

# Improving Indonesia's Freight Logistics System: A Plan of Action



Report No: AUS5940

# Republic of Indonesia

## Improving National Freight Logistics

### Plan of Action

May 2015

GTCDR

EAST ASIA AND PACIFIC



#### **Standard Disclaimer:**

This volume is a product of the staff of the International Bank for Reconstruction and Development/ The World Bank. The findings, interpretations, and conclusions expressed in this paper do not necessarily reflect the views of the Executive Directors of The World Bank or the governments they represent. The World Bank does not guarantee the accuracy of the data included in this work. The boundaries, colors, denominations, and other information shown on any map in this work do not imply any judgment on the part of The World Bank concerning the legal status of any territory or the endorsement or acceptance of such boundaries.

#### **Copyright Statement:**

The material in this publication is copyrighted. Copying and/or transmitting portions or all of this work without permission may be a violation of applicable law. The International Bank for Reconstruction and Development/ The World Bank encourages dissemination of its work and will normally grant permission to reproduce portions of the work promptly.

For permission to photocopy or reprint any part of this work, please send a request with complete information to the Copyright Clearance Center, Inc., 222 Rosewood Drive, Danvers, MA 01923, USA, telephone 978-750-8400, fax 978-750-4470, <http://www.copyright.com/>.

All other queries on rights and licenses, including subsidiary rights, should be addressed to the Office of the Publisher, The World Bank, 1818 H Street NW, Washington, DC 20433, USA, fax 202-522-2422, e-mail [pubrights@worldbank.org](mailto:pubrights@worldbank.org).



# Improving Indonesia's Freight Logistics System: A Plan of Action

Jakarta, May 2015

## Table of Contents

Executive Summary .....	4
A logistics system in flux .....	4
Debunking some of the myths around “Indonesia’s high logistics cost” .....	5
Facing the Connectivity Challenge: Freight Logistics as a Key Development Priority for Indonesia .....	9
Benchmarking Logistics Performance: The Baseline .....	15
Behind the Lack of Reliability in Logistics Performance .....	22
Challenges in Gathering Data .....	28
A Framework for Freight Logistics Reform .....	29
Annex.....	39

## List of Figures

Figure 1. Poverty rates in 2012.....	10
Figure 2. Prices compared to Jakarta: Higher prices in remote areas .....	11
Figure 3. Concentration index (diversified economy) vs Accessibility (access to gateways and markets)...	11
Figure 4. Agglomeration of new manufacturing activities .....	12
Figure 5. Growth of the consumer class in Indonesia .....	13
Figure 6. Indonesia’s manufacturing exports compared to its share in ASEAN exports (2013) .....	14
Figure 7. Indonesia’s maritime supply chain is long and fragmented .....	14
Figure 8. Performance Dimension Assessment for LSPs and Manufacturers.....	16
Figure 9. Components of Logistics Cost/Sales (%). Total Logistics Cost/Sales=20% .....	16
Figure 10. Sea freight cost vs. value of shipped from the two hubs in Java (Jakarta and Surabaya) .....	19
Figure 11. Value comparison of logistics cost components vs. value of one container of rice .....	20
Figure 12a. Shipping rate (IDR/km) vs distance (km) .....	20
Figure 12b. Shipping rate (IDR) vs boat capacity (TEU) .....	20
Figure 13. Shipping time vs turnaround time (days) .....	21
Figure 14. Dwell time (days) vs volume (TEU) in Tanjung Priok .....	23
Figure 15. A framework for freight logistics reform .....	29

## List of Tables

Table 1. Problematic port services identified .....	22
Table 2. Documents adding to the delay of PIB submission.....	24
Table 3. Regulatory complexity for the logistics sector providers.....	25
Table 4. Key issues in land freight transport .....	27
Table 5. Proposed Action Plan to improve freight logistics in Indonesia .....	31
Table 6. Detailed Plan of Action .....	33

This report is one of the deliverables of the World Bank Group advisory services for the Indonesia Port Corporation (PT. Pelindo II) on improving freight logistics in Indonesia.

The work was carried out by member of the Trade & Competitiveness Global Practice under Sjamsu Rahardja (task team leader), with Jean-Francois Arvis, Cordula Rastogi, Henry Sandee, Natalia Cubillos, and Maria Monica Wihardja, under the overall guidance of Rodrigo Chaves (World Bank Country Director for Indonesia) and Mona Haddad (Practice Manager).

The team also obtained contributions from John Arnold, Ruth Banomyong, M. Adhi Dipo, Christian Ksoll, Dini Takola, Nanda Nurridzki, Stephen Magiera, Theo Kumaat, Peter Milne and Renee Miews. Titis Puspaesmi and Erly Tatontos provided program support.

The team gratefully acknowledge cooperation from the Indonesian Logistics and Freight Forwarding Association (ILFA), the Indonesian Employers' Association (APINDO), the Indonesia Ship-Owners Association (INSA), the Association of Land Transport (ORGANDA), the Association for Port Transportation (ANGSUSPEL), and the Association of Priority Lane Importers (APJP), in facilitating interviews and data collection among their members. Also the team gratefully acknowledge hospitality and support from PT Pelindo I, PT Pelindo III, PT Pelindo IV, Port administration in Ambon, and branch office of PT. ASDP in Ambon.

## Executive Summary

### A logistics system in flux

Indonesia is unique: no other nation is as archipelagic in nature as Indonesia. Over 17,000 islands span across 5,200 km and provide 54,000 km of coastline. Previously, the Dutch added their packet steamers and introduced a network of roads and railways in denser areas in Java and Sumatra. But for centuries traditional maritime transport was the primary means of transporting freight and connecting people between the archipelago's islands and beyond.

With Indonesia's birth as a sovereign nation in 1945, the fabric of nationhood could only be woven together by connecting the remotest islands of the new country by sea. The regular inter-island passenger and freight services that were initiated by the new Republic of Indonesia acted like umbilical cords connecting markets and populations in the major islands to the more remote and far-flung islands. It is inconceivable that Indonesia's journey towards an independent and integrated nation could have been achieved without the inter-weaving of its more than 920 permanently inhabited islands by allowing freight, people and ideas of the new nation to intermingle and drive the development process forward.

