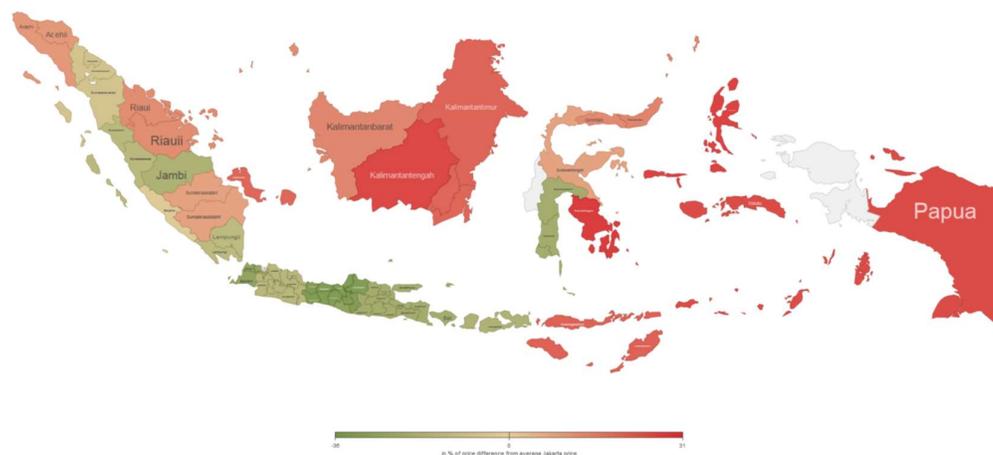


Cabotage Note

Over the last years policy makers and the media have increasingly paid attention to the high logistics costs in Indonesia. This has important implications for prices and availability of goods particularly in the economic periphery of the country. Specifically: (i) the availability and price of basic and important goods is high, especially during the national religious holidays; (ii) prices, particularly in the border and remote areas, are higher than in Java and Sumatra. In some regions of Eastern Indonesia and other isolated places, shortages and significant price fluctuations occur frequently.

Image 1 Price differences in Indonesia



Source: World Bank staff estimates

The Government is exploring various tools to address amongst others these price disparities and price fluctuations. As one of the key determinants of high logistics costs is the high transportation costs, one of the possible instruments the Ministry of Trade is exploring is the lifting of the cabotage policy. This policy prohibits non-Indonesian-flagged vessels to operate on domestic routes with the aim of protecting the national shipping industry from foreign competition in the domestic market. This note aims to expose the potential impact of removing cabotage, including by drawing from the case of the Philippines, which have recently amended their cabotage policy whereby foreign shipping lines are allowed to ship cargo between domestic ports on the condition the cargo is directed from import or export.

Sources of high logistics costs

In order to understand the implication of the cabotage principle on the economy it is important to understand how the policy ties in the overall logistics costs.

Logistics costs and transport costs are often used interchangeable but are fundamentally different: the latter is a component of the former. Manufacturers,

traders and freight forwarders in Indonesia pay almost equal amount of importance to reliability and timeliness of service compared to the actual costs.¹

Reliability is the ability of the logistics service provider to provide a consistent service. A survey conducted by the World Bank in Indonesia showed damage rates of 2.15% and return rates of 3.62%.² In other words, sale of only 94% of the actual products produced for need to cover for the overall costs.

Timeliness is the ability of the logistics service provider to Deliver in Full and on Time (DIFOT). The average DIFOT ability according to a World Bank survey in Indonesia is 81% percent meaning that out of 100 shipments, 19 are late or incomplete.³ Services providing high accuracy in delivery on time will allow the trader to optimize order cycles and reduce inventory-carrying costs.

Costs are the direct costs of actually moving the goods along the various stages of the supply chain. A survey conducted by the World Bank in 5 cities in Indonesia showed that on average 25% of the sales price of a product can be contributed attributed to logistics costs. The 25% can be broken down in 9.16% transport and cargo handling costs, 7.85% inventory costs⁴, 3.86% warehousing costs⁵ and 4.13% logistics administration and others.^{6 7}

The breakdown of maritime transport costs

The previous paragraph shows that only 9.16% of sales price can be attributed to transport and cargo handling. However, according to the survey this 9.16% is the costs from moving the goods from door-to-door or point of origin to point of destination and therefore maritime transport costs to which cabotage could have cost escalating effect only represents a small percentage of logistics costs. On a door-to-door shipment from Makassar to Manado only 48% of transport costs are maritime transport costs.⁸ Figure 1 shows the general process of door-to-door transport including a maritime component.

