

Review of Port Tariff Structure and Levels in Indonesia

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Abbreviations and Acronyms

BUP	<i>Badan Usaha Pelabuhan</i> , Port Business Enterprise
CPI	Consumer Price Index
DIFOT	Delivery in Full and on Time
DWT	Dead weight Tonnage
GDP	Gross Domestic Product
GT	Gross Tonnage
LoLo	Lift on Lift off
MoT	Ministry of Transport
NTR	Non-Tax Revenue, <i>Penerimaan Negara Bukan Pajak</i>
RoRo	Roll on Roll off
TEU	Twenty Foot Equivalent Unit
TUKS	<i>Terminal untuk Kepentingan Sendiri</i> , Terminal for Own Use
Government Regulation No. 15/2016	Republic of Indonesia Government Regulation No. 15/2016 Concerning Types and Rates of Types of Non-Tax State Revenue that Apply to the Ministry of Transport. <i>Peraturan Pemerintah Republik Indonesia Nomor 15 tahun 2016 Tentang Jenis dan Tarif atas Jenis Penerimaan Negara Bukan Pajak yang Berlaku pada Kementerian Perhubungan</i>

Translation of port terms into Indonesian

Berthing	<i>Jasa Tambat</i>
Pilotage Services	<i>Jasa Pemanduan</i>
Port dues	<i>Biaya/Jasa Labuh</i>
Tug services	<i>Jasa Penundaan</i>
Wharfage	<i>Jasa Dermaga</i>
Anchorage area	<i>Daerah Berlabuh Jangkar</i>

Executive Summary

Indonesia needs huge investment to close the large gap with its peers in port infrastructure, a key transport node in such a large archipelago. For this gap to be closed, private sector participation will be essential. However, this analysis shows that one of the major impediments to attracting private investment are the limitations of the current tariff policy and the mechanisms to transfer the tariff revenues.

The analysis suggests that binding constraints are present in the tariff ceilings and adjustment mechanism, as well as in port institutions. These constraints result in an implicit policy of cross-subsidizing from commercial to non-commercial ports, and from international traffic to domestic traffic. Both these cross-subsidies lack efficiency and transparency. First, port tariffs are not based on cost recovery principles, reducing the attractiveness of investing in domestic ports and distorting incentives to invest across different ports. Second, port tariffs for international ships are too high, reducing Indonesia's international competitiveness. Third, a lack of transparency in ports' revenues adversely affects the ability to differentiate those ports that might be most suitable for private sector investment and those requiring subsidies. Lastly, the inability of Port Authorities' to retain revenues is an important barrier to the fulfillment of their mandates.

This analysis identifies deep-seated constraints in port tariff governance that lie at the heart of overall port reforms. While the World Bank Group presents a set of preliminary recommendations here, it nonetheless suggests undertaking a comprehensive Regulatory Impact Assessment¹ to explore the tariff problem and policy instruments in greater depth, and then estimating expected outcomes and impact. This assessment should be only a first step in issuing any new regulations and the preliminary recommendations from this analysis generated from the 10 case studies undertaken.

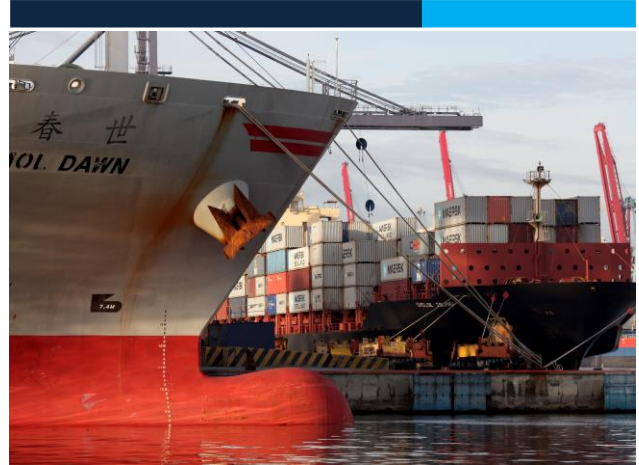
These recommendations should include, first, implementing cost-recovery and transparency principles in setting port tariffs. Second, they should include enhancing the capacity of Port Authorities to fulfill their mandates by providing them with the autonomy to apply their own tariff policies, including market-based tariffs that require no intervention. Third, differentiating port tariff-setting mechanisms across different types of shipping modes would support the development of specific modes, such as Roll on-Roll off (RoRo) and cruise ships.

The challenges in implementing these recommendations will be significant. Increasing the port tariff ceiling will require a lengthy and cumbersome process of written approvals from key port users' associations. Meanwhile, the tariff-setting mechanism remains very slow in responding to changes in the market, as well as in making regular adjustments for inflation. Hence, this analysis also calls for a review of the tariff-changing mechanisms.

¹ The legal status of tariff control should be considered through a review of Law No. 17/2008 on Shipping, which suggests (Article 109[2]) that the BUP decides on the applied tariffs. This review would establish whether the MoT has the prerogative to intervene in tariff setting.

Introduction

Adequate port performance is critical for an archipelagic country such as Indonesia to foster maritime connectivity and provide access to both foreign and domestic markets. Poor port performance has a cost-escalating impact on both imports and exports, as well as on domestically produced and distributed goods. Port infrastructure is a key determinant of port performance. Inadequate port infrastructure stifles productivity improvement in the shipping sector. This includes improving channel depth to allow access by larger vessels with better economies of scale, and the installation of mechanized cargo-handling equipment to allow for the faster loading and unloading of cargo, and in turn the higher utilization of existing port infrastructure and faster turnaround times for vessels.



Public investment in ports has failed to keep pace with economic growth in Indonesia. Robust average annual GDP growth of 5.6 percent in 2005-15 notwithstanding, Indonesia's total public capital stock per capita grew by only 2.8 percent annually on average over the same decade, significantly lower than in Vietnam (10.3 percent), China (6.7 percent) and Malaysia (3.7 percent). Indonesia's port sector is no exception to this under-investment. Only recently has Indonesia's busiest port of Tanjung Priok (Jakarta) been able to cater for direct container shipping services to the US west coast and Europe, following an almost two-decade interruption due to draft limitations. Other key gateways, such as Tanjung Perak (Surabaya), Tanjung Emas (Semarang) and Belawan (Medan), are unable to receive larger vessels due to their own draft limitations, despite demand from shipping lines and the economies of scale that larger ships would generate. Port infrastructure development is high on the agenda of the current administration and private sector participation in ports has been encouraged, but tangible outcomes have thus far been disappointing.

Context

In 2008, Indonesia passed Law No. 17/2008 on Shipping (the 'Shipping Law'), aimed at introducing more private sector participation into the operation of Indonesia's ports, among others. State withdrawal from port operation in Indonesia is in line with global trends in port governance, whereby a 'landlord model' has been developed as a successful port governance model elsewhere. The role of the Pelindo state-owned port companies² was confined to that of operator of commercial ports as a result of the Shipping Law and the Pelindos were required to compete with private sector entrants. To regulate activities in commercial ports, the Shipping Law introduced a new entity, namely the Port Authorities (*Otoritas Pelabuhan*). Meanwhile,

² The origins of the Pelindos can be traced back to the state-owned enterprises that took over the ports after the colonial era. Since then, their role has transformed due to corporatization in the 1992 port reforms and their separation to focus only on the operator function since the 2008 reforms.

non-commercial³ ports continued to be operated and regulated by the Ministry of Transport (MoT). The key responsibilities of Port Authorities in commercial ports are listed below:

- Develop and maintain a Port Master Plan.
- Regulate all activities within the port.
- Develop and maintain basic port infrastructure, including dredging, breakwaters, the provision of land, etc. and propose rates at which they should be released to concessionaires.
- Issue concessions to port business entities so that they can provide port services (or ensure that port services are provided).⁴
- Preserve/manage the environment.
- Ensure that security is maintained.

In contrast to global best practice, however, Indonesia's Port Authorities are not (semi)autonomous corporate entities, but part of the MoT under the Directorate of Ports and Dredging.

There are strong reasons why autonomous corporate Port Authorities have become global best practice. Being autonomous allows Port Authorities to instigate their own hiring policy that enables them to match private sector salaries to ensure competent staff with in-depth market knowledge are attracted. Port Authorities can also retain revenue and, where feasible, are permitted to make use of debt financing to reinvest. Furthermore, Port Authorities generally have divergent procurement policies from the national or subnational governments they represent. The combination of these critical factors allows Port Authorities to respond more appropriately to market demands, improving the attractiveness of ports to users. This in turn increases activities in and around ports that are directly beneficial to the state through dividends, and indirectly beneficial through increased employment, and higher tax and non-tax revenues.

Despite this global best practice, in accordance with Indonesia's Shipping Law, its Port Authorities can only be staffed by civil servants, with divergent salaries compared with the private sector. Furthermore, Indonesia's Port Authorities do not retain revenue, making it complex to respond rapidly to public investment needs in ports.

Reforming institutional arrangements in the port sector has already been successfully undertaken in several countries, such as China (2001) and India (2016). However, for reforms to be successful it is vital that the responsible institutions have adequate financial resources to fulfill their mandates as required by law. Historically, institutional reforms in the port sector have also been coupled with the dismantling of distortionary port tariffs.

Regardless of significant differences in hydrographic conditions, port dues (*biaya/jasa labuh*) that are collected by Port Authorities in Indonesia as non-tax revenue (NTR) are sixteen times lower for domestic operating vessels than for international operating vessels. The same level of dues is applied across all the

³ Indonesia is home to 110 commercial public ports and over 800 public non-commercial ports. Private ports and terminals for own use (TUKS) are not addressed in this study.

⁴ The Port Authority when concessioning a port service will monitor the quality of the service and can sanction when performance levels are below standard. Port Authorities may offer services in situations where there is no private operator. The most common example of this is for pilotage services.

major ports (Tanjung Priok, Tanjung Perak, Makassar and Belawan). This suggests major constraints in the governance of port tariffs. Table 1 provides an overview of port dues applied in Indonesian ports. It should be noted that port dues are one of multiple charges incurred by ships when calling at a port. To understand the total cost of call a more thorough analysis is required.

Table 1: Port dues (*biaya/jasa labuh*) as per Regulation No. 15/2016 on NTR in the transport sector

Port classification	Unit	International rate	Domestic rate	Traditional rate
Main port	GT/day	Rp 1,452	Rp 90	Rp 50
Class I	GT/day	Rp 1,320	Rp 87	Rp 47
Class II	GT/day	Rp 1,188	Rp 84	Rp 44
Class III	GT/day	Rp 1,056	Rp 81	Rp 41
Class IV	GT/day	Rp 924	Rp 79	Rp 39
Class V	GT/day	Rp 792	Rp 76	Rp 36

The disproportionate difference between international and domestic tariffs, and the fact that there is no distinction based on the type of vessel, only on port classification, seems indicative of the absence of a sound port services pricing policy.

Objective

This report presents the results of analysis undertaken by the World Bank Group on port tariff governance in Indonesia. A range of previous reports on the maritime sector describes constraints in institutional arrangements, competition and physical infrastructure, while the issue of tariff governance is largely overlooked. As such, the objective of this analysis is to:

- Provide a description of port tariffs and associated processes in ports in Indonesia;
- Benchmark port tariffs in Indonesia against other port tariffs in the region, based on the total costs of call; and
- Assess the ‘cost recovery’ ability implied by the tariffs.

While the work in this analysis is not fully comprehensive, it seeks to provide general insights that can support an understanding of the various policy options available. To present these general insights, ten case studies have been studied that reveal the various outcomes of the current port tariff regime.

Methodology

To draft preliminary case studies based on benchmarking, a total cost model approach has been used. This means that rather than comparing specific tariff rates, the cost of a ship's call at port has been assessed and compared.

To provide a range of understanding, the cost of port calls was estimated for the following types of ships: container, bulk carrier, general cargo, RoRo and passenger ships, including cruise ships. The principle dimensions of these ships assumed in the analysis are provided in Tables 2 and 3.

Table 2: Assumed dimensions of container, bulk carrier and general cargo vessels

Container Ship		Bulk Carrier		General Cargo	
1,200 TEU		10,000 DWT		5,000 DWT	
GT	14,290	GT	6,503	GT	3,164
Deadweight	15,316	Deadweight	10,000	Deadweight	5,000
Length	158.7	Length	113.7	Length	95.3
Breadth	25.6	Breadth	18.63	Breadth	13.4
3,600 TEU		25,000 DWT		20,000 DWT	
GT	41,483	GT	15,609	GT	13,647
Deadweight	53,100	Deadweight	25,000	Deadweight	20,000
Length	254	Length	159.92	Length	158.8
breadth	32.2	breadth	26	breadth	24
45,000 DWT					
		GT	29,255		
		Deadweight	45,000		
		Length	189.99		
		breadth	32.26		

Source: Seaport Consultants Asia based on IMO registrations of principle dimensions.