Today, across Indonesia, the freight logistics system is in flux. As Indonesia's economy has developed, so the country has been increasingly exposed to more intense competitive pressure from globalization. This has led the fabric of the system to begin to fray. Currently, Indonesia's logistics performance ranks 53 out of 160 countries, below members of the G20 and the middle-income countries of ASEAN that Indonesia is often associated with. Traders who wish to have their freight sent from Java or Sumatra to other islands are likely to be confronted with long supply chains, uncertainties in delivery time, and high costs needed to compensate for at least 70 percent empty volume on the return voyage (backhaul). But even in the main industrial and international gateways, such as Jakarta and Surabaya, Indonesia lags in performance, as the time to trade through these ports and move freight from ports to industrial areas is generally longer than in other major ASEAN countries. For example:

- The average time needed to clear a container carrying imports into the port after it is unloaded from a vessel (container dwell time) in Tanjung Priok was 6.5 days in 2013, double the dwell time in Thailand's port of Leam Chab.
- Moving a container from the industrial area of Cikarang to the port of Tanjung Priok, 56 km away, takes up to 6 hours, compared with just 2 hours for similar distances between the Pasir Gudang area and the port of Tanjung Pelepas in Malaysia.
- Freight trucks making trips to Tanjung Priok spend on average 75 percent of their time in congestion due to delays in customs clearance and queuing for the use of lift-on and lift-off facilities.
- Interviews suggest that bad logistics cause 10 percent of Indonesia's exports to miss their vessels in Tanjung Priok.

Unreliable freight logistics undermines competitiveness and affects the livelihoods of the poor. Obstacles to moving freight and together with a lack of reliability both internally and internationally have major adverse impacts on economic development in at least two ways. First, they directly impact the competitiveness of firms in the manufacturing and retail sectors, imposing a major challenge to economic growth in Indonesia. Low reliability of supply chains increases inventory costs for manufacturers and reduces the reliability and timeliness of exports. This situation worsens Indonesia's already eroding labor-cost advantage in manufacturing, undermines its much needed diversification away from commodity exports, and constitutes a serious handicap in integrating into global production networks. Poor logistics



also undermines efficiency and innovation in Indonesia's retail sector in linking producers with customers. Second, poor connectivity impedes peripheral regions in eastern Indonesia from exploring potential opportunities for diversified commerce. If logistics were more efficient, especially at the port-hinterland interface, businesses in eastern Indonesia could tap into the potential for using backhaul capacity to ship their products to the more densely populated provinces in western Indonesia. Poor connectivity also undermines domestic price stability of important staple products for consumers in eastern Indonesia, such as food, which accounts for two-thirds of poor households' consumption basket.

## Debunking some of the myths around "Indonesia's high logistics cost"

### Myth 1. High logistics cost is due to high transport cost

The policy debate around high logistics costs in Indonesia often starts with cost comparisons of transporting freight on domestic and international routes. For instance, it is cheaper to ship a container of Chinese mandarin oranges from Shanghai to Jakarta than to send freight from Jakarta to Padang in West Sumatra, despite the distance between the former cities being six times further than the latter. But such comparisons, intriguing and motivating as they are, do not offer much of an explanation behind the issues around perceived high freight logistics costs in Indonesia.

**Analysis carried out in this study reveals that transport costs are in fact not the main issue in Indonesia's logistics costs.** Instead, logistics costs in Indonesia are largely driven by the high *value of time*—the costs incurred in organizing logistics and the time taken for the goods to reach their destination. For shipping goods to eastern Indonesia, freight costs take up 1.5 to 6 percent of the value of goods, while the value of time can take up to 18 percent of the value of goods. Such a high value of time is caused by excessive time spent in transit (shipping) and caused by broken supply chains, and the time needed for loading and unloading of cargos, together with other delays, such as trucks missing a vessel or the late arrival of a vessel at the port. Prolonged turnaround times at the port are also associated with longer voyage times, causing uncertainties and unreliability in the supply chain.

**Surveys among manufacturers suggest that transport costs comprise less than half of total logistics costs of Indonesia's manufacturers.** This study conducted a survey among manufacturers in Greater Jakarta, Surabaya, Semarang, Palembang, Lampung, Medan and Makassar. The results suggest that transport and container-handling costs constitute 40 percent of total logistics costs of manufacturers, while the contribution of inventory costs, warehousing, and logistics administration to total logistics costs is about 26 percent, 17 percent, and 17 percent, respectively.

### Myth 2. Cost is the ultimate measure of logistics performance

**Based on this study, the fact is that reliability and timeliness matter most in determining logistics performance.** Surveys among manufacturers in the above cities and surveys among members of Indonesia's logistics and freight forwarding association (*Asosiasi Logistik dan Forwarder Indonesia*, or ALFI) suggest that reliability and timeliness are important metrics besides cost in evaluating logistics performance for manufacturers and logistics service providers (LPS). While 39 percent of respondents from ALFI considered cost to be their ultimate metric of performance, 30 and 31 percent of them also considered reliability and timeliness, respectively, as the most important performance indicator in logistics. Meanwhile, 41 percent and 29 percent of manufacturers think that reliability and timeliness, respectively, should be the ultimate performance indicator in evaluating logistics performance.

***Myth 3: The domestic sea freight industry is failing to respond to market demand***

**Contrary to the popular belief, the findings from this study also suggest that the domestic sea freight industry in Indonesia is responding to market forces.** Domestic shipping rates are associated with distance on the routes served or vessel capacity, which is consistent with market efficiency: shorter distances incur higher rates, while longer distances incur lower rates. Liners also tend to deploy larger vessels on more active routes, resulting in economies of scale. However, domestic liners are facing an operating environment that is undermining operational efficiency due to bottlenecks in infrastructure and unreliable services in many of Indonesia's ports. They are also subject to variety of unhelpful regulatory practices, such as an inability to deduct VAT on bunker fuel, requirements to carry a minimum number of seafaring passengers, and national vessel certification that is not yet recognized internationally.

***Myth 4: Developing infrastructure will be sufficient to improve freight logistics***

It is indeed true that infrastructure bottlenecks cause congestion, which results in time lost for mobile assets, such as trucks and vessels, which could have been used to create higher investment returns. This will certainly affect the incentives for operators to invest in more efficient and modern equipment.

**But addressing logistics inefficiencies is not just a matter providing physical infrastructure.** A related problem is that, given the constraints and an uncondusive regulatory environment, Indonesia has comparatively less developed logistics services than its peers to respond to demand from manufacturing and fast growing modern retail sectors, as well as the challenge of organizing fully reliable supply chains to distant regions. Multiple licenses/permits and various FDI restrictions are increasing the cost of entry for third-party logistics (3PLs), which integrate trucking, warehousing and freight-forwarding services into supply-chain management services. Other practices, such as uncertainties over the rules for applying VAT on logistics services, a monopoly of dock laborers in certain ports, the lack of competition in the supply of bunker fuel, and non-internationally recognized vessel certifications, all serve to create rents, raise operational costs, and undermine fluidity in the supply chain.