¹ Reliability 41%, Time 31%, Costs 28%, Survey, World Bank (2015), Improving National Freight Logistics: A Plan of Action

² World Bank (2015), Improving National Freight Logistics: A Plan of Action

³ World Bank (2015), Improving National Freight Logistics: A Plan of Action

⁴ Inventory carrying cost: Includes cost of capital tied in inventory

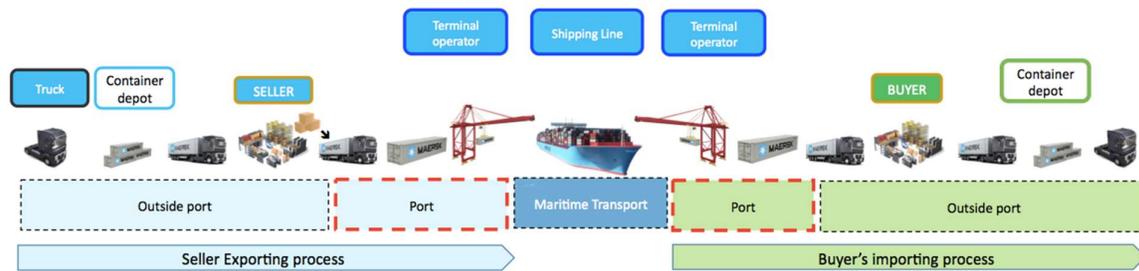
⁵ Warehousing: Cost of running warehouse or buying the service

⁶ Logistics Administration: cost from functions indirectly related to logistics

⁷ World Bank (2015), Improving National Freight Logistics: A Plan of Action

⁸ World Bank (2015) Explaining the High Cost of Supply-Chains in Eastern Indonesia, Trucking Costs 19.8%, Port Costs 19.8% and Sea freight 48%.

Figure 1 Door-to-Door Transport Chain



Maritime transport only covers the part of the supply chain whereby there is a need to cover large bodies of water such as in most parts of Indonesia due to the archipelago nature. Maritime transport costs in Indonesia are in general built up of; bunker costs (68%), daily operating costs (28,5%) and port dues (3.5%). Only on daily operating costs can cabotage have some marginal effect. Bunker costs are regardless of the flag and port dues may increase as the foreign flag may result in the application of rates for international ships.

Bunker costs: The consumption of bunkers (Marine Fuel Oil) is the main variable cost for any shipping service. Deploying larger ships will allow to reduce substantially fuel costs per slot. On the basis of a model to evaluate the Sea-Toll concept the World Bank concluded that even with slow steaming that significantly reduces full consumption, 68% of costs of running the service are bunker costs.⁹ Consumption of bunker fuel applies equally to Indonesian and foreign flagged vessels.

Daily operating costs: These are the costs of owning or chartering a vessel and operating the vessel. These daily operating costs often include crew costs and are considered as fixed costs. Similar to bunkers, daily operating costs present scale advantages whereby the charter rate or vessel construction costs increase at a lesser rate compared to capacity increase. This also applies to crew whereby a ship with 500 containers or 5000 containers can be run with an almost similar number of crew again spreading costs over more cargo slots. In 2014 the World Bank ran a model for the Sea-Toll concept and concluded that charter costs represent 28.5% of running the service.¹⁰

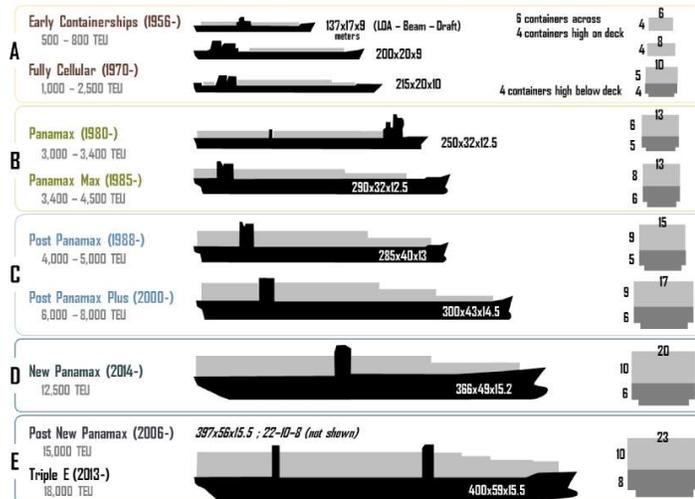
Port dues: Every time a ship enters a port there are port dues that need to be paid in Indonesia to the Port Authority. Port dues are often collected based on the GT, DWT or length of the vessel. In addition, there are costs for piloting, tug services, berth fees and other marine services depending on the need of the vessel. Again these costs do not grow linearly with the size of the ship. Figure 2 provides an overview of the generations of containerships to show the element of scale. In 2012 however the average Indonesian containership was 490 TEU, although on some routes larger vessels are deployed, domestic shipping in Indonesia has not yet passed to generation 2 (3000-3400 TEU) as presented in figure 2.¹¹

