressively remove the current price-quality control framework. Instead, economic regulation may have to focus on monitoring how well PNGPCL is promoting the long-term interests of consumers through concession arrangements and management contracts with the private sector.

- **PNG should also complete its planned reforms of maritime regulation.** Regulatory conflicts of interest should be removed and legislative frameworks simplified. Commercial businesses should not be responsible for regulating licensing, port design, environmental issues, and harbour and port safety.

Specifically, we recommend that policy development is concentrated in the DoT; licensing, safety, and environmental regulation is concentrated in a division of the NMSA; and business operations left to the private sector. In our view, this would help remove conflicts of interest and improve accountability. We understand this recommendation broadly aligns with PNG's National Transport Strategy.

We also recommend that harbourmaster functions be transferred to the NMSA from PNGPCL, perhaps on a regionalised basis. Responsibility for harbour navigation infrastructure could also be transferred to the NMSA where this is practical, and where there are several competing port facilities in the particular harbour. This reform may help overcome the collective action problem of supplying infrastructure that benefits competing entities.<sup>42</sup>

- **SOE governance and accountability frameworks should be reformed.** The SOE governance framework does not promote accountability and commerciality. The government should introduce a new governance framework providing for more SOE autonomy and transparency. This aligns with the recommendations of the ADB of improving the performance of Pacific Island SOEs.<sup>43</sup>
- **CSO policy reform should continue, but with care.** The consensus view is that cross-subsidisation of ten loss-making ports is distorting PNGPCL's business and undermining the operation of its business.

However, at the same time, these ports may help support the economics of PNG's main hub ports. This network effect means that loss-making ports are not necessarily inefficient from a national welfare perspective. Moreover, these ports are likely to be critical to the ongoing welfare and economic development of the communities they serve.

CSO reform, therefore, needs to carefully balance commercial and national interest considerations. Over time, the Government should explicitly fund any loss-making ports where the marginal cost of these ports exceeds the marginal benefit to PNGPCL's business. However, where these ports are given subsidies, there is a risk that these subsidies may inefficiently fund PNGPCL's already profitable operations, further cementing PNGPCL's market dominance.<sup>44</sup>

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<sup>42</sup> Possible solutions to these coordination issues within declared port areas also include adoption of a ports management policy by the government, and a memorandum of understanding between the NMSA and port operators regarding the construction of navigation infrastructure.

<sup>43</sup> ADB. Finding Balance 2016. Above n 36, at 42-44.

<sup>44</sup> Ibid, at 37.

To improve performance and infrastructure quality, the Government might also consider exploring opportunities to use local government and private sector participants to manage and invest in these ports. The Government could bundle several CSO ports together, and enter into a public-private partnership for operation and maintenance. This arrangement would also help introduce competition for the market at ports where there is insufficient scale for direct competition. It also aligns with the ADB's recommendations for greater private sector involvement in the ports sector.

- **PNGPCL should consider introducing guaranteed berth windows.** We find the absence of guaranteed berth windows at PNGPCL ports inconsistent with international practice. Whilst we are unsure how material this issue is or whether it is practicable to implement guaranteed berth windows in the PNG context, we imagine that the lack of guaranteed berth windows makes it more difficult for shipping lines to operate in PNG. Moreover, guaranteed windows might provide an additional incentive for PNGPCL to operate efficiently, as berthing delays may result in PNGPCL breaching contracts with shipping lines.
- **Significant ongoing investment in port infrastructure will be needed.** Modern and efficient ports will improve PNG's overall economic performance and wellbeing. The benefits from ports are felt by the economy as a whole, and not just by those who directly participate in the ports sector. The use of government funds to invest in ports infrastructure is, therefore, justified, with costs spread over generations. Government-funded investment needs to be supported by robust business cases. With infrastructure investment, significant economic gains can often be realised by progressive improvements to existing infrastructure. Government should be sceptical of proposals to build entirely new state-of-the-art facilities. These proposals may have low benefit-cost ratios because of high costs and levels of project risk.

The Government should also explore the use of public private partnerships to maximise the value of investment in new ports infrastructure. Private sector expertise can help manage risk, and partnerships may allow the government to access more innovative financing arrangements.