***Myth 5: Trade-related policy has nothing to do with efficiency and fluidity of supply chains***

Trade facilitation is the cornerstone of an efficient and reliable supply chain. Current practices, and procedures to comply with trade-related measures, such as reports from pre-shipment inspections and recommendation letters from authorities permitting imports, are causing delays for manufacturers and traders in receiving *Bea Cukai* (Customs) Form BC 1.1, even before starting the customs clearance process. In addition, goods that are subject to trade-related regulations have a higher chance of needing further clarification by Customs. In addition to the documents already submitted, resulting in further delays in releasing goods from the port. In fact, 80 percent of priority importers (MITA) say they have experienced such additional delays.

While most of the trade-related measures are intended to protect health and consumer safety, excessive use of trade regulations with long compliance processes subjects Indonesian manufacturers to longer lead times and higher inventory costs.

## What can be done and what should be framework for policy actions

Problems in Indonesia's freight logistics unmask an interconnected relationship of four key areas: infrastructure, governance, fluidity and service quality/competence. Even if better infrastructure may be important in streamlining freight logistics and improving connectivity, this still needs to be combined with improvements in the other three areas.

Therefore, a comprehensive solution to logistics constraints prevalent in Indonesia would need to focus on a well-balanced menu of actions that include: introducing modern integrated logistics solutions, a favorable regulatory environment for the private sector to respond to demand, and improving the quality of existing infrastructure to address chokepoints in the logistics network.

Policy interventions can be designed around the following pillars (see Table 5 and 6 for detailed elaboration):

1. **Strengthen governance and command structures.** Lack of coordination and overlapping mandates in logistics-related regulations are hampering the effectiveness of reforms and the development of quality logistics services. The Government might want to consider of establishing a task force with a clear mandate to implement and supervise reforms or public investments in freight logistics. This initiative is expected to improve inter-agency coordination and increase the quality of reform implementation. Such a task force will also benefit from strong political support, inclusive representation of key technical agencies and a full time Secretariat filled by professionals, and proper incentives - unlike previously established task forces (e.g., *Timnas PEPI*). The establishment of a "logistics observatory" can increase the quality of policy dialogue and reform monitoring on freight logistics through the use of data and scientific evidence. A regulatory review, such as that conducted prior to the implementation of the 2008 Shipping Law, is needed to identify gaps in the current rules and institutional arrangements, and which are undermining the role of logistics operators and logistics service providers vis-à-vis the regulator.
2. **Foster development of quality logistics services providers.** A regulatory review is needed with the aim of encouraging investment in more efficient and diversified services. Such an assessment would look at areas such as barriers to entry, competition, the fiscal regime and internal barriers, with a view to lowering the cost of entry for quality logistics services providers. This would include, among others, reviewing the licensing/permit requirements for logistics service providers, reducing multiple restrictions on FDI in logistics, and improving certainty over the application of VAT in logistics. Public and private collaboration is also needed to improve the skills capacity in managing supply chains for those workers employed by logistics service providers.
3. **Improve fluidity in the supply chain.** There are many unnecessary practices that create "road bumps" for cargo movement. Harmonization of procedures and simplifying paperwork among border agencies are needed with the aim of reducing operating costs of logistics providers, and phasing in paperless procedures for customs clearance. In major domestic and international gateways, such as Tanjung Priok and Tanjung Perak, delays in and around ports are often caused by lack of coordination between operators (trucks, terminals and control agencies). Implementing a port community system, such as INAPORT, would allow cargo vessels, freight forwarders and land transport operators to exchange data through electronic platform. This is expected to improve certainty in scheduling of shipment, cargo pick-up and therefore better synchronization in maritime supply chains.
4. **Invest in logistics infrastructure.** The Government may want to consider prioritizing and accelerating the implementation of a five-year port investment plan to reduce logistics costs by focusing on

projects that can show economic returns through improvements in internal and external connectivity. This would include initiatives in the following areas:

- **Improve the port-hinterland interface through better access in the most constrained port/city environments in eastern Indonesia.** Because of the close proximity between many ports and city, it is often difficult, or even impossible, to bring containers out of the port, creating inefficient logistics and higher handling costs. Improving access roads from ports to hinterland is needed. But utilizing other transport means, such as barges or inland waterways, in river ports or ports close to major canal or rivers is also an alternative.
- **Evolve the current operational arrangements in some of the domestic container terminals,** where container-handling is fragmented between several companies that are vertically integrated with shipping lines. The Government may want to encourage port operators to improve arrangements for container-handling to ensure unitary management, investment, and a permanent workforce for handling equipment. Consolidation will increase productivity and improve vessel turnaround times.
- **Encourage economies of scale in logistics and investment in logistics centers by private operators and through PPP.** The development of logistics centers, particularly outside Java, would improve the efficiency and reliability of logistics services. But developing these facilities will require a clear plan and coordination that focus on improving the commercial viability and operational environment for private sector investment in logistics infrastructure (e.g., logistics parks, warehousing facilities, and cold-storage facilities, etc.).



# Improving Indonesia's Freight Logistics System: A Plan of Action

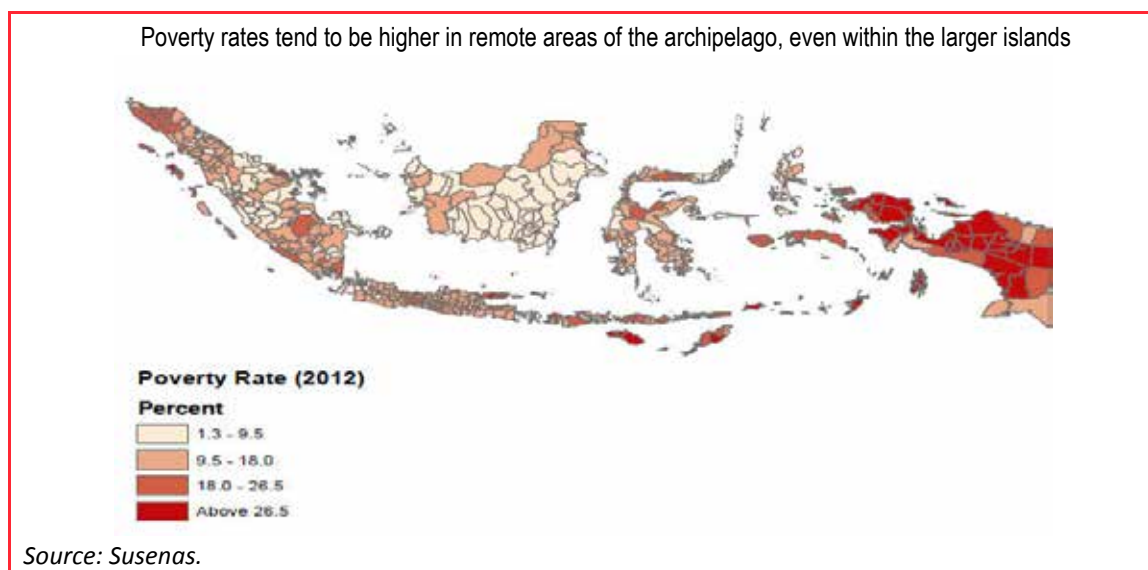
Facing the Connectivity Challenge: Freight Logistic as a Key Development Priority for Indonesia



**Given Indonesia's geographic nature, connecting spatially separated sources of supply and demand is one of the most critical areas for economic development.** Connectivity refers to the link between locations that enables the flow of goods, services and people.<sup>1</sup> Improved connectivity results in lower poverty rates and higher rates of economic growth. Connecting rural areas to larger markets and cities provides households with improved access to goods and services at lower and more stable prices, as well as access to larger markets and greater job opportunities. Unemployed and poor workers can have access to greater income-earning opportunities and small and medium enterprises are able serve a larger number of clients and have greater access to inputs.