⁹ World Bank (2014), Assessment of Pendulum Service Concept and Initial Scenarios

¹⁰ World Bank (2014), Assessment of Pendulum Service Concept and Initial Scenarios

¹¹ Drewry Maritime Advisors (2012) Business review on domestic container main sea corridor.

Figure 2 Containership Generations



Source: Transport Geography on the Web, based on Geography of Transport Systems (2013)

These three cost components are the main drivers for any shipping service in addition to overhead costs. Before proceeding with a description on how these relate to the shipping network operation in Indonesia it is vital to explain how cabotage relates to these cost components.

The main cost component that is directly linked to cabotage is the daily operating cost. The daily operating costs are related directly to the vessel whether it moving cargo or just lying idle. Each vessel needs to be registered and fly the flag of the country of registration. Cabotage applies when domestic trade is allowed only to be transported on ships registered in the same country. Cabotage can be seen as the opposite of the practice of 'flag of convenience' whereby vessels are registered in countries with relaxed rules and/or fiscal advantages. The top 3 vessel registration states are Panama, Liberia and Marshal Islands. Countries can decide for fiscal, strategic or other reasons to apply the cabotage principle and exclude foreign flag vessels for participating in domestic trade. Excluding foreign flagships can have cost escalating effects including through the following channels:

Third-party liability: A form of insurance to protect the vessel owner against third party liabilities. Until last year all Indonesian flag vessels need to undergo survey by Buro Klassifikasi Indonesia (BKI). Due to the bad reputation of BKI many insurance companies both domestic and international refused to insure Indonesian flag vessels or they would apply high premiums. Shipping lines that still needed this insurance would also need to have the vessels classified by an international surveyor to be eligible for insurance or lower premiums. This double classification brought extra costs and time. In 2015 regulation has been issued that shipping lines are free to choose the classification bureau which solved the double classification issue.

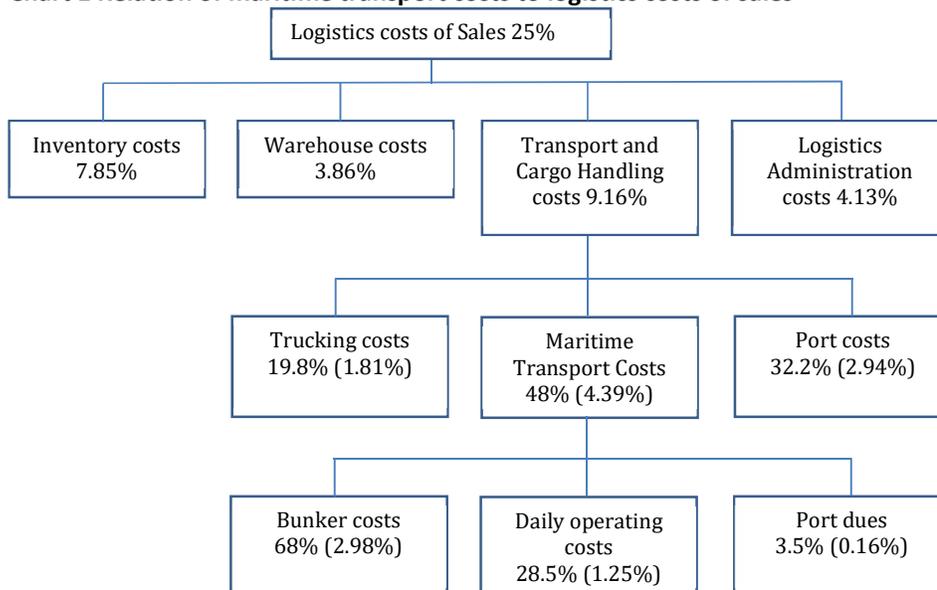
Charter market: Most ships in Indonesia are owned and purchased second hand but under certain circumstances a shipping line may be forced to charter a vessel. That would be the case for example if a vessel has to undergo survey or long repair and the shipping lines do not want to compromise the schedule or if the shipping line would