Table 3: Assumed dimensions of RoRo, passenger, ferry and cruise vessels

RoRo Vessels		Passenger Vessels	
RoRo Cargo Vessel		600 Passengers	
GT	60,000	GT	20,704
Deadweight	27,000	Deadweight	3,498
Length	211.6	Length	176.25
Breadth	32.2	Breadth	22.6
TEU	2,130	Passengers	600
Vehicles	1,990		
RoRo Vessel		1,500 Passengers (Cruise Ship)	
GT	18,000	GT	42,285
Deadweight	6,800	Deadweight	5,000
Length	156	Length	216.17
Breadth	21	Breadth	32.64
Vehicles	145	Passengers	1,500
Car & Passenger Ferry		3,400 Passengers (Cruise Ship)	
GT	2,438	GT	150,695
Deadweight	855	Deadweight	15,370
Length	87.6	Length	335.2
Breadth	17.5	Breadth	44.35
Vehicles	100	Passengers	3,400
Passengers	600		

Source: Seaport Consultants Asia based on IMO registrations of principle dimensions.

Benchmarking with Other Ports in Southeast Asia

No two ports are directly comparable in terms of cost (or in any other terms, for that matter). For example, the approach channels of ports can differ greatly in terms of length and the bends that have to be navigated, as well as in their depth and width. Port location compared with the main shipping lanes always varies, as do their connections to the hinterland and how they interact with the

hinterland. For example, the Port of Yangon, the largest port in Myanmar, is situated far from the main shipping lanes and requires navigation of a long rapine approach channel. Singapore, in contrast, is adjacent to the main shipping lanes and involves almost no approach channel, with most of the approach time taken up in navigating other berths and terminals to a ship's destination berth or terminal. Table 4 provides the major characteristics of the eight ports against which Indonesia's major ports have been benchmarked.

Table 4: Characteristics of comparator ports in Southeast Asia

Descriptor	Containers (m TEU)	Tonnage (m Ton)	Ship arrivals (no.)	Approach/diversion
Singapore (2018)	36.6	630	140,768	None/None
Klang (2017)	12.0	212	15,337	10 km/20 km
Penang	1.5	34.4	7,200	10 km/200 km
Johor Baru (incl. PTP)	9.2	-	7,700	10 km/10 km
Yangon	1.1	9	2,267	50 km/1,100 km
Laem Chabang (2017)	7.7	80	-	3 km/900 km
Manila	1.7	55.6	110,709	80 km/1,200 km
Saigon (2017)	6.1	-	-	50 km/115 km

Source: Seaport Consultants Asia based on Admiralty Charts and Shipping Directions.

Case Studies

In selecting the case studies, an attempt was made to balance descriptive understanding, benchmarking and cost recovery. Table 5 lists the ten case studies and indicates their focus within the analysis.

Table 5: List of case studies

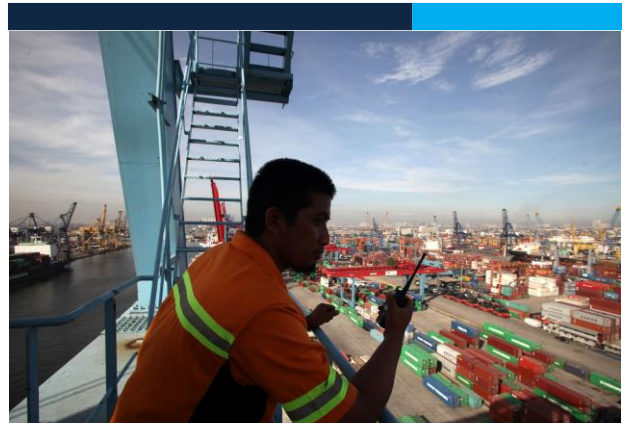
Ref.	Case Study	Process	Bench-marking	Cost	Comments
1	Cruise Ships	Yes	Yes	Yes	Cruise lines complain that high costs deter cruise ships from calling at ports in Indonesia.
2	Tugs	Yes	Yes	Yes	Investment in tugs is a critical element in ensure safe marine access to Indonesian ports.
3	Port Dues	Yes	Yes	No	Port dues are reported to be high across Indonesia for international ships.
4	Pilotage	No	Yes	Yes	Pilotage has been cited as a significant cause of delays in ports across Indonesia.
5	RoRo Tariff	Yes	No	Yes	Stakeholders seeking to establish freight RoRo services complain port costs are very high despite the low cost of delivery.
6	Changing Tariff	Yes	Yes	No	The level of port tariffs has not changed for over 10 years.
7	MoT Wharfage	No	No	Yes	MoT Wharfage is cited as a logistics tax or as the reason port operations in low volume situation are not provided.
8	Port Authority Costs	Yes	Yes	Yes	Consistent complaints are made that Port Authorities' costs are high in Indonesia without providing appropriate service levels.
9	Non-Tax Revenue	Yes	No	No	The MoT notes that it has no budget to maintain or expand basic port infrastructure.
10	LoLo Tariff	No	Yes	Yes	LoLo tariffs lead to a lack of investment in domestic terminals and higher logistics costs.

The case studies accompanying this report can be found in the second section. These case studies provide the main commentary on port tariffs, together with the conclusions and associated recommendations that follow.

Review of Indonesia's Port Tariffs

Overview

Port tariffs are published and promulgated in regulations in Indonesia by the President of Indonesia, following a request and input from the Ministry of Transport.⁵ The latest and therefore current version of these tariffs are found in Government Regulation No. 15/2016 on Non-Tax Revenue in the Transportation Sector. The regulation includes, among others, port dues (*biaya/jasa labuh*) in all ports and tariffs for port services provided by the ministry in non-commercial ports. In commercial ports such services are executed by private Port Business Enterprises (BUP license-holders) and need to be published. The level of the tariff applied by BUP holders is subject to approval from the MoT.



Through the ten case studies, this report focuses on Government Regulation No. 15/2016, but also comments on specific tariffs issued by BUP holders to provide a broader commentary on the subject. This section focuses on Government Regulation No. 15/2016.

Government Regulation No. 15/2016 is a complex document. The highest level of difference is between commercial and non-commercial ports. International, domestic and traditional shipping provides a lower level of classification. Beyond this, differentiation of ports is covered by the port classifications.

Commercial and Non-Commercial Ports

As stated in the introduction, the difference between commercial and non-commercial ports is outlined in Law No. 17/2008 on Shipping (the 'Shipping Law'). However, an actual definition of commercial and non-commercial ports is not stated in the law. De facto, it has been assumed that ports operated by the Pelindos are commercial ports, and other ports are non-commercial.

A specific, objective definition is useful in the overall development of port policy, including policies relating to port tariffs. Examples of possible definitions could be as follows:

- It is possible to sustain operations over a long period and recover the cost of basic infrastructure from users through private investment;
- It is possible to sustain operations over a long period, but recovering the cost of basic infrastructure from users is not possible for private investment; and
- A large majority of port services are provided by the private sector.

It is likely that a substantial number of ports currently operated by the Pelindos are not commercial when measured against more rigorous definitions of what constitutes a commercial port.

⁵ The procedure to promulgate a Government Regulation is to submit the draft of the Government Regulation to the Ministry of Justice & Human Rights, after which it is discussed with related ministries for further refinement. In this case, the Ministry of Transport is the main counterpart.

International, Domestic and Traditional Vessels

There are substantial differences between the charges levied on international and domestic vessels, regardless of the size of the vessel. For example, the anchorage charge (*biaya/jasa labuh*) on an international vessel at a non-commercial Class 1 port is Rp 713 per GT/call, while for a domestic vessel it is only Rp 61 per GT/call, and for a traditional vessel it is just Rp 31 per GT/call. Further discounts for domestic and traditional vessels can be obtained for regular calls. However, the service provision and requirements of vessels do not differ if they are international, domestic or traditional, but only differ based on vessel size. It is therefore logical to assume that such a tariff differential is likely to discourage international trade or act as a tax on international trade, make developing and maintaining ports to support domestic trade less attractive and discouraging port investment. The case studies seek to examine these assumptions and understand if they are valid and have practical impacts.

Port Classification

The Shipping Law provides a categorization of ports into main ports, collector ports and feeder ports. It also identifies commercial and non-commercial ports. Government Regulation No. 15/2016 also recognizes the difference between commercial and non-commercial ports, and recognizes within the tariffs for commercial ports the concept of a ‘Main Port’. Beyond the main ports, an alternative system of classification is adopted: Class I, Class II, Class III, etc., ports. This alternative classification is in line with the National Port Master Plan. However, there is no clear rationale provided for this classification.⁶ The tariff rates are differentiated based on the class of port, as shown in Table 6.

Table 6: Tariff for berthing services (*jasa Dermaga*) for international ships at a wharf from Government Regulation No. 15/2016

Port Classification	Unit	Rate
Main port	GT/day	Rp 1,452
Class I	GT/day	Rp 1,320
Class II	GT/day	Rp 1,188
Class III	GT/day	Rp 1,056
Class IV	GT/day	Rp 924
Class V	GT/day	Rp 792

There is no correlation between the class of port and the cost of the provision of the service. Furthermore, there is no definition of the level of subsidy that should be provided (or considered) based on the class of port. In terms of policy, this gives rise to two key concerns:

- there is no link between service charges and cost recovery; and
- the classification provides no framework for decisions on the level of subsidization.

Types of Charges

Tariffs cover seven main areas, namely, anchorage services (*biaya/jasa labuh*), pilotage (*jasa pemanduan*), towage or tug provision (*jasa penundaan*), berthing (*jasa tambat*), wharfage (loading, storage, etc.) (*jasa Dermaga*), and the use of Port Authority equipment, together with other charges. A review of the general implications of these charges is provided in Table 7.

⁶ Classification criteria for seaports (*Rancangan Kriteria Klasifikasi Pelayanan Pelabuhan*) do not include any financial or productivity indicators.

Table 7: Port services for ships contained in Government Regulation No. 15/2016

Tariff area	Service provided
Anchorage	Charge for ship entering, leaving and laying at anchor in defined areas.
Pilotage	Provision of pilot to guide vessel safely down approach channel or perform specific maneuvers in shallow/port waters.
Towage	Provide tugs to support specific maneuvers in shallow/restricted or port waters.
Berthing	Charge for bringing a ship alongside and laying alongside.
Wharfage	Charge for using a wharf to load or unload cargo (alternative the charge for providing a loading or unloading services).
Equipment	Charge for use of equipment owned by the Port Authority.
Others	Miscellaneous charges.

Exceptions and Deviations from Tariff Practice

For the provision of specific services, the tariffs in Government Regulation No. 15/2016 allow for the provision of services usually provided by the public authority by Port Business Enterprises (BUP license-holders). In such cases, a percentage of the charges made by the BUP license-holder must to be passed on to the MoT, as follows:

- 5 percent of pilotage and towage revenues when supplied by a BUP license-holder.
- 5 percent of pilotage and towage revenues for special terminals outside a port working area.
- 50 percent of berthing services revenue at special terminals or ports.

If the charges of the BUP license-holder are controlled by Government Regulation No. 15/2016, these percentage charges make it more difficult for the BUP license-holder to recover its costs and benefit from the investment it has made to provide the services. If the BUP license-holder sets rates independently, these percentages act as a tax or rent on the provision of the services provided.

The charge of 50 percent on berthing services has a number of potential impacts. First, a disproportionate increase in the costs of shipping minerals and agricultural products from special terminals away from public ports is likely, focusing development in and around public ports, and disadvantaging those living and working away from those public ports. Second, it makes the costs of the service provision uncompetitive compared with public ports, forcing larger volumes of cargo onto roads rather than using more environmentally friendly and energy efficient ships. Third, it acts as a tax on development where there is no provision of services.

Other Commentary

Since 2009, Indonesian port tariffs denominated in Indonesian rupiah have remained unchanged, despite new tariffs being issued in 2009, 2015 and 2016, while consumer prices (CPI) have increased by 54 percent in this period. While not a direct measure of inflation in the cost of port operations, the CPI is a reflection of cost increases in some significant aspects of port operations; without any compensating change in productivity this means that the profitability of port operations has reduced. A corollary of this is that the ability to fund or justify investment has similarly reduced.

One complicating factor in considering tariff changes is that some tariffs for international ships and cargos were in US dollars in the 2009 tariffs and some in rupiah in the 2016 tariffs. The former tariffs have been

redenominated from US dollars to rupiah in compliance with policies and regulations issued by Bank Indonesia on the use of the rupiah. On December 31, 2009, US\$1.00 was equivalent to Rp 9,400, while on December 31, 2016, the rupiah had weakened to Rp 13,200, falling to Rp 14,000 on April 15, 2019. The exchange rate used to convert tariffs was at the rate prevailing in 2016. This means that in rupiah terms the international tariffs have increased significantly, but in US dollar terms they have remained effectively unchanged.

Conclusion

Indonesia remains in need of significant investment to close its large gap in port infrastructure. Given the fiscal budget constraints and overstretched financial accounts of SOEs, private sector participation is essential in this endeavor. However, this analysis shows the limitations of the current tariff policy to attract private investment and to allow the appropriate development and maintenance of infrastructure. To achieve any breakthrough in the port sector, port tariff reform and revenue retention are both crucial.

The analysis suggests that binding constraints are present in the tariff ceilings and adjustment mechanism, as well as in the port institutions. These constraints result in an implicit policy of cross-subsidizing from commercial to non-commercial ports, and from international to domestic traffic. Both these cross-subsidies lack efficiency and transparency.