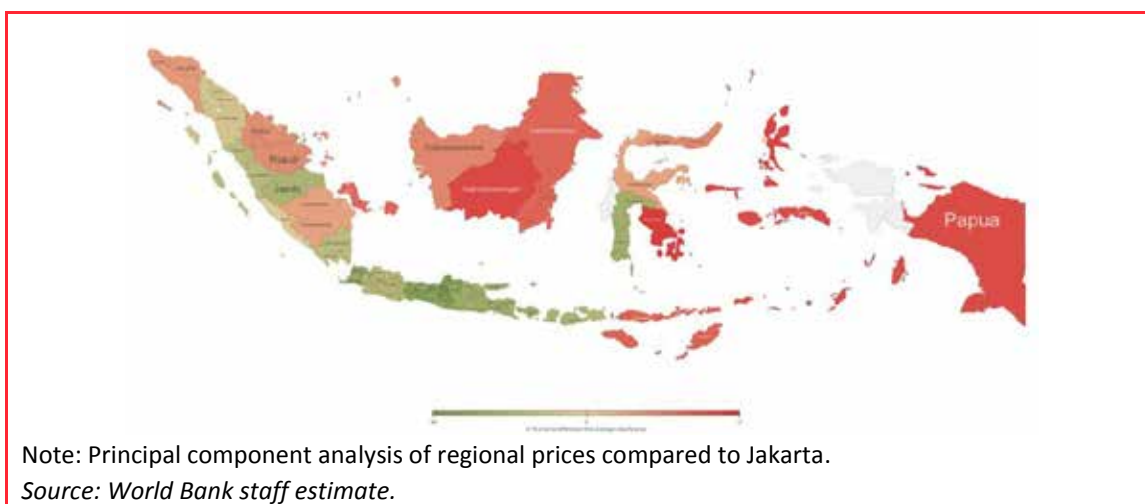
**In order for higher rates of growth to reduce poverty and facilitate in sharing prosperity, Indonesia needs to remove barriers that are preventing lagging regions from linking into more growth-generating opportunities.** Lagging regions are often home to some of the poorest populations in Indonesia, even within a single island. Vulnerable households and poverty rates are higher in remote areas of Indonesia: 55 percent of the population in Papua is poor and vulnerable, compared with 30 percent of the population in West Java. But even in Java and Sumatra, poverty rates are higher in districts that are isolated from the larger urban areas (Figure 1).

**Figure 1. Poverty rates in 2012**

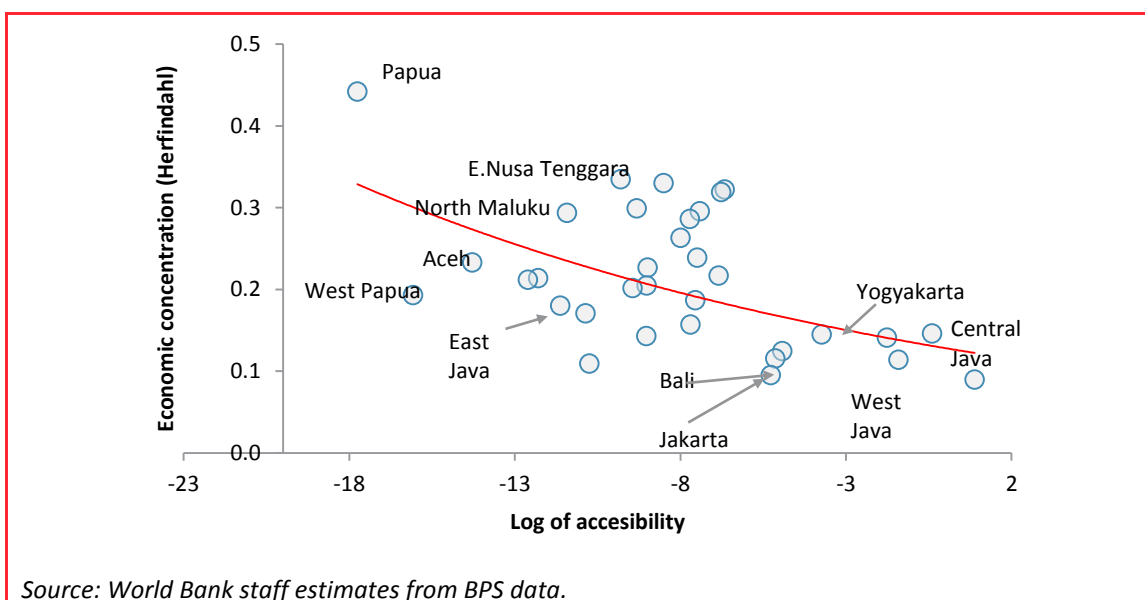


**Price differences between regions in Indonesia are often touted as one of the most unfavorable consequences of poor connectivity, as unreliable supply chains prevent traders and local producers from responding rapidly to changes in price.** Higher food inflation reduces purchasing power and investment in health and education, in turn increasing poverty and vulnerability. Indonesia's poorest households bear the brunt of higher inflation, given that on average they spend two-thirds of their income on staple food items. Remote regions, where most of the poor population resides, reduce the 'tradability' of goods and services, triggering faster price increases when demand surges (Figure 2). Likewise, the cost of consuming processed food in Papua and Sumba is more expensive than in Java.

<sup>1</sup> World Bank 2010. Connecting Indonesia: A Framework for Action

**Figure 2. Prices compared to Jakarta: Higher prices in remote areas**

Without improving freight logistics, Indonesia will suffer serious missed opportunities from greater internal integration, as low connectivity could impair the efforts of remote regions in diversifying their economies. Improved connectivity can also contribute to greater diversification in production and exports, given that it helps businesses to develop competitive advantages in higher value-added goods, both in terms of manufactured and processed goods. These higher value-added goods need to meet tight delivery schedules, not only in a cost-effective manner but also reliably and predictably. Poor freight logistics contributes to a lack of development of potential industries such as tourism, fisheries and mineral processing in Maluku, Papua, and East Nusa Tenggara (high concentration index and low accessibility index in Figure 3). Meanwhile, due to their proximity to the main gateway port of Tanjung Priok, firms in Banten and West Java have higher access to inputs and markets, as well as more diversified businesses (low concentration index in Figure 3).