like to test the viability of a new route but does not want to commit one of its own vessels yet. Cabotage dictates that the vessel needs to fly the Indonesian flag which would reduce the choice of ships relative to the global supply of charter vessels hence raising charter rates. Temporary reflagging will be for the majority of foreign ship-owners no option, also because Indonesia applies a closed ship registration mechanism which sets to 49% the foreign ownership limit of the vessel.

Crewing: Indonesian cabotage regulation dictates that Indonesian flagged ships need to be crewed by Indonesian nationals. On a whole Indonesia is a major supplier of seafarers to the global fleet and the compensation is competitive in contrast to the USA, which also requires US nationals to crew US flagged ships that present higher labor costs. Flag of Convenience states enjoy freedom in regards to the nationality of crew and are often crewed by lower cost crew from Philippines, Indonesia, Russia, Ukraine, Turkey, Poland, etc. Although Indonesia is a major supplier of seafarers, its mostly supplies low ranking officers. Nonetheless these international low ranking jobs may still provide a better compensation than domestic seafarer jobs resulting in a tight market for local crewing. In addition, the cost escalation should not only be seen in terms of higher wages due to a better bargaining position but also the potential of skill erosion of the crew due to reduced competition that can compromise the long term integrity of the vessel.

Although cabotage may result in cost escalation of daily operating costs the additional costs are marginal also because the policy does not dictate that ships need to be locally produced such as in the Jones Act of the USA. Cabotage should also be approached from the network dynamics because the principle may prohibit international shipping lines to carry domestic cargo as part of an international leg. Chart 1 shows how much the percentage of daily operating costs can be attributed to the logistics costs of sale. Even if the marginal effects of lifting cabotage would result in an optimistic 10% reduction of daily operating costs the impact on logistics costs of sale would only be 0.125%.

Chart 1 Relation of maritime transport costs to logistics costs of sales



Is there a competition argument to cabotage?

The impact of cabotage is predicated on the assumption that lifting cabotage would increase competition through a larger participation of foreign flagged vessels in domestic shipping. However, this argument does not withstand further scrutiny given the evidence available.

First, there is sufficient competition in the domestic container shipping market and a domestic shipping line survey conducted by the World Bank in 2015 proved that freight rates are responding to market mechanisms.¹² For some destinations freight rates are high but this can be linked directly to absence of scale, geographic challenges and trade pattern consequences of low backhaul making the slot costs in fact high.

As a result, lifting cabotage is unlikely to lure into the market international shipping lines. Perhaps the only likely scenario is when an international shipping line builds in a domestic leg into an existing route but there the biggest challenge will be maritime infrastructure as the ships currently passing through Indonesian waters are too big for the majority of the ports. For example, vessels that sail on the Australia-Far East route are of generation 3 or post-panamax with the ability to carry 5000 containers but with a length of 250 meters and a draft of -13 meters these vessels only fit in Tanjung Priok, Tanjung Perak or Tanjung Emas. But even if some vessels do fit in some of the ports in Eastern Indonesia where the price disparities are the highest, the issue of exploitation of the thin edge of the wedge whereby international lines may exploit the full head haul only, thereby increasing shipping rates for shipping services out of Eastern Indonesia to Java as the load factor on those routes will be much lower.

Finally, the relaxation of the cabotage policy is unlikely to make much difference to remote areas, which are the most price volatile areas in the country. These are served mainly by pioneer services (*pelayaran perintis*) that are already under Indonesian flag, and are unlikely to be commercially attractive for any foreign operator. This is confirmed by the fact that no foreign operators have participated in the tenders to run the service with the least subsidy. Hence lifting cabotage would not increase competition in those markets.

The Philippines has recently partially lifted cabotage thereby allowing international shipping lines to carry cargo between domestic ports but only if the goods have not been in free circulation yet. The objective is to create better international connectivity especially for ports other than Manila and Davao. However, one needs to keep in mind that the Philippines applied a gateway policy in which all international cargo needs to be routed through Manila and that compared to Indonesia the domestic shipping competition is low which escalated prices. On the movement of domestic cargo (already in free circulation) in practice not much has changed as cabotage still applies and therefore the example of the Philippines may not be suitable to Indonesia's situation.