1. Port tariffs are often not based on cost recovery principles and are difficult to change, reducing the attractiveness of investing in domestic ports and distorting incentives to invest across different ports

Tariff-setting is not based on cost-recovery principles on a port-by-port basis, as should be the case. The benchmarking exercise in the study suggests that the costs for domestic calls of vessels are artificially low—and the lowest in the region. The case studies on tugs, pilotage and cargo-handling charges show that domestic tariffs are set below cost recovery, and hence private sector participation should not be expected in these activities. This negatively affects the efficiency of domestic ports, increasing logistics costs and reducing the quality of services, thus offsetting the benefits of lower tariffs for users. While internationally, ports would tend to adjust tariffs with inflation and other changes in business environment, the cumbersome regulation make it difficult to change port tariffs in Indonesia. Tariff can be adjusted only conditional on improved port performance⁷ - without any clear definition of it - and require written approval from several port users which have a natural incentive to oppose any tariff increase.⁸ These port users may also have opposing interests which can stifle the approval process. Once written approval has been obtained from port user associations, a final approval needs to be granted by MoT which further delays the tariff adjustment exercise.

In addition, port dues are generally assumed to be used to recover costs for marine access investments (e.g., capital and maintenance dredging), but the report's analysis illustrates that the applied tariffs do not

⁷ Guidelines for the Process of Preparing Minister of Transportation's Consideration on Proposed Port Services and Airport Service Rates by Business Entities (Ministry of Transport Regulation No. 7 of 2015)

⁸ Ministry of Transportation Regulation No. 72 of 2017 on Types, Structure, Classes and Mechanisms of Determination of Ports Tariff Services provides a list of associations to be consulted: Indonesian National Shipping Association (INSA), Indonesian Exporters Association (GPEI), Indonesian Importers Association (GINSI), the Indonesian Freight Forwarders Association (ALFI).

respond to basic hydrographic conditions. Makassar and Belawan apply the same port dues, despite the latter requiring far greater investment to maintain its access channel and ensure safe navigation.

Port dues are furthermore charged on a gross tonnage (GT) basis, with no differential rate to accommodate vessels that by design have more enclosed spaces, such as cruise and RoRo vessels, and hence a higher GT. This is despite the fact that such vessels require less draft than container or bulk vessels and therefore place less stress on marine infrastructure. It is common practice to distinguish port dues among the different types of maritime traffic to accommodate vessel and trade particularities.

2. Port tariffs for international ships are too high, hence reducing Indonesia's international competitiveness

The benchmarking exercise suggests that the costs of an international port call in Indonesia are among the highest in Southeast Asia. Port dues (*biaya labuh*) are sixteen times higher for international vessels than domestic vessels, and these dues are the largest cost component of the total cost of call. This likely limits Indonesia's international competitiveness to the extent that these high tariffs translate into higher logistics costs for international trade. The high tariffs on international shipping also hinder Indonesia's attempt to develop transshipment. Similarly, the report finds that the high cost of international calls for cruise ships results in shipping lines foregoing Indonesia, despite the significant potential.

3. Lack of transparency in ports' revenues affects the ability to differentiate ports suitable for private sector investment from those requiring subsidies

The disproportionate difference in tariffs between international and domestic service users also acts as a cross-subsidy. Ports and terminals catering to international trade effectively subsidize inter-island domestic trade, which cabotage reserves only to Indonesian shipping lines. This cross-subsidy from international to domestic trade is becoming increasingly unsustainable as domestic trade has been outgrowing international trade. In addition, it relies on only a handful of ports that manage international traffic. For containerized cargo, for example, four ports alone handle 82 percent of all international trade.⁹ As a result, there is pressure on key gateway ports to generate revenues that clashes with the need to facilitate trade.

A significant number of ports in Indonesia will always depend on government subsidies to maintain a minimum level of service, as they are not commercially viable. However, the cross-subsidy mechanism as currently applied is not the best tool to deliver these subsidies. The current redistribution of revenue (through the Ministry of Finance), in combination with artificially low tariff setting, does not allow the amount of subsidy needed in each port to be determined on a port-by-port basis. This lack of transparency also affects the government's level of certainty to define ports for sustainable private sector investment.

4. Port Authorities' inability of retaining revenues is an additional barrier to fulfilling their mandate

According to the Shipping Law, Port Authorities are expected to maintain port access infrastructure. However, unlike their peers in the region they are not allowed to retain revenues under the current regulatory environment. All revenues collected by the Port Authorities, including port dues and concession

⁹ 52% in Tanjung Priok, 16% in Tanjung Perak, 8% in Belawan and 6% in Tanjung Emas.

fees, are transferred to the Ministry of Finance as non-tax revenue (NTR). These revenues are used to fund the central budget and only part of them are typically transferred to Port Authorities via the allocation of the budget to the Ministry of Transport. The transfers are also subject to changing government priorities. Even within the Ministry of Transport shifting priorities for budget spending, such as the development of non-commercial ports and subsidized shipping services (*tol laut, perintis*), contribute to making port revenues a less reliable source of funding for Port Authorities. In addition to the revenue retention constraint, Port Authorities are not allowed to hire non-civil servants—a much-needed resource of expertise in port development and operations.

Recommendations

This analysis translates into a number of recommendations below on: (i) implementing cost-recovery principles in tariff settings; (ii) strengthening Port Authorities' capacity; and (iii) leveraging port tariffs to develop non-container shipping. This assessment should be followed by more specific analyses on the operationalization of the recommendations, for instance on the actual formulae to compute different types of tariffs, what criteria should be used in deciding on the eligibility of ports to receive subsidies and in what amounts.

1. Implementing cost-recovery principles and transparency when setting port tariffs will support the government's ability to improve port competitiveness

- Tariff rates, wherever they are set by the regulator, should be computed on a cost recovery basis so as to enable clear economic assessment of the benefits when deciding on subsidy levels to ports. Subsidies will be required in ports where port services would otherwise be so high that they would attract no demand or inflate costs beyond what the market can bear.
- Tariff rates should automatically be corrected for inflation at set intervals (annually or bi-annually).
- Port dues should be structured to allow for: (i) a fixed per-entry cost on the basis of the ship's size; and (ii) a variable cost on the basis of the length and complexity of maintenance inherent in the approach channel.
- Pilotage should be structured to allow for: (i) a fixed per-entry cost on the basis of the ship's size; and (ii) a variable cost on the basis of length and complexity of navigating the approach channel.
- Towage should be set on a port-by-port basis to distribute the fixed costs over the expected volume and type of traffic. Discounts could be provided to ships not requiring tugs, such as cruise ships.
- Tariff differentials between international and domestic ships should be reduced and eventually eliminated, as the services provided and the costs of service provision do not depend on whether a ship is domestic, international, modern or traditional. This should allow more resources to be channeled to port infrastructure development and maintenance. This policy would incentivize domestic shipping lines to invest in productivity enhancing technology, also allowing them to explore international services.
- Written approval for tariff adjustment by port user associations should be discontinued. Regulators may consult port user associations on conditions in the industry, as is common good practice, but port users should leverage no direct influence on the level of tariffs applied.

- Financially sustainable tariffs would encourage much needed private sector investment in port services, thus increasing the resources available in the sector and stimulating competition in port operations and services.

2. Enhancing Port Authorities' capacity to fulfill their mandate

- Indonesian Port Authorities should be constituted in a manner that allows them retain revenue and subsequently use this revenue to reinvest in ports. This will demand proper accounting of income and expenditure.
- Indonesian Port Authorities should be constituted in a manner that allows them, were feasible, to take on debt to finance investment in ports.
- Port Authorities should have autonomy to apply their own tariff policies, including market-based tariffs, that requires no intervention. In conditions where there is insufficient contestability, Port Authorities have the freedom to apply suitable tariff control instruments that may include tariff filling, a tariff ceiling or direct tariff setting, but always on cost-recovery basis.

3. Leveraging port tariffs to support the development of non-container sectors

- A specific RoRo cargo-handling tariff should be established because the currently applied LoLo tariffs undermine the economics of RoRo.¹⁰
- A specific cruise tariff should be established that supports the Ministry of Tourism and Culture's focus on encouraging the development of the tourism sector. This should be assessed on a port-by-port basis to understand the level at which existing maritime traffic can generate potential discounts for cruise traffic. Introducing a differential rate for cruise ships can substantially reduce the cost of call based on existing applied port dues prior to additional discounts.

These recommendations are a first step toward improving one critical area of Indonesia's investment climate, namely the country's ports and terminals. A more critical review of the concessionary legal framework and current concession agreements would be the next step. Such review would need to take into consideration strategies to attract private sector participation in ports in order to support the development of a competitive maritime sector in Indonesia.

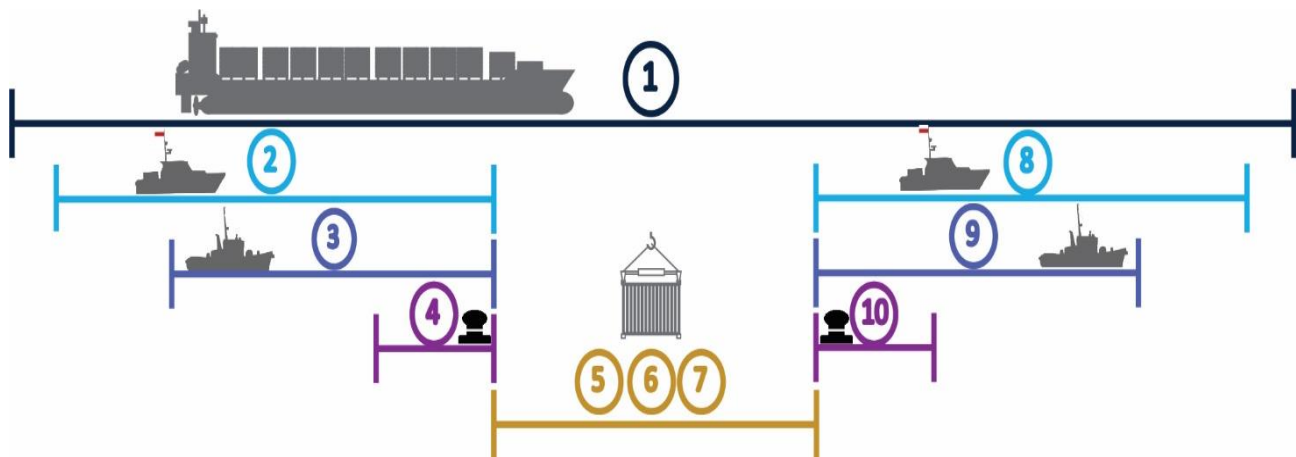
¹⁰ RoRo has higher shipping costs per ton than other unitized cargo such as containers. However, RoRo has generally very low cargo-handling charges due to the self-moving nature of the cargo. These low handling fees offset the higher shipping costs and, together with the faster speed of the services, make RoRo shipping ideal within a 600 nautical mile range.

Compiled Case Studies

September 2019

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Schematic representation of the various stages of arrival and departure of a vessel in port



Note: 1) A vessel incurs port dues over the entire length of stay. 2) A pilot boards to assist vessel navigation to the berth. 3) Tugs assist a vessel in maneuvering into the berth. 4) Mooring services tie a vessel to the berth. 5,6,7) A vessel incurs berthing, wharfage and cargo-handling charges, subject to the structure of tariffs in each port or terminal. 8) A pilot boards to assist vessels navigation from the berth to the open sea. 9) Tugs assist a vessel in maneuvering away from the berth. 10) Mooring services untie a vessel. Note: Mooring services are not covered in this report.

Cruise Ships

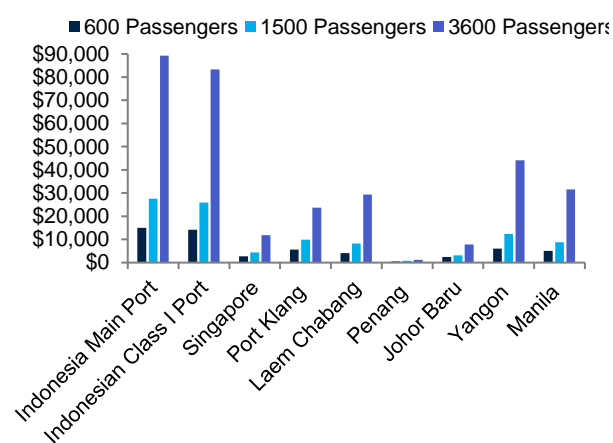
Indonesia is without doubt a compelling destination for cruise ships. The archipelago offers a wide range of potential destinations with environmental, cultural, historical, and more standard leisure and sporting activities. Indonesia also offers a substantial source market for passengers. However, no cruise line has chosen to base a ship in the archipelago and the number of calls from cruise ships transiting the archipelago has fallen over the past three years. Perhaps most notably, cruise ship calls to Bali—seen as the jewel in Indonesia’s crown by the cruise lines—have also fallen over the past three years.

The reasons for this poor performance are varied. However, this study suggests that issues relating to the port dues (*biaya labuh*) charged by the Indonesian Port Authorities and terminal operators lie behind the country’s unattractiveness to cruise ship calls.