**Figure 3. Concentration index (diversified economy) vs Accessibility (access to gateways and markets)**

**Better freight logistics can connect resource-producing regions in the outer islands with markets and manufacturing concentrations in Java and Sumatra.** With the exception of the growing crude palm oil processing industry in Sumatra, raw commodities need to be brought from the outer islands to be processed in Java. Manufactured products including processed foods need to be transported from Java to the outer islands, including supply distribution centers and retail stores. Similarly, manufacturing industries need to grow outside Java, probably closer to their primary inputs, and this will only happen if freight transports and logistics, as well as other infrastructure needs, are supportive.

**Developing a vertically integrated industrial structure with more domestic value-added has been a high priority in Indonesia's development agenda, and improved logistics is a key component of this objective.** Forcing producers to invest in processing facilities in the outer islands is not economically sustainable if existing freight logistics cannot help producers to access domestic and international markets through the main gateways in Java and Sumatra.<sup>2</sup> For example, poor freight logistics infrastructure and high local fees are preventing the potential development of cattle farming and meat packaging in Nusa Tenggara. Similarly, a lack of reliable energy and cold storage facilities are also preventing regions of eastern Indonesia from fully developing a competitive fisheries industry.

**Figure 4. Agglomeration of new manufacturing activities**



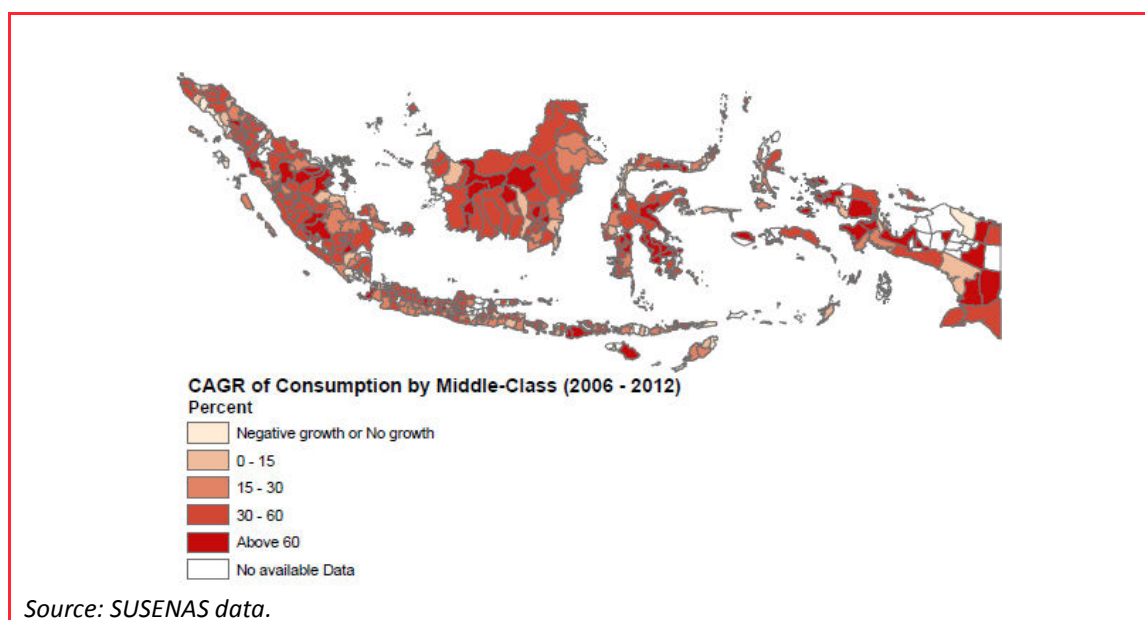
Improvement in freight logistics is expected to improve Indonesia's export competitiveness and strengthen confidence for pursuing openness to trade and FDI. Studies reveal that compared to other neighboring countries, Indonesia is less integrated to the regional production network as export relied more on commodity and natural resources. Recently domestic policy debate also has highlighted concerns over eroding competitiveness of Indonesian producers in the face of more intense global competition. Better freight logistics will improve supply chains and allow Indonesia's to respond better to competition and trade opportunities.

<sup>2</sup> In the period 2001-11, 95 percent of medium-size manufacturing firms emerged in Java and Sumatra, where four out of five of Indonesia's population and economic activities are concentrated.



**Reliable freight logistics will help producers to deliver goods to meet demand from the emerging consumer class that is growing rapidly nationwide.** Around 18 percent of the population in Indonesia are considered members of the “consumer class”, contributing to 46 percent of household consumption, while another 43 percent of the population are “emerging consumer class”, contributing to 37 percent of household consumption. Java accounts for 60 percent of the total consumer class in Indonesia, and this is growing rapidly at over 20 percent per year, while the regions in eastern Indonesia are also showing a rapid increase in their consumer class (Figure 5).

**Figure 5. Growth of the consumer class in Indonesia**

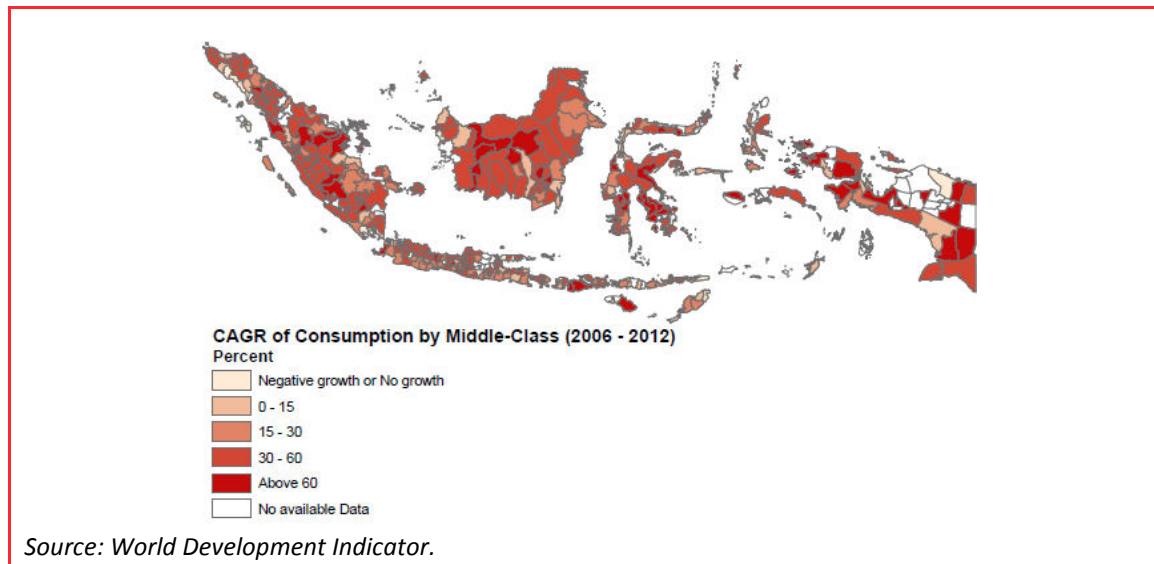


**Improved freight transport and logistics are now needed more than ever given increased consumption by the middle-class, which has already shifted the composition of demand.** Increasingly, people with rising incomes are shifting their patterns of consumption: households are spending a larger share on processed food out of their total expenditure, resulting in an increasing role for freight transport and high-technology logistics, such as post-harvest technology and cold-storage chains. The shift in consumption demand is also triggering high growth in retail stores, such as *Alfamart*, especially outside Java, which is becoming a saturated market from the point of view of the retail market.