¹² World Bank (2015), Improving National Freight Logistics: A Plan of Action

Shipping route dynamics in Indonesia

This note has indicated the potentially low impact on prices of removing cabotage and highlighted that there is sufficient competition to debunk the lack of competition argument. What has not been touched upon is the reason why shipping costs in Indonesia are perceived to be high and this relates to shipping route dynamics.

The composition of routes is a strategic matter for shipping lines. Each shipping line may apply different driving principles in developing routes but in general there are three fundamental pillars for any route design. These three components are the key drivers behind the built up of maritime transport costs that are perceived to be high in Indonesia but low in attribution to overall logistics costs.

Geography: The element of geography assesses the distance covered on the route. This is to calculate the time and costs to make a round-voyage. Indonesia is a vast country and routes from Java to the edges of Eastern Indonesia are almost similar in distance to some of the transatlantic routes from Europe to the US.

Scale: The element of scale assesses the potential volume of cargo on the route or particular legs of the route. As described in the previous paragraph scale advantages can be utilized by deploying larger ships but under the condition the cargo is available. Furthermore, ports need to be able to accommodate larger ships in terms of berth length, draft and equipment. A prime example of this is the river port of Banjarmasin that handles almost half a million containers annually but due to a shallow draft can not handle container ships larger than 500 TEU taking in on average 200 full containers due to draft restrictions. Eastern Indonesia in particular has the handicap that the market size is generally small and scattered over many islands so pursuing economies of scale is often not feasible.

Trade pattern: The element of trade pattern assesses the load factor on the overall route and individual legs. It is rare that routes are balanced which means that outbound and inbound cargo volumes are equal and a load factor of almost 100% can be achieved. On most routes there is an imbalance that in some cases needs to be accepted and whereby the costs need to be spread over the entire voyage in other cases it is possible to loop in a port with an opposite pattern. For example, routes from Hong Kong to Manila are outbound dominant and if the vessel would return back to Hong Kong the load factor would be low, but by looping into Davao export cargo can be loaded to improve the load factor, although the leg from Manila to Davao would be empty due to the application of cabotage unless the ship is flying a Philippine flag. One of the biggest challenges in Indonesia is the imbalance of routes whereby return cargo is often only 30% but in Eastern Indonesia return cargo volumes drop significantly and return cargo from some ports in Papua is non-existent. The result is that the head haul freight rate needs to cover the expenses of the entire round voyage.

The challenges of domestic shipping in Indonesia are multiple but to summarize, low volumes of cargo travel over long distances on small ships. In addition, the majority of

ports are substandard in terms of draft but also cargo handling efficiency that make it either impossible to use bigger ships or not cost efficient to call at multiple ports on one round voyage. These factors have a much higher impact on the high maritime transport costs compared to the potential marginal cost escalating effects of applying cabotage.

Challenges in assessing the impact of cabotage

While in the ideal world, the note would provide stronger quantitative estimates of the impact of the introduction of cabotage, that is challenging due to the concomitant changes that confound the eventual impact of cabotage.

First, the newly introduced sea toll (*tol laut*) providing scheduled subsidized shipping services directly out of Java to remote regions, seems according to the government to have been quite “successful” in reducing price disparities in remote areas such as the 49% reduction in prices of basic goods in Namlea, Maluku. The reduced prices are the result of a combination of lower transport costs, low priced government subsidized goods, scale effects and/or optimized inventory costs as a result of a better service. The ability to maintain the *tol laut* will remain heavily dependent on the availability of the subsidy. Table 1 shows the difference in ship size of the traditional pioneer ship compared to vessels of the *tol laut* concept that introduce significant scale effects.