The charges¹¹ levied on three typical cruise ships were assessed. The selected ships had capacities of 600, 1,500 and 3,600 passengers. Figure 1 presents the Port Authority charges on these three types of cruise ship levied by Main Ports and Class 1 Ports across Indonesia. The Main Ports include key hubs such as Tanjung Priok (Jakarta) and Makassar, while the Class 1 Ports include significant ports such as Tanjung Emas (Semarang) and Benoa (Bali). Figure 1 also presents the charges levied by other ports in Southeast Asia as comparators.

The Port Authority dues levied by ports in Indonesia are many times higher than those levied by ports in other countries in Southeast Asia. The average dues levied by Port Authorities at an Indonesian port for a call by a 3,600-passenger cruise ship are just under US\$100,000, compared with the average dues levied on the same ship for calls at other ports across Southeast of under US\$25,000. These port dues have been verified with cruise shipping companies. By the nature of the service, cruise ships will call at a string of ports in a short period and hence incur these costs at each port of call. A six-day/five-night cruise will call at at least three ports.

Figure 1: Port Authority charges¹² for cruise ships



Source: Authors’ calculations based on published tariffs in applied ports.

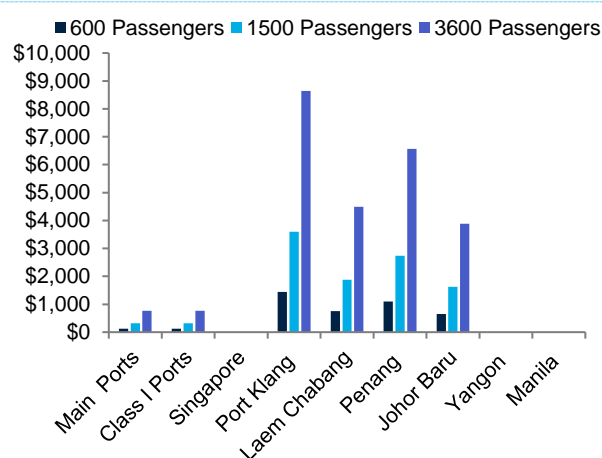
The key reason for this significant differential in charges is that the Indonesian tariff system sets tariffs

¹¹ These charges remain the same whether the ship berths alongside or is anchored offshore while passengers are ferried to and from the shore by small boats—a practice not uncommon for cruise ships in Indonesia.

¹² Government Regulation No. 15/2016 on Non-Tax Revenue in the Transportation Sector.

for cruise ships in the same way as it does for the other types of ships that focus on cargo. The rate for Port Authority charges is set as a factor of gross tonnage (GT). However, GT is not assessed based on vessel weight but on the total enclosed volume of the vessel.¹³ Given the fundamental different design of cruise ships, these ships have considerably more enclosed spaces than cargo ships and hence a much higher GT. In many ports, this is addressed through a differential rate, or a discount, for cruise ships. This ensures that ships of a similar length and draft, but with different designs, are charged similar total port dues.

Figure 2: Terminal operator charges for cruise ships



Source: Authors' calculations based on published tariffs in applied ports.

A further element to consider in port dues is the stress placed on infrastructure. For a Port Authority, this usually means the maintenance of the approach channel by dredging and the provision of aids to navigation. In general, cruise ships are less demanding in terms of channel depth and navigation aids than container, tanker or dry bulk ships. A cruise ship of a comparable length requires less draft than a fully loaded container ship, tanker or dry bulk ship, and cruise ships are also highly maneuverable. The conclusion, therefore, is that on a user's service-

intensity basis, a cruise ship should pay less than a comparable container, tanker or dry bulk ship.

Port Authority dues are only part of the total cost of a cruise ship call. Figure 2 shows the additional charges levied by the terminal operator for embarking and disembarking passengers on a cruise ship. At Indonesian terminals, charges are based on the passenger tariff, which does not recognize any difference between cruise ships and domestic ferries. Indonesian terminal charges are lower than those in other Southeast ports. This means that, while Port Authorities over-charge cruise ships, in contrast, based on the tariff,¹⁴ terminal operators under-charge them. The applied terminal tariff suggests that cruise passengers are charged the same as regular domestic passengers. Due to the archipelagic nature of the country, Indonesia has a large inter-island passenger shipping industry, with state-owned PT. Pelni being one of the country's largest operators

If we assume that terminal operators at other ports in Southeast Asia handle cruise ships for a profit, the difference in charges suggests that it is unlikely that ports across Indonesia can handle cruise ships profitably. This leads to the conclusion that ports usually consider cruise ships a 'loss leader'. Cruise ships are therefore handled for the benefit of the local community rather than for profit. This statement is particularly true for 'call'¹⁵ ports rather than 'home ports'.¹⁶ Put another way, cruise ships are usually beneficial¹⁷ for the economy of the community around the port, but are often commercially difficult for port operators. It is not unusual for cruise terminal operations to be subsidized by governments. For example, the Marina Bay Cruise Terminal in Singapore receives such subsidies, given that the terminal has found it impossible to recover the capital costs involved in its construction. Instead, the costs of construction are being met by a combination of support from the Singapore Tourism Board and the

¹³ Formula according to the International Convention of Tonnage Measurement of Ships. $GT = K * V$. $K = .2 + 0.2 * \log_{10}(V)$, and V = interior volume of a vessel in cubic meters (m^3).

¹⁴ There is evidence that terminal operators levy other charges that may undermine this statement.

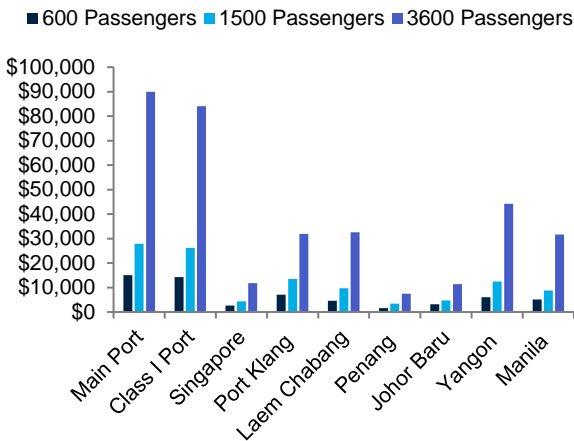
¹⁵ Where passengers disembark for tours or activities and all or most reembar prior to the ship's departure.

¹⁶ A home port is one at which substantial numbers of passengers (dis)embark for (from) their cruise, and potentially where the ship is based for prolonged periods of time and operates itineraries beginning and ending at that port.

¹⁷ CLIA estimated the spend per visit of a home port passenger at US\$355 and for a call port passenger at US\$97 in its 2017 report, "The Global Economic Contribution of Cruise Tourism".

Maritime Port Authority of Singapore, with the terminal leased to an operator on a subsidized basis. For the cruise lines, their costs are the sum of those levied by the terminal operator and those levied by the Port Authority. Figure 3 illustrates these total costs across a selection of Southeast Asian ports.

Figure 3: Total cost to a cruise line of a ship call at various Southeast Asian ports



Source: Authors’ calculations based on published tariffs in applied ports.

Figure 3 reveals that the cost of a cruise ship call is substantially higher in Indonesia than in other countries in Southeast Asia. However, an additional consideration that should be factored into the terminal cost is the other revenue that cruise ships can generate. For example, if the revenue generated by a cruise ship is estimated at US\$222/day¹⁸ per passenger, a 3,000-passenger cruise ship will produce revenue of US\$670,000/day. When viewed from this perspective, terminal call charges of US\$100,000 become a significant fraction of the total revenue. Therefore, high terminal charges discourage cruise lines from

calling at Indonesian ports, which as a result forgo the significant revenue that could be generated. If Indonesia wishes to attract cruise ship calls and, even more so if it seeks to become a home for cruise ships, the overall cost of port calls at Indonesian ports needs to be reduced.

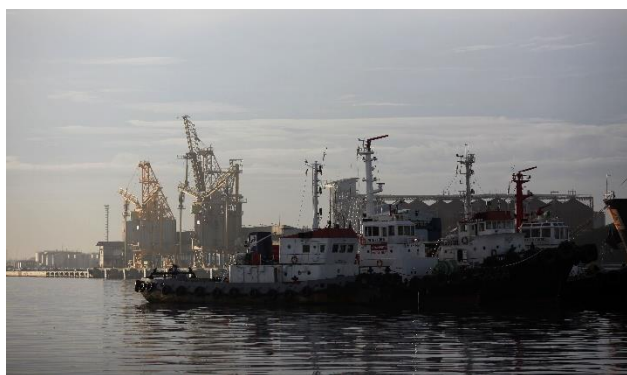
Recommendations

Based on the case study, the following adjustments in the approach to setting tariffs could be considered:

1. Port dues, collected by the Port Authority, should be revised to include differential rates that allow passenger ships to pay similar port dues as cargo ships of similar length and breadth.
2. A further discount should be offered to cruise ships that anchor and transfer passengers to shore through their own or shore-based tenders when no berthing facilities are available.
3. Consideration should be given to providing additional discounts for cruise ships (after a differential rate is applied) due to the benefits for local communities near the port.
4. Reorganize the tariff structure to make a distinction between passenger charges for regular, domestic passenger shipping (PT. Peln, ferries, etc.) and cruise ships.
5. Terminal operators’ passenger charges should be increased to allow them to make an appropriate profit from handling cruise ships.
6. Terminal operators should examine how to provide new services to cruise ships and should be allowed to charge for these services on a negotiated business-to-business basis. For example, ship waste collection and hull cleaning.

¹⁸ Average revenue of US\$222 per passenger is based on a survey by Cruise Line International Association (CLIA).

Tugs



Marine services in terms of pilots and tugs are a key element in ensuring the safety and efficiency of a port's marine operations. Previous studies¹⁹ undertaken by the World Bank Group have shown that their efficiency and effectiveness in Indonesia are a significant determinant of the reliability and productivity of shipping and, hence, domestic logistics costs. The impact on marine operations of poor marine services is delays to ships entering and leaving ports that increase the time taken to move cargo and create a lack of predictability in ships berthing and departing. These lead to higher inventories having to be stored and financed, and also make it impractical to run regular liner services that would be more cost effective for the transport of containers.

A simple review of tug services tariffs (*jasa penundaan*) in Indonesia shows that there is a significant difference between the tariff rates charged on international and domestic ships (Table 1). There is no difference in the services required from tugs just because one ship is on an international route and another a domestic route. Ship size is not a deciding factor on the level of service required from tugs, but instead depends on the

function and capability of the ship. For example, cruise and modern RoRo vessels often have podded propulsion units both at the stern and the bow, which allow for precision maneuvering, eliminating the need for tugs. Vessels without power need to use more tugs. The harbor master regulates tug requirements based on a set of considerations (e.g., vessel type, navigation complexities, weather, etc.).

Analysis of ship arrivals in Indonesia shows that ships arriving and departing from international destinations are larger than those arriving and departing from domestic destinations.²⁰ This difference in size means that international ships pay significantly more than domestic ships in a tariff that is already constructed to maximize revenue derived by a port operator or Port Authority from international ships.

The differential tariff rates raise a significant question: if it is possible to sustain effective tug operations based on the domestic tariff rates, then this must mean that international ships generate 'super' profits. If, on the other hand, international ships generate only limited profits, or just a cost recovery to the port operator, then all marine services to domestic ships must be heavily subsidized. The importance of this question comes into focus when considering the concentration of international container traffic in a limited number of ports across Indonesia. Figure 1 shows that four out of over 1,000 ports in Indonesia handle over 80 percent of all international container traffic.

To provide an indication of the answer to this question, a model of the capital costs, operating costs and revenue potential for tugs within Indonesian ports was created. Assuming that a tug can handle four calls

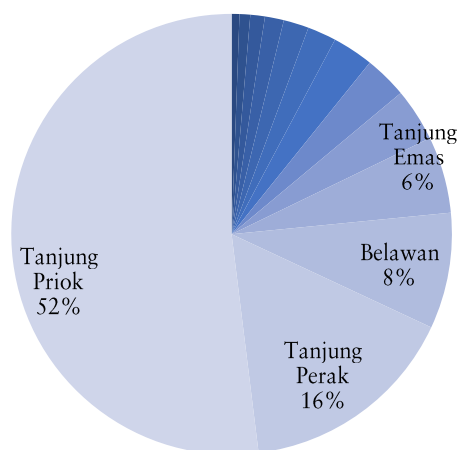
¹⁹ RAS for IPC, 2015.

²⁰ Changes in the world fleet of container ships mean that larger ships are entering Indonesian domestic trade routes.

This trend will continue and these larger ships will require larger tugs to be handled safely in Indonesian ports.

a day over a service life of 20 years, a cash flow can be developed. Thus, the return on investment in a tug can be assessed.

Figure 1: Analysis of international container traffic, 2017



Source: Based on data from the Ministry of Transport.

For international traffic, the cash flow model suggests an internal rate of return (IRR) on investment of about 85 percent in a US\$10 million in a tug, which is very high by international standards. In contrast, the same cash flow for domestic traffic generates a substantially negative net present value (NPV) at any discount rate selected.