**Efficient and reliable freight logistics are key for Indonesia to integrate its domestic supply chains with global value chains (GVC).** Countries that doubled their GVC-linked trade between 1995 and 2008 saw their income per-capita increase 12 percent more than others,<sup>3</sup> whereas Indonesia’s participation in GVC is lagging behind other middle-income countries in ASEAN. Indonesia has more than half (54 percent) of the manufacturing labor in ASEAN, and yet it produces less than 20 percent of the region’s manufacturing exports by value (Figure 6). The reason behind this lagging performance is inefficient and unreliable freight logistics. Connecting domestic supply chains to GVCs requires targeted interventions in trade facilitation, port efficiency, and express delivery services, among others.

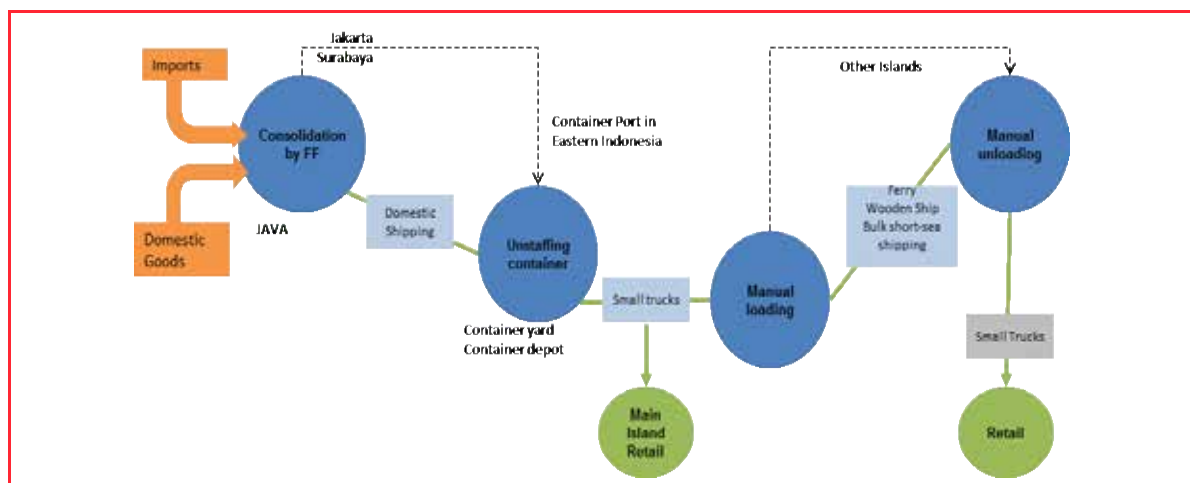
<sup>3</sup> ADB, 2014. “Asian Development Outlook 2014 Update: Asia in Global Value Chain”.

**Figure 6. Indonesia's manufacturing exports compared to its share in ASEAN exports (2013)**



**Maritime supply chains in Indonesia are long and fragmented, especially to the eastern islands. In addition, supply chains are so divided that they can hardly support domestic or international exports.** As shown in Figure 7, a standard supply chain from Java to eastern Indonesia makes stops at two different ports and the goods are loaded and unloaded manually at least three times before arriving at the destination. Other activities in the supply chain include hinterland connections in small trucks, and the use of ferries and/or wooden ships to arrive at the outer-most islands. Throughout these activities, the owner of the goods at the final destination is usually unaware of the status of his shipment, or when it will arrive, as there are very few tracking and tracing capabilities. These gaps in information, supply-chain operating inefficiencies, and the uncertainties over the arrival of goods usually push both producers and retailers to carry larger inventories than normally necessary, thus raising overall logistics costs. Such fragmented supply chains make it even more challenging to provide logistics in the return direction that could help to bring products from the outer islands to meet domestic demand in Java and Sumatra or for export markets.

**Figure 7. Indonesia's maritime supply chain is long and fragmented**



## Benchmarking Logistics Performance: The Baseline

**Before any efficiency improvements can be made in freight logistics, there needs to be a baseline for the current freight logistics performance in Indonesia.** To assess the current situation in Indonesia's freight logistics system, the World Bank followed a series of structured interviews of the main stakeholders in freight logistics, collected primary and secondary data, and carried out surveys of logistics service providers (LSP) and manufacturers in over five cities.

**To measure logistics performance, three key dimensions need to be considered: cost, time and reliability.** These dimensions are not equal in importance and, depending on the commodity or the type of services offered, each dimension would have a different priority. The survey used an approach that allowed respondents to consider the relative importance of each performance dimension against one another.

**The survey results<sup>4</sup> (Figure 8) showed that LSPs prefer low logistics costs (39 percent) over timeliness (31 percent) and reliability (30 percent),** reflecting the nature of their business, as LSPs are usually not cargo owners. The stronger focus on cost reflects the type of market that LSPs are involved in: commodities with relatively lower value (such as garments or food items) tend to focus more on cost than other performance dimensions. If the respondents were handling more time-sensitive goods, such as electronics and automotive components, it is possible that the reliability and time dimensions would have carried more importance.