Private sector investment will be critical. Government resources are, of course, limited. Increased private sector involvement will help increase the dynamism and level of competition within the PNG ports sector. The recent construction of the AES port in POM, with assistance from the World Bank's International Finance Corporation, is an example of how private sector investment can improve competitive dynamics in a market. Therefore, the government should ensure policies do not undermine investor confidence and crowd out private investment. Regulatory frameworks also need to be designed with investor certainty in mind.

A certain level of government funding should also be contestable by local government, given that several hundred ports through PNG are owned and maintained at the local government level.

## **Appendix A: Implementation Plan**

At the request of the ICCC, this Implementation Plan is drafted from the perspective of the ICCC to implement recommendations made by this Report. It is available for the ICCC to edit at its discretion.

*This Implementation Plan outlines a 3-step plan to protect the interests of consumers in the Papua New Guinea (PNG) ports sector:*

- *Steps A.1 and A.2 address immediate competition issues identified in the independent 'PNG Port Competitiveness Diagnostic Report' (Diagnostic Report) prepared for APEC and the Independent Consumer and Competition Commission (ICCC).*
- *Step A.3 responds to recommendations for improving PNG's economic regulation framework in the Diagnostic Report, which will require legislative change over the medium term.*

*Implementation of this plan will help induce efficient behaviour by commercial enterprises in the ports sector, thereby promoting sustainable, inclusive development that enhances the connectivity of PNG with the world.*

### **A.1 ICCC Review of Stevedore Access Arrangements**

*The Diagnostic Report identifies concerns that PNG Ports Corporation Limited (PNGPCL) is restricting stevedore access to certain key port facilities to the detriment of competition.*

*The ICCC, therefore, should assess the third-party access conditions at ports owned by PNGPCL when it conducts its Stevedoring and Handling Charges Review in 2018.*

*If the ICCC concludes that PNGPCL is restricting third-party access to its port facilities in a manner that is inconsistent with the ICCC Act, the ICCC will explore the policy responses available under the ICCC Act. One potential response would be for the ICCC to create a code for third party access to the PNGPCL facilities, pursuant to section 40 of the ICCC Act.*

### **A.2 ICCC Review of Concession Contracts**

*The negotiation of a terminal concession agreement between PNGPCL and a private operator is currently underway. The Diagnostic Report identifies that the ICCC should have a role in ensuring that terminal concession agreements are consistent with long-term interests of consumers. Specifically, the Diagnostic Report recommends that the ICCC review any final concession agreements against competition and regulatory principles.*

*The ICCC intends to review the compatibility of the final contractual terms and conditions against regulatory and competition principles. The Commission will ensure that the final terminal concession agreement is consistent with the requirements for service standards, market conduct and pricing, as stipulated under the PNGPCL Regulatory Contract and Essential Port Service Licence. Overall, the ICCC will evaluate whether the final terminal concession agreement is consistent with the long-term interests of consumers.*

*To support the ICCC's review of any terminal concession agreement, the ICCC will undertake capacity building within its organisation to ensure staff are equipped with the appropriate skills to evaluate terminal concession agreements.*

### **A.3 Review and Reform of the Legislative Framework**

*The Diagnostic Report also recommends several potential improvements to the regulatory framework governing competition in PNG. These recommendations are timely, given the current review of the competition and consumer legislative framework being led by the Department of Treasury.*

*Specifically, the Diagnostic Report recommends:*

- *Granting the ICCC greater flexibility to regulate where there is a lack of competition. For example, the current regulatory framework makes it difficult to regulate monopoly port facilities owned by private enterprises, even where these present the same competition concerns as PNGPCL-owned facilities. To address this issue, the Diagnostic Report recommends that the ICCC work with the Department of Transport to review and amend the Harbours Act so that all port operations in PNG can be regulated by the ICCC, where the threshold for economic regulation is met.*
- *Streamlining the current regulatory framework so the ICCC is able to:*
  - *Regulate for competition, where competition is practicable. For example, regulating third party access conditions at significant monopoly facilities, and*
  - *Regulate for consumer protection, where competition is not practicable. For example, price regulation of monopoly services.*
- *Broadening the regulatory tools available to the ICCC, so economic regulation can be better tailored to the circumstances of the relevant competition problem.*
- *Clarifying the principles and processes for imposing, amending and revoking economic regulation to give greater certainty to both the ICCC and industry participants.*