Hence, the investment to support the operation of international ships is viable but the provision of tugs for domestic ships is not. Indeed, the provision of tugs for domestic ships must be subsidized by other port

operations at ports across Indonesia. This means that in the vast majority of Indonesian ports the provision of tug services is not a financially viable investment. These ports cannot justify investment in new tugs, which is therefore a low priority. This lack of investment, however, leads to an unreliable and inadequate tug service, with the consequent impact on logistics costs noted earlier.

Recommendations

Based on the case study, the following approach to tariff setting could be considered. An understanding of the rates of return and/or subsidy requirements for tug service levels should be developed and used in the process of setting tariffs. This would lead to the difference between international and domestic ships being eliminated. The process could also lead to towage tariff rates being assessed on a need basis, with single screw ships being charged more than twin screw ships, and ships with advanced maneuvering aids,²¹ such as cruise ships, being offered discounts, given that they do not need tug support services.

A logically set tariff would encourage the private sector to enter the market and provide competition to the Pelindo companies that currently have an effective monopoly on the provision of tugs. As an alternative, the freedom for a Port Business Enterprise (*Badan Usaha Pelabuhan*, or BUP) to set its own tariff could encourage competition from the private sector, leading to more reliable and capable tugs in Indonesian ports, with towage tariffs set on self-regulation based on competition.

Table 1: Comparison of tariff rates²² for tugs in Indonesian ports

Ship size	Measure	International	Domestic	Domestic as % of International
Vessel up to 2,000 GT	/unit/hour	Rp 2,640,000.00	Rp 367,500.00	13.9%
Vessel GT 2,001 to GT 3,500	/unit/hour	Rp 3,062,400.00	Rp 486,500.00	15.9%
Vessel GT 3,501 to GT 8,000	/unit/hour	Rp 7,431,600.00	Rp 755,000.00	10.2%
Vessel GT 8,001 to GT 14,000	/unit/hour	Rp 11,233,200.00	Rp 1,171,000.00	10.4%
Vessel GT 14,001 to GT 18,000	/unit/hour	Rp 15,100,800.00	Rp 1,585,000.00	10.5%
Vessel GT 18,001 to GT 26,000	/unit/hour	Rp 23,047,200.00	Rp 2,343,000.00	10.2%
Vessel GT 26,001 to GT 40,000	/unit/hour	Rp 24,486,000.00	Rp 2,672,000.00	10.9%
Vessel GT 40,001 to GT 75,000	/unit/hour	Rp 25,766,400.00	Rp 3,031,000.00	11.8%
Vessel above GT 75,000	/unit/hour	Rp 30,927,600.00	Rp 3,629,000.00	11.7%

Source: Based on data from the Ministry of Transport.

²¹ Bow and stern thrusters or azimuth pods.

²² Government Regulation No. 15/2016 on Non-Tax Revenue in the Transportation Sector.

Port Dues



Port dues (*biaya/jasa labuh*) are charged for the use of the approach channel to a port. Marine handbooks state that port dues are generally charged by tonnage or volume for the use of a port's shipping channel. They are designed to recoup the cost of capital and maintenance projects undertaken to facilitate port access and growth. In Indonesia, such charges are based on the classification of the port²³ by the Ministry of Transport (Directorate of Port Affairs). The Main Ports of Indonesia are: Belawan, Tanjung Priok, Tanjung Perak and Makassar. Class I Ports in Indonesia include: Dumai (Riau), Banten (Banten), Tanjung Emas (Central Java) and another six ports.

Tariffs were published by the Ministry of Transport in 2009 and in 2016, an extract of which is presented in Table 1. The only change between the two sets of tariffs is the change in currency for international ships, which was previously priced in US dollars. Due to the depreciation of the rupiah over the same period, in US dollar terms the rate has remained effectively unchanged. The revenue generated from port dues is the same for any Main Port, with only the designation

of whether the vessel is deployed on an international, domestic or traditional route, affecting the amount paid. Port dues reduce linearly with the port class. The port class is widely based on the scale of operations (throughput, traffic, size of facilities, etc.) so the tariff structure ensures that smaller ports have lower dues. This is counterintuitive as ports with less throughput generally apply higher dues as fixed costs have to be distributed over a lower amount of traffic.

A comparison of the marine approaches to three of the four Main Ports in Indonesia, namely Belawan, Tanjung Perak and Makassar, is presented in Figure 1 and Table 2. In summary, these approach channels can be described as follows:

- The approach channel to Belawan is 15 km long and dredged to a depth of 10 meters. The channel is at the end of a major river that deposits large amounts of sediment each year, requiring frequent maintenance dredging to maintain the depth of the channel.
- The approach channel to Tanjung Perak is 45 km long and dredged to a depth of 12.5 or 14.0 meters depending on the position within the channel. The channel lies between the island of Java and the island of Madura, and has historically required no maintenance dredging.
- There is in effect no approach channel to Makassar, as the port is a coastal port protected by a man-made breakwater but with naturally deep water. Ships approaching Makassar²⁴ have to enter the breakwaters and pilotage is provided for a distance of less than 5km.

²³ In line with the National Port Master Plan.

²⁴ This may change significantly with the development of Makassar New Port.

Table 1: Extract of tariffs for port dues

		2016	2009
International traffic			
Main Port	per GT/call	1,518	US\$0.115
Class I	per GT/call	1,452	US\$0.110
Class II	per GT/call	1,386	US\$0.105
Domestic traffic			
Main port	per GT/call	90	90
Class I	per GT/call	87	87
Class II	per GT/call	84	84
Traditional vessel			
Main port	per GT/call	50	50
Class I	per GT/call	47	47
Class II	per GT/call	44	44

Source: Government Regulation No. 15/2016 on Non-Tax Revenue in the Transportation Sector.

Note: All figures are in rupiah unless otherwise mentioned.

Figure 1: Approaches to three selected Main Ports in Indonesia



Source: Google Earth.

Table 2: Comparison of approach channels for three selected Main Ports in Indonesia

Descriptor	Belawan	Tanjung Perak (Surabaya)	Makassar
Length of approach channel	15 km	45 km	< 5 km
Nature of channel	Rapine and requires substantial maintenance dredging	Coastal straits and requires limited maintenance dredging	Natural deep water
Estimated maintenance dredging costs per year	US\$10,000,000	US\$1,000,000	US\$100,000
Port dues from 1,200 TEU container Ship	Int: US\$705 Dom: US\$42	Int: US\$705 Dom: US\$42	Int: US\$705 Dom: US\$42
Port dues from 10,000 DWT bulk carrier	Int: US\$343 Dom: US\$ 20	Int: US\$343 Dom: US\$20	Int: US\$343 Dom: US\$20
Port dues 5,000 DWT general cargo ship	Int: US\$705 Dom: US\$42	Int: US\$705 Dom: US\$42	Int: US\$705 Dom: US\$42

Source: Authors' calculations.

From Figure 1 and Table 2, it is clear that there is no relationship between the cost of creating and maintaining the approach channel in the Main Ports of Indonesia, and the port dues that they generate. Port dues fail to take the complexity of approach channels into consideration and instead they are set only based on a port class. It is also notable that the more domestic traffic a port handles, the lower the contribution port dues make to meeting those costs, and port dues per ton of cargo brought to the port are lower for bulk carriers and general cargo ships than container ships.

The inability of port dues to fund the maintenance costs of the approach channel in some ports is highlighted by an estimated 14,000 international container ships of 1,200 TEU being required to fund the maintenance dredging in the approach channel to Belawan (a capacity of well over 28,000,000 TEU for a port handling just over 1,000,000 TEU in 2018). Based on domestic fees, the port of Belawan would need almost 240,000 1,200 TEU vessel calls to recoup the channel maintenance costs. Such a volume of traffic would theoretically require over 300 km of berth, enough to link across the Malacca Strait. A similar assessment for Makassar would be 141 international container ships of 1,200 TEU providing a capacity of 82,000 TEU in a port also handling just over 1,000,000 TEU in 2018. Based on domestic fees, the port of Makassar would need almost 2,400 1,200 TEU vessel calls—a volume of traffic that is feasible.

The lack of any relationship between the costs of creating and maintaining a port's approach channel and the cost of using the channel distorts investment decisions, though the nature of the distortion will depend on each individual case. Furthermore, where a port focuses on domestic trade and to a lesser extent on bulk or general cargo, its ability to recover investment in the channel through port dues is highly unlikely.

Recommendations

1. Port dues should in principle be set on a cost recovery basis.
2. The cost recovery principle enables a clear economic assessment of the benefits when deciding on the level of subsidy to be provided by the government to the port. Subsidies will be required in ports where port dues would otherwise be so high that they would attract no demand, or inflate costs beyond what the market can bear.
3. Tariff rates for port dues should be structured to allow for a fixed per-entry cost, a variable cost depending on the size of the ship, and a variable cost depending on the length and complexity of the approach channel and the maintenance cost that this implies.
4. Port dues should be issued on a port-by-port basis depending the types of trade, including domestic and international, and the composition of trade (i.e., container, bulk, general cargo, or passenger).
5. The difference in tariff rates between international and domestic ships should be eliminated where feasible.

Well set tariff rates would encourage the private sector to fund capital investment and maintenance dredging through PPP-style procurement agreements. This would help to ensure that the Concession Agreement secured by Pelindo III and its partners over the access channel to Tanjung Perak could be repeated without incurring delays and excessive concession amendments.

Pilotage



The provision of pilotage (*jasa pemanduan*) within ports has similar characteristics with the provision of tugs. In some ports in Southeast Asia, pilotage and tugs are charged as a consolidated marine charge within a port's tariff. As mentioned in the case study on tugs, previous studies undertaken by the World Bank Group have shown that the efficiency and effectiveness of these services in Indonesia is a significant determinant in the reliability and productivity of container shipping.

In practice, in commercial ports in Indonesia pilotage is provided by the relevant Pelindo²⁵ company instead of the Port Authority. This is allowed for within the tariff by an option for the Port Authority to receive 5 percent of pilotage revenues from the service operator as an appreciation fee, rather than the Port Authority providing the service. The reason for this practice is that pilots are both highly trained and highly paid, while the civil service salary scale prevents pilots being

paid adequately to retain their skilled services. The Pelindo companies can provide pilots with higher salaries and retain their services. The Port Authorities, or the Ministry of Transport, must provide pilotage services in cases where a Pelindo company is unwilling to provide such services.

A significant difference between pilotage and towage is that the balance of costs between operational costs and assets is very different. For tugs, there is a very substantial element of investment in the required assets. For pilotage, the main costs are the employment of, and costs related to, the pilots.

The tariff for ports across Indonesia requires that pilotage services are charged depending on the classification of the port. Table 1 provides an extract of the tariff that shows it is composed of a fixed per-movement' charge and a variable element that depends on the size of the ship. The extract also shows that, similar to tugs, there is a significant difference in charges for international and domestic ships.

Applying the pilotage tariff to the same ship in different ports means that, no matter how long it takes to deliver the pilotage service, the revenue generated will be the same. The case study on port dues has demonstrated that the classification of ports fails to reflect the nature of the marine approaches to the ports, or the costs incurred in maintaining those approaches. Similarly, the classification of ports fails to reflect how long it takes a pilot to provide the service

²⁵ Pelindo I, II, III and IV are state-owned port operators that control Indonesia's public, commercial ports.

required. Indonesia has several river ports that require an extraordinarily lengthy presence of a pilot.

Table 2 looks at three Main Ports in Indonesia and estimates the revenue generated from the provision of a pilot and the associated time taken to provide the service. For a 1,200 TEU international ship, the cost is US\$645, compared with US\$410 in Singapore and US\$1,658 in Manila. Table 3 provides a comparison

of annual revenue from pilotage and the costs of providing the service on a per-pilot basis. From Table 3 it is clear that pilotage revenue in domestic ports cannot cover the costs of providing the service. So, the conclusion is that either the quality of the service is lower (with a commensurate reduction in cost), or these ports are providing a subsidized service to their private sector shipping users.

Table 1: Extract of tariff for pilotage (in rupiah unless stated otherwise)

Tariff Description	2016		2009	
	Units	Rate		
Contribution from pilotage/towage services undertaken by BUP holder	% of revenue	5% of revenue		5% of revenue
Contribution from pilotage/towage services undertaken by special terminal or dedicated terminal operator		5% of revenue		
Pilotage services at public ports, special terminals and special dedicated terminals, which are conducted by the Port Administration (Harbor Master and Port Authority)				
International traffic				
Main Port				
Fixed element	per movement	1,438,800	per movement	US\$109
Variable element	per GT per movement	528	per GT per movement	US\$0.040
Class I Port				
Fixed element	per movement	1,399,200	per movement	US\$106
Variable element	per GT per movement	488	per GT per movement	US\$0.037
Domestic traffic				
Main Port				
Fixed element	per movement	107,000	per movement	107,000
Variable element	per GT per movement	30	per GT per movement	30
Class I Port				
Fixed element	per movement	104,000	per movement	104,000
Variable element	per GT per movement	29	per GT per movement	29

Source: Government Regulation No. 15/2016 on Non-Tax Revenue in the Transportation Sector.