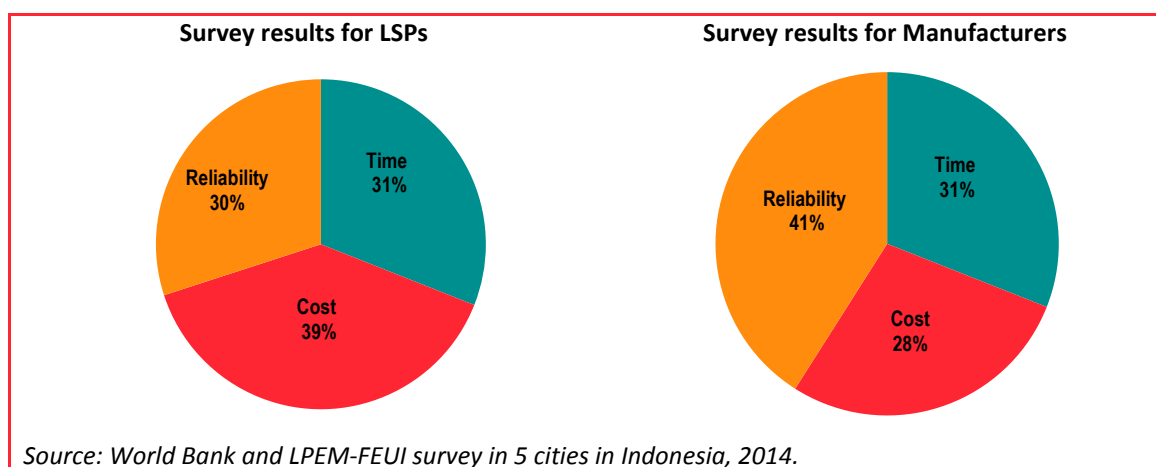
**Meanwhile, manufacturers tend to place more emphasis on reliability (41 percent), and less on timeliness (29 percent) and cost (28 percent).** The findings reinforces the hypothesis that reliable supply chains are important for manufacturers to plan production, manage their inventories, and hence leverage their scale economies.

**Other measurements of firm-level performance confirm that the lack of reliability in logistics services affects many of the internal operational and financial decisions that attempt to reduce levels of uncertainty.** The ratio of in-house logistics activities is higher than outsourced (62 percent vs 38 percent) indicating that this level of self-managed and organized logistics is due to a lack of trust in the capability of local LSPs. In addition, the average DIFOT capability (Delivery In Full and On Time) is around 81 percent, which means that out of 100 orders 19 orders will either be late or some stock-keeping units (SKUs) will be missing. In terms of manufacturing environments, this DIFOT level is higher than most other countries. Damage rates average 2.15 percent, combined with a return rate of 3.62 percent, and a relatively high customer complaint rate of 6.76 percent, show that reliability issues affect the forecast accuracy and the financial sustainability of manufacturing firms in Indonesia.

---

<sup>4</sup> See background papers for this work.

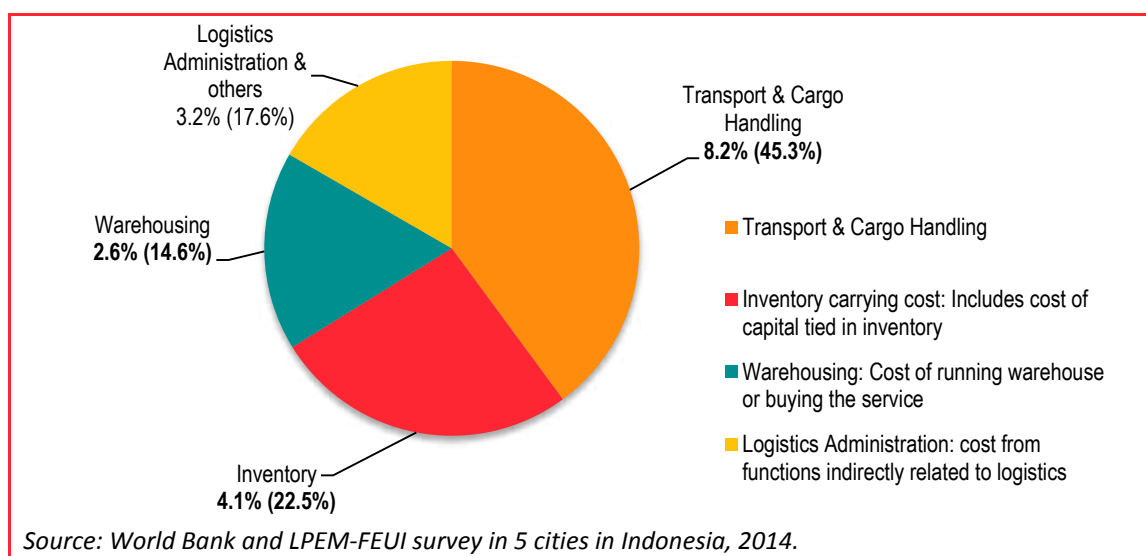
**Figure 8. Performance Dimension Assessment for LSPs and Manufacturers**



Total logistics costs incurred by Indonesian manufacturers are 18 percent of sales, higher than in both Thailand and Malaysia, at 15 percent and 13 percent, respectively. There have been numerous estimates conducted in Indonesia and commonly quoted numbers range between 25 and 30 percent of GDP. However, such estimates do not make much sense, as the logistics costs/GDP indicator is an aggregate that cannot reflect logistics realities on the ground. Logistics costs/GDP applies at the micro level and is not comparable to costs as a percentage of GDP, which is measured at the macro level. Logistics costs/sales is a more precise indicator than logistics costs/GDP, as comparisons can be made between different sectors when there are enough respondents.<sup>5</sup>

Aside from transport and cargo-handling, the results suggest that inventory carrying costs contribute 26 percent of total logistics costs incurred by Indonesian manufacturers. These results (Figure 9) confirm that reliability, and thus holding higher inventory stock to cover for uncertainties over the arrival of products, is the most important logistics dimension for Indonesian manufacturers.

**Figure 9. Components of Logistics Cost/Sales (%) and Average Total Logistics Cost/Sales=18% (N=162)**



<sup>5</sup> Other countries that use logistics costs/sales include Japan, Finland, France and Germany.

**Box 1 A Snapshot of Logistics Market in Indonesia**

The logistics industry in Indonesia is currently in a period of transition from a traditional fragmented structure to a more integrated form. The catalysts for this transition are primarily the transfer of skills from the larger companies to local LSPs and the demands from shippers for improvements in the quality of service. The majority of the activities of the international companies has been receiving and storing imported goods usually working through joint ventures. Another catalyst has been the growth of logistics-intensive industries such as automobiles and the rapid expansion of modern retailing.

The on-going transition has four features:

- Outsourcing of logistics to 3PLs;
- Consolidation of service providers;
- Focus on supply chain performance; and
- Emphasis on information-based services rather than asset-based services

***Freight forwarding and logistics services providers***

At present, the logistics industry in Indonesia is highly fragmented. With the exception of port operators, most logistics service providers (LSPs) are family-owned businesses with focus serving selected markets or geographical areas

Most are freight forwarders, who arrange sea and land transport. These are individual agents or small enterprises that do not have fixed assets and arrange relatively few shipments. The principal activity of such freight forwarders is to arrange land transport, especially from the port to an inland destination. A much smaller proportion arrange inter-island shipments but only a few have a sufficient volume to act as NVOCCs (non-vessel operating common carrier). A survey of the larger LSPs conducted by this work found that the typical physical assets held by a company were trucks (75 percent), warehouses (57 percent), handling equipment (45 percent), and container trailers (28 percent).