Table 1 Economies of scale on pioneer routes

Common Pioneer Shipping Vessel	Tol Laut vessel
Sabuk Nusantara 39 Passenger / Cargo GT 1200 DWT 500	Mentari Perdana Container GT 4180 DWT 4985 Route 2: Surabaya – Kalabahi – Moa – Saumlaki – Dobo - Merauke
	

Second, the most natural way of assessing the impact of cabotage would be to look at unit costs of shipping transport but isolating that impact would be made difficult by the concomitant modernization of the industry, which has significantly reduced prices. In the last decade throughput growth has been high also in ports considered secondary and tertiary. If throughput volumes were stable over a longer period of time, the introduction of cabotage could be signaled as a break point which could result in a price-shock but given volumes were growing rapidly monitoring freight rates will not be that informative. Growth in throughput results in a modernization of

both shipping and port operations. Larger volumes will allow shipping lines to use larger vessels with more optimum economies of scale. In addition, on the port side, higher throughput volumes will justify investments in modern equipment that can unload and load the vessel much faster. Both these actions result in more efficient use of the vessel and hence lower costs per cargo slot.

To give an example in 2002 the port of Jayapura only handled 4.163 containers (TEU) in 2008 the volume grew to 42.563 TEU and by 2014 throughput reached 81.466 TEU. Table 2 shows the difference in ship size deployed by one of Indonesia’s leading container shipping lines on the Tanjung Priok to Belawan route between 2009 and 2016 that highlights the difference in scale.

Table 2 Economies of scale on the Tanjung Priok – Belawan route

2009	2016
Mahakam River GT 5.014 DWT 5.223 LOA 115.5 m TEU 426	Meratus Java GT 24.053 DWT 28.366 LOA 205.5 m TEU 2113
	

Thirdly, foreign flag vessels have in fact already been operating through Indonesian owned shipping lines although this has not stemmed competition. Anecdotal evidence suggests that the Indonesian owned container shipping lines reflagged their vessels from foreign flag to Indonesian flag after introduction of cabotage and that in fact there were no foreign owned shipping lines active on domestic routes and therefore there is no reduction in competition. This anecdotal evidence confirms that flag registration, ownership and area of operation are different and hence the policy ineffectiveness of applying cabotage to exclude foreign competition. In contrary, the strong growth in demand for shipping services in the last decade, covering a period pre and post cabotage, has persuaded shipping lines to venture out of their monopolistic routes towards competing on other domestic routes. A relatively small port such as Manokwari with a throughput of only 28.476 TEU in 2014 is today served by three shipping lines competing for cargo. This further strengthens the argument that cabotage has not led to a reduction in competition.

In absence of sound quantitative tools there is sufficient qualitative evidence to suggest that there is sufficient competition in domestic shipping services, which has always been the main argument against introduction of cabotage policies.

Conclusion

Logistics costs in Indonesia are high, especially to connect remote areas, thereby contributing to price disparities and/or price volatility. Domestic maritime transport is subject to cabotage but maritime transport costs only cover a relatively small portion of total logistics costs (4.39%). In addition, cabotage is likely to have only a marginal impact on overall maritime transport costs, as it may affect only one cost component - the operating cost of the ships – which accounts for less than a third of maritime transport costs. In addition, it is open to question whether cabotage has actually led to an actual reduction of competition in the first place, which cast doubt on the possibility that relaxing cabotage may bring about any benefits at all. Furthermore, the regions most prone to price-disparities are served by pioneer services which signal that the price issues are likely related to size of market rather than shipping services. Even if cabotage had had some impact on shipping costs, quantifying the potential impact of removing cabotage on costs would be complex due to the concomitant effect of other variables that have influenced the change in daily operating costs such as increasing scale and new technology.

High freight rates in Indonesia are the result of fundamental routing constraints such as geography, scale, patterns of trade and high bunker costs. There is sufficient competition and freight rates are responding to market mechanisms and it is unlikely that foreign entrants can significantly reduce prices. In addition, there is little scope for foreign shipping lines to loop a domestic leg into an existing international route due to maritime access constraints and poor port infrastructure in most ports outside of Java. Finally, international lines may explore only the heavy head haul making shipping rates on services to Java even higher.

While lifting cabotage may yield only marginal reductions in shipping costs, other options would have more potential to reduce shipping costs. In particular, upgrading port infrastructure and improving cargo handling operations in the port can result in i) faster turn-around of the ship in port resulting in more round voyages per year and may allow shipping lines to deploy less ships ii) shipping lines calling multiple ports with a larger vessel which again may allow shipping lines to reduce the number of ships or postpone further fleet expansion, iii) increased reliability and timeliness of services that may allow traders to reduce inventory levels and for untapped primary goods that are very time-sensitive to be sent back to the ports of origin mainly in Java. All these results will not only reduce slot-costs but also increase the quality of service, although the recommended upgraded fall outside the scope of the Ministry of Trade.