Table 2: Comparison of provision of pilotage in Main Ports

Descriptor	Belawan	Tanjung Perak (Surabaya)	Makassar
Length of approach channel	15 km	45 km	< 5 km
Duration of pilotage	1 hours 45 minutes	4 hours 15 minutes	< 1 hour
Pilotage revenue from 1,200 TEU container ship	Int: US\$642 Dom: US\$38	Int: US\$642 Dom: US\$38	Int: US\$642 Dom: US\$38
Pilotage revenue from 10,000 DWT bulk carrier	Int: US\$348 Dom: US\$22	Int: US\$348 Dom: US\$22	Int: US\$348 Dom: US\$22
Pilotage revenue from 5,000 DWT general cargo ship	Int: US\$222 Dom: US\$14	Int: US\$222 Dom: US\$14	Int: US\$222 Dom: US\$14

Source Authors' calculations.

Table 3: Estimated annual pilotage revenues and costs at three selected Main Ports

	Belawan (Medan)	Tanjung Perak (Surabaya)	Makassar
Annual capacity per pilot	500	400	600
Cost per pilot	US\$50,000	US\$50,000	US\$50,000
Operating revenue per pilot	Int: US\$120,800 Dom: US\$12,500	Int: US\$161,600 Dom: US\$10,000	Int: US\$242,400 Dom: US\$15,000
Net cash flow per pilot	Int: US\$30,000 Dom: (US\$37,500)	Int: US\$111,600 Dom: (US\$40,000)	Int: US\$192,400 Dom: (US\$35,000)

Source: Authors' calculations.

Recommendations

Based on the case study, the following adjustments in the approach to setting tariffs could be considered:

1. The difference between the tariff paid by international and domestic ships should in principle be eliminated, as there is no difference in the quality or nature of the service provided to the ships.
2. The tariff for pilotage should be structured to allow for a fixed per-entry cost and a variable cost depending on the length and complexity or the approach channel and the maintenance costs incurred.
3. The tariff for pilotage should be assessed on a cost recovery basis to enable clear decisions on the level of subsidies to be provided by the government to the port.
4. Logically set tariff rates would serve to encourage the private sector to enter the market and provide competition to existing pilotage providers.



Roll-on Roll-off (RoRo) Vessels

Indonesia is a country of 17,000 islands. Despite this, the population is focused heavily on a limited number of these islands, notably Java, Madura, Sumatra, Bali, Sulawesi and Lombok. The maritime nature of the country means that roll-on roll-off shipping (RoRo) could be a major contributor to reducing logistics costs. Studies have shown that this should be the case. Despite this and the investigation of the potential by leading shipping companies, to date, RoRo across Indonesia has not seen dynamic growth as a sector.

There appear to be many reasons for this, including:

- multiple regulatory regimes (the DGLC for ferries and the DGSC²⁶ for RoRo ships);
- domination of the sector by state-owned enterprises (SOEs), including PT. Pelni and PT. ASDP; and
- a lack of suitable tonnage within Indonesia (and to a lesser extent the world market).²⁷

The DGLC (as regulator and infrastructure provider) and PT. ASDP (as a provider of ferry services) focus on the provision of shortest-link inter-island ferry services. The terminal operation is integrated with the provision of the ferry service. An examination of major RoRo operations worldwide shows that RoRo terminals are usually operated by the same company that provides the shipping service, unlike other forms

of terminal. The reasons for this are that for ferry services:

- a ferry can make multiple entries every day²⁸ and ferry/RoRo shipping is usually a daily, or in any case a far more frequent, service than other types of shipping; and
- much of the cargo is unloaded by the users of the service driving on and off, rather than being lifted or driven by the terminal operator, meaning the value addition of an operator is marginal.

Within port tariffs in Indonesia, no allowance is made for the special operating characteristics of frequent RoRo shipping. Ferry terminals in Indonesia are not public ports, and therefore not available for general²⁹ or public use. For example, Indonesia's largest RoRo terminals are Merak (125 km from Tanjung Priok) and its sister port, Bakauheni, in Sumatra, to facilitate the crossing of the Sunda Strait. No other shipping lines are allowed to make use of these PT. ASDP facilities.

Stakeholders consistently suggest one element that is restricting growth in the RoRo sector is the cost of using terminals inside public ports such as Tanjung Priok and Tanjung Perak, which represents a vital link in service provision. This high cost is driven by the structure and level of the tariff. If RoRo ships call at any Main Port in Indonesia and unload a 20-foot container on a trailer, the ships are charged the same

²⁶ Directorate General of Land Communications, and the Directorate General of Sea Communications.

²⁷ Consultations with brokers suggest that some old tonnage is available for charter or purchase, but Indonesia is a non-preferred market due to issues with import permits, duties and cabotage requirements.

²⁸ This multiple/frequent entry does not characterize all RoRo shipping. Specific types of services, such as shipping new passenger cars and heavy lift RoRo, have operating characteristics more aligned with general cargo ships and the associated terminals.

²⁹ At many major ferry terminals there is no spare capacity that would permit their use by additional services.

rate as if that container is unloaded at a special container terminal. So, a large RoRo ship carrying 100 20-foot containers will pay US\$13,000 for a one-hour call where the port operator provides no support to cargo loading and unloading. This compares with the same port operator charging US\$13,000 to load and unload similar containers from a container ship using a large crane (gantry or mobile harbor), storage yard cranes, and trucks and trailers over an 8-hour period (or twice the number of cranes, etc., in 4 hours).

Taking the structure of the tariff, port dues (*biaya labuh*) are charged on the basis of per GT per call. The revenue generated by a single, relatively small, RoRo ship operating a daily service is US\$200,000 for international and US\$12,000 for domestic RoRo vessels.

This is for a ship that has a lower draft than a container ship, bulk carrier or tanker, but that carries the same tonnage of cargo. Once again, this relates to how GT is calculated, and has a similar impact on RoRo vessels as it as on cruise ships. The structural issues with the tariff extend across the provision of tugs, pilotage and wharfage to differing extents and with varying logic. As can be seen from the cost estimates, the structure of the tariff becomes almost irrelevant if the service is domestic, as the level of domestic tariff is set very low, so low in fact that the provision of the facility is not sustainable—the subject of another case study (Case 7 Wharfage).

There is an alternative view on tariffs that needs to be understood. As a port operator, if you have limited quay space then RoRo ships often provide limited opportunities for the generation of revenue, given that

they only need to berth and they unload themselves. Other types of ships berth and require extensive cargo handling support, providing additional revenue streams to support the investment made in the terminal.

In many multipurpose international ports that provide berths for RoRo shipping and, in particular, those that provide for ferry services, they provide the berths as a ‘landlord’³⁰ and then lease the berths to the ship operators. The main alternative³¹ to this approach has been to charge per hour for berth hire, and then make additional charges for the staff and labor required to services the ships.

Recommendations

1. Reduce port dues charged by Port Authorities for RoRo ships, based on a differential rate that allows for the high GT of such ships compared with cargo ships of similar length and breadth.
2. Review the structure of port dues to provide discounts for regular users, in addition to the differential rate.
3. Consider pilotages exemptions for regular users.
4. Consider how exemptions for towage can be provided where this is safe.
5. Add a specific RoRo cargo-handling tariff to the existing tariff structure.
6. Plan and encourage the development of dedicated RoRo terminals within or close to public ports to provide a dedicated service to users. Globally, such terminals are often provided by the ferry operator, which is usually a private sector company.

³⁰ Rotterdam and Associated British Ports are examples of this approach.

³¹ This approach is used at Dover in the UK, one of the world’s largest ferry ports.

Changing Tariffs in Indonesia



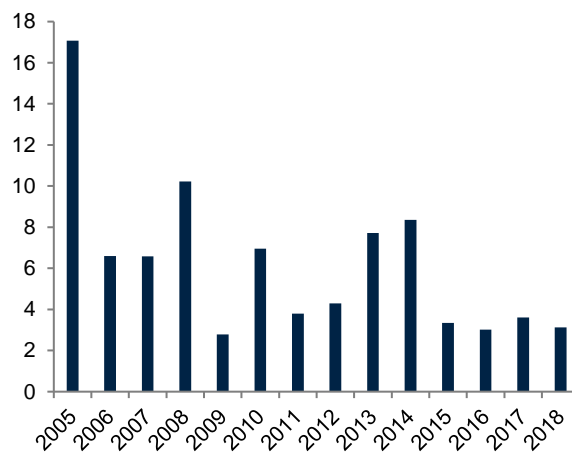
Inflation measures a general increase in costs in an economy and is a well known indicator of economic health. It also measures the balance between supply and demand. Figure 1 provides a graphical history of annual inflation in Indonesia as measured by the consumer price index (CPI). Inflation in Indonesia since 2009 has averaged 4.7 percent.

In terms of cost, port operations in Indonesia are influenced by rupiah inflation and the rupiah/US dollar exchange rate. Rupiah inflation relates to costs for staff and labor. US dollar costs are influential in the cost of fuel/energy and major port equipment, such as ship-to-shore container cranes and cranes used for storage. Such cranes represent 30 to 50 percent³² of the investment cost for a dedicated container terminal.

Since 2008, Indonesian cargo-handling tariffs denominated in rupiah have not changed in the port of

Tanjung Priok, the largest port in the country, despite new port dues being issued in 2009, 2015 and 2016. CPI has increased by 54 percent in this period. While not a direct measure of inflation in the cost of port operations, CPI is a reflection of cost increases in some significant aspects of port operations. Without any compensating change in productivity this means that the profitability of port operations has reduced. A corollary of this is that the ability to fund, or to justify investment, has likewise reduced in Indonesian ports.

Figure 1: Historic CPI for Indonesia, 2005-18



Source: Bank Indonesia.

A complicating factor in considering tariff changes is that some tariffs for international ships and cargo were priced in US dollars in the 2009 tariff and converted into rupiah in the 2016 tariff. This was in compliance with policies and regulations adopted by Bank Indonesia on the use of the rupiah. On December 31,

³² Based on actual investments in Tanjung Priok and Tanjung Perak.

2009, US\$1.00 bought Rp 9,400 on December 31, 2016, US\$1.00 bought Rp 13,200 and on April 15, 2019, US\$1.00 was worth Rp 14,000. However, the rate of exchange used in converting the tariff was the rate prevailing in 2016. In rupiah terms, this means that the international tariff has increased significantly, but in US dollar terms it has remained effectively unchanged.

To consider why the tariff in Indonesia may not reflect changes in the cost of provision of ports and port services, two aspects deserve consideration. First, the legal ability to regulate the tariff and, second, the regulatory process adopted to change the tariff. The legal ability to regulate the tariff is unclear. Law No. 17/2008 on Shipping states the following in Article 109 on setting rates for the provision of port services:

“The rate of port services operated by a Port Business Entity shall be determined by the Port Business Entity based on the type, structure and category of rates stipulated by the Government and shall constitute the Port Business Entity’s income.”

This would not appear to provide any legal basis for the Ministry of Transport (MoT) to regulate the level of tariffs charged by port operators.

In practice, the Ministry of Transport issued Regulation No. 121/2018 stating that, where there is no competition, namely, there are not two competing holders of Port Business Enterprise (*Badan Usaha Pelabuhan*, or BUP) licenses, the rates charged must comply with MoT requirements. The process used to establish rates in the absence of competition is a consultative one through which the port operator must establish the need for a change in the tariff rate. Then the operator must ensure the support of users for the change prior to the Ministry accepting the change in tariff rate. Users in this context are usually represented by trade associations such as the Indonesian National Shipowners Association (INSA), the Indonesian National Importers Association (GINSI) and the Indonesian Land Transport Organization (ORGANDA). The process requires that these users

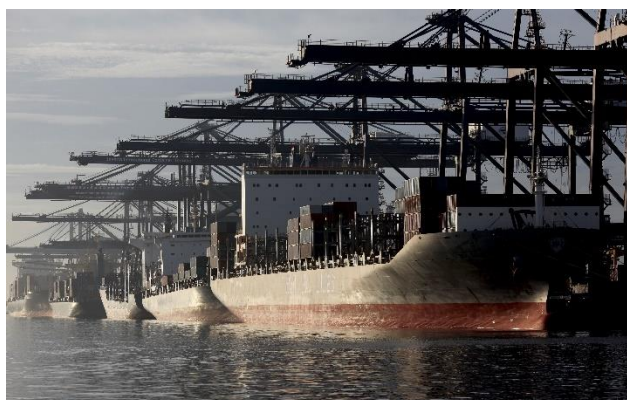
attend meetings with the MoT and then to explicitly state in writing to the MoT that the change in rate is acceptable.³³ This is, in effect, the same tariff regulation process that was in use prior to Law No. 17/2018 on Shipping, and is in line with the previous legal structure for port operations. It is noted that there have been some adjustments in the tariffs related to storage that have been made with the approval of the MoT but without explicit approval of the users, but such examples are exceptions.

Recommendations

1. Legal opinion should be sought on the regulatory process adopted by the MoT to ensure that it complies with the law, including Law No. 17/2008 on Shipping. This could then be presented at stakeholder consultation meetings to understand the pressures placed on the MoT in implementing the Shipping Law.
2. Appropriate amendments to the law and regulations should be adopted to ensure that simple and effective regulation of tariffs occurs where there is no competition in a port. This must explicitly seek to ensure that the provision of port services is commercially sustainable and that the required investment can be funded through commercial structures. A specific method of assessing commercial sustainability that is accepted by investors would need to be included in such a regulation.

³³ MoT Regulation No. 121/2018, Article 18.

Wharfage Charges for Cost Recovery by the MoT



Similar to the way in which port dues are charged for the use of a port's approach channel, berthing services and wharfage (*jasa dermaga*) are charged for the use of a wharf and for cargo handling. In this note, we consider the situation of the non-commercial port tariff for Indonesian ports. Table 1 is an extract of the berthing services tariff in non-commercial ports, while Table 2 is an extract of the tariff for wharfage charged by the MoT in non-commercial ports. In commercial ports, wharfage and berthing are charged by the Port Business Enterprise (*Badan Usaha Pelabuhan*, or BUP), whereby the tariff is determined and adjusted through the mechanism described in Case 6.

Tables 1 and 2 can be used to consider the ability of the tariff to support the recovery over time of the investment made in port infrastructure. This is relevant to ensure that public funds are invested in a sustainable way. It is also relevant in considering whether commercial investment in port infrastructure makes sense, given that these tariffs and the revenues generated in international best practice are often used to fund that infrastructure.

Table 1: Extract of the tariff for berthing services at non-commercial ports.

International traffic		
Class I	per GT per day	Rp 713.00
Class II	per GT per day	Rp 660.00
Class III	per GT per day	Rp 594.00
National traffic		
Class I	per GT per day	Rp 46.00
Class II	per GT per day	Rp 42.00
Class III	per GT per day	Rp 38.00

Source: Government Regulation No. 15/2016 on Non-Tax Revenue in the Transportation Sector.

Table 2: Extract of the tariff for wharfage at non-commercial ports.

Export and import of goods		
Class I	per ton per m ³	Rp 1,400.00
Class II	per ton per m ³	Rp 1,200.00
Class III	per ton per m ³	Rp 1,000.00
Domestic goods (between Indonesia ports)		
Staple foods/goods		
Class I	per ton per m ³	Rp 600.00
Class II	per ton per m ³	Rp 500.00
Class III	per ton per m ³	Rp 400.00
Non-staple foods/goods		
Class I	per ton per m ³	Rp 1,000.00
Class II	per ton per m ³	Rp 800.00
Class III	per ton per m ³	Rp 600.00

Source: Government Regulation No. 15/2016 on Non-Tax Revenue in the Transportation Sector.

Based on expert experience, the construction cost of a 150 by 15-meter wharf with approach bridges is

about³⁴ US\$10,000,000. To achieve an adequate return on investment, the annual revenue generated needs to be about US\$500,000 considering a 20-year depreciation period. This size of wharf can be used by a general cargo or container ship of GT 5,000. In a Class I non-commercial port, using the international tariff for berthing services, a ship of this size would generate revenue of US\$93,000. However, this would require that ships lay alongside every day of the year. This is a highly unlikely scenario, as it requires 100 percent utilization, while high but credible utilizations are between 60 and 80 percent. Using the domestic tariff, the same ship laying alongside everyday would generate less than US\$6,000. The ship(s) would also generate wharfage revenue of about US\$200,000, assuming that the port handles 2,000,000 tonnes of international cargo, which is once again unlikely to occur, with a more credible volume being 250,000 to 1,500,000 tonnes.

To verify this assessment, discussions with stakeholders were undertaken. These developed an understanding of the revenue generated by the Indonesia port tariff at a port developed by the MoT using the state budget. Anggrek Port is a well-established small port with a good cargo base and a high level of utilization. The MoT does not provide the cargo-handling services at the port, as stevedore companies are contracted directly by ships for these services. The port handled about 1,800,000 tonnes in 2017. It is classified as a Class II non-commercial port and therefore under the direct control of the MoT. Anggrek Port had a revenue of US\$185,000 in 2017. Such a level of revenue could not hope to justify the investment required to construct the port. Analyzing the revenue in more detail, the revenue from berthing services at Anggrek Port is estimated at about US\$40,000, while wharfage revenue is estimated at

about US\$100,000. The remaining revenue is land-lease revenue.

The conclusion reached is that it is difficult to see how, based on berthing service and wharfage tariffs, any investment made by the Ministry of Transport (MoT) could be justified as self-sustaining, or how berthing service and wharfage tariffs would attract a commercial investor to fund development of port infrastructure in Indonesia.

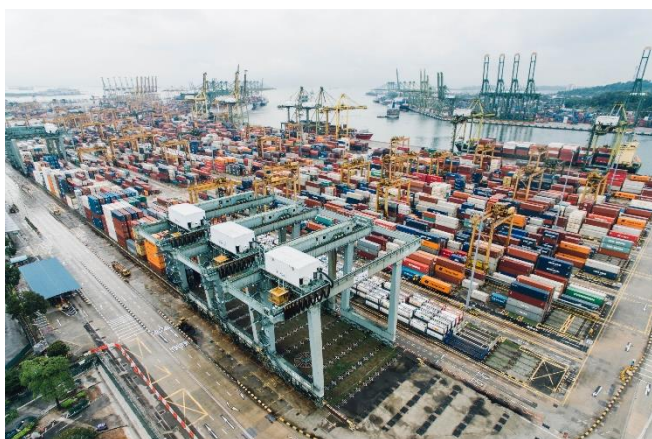
Recommendations

1. Berthing and wharfage should in principle be set on a cost recovery basis.
2. Differences in berthing service and wharfage tariffs between international and domestic ships, and between commercial and non-commercial ports, should be eliminated.
3. Tariffs for berthing services and wharfage should be set on a port-by-port basis to support the approach of ensuring that investments can be justified.
4. All storage tariffs could be set to ensure that long-term storage within a port is not viable. This will encourage appropriate additional logistics investments outside ports, and avoid berth and land congestion.
5. Incentive structures could be designed to support the development of specific types of traffic and/or to address seasonality.
6. Tariff rates should be set at levels that permit the private sector to fund investments through PPP-style procurement.
7. Consider the use of viability gap funding (subsidies) where tariffs cannot be set at levels high enough to justify private investment for political or social reasons.

³⁴ Estimating the cost of a specific port is difficult given that it depends substantially on the site conditions where the port is to be built and the design of ships and cargo for the port.

This value is intended to represent an underestimate of the investment in an “average” port and is based on 30 years of experience in building ports.

Comparison with Charges across Southeast Asia



Indonesia is concerned about its ability to compete with international ports and has consistently seen Singapore as a more successful competitor—one that takes port volume that should be handled by Indonesian ports. However, this assessment is inaccurate, as Indonesia is the primary origin or destination for all the cargo handled within its ports. As such, this volume cannot be taken away by Singapore (or Port Klang or Port Tanjung Pelepas) being a more efficient or cheaper port. Eventually, this volume must still be handled by an Indonesian port. Only the transshipment of cargo is a competitive field for ports and this form of cargo requires low tariff rates and delivers poor investment returns for ports. That said, a comparison between the cost of using ports across Southeast Asia is relevant, as one of the elements that contribute to how competitive the Indonesian economy is in international trade.

Transshipment, where it occurs for Indonesian cargo, is an additional cost that the country needs to eliminate if it is to become more competitive. The reduction of the need to transship is not driven by tariff considerations but by the development of capacity and capability within Indonesian ports. Indonesia needs to be able to accommodate the size of ship that international container shipping companies wish to deploy on intercontinental and intra-Asian services.

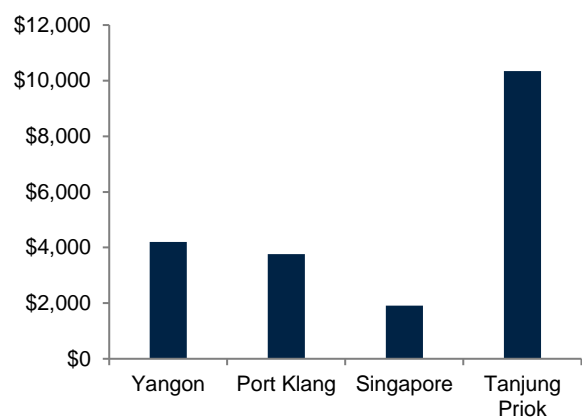
Figure 1 is a comparison of total port charges³⁵ in four ports across Southeast Asia for a 1,200 TEU ship undertaking a full exchange of cargo over a two-day period. Figure 1 suggests that Tanjung Priok—Indonesia’s largest port—is expensive compared with other ports in Southeast Asia. Figures 2 to 5 are an analysis of these charges in terms of the percentage contribution of port dues, pilotage, tugs, wharfage and berth hire, respectively. This analysis provides limited insight into the competitive position of the ports. Berth hire (berthing services) is one differentiator that causes Tanjung Priok to be more expensive than other ports in the region, as well as port dues. It also suggests that the international tariff for towage in Tanjung Priok is high compared with other ports in the region. The percentage analysis conceals the fact that Singapore’s tugs are one-third the price of those in operation in Tanjung Priok.

Table 1 is a comparison of the same ports from the perspective of marine approaches and the number of ships calling. This suggests that Singapore achieves

³⁵ Port dues, pilotage, tugs and wharfage, etc. do not include stevedore costs.

substantial economies of scale over the other ports and this combines with its location advantages (together with limited maintenance dredging) to explain its low port costs.

Figure 1: Extract of tariff for port dues



Source: Authors' calculations based on published tariffs in applied ports.

The conclusion that can be drawn is that port charges in Tanjung Priok are high compared with other ports in Southeast Asia and this cannot be explained by adverse issues relating to the port's situation or dredging.

Recommendations

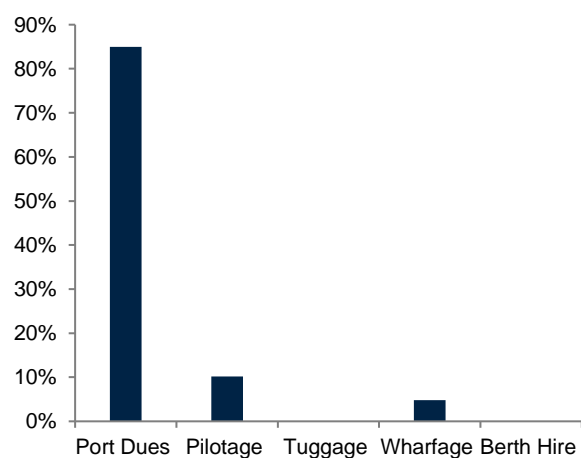
1. The cost of towage for international ships should be reduced to make Indonesia ports more competitive with other ports in Southeast Asia.
2. The approach to charging berth hire (berthing services) should be reconsidered if port charges are to be used as a method of improving the competitive position of Indonesian ports.
3. Port dues should be reduced. As described in Case 3 Port Dues, port dues for international ships are set artificially high to compensate for artificially low dues charged to domestic ships.

Table 1: Comparison of marine characteristics of ports in Southeast Asia

Characteristic	Yangon	Port Klang	Singapore	Tanjung Priok
Length of approach channel	50 km	10 km	10-20 km	8-10 km
Ship Calls (approx.)	3,000	20,000	300,000	40,000
Largest container ship	3,000 TEU	22,000 TEU	22,000 TEU	15,000 TEU
Largest tanker	25,000 DWT	125,000 DWT	350,000 DWT	45,000 DWT
Maintenance dredging	Severe	Moderate	Very limited	Limited

Source: Seaport Consultants Asia based on Admiralty Charts and Shipping Directions.

Figure 2: Analysis of Yangon Port charges



Source: Authors' calculations based on published tariffs in applied ports.

Figure 3: Analysis of Klang Port charges

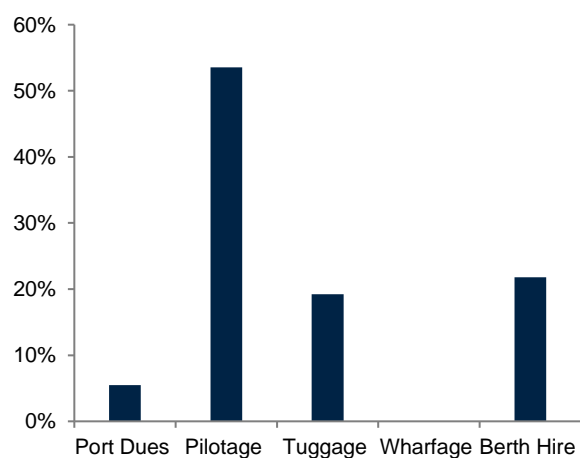


Figure 4: Analysis of Singapore Port charges

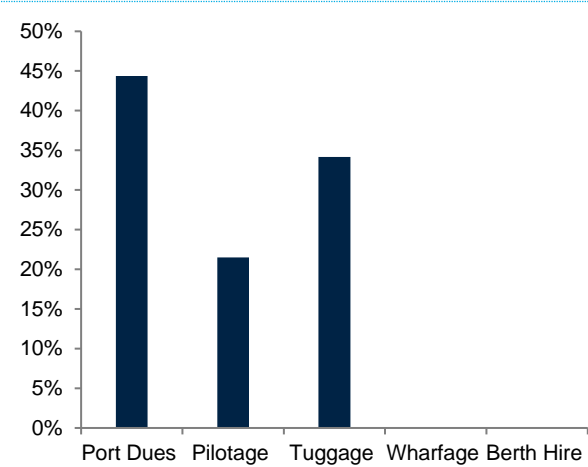
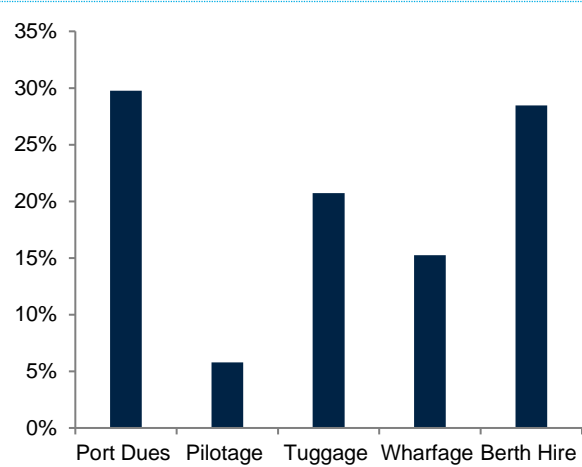
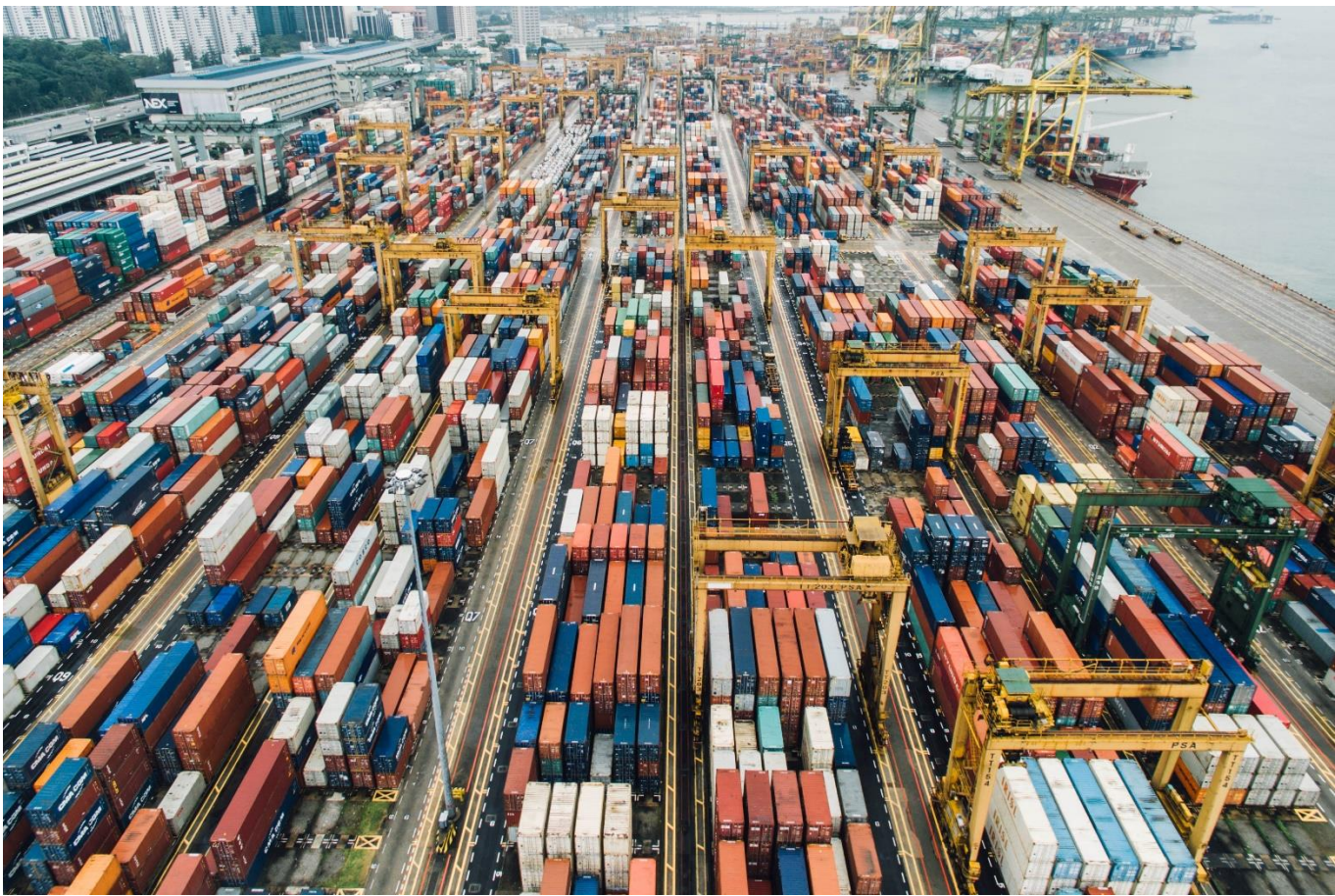


Figure 5: Analysis of Tanjung Priok Port charges



Source: Authors' calculations based on published tariffs in applied ports.





Non-Tax Revenue

The tariffs set and charged by the Ministry of Transport (MoT) are in line with Article 110 of Law No. 17/2008 on Shipping, and classified as non-tax revenue (NTR). This includes concession fees incorporated within agreements with port developers and operators for terminals, and the provision of other port services. This means that when revenue is collected it is routed to the Ministry of Finance (MoF). When the MoT requires funding for the development and operation of ports, it has to seek funding through the budget process from the MoF. This process means that there is no direct connection between revenue derived and investment or costs incurred. Even if a project will generate more than enough revenue over its life to justify the investment made, the project must wait until government budget priorities permit the project to proceed. Furthermore, for users of the services there is no connection between what they pay and the quality of service or infrastructure that they are paying to use.

The process for funding port development projects in other countries in Southeast Asia is different. The examples are briefly examined below:

- **Myanmar.** The Myanmar Port Authority (MPA) is a state-owned enterprise, similar to the Pelindo companies. In line with the Myanmar Port Authority Act 2015, it reports to the Ministry of Transport and Communications but has separate accounting and budget procedures from the ministry. It has the responsibility to develop basic port infrastructure and regulate the provision of port operations. It has powers that permit it to raise debt and enter into contracts with investors to ensure such development is undertaken. In practice, the key investments made by the MPA relate to the marine approaches to Yangon. Terminals are developed under concession agreements or other permissions issued by the MPA. In both cases, the body responsible for investment has to fund the investment from income, or seek assistance from the Government.
- **Malaysia.** Klang Port Authority is a quasi-autonomous non-governmental organization (QUANGO) that is empowered through the Port Authorities Act 1963 (PAA), as amended and developed by the Ports Privatisation Act 1990 (PPA) to develop and manage the provision of ports and terminals to support Malaysia and the Klang Valley. The Authority reports to the Ministry of Transport. It has its own accounting systems and the right to raise debt. The Authority can also seek government assistance where investment projects are considered too large or risky for development by the Authority. In practice, the key investments made by the Authority relate to the marine approaches to Port Klang. Terminals are developed under concession agreements or other permissions issued by the Authority. There is a clear link between investments made and revenue generated.
- **Singapore.** The Maritime Port Authority of Singapore (MPA Singapore) is a statutory board of the Singapore Government. MPA Singapore reports to the Ministry of Transport but has its own separate accounts. It was constituted under the MPA Act 1996. In the words of its website, MPA is:

“taking on the roles of Port Authority, Port Regulator, Port Planner, IMC Champion, and National Maritime Representative. MPA partners the industry and other agencies to enhance safety, security and environmental protection in our port waters, facilitate port operations and growth, expand the cluster of maritime ancillary services, and promote maritime R&D and manpower development.”

Within this definition MPA Singapore is using the accumulated excess revenue to fund large-scale reclamation to provide additional land and port areas on which others can expand terminals within the Port of Singapore.

It is noted that Thailand, through the Port Authority of Thailand, and Vietnam, through companies including the Saigon New Port Corporation, have arrangements in place for port development similar to those in Malaysia.

All Port Authorities in the region maintain their own separate accounting systems and use the revenue they generate to further the development of their ports. All

but MPA Singapore raise debt finance and/or enter into contracts with investors to further the development of their ports, including the use of debt to expand their ports when appropriate.

Recommendations

1. Indonesian Port Authorities should be constituted in a manner that allows them to maintain detailed accounts for each port and, in doing so, develop an understanding of the balance between revenues and costs within each port.
2. Indonesian Port Authorities should be enabled to use revenues raised for the further development of their ports in line with the National Port Master Plan and approved Port Master Plans.
3. Indonesian Port Authorities should be enabled to set port dues and other revenues to try and balance between revenues and costs. Where needed, these Port Authorities can request capital injections (subsidies) from the government.
4. The use of debt to expand ports across Indonesia should be encouraged by the government where development projects have a clear ability to repay any debt raised.

Differential Lift-on Lift-off (LoLo) Charges



The differential in tariffs between international and domestic (and between domestic and traditional) shipping has been mentioned on several occasions in these case studies. This differential exists in most tariffs, including major container terminals.

The difference in tariffs is not the only difference in the handling of international and domestic containers. The regulatory regime imposed by Indonesian customs makes it difficult to handle international and domestic containers through the same terminal. The regulations strive to ensure that this does not occur. However, in practice waivers to compliance with this regulation are sometimes provided, for example to provide relief during times of congestion, or where there is only one terminal within the port. Once provided, such waivers are often maintained even after the reason for the waiver has been resolved (for example, even once congestion has eased).

In Tanjung Priok, this segregation/difference between domestic and international containers has several consequences. These include the following:

- Containers that are inbound through an international terminal must leave that terminal after clearing customs and then re-enter the port at the domestic terminal prior to shipment to another part of Indonesia, and likewise in reverse for exports. This means that containers do not use the most efficient option of being unloaded from one ship and then loaded onto another (domestic) ship to reach their final destination elsewhere in Indonesia.
- Investment in domestic container terminals is significantly less attractive than investment in international container terminals, because volumes are more balkanized/lower and the rates they are allowed to charge per container are also lower.

Paradoxically, international container terminal operators are not incentivized to seek changes to the customs regime. Such reforms would reduce logistics costs for Indonesia and, hence, act as an incentive for shippers to use the terminals. The reason they are not incentivized is that, in a market where utilization levels are high, operators' revenues are higher if all the boxes they handle are international boxes for which they charge higher international rates. As can be seen from Table 1, the charge for an international container in Pontianak is nearly twice that for a domestic container, although this differential is lower in other ports. For example, in Tanjung Priok an international container is charged between 30 and 60 percent more than a domestic container.

Perhaps the key result of the differential in rates between domestic and international containers is a lack of willingness to invest. This can be seen in the two largest ports of Indonesia, Tanjung Priok and Tanjung Perak. Here the international terminals have, in general, invested in modern equipment, while the domestic terminals have chosen to get by with old equipment, or equipment with lower investment costs and lower productivity, such as mobile harbor cranes.

It is worth noting that the lack of investment, the smaller ships that use domestic container terminals, and the lower productivity achieved are all reasons that should justify a lower tariff. While the current situation may be complex, without the prospect of appropriate financial returns the investment required to develop domestic container terminals will not be made.

Recommendations

1. The difference between international and domestic LoLo tariff rates should be eliminated. Instead, the tariff should be set based on the nature of the container, which could include a differential for reefer containers, flats or oversized containers.
2. International and domestic containers should be handled through the same container terminals to reduce logistics costs and improve facilities for all users.
3. Incentive structures should be designed to support the development of specific types of traffic, for example, domestic to international direct transshipment, direct calls to new destinations, or to encourage the use of environmentally preferred land transport modes, such as rail.

Table 1: Extract from the LoLo cargo-handling tariffs for Pontianak Port (West Kalimantan)³⁶

Activity	2013		2015		
	20'	40'	20'	40'	
International					
Load/Unload Full Container with <i>Quayside Crane</i>	US\$77.00	US\$115.50	US\$70.00	US\$105.00	Box
Load/Unload Empty Container with <i>Quayside Crane</i>	US\$57.75	US\$86.63	US\$52.50	US\$78.75	Box
Load/Unload Full Container <i>Using Ships Crane</i>	US\$69.30	US\$103.95	US\$63.00	US\$95.00	Box
Load/Unload Empty Container <i>Using Ships Crane</i>	US\$51.98	US\$77.96	US\$47.25	US\$71.25	Box
Domestic					
Load/Unload Full Container with <i>Quayside Crane</i>	Rp 550,000 (US\$39.3)	Rp 825,000 (US\$58.9)	-	-	Box
Load/Unload Empty Container with <i>Quayside Crane</i>	Rp 412,500 (US\$29.5)	Rp 618,750 (US\$44.2)	-	-	Box
Load/Unload Full Container <i>Using Ships Crane</i>	Rp 495,000 (US\$35.4)	Rp 742,500 (US\$53.0)	-	-	Box
Load/Unload Empty Container <i>Using Ships Crane</i>	Rp 371,250 (US\$26.5)	Rp 556,875 (US\$39.8)	-	-	Box

Source: Pelindo II.

³⁶ International tariff rates are quoted in US dollars but collected in rupiah to comply with Bank Indonesia regulations requiring transactions to be in rupiah.