The modern third party logistics providers (3PLs) include both international companies operating in Indonesia through joint ventures and larger, more innovative domestic freight forwarders, especially those with experience in the provision of courier services. For modern 3PLs, as opposed to traditional LSPs, warehousing and distribution are part of their core business and provides a platform for value-added services, but they are also asset-light. Usually they own trucks but complement their services by using other transport companies for the majority of their distribution activities. They prefer to lease storage facilities and to manage warehouses for others but may own central warehouses. The warehousing involves inventory managed by the vendors or retailers for which the LPS provides basic warehousing and distribution services. The larger 3PLs use Warehouse Management Systems (WMS) with the capability to interface with their clients' ERP systems.

The road freight transport industry can be subdivided into two major market segments: the freight transport that goes to and from the port; and the regional and urban freight transport. Small freight forwarders and road freight companies with heavy trucks dominate the first market segment; whereas regional and urban freight transport is carried out by both small and large companies with a wide variety of vans and trucks.

The trucking market is very fragmented. An analysis of the structure of the companies that perform the trucking services in Tanjung Priok shows that over 75% of the companies have 20 or less trucks. Some consolidation is presently taken place that would enable a revitalization of the road freight transport

industry in Indonesia, but the challenge remains on how to support this consolidation process with policy measures

A fragmented trucking market is causing that smaller companies enter into a vicious circle of downgrading quality: revenues are low because of congestion on the road causing too much idle time for the truck and driver for the operation to become profitable, which in turn results in overloading practices by the smaller operators to compensate for the losses in an attempt to maintain the business putting in danger road safety. These smaller companies often have old trucks, as they cannot afford new ones. The larger companies carrying out regional transport have often a relatively new fleet and replace the vehicles after 8 years of operation. The trucks of these larger companies are able to perform 80,000 - 120,000 km per year, which enables them to raise sufficient income for covering the operational costs and the costs of depreciation of the vehicle.

### **Domestic shipping**

Inter-island container services are competitive. Five large lines operate a fleet of 170 vessels and carry about half the total traffic while another 52 smaller lines operate the remaining fleet of container vessels. Almost all container ships, which include multi-purpose vessels, are geared (have crane installed at deck) and therefore able to call ports that lack container-handling equipment or lack reliable equipment. They vary in capacity from less than a 100 TEU up to 1,800 TEU with an average capacity of about 300 TEU. The larger vessels (700 TEU or more) account for only 14 percent of the container vessel fleet but for about a third of total fleet capacity.

The average age of the vessels is about 20 years. Most of the vessels are purchased in the second hand market, although some of the younger vessels in the 300-600 TEU range appear to have been purchased new. The shipping lines continue to purchase geared vessels despite the potential savings in capital and operating costs with gearless vessels. Although there are routes on which both ports have sufficient ship-to-shore gantry cranes and/or mobile container cranes, there is still a reluctance to depend on the ports to provide reliable service.

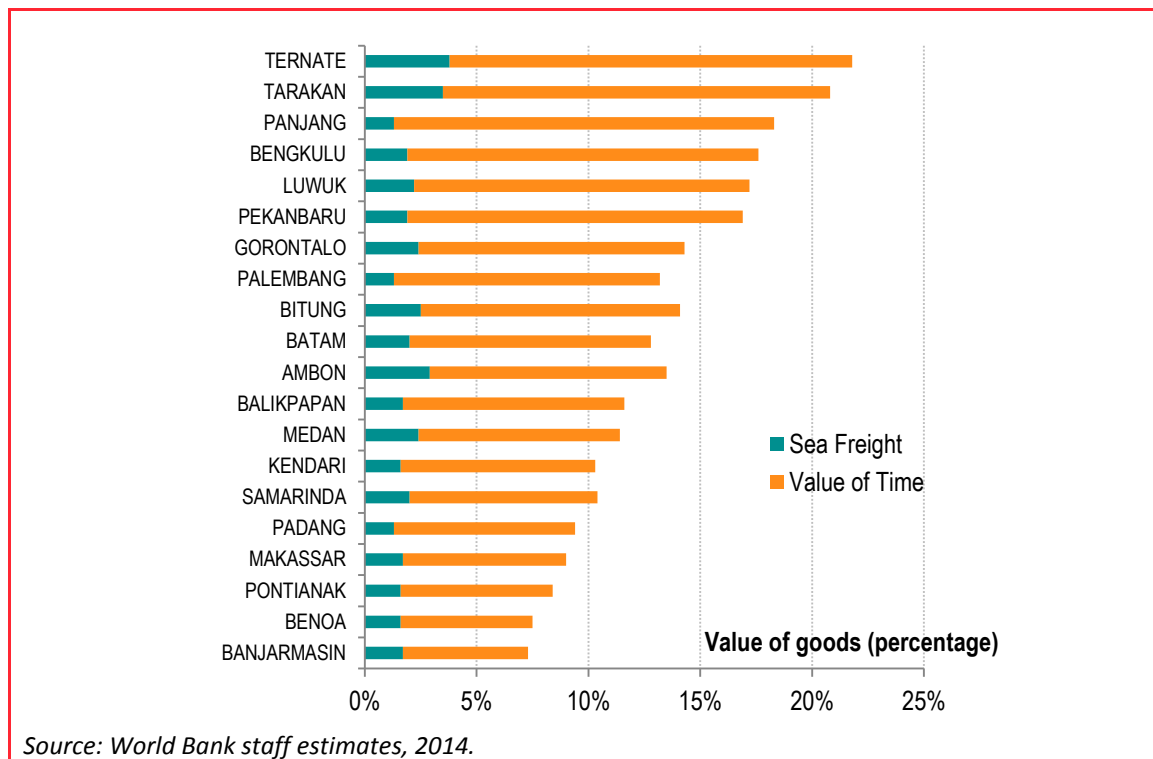
In addition, there are a large number of RoRo (ferries) and wooden vessels that transport unitized cargo. The RoRo vessels are much smaller with an average GRT equal to that of the container vessels with a capacity of around 20 TEU.

Interviews carried out for this work also suggest that the average operating speed of the container fleet is about 10 to 12 knots even though the design speed for most of the ships is in the range of 15-18 knots. Slow steaming is a common practice in Indonesia because of the short distances travelled. For the shorter routes, the inter-port distance can be covered in 1-2 days. Any increase in speed would reduce the travel time merely by a number of hours which would be then spent in port since the schedule of calls are organized by day. The reduction in speed also provides significant savings in fuel costs, which account for a majority of the vessels operating costs. A situation exacerbated by the higher cost of marine diesel in Indonesia relative to the international fuel price i.e. in Singapore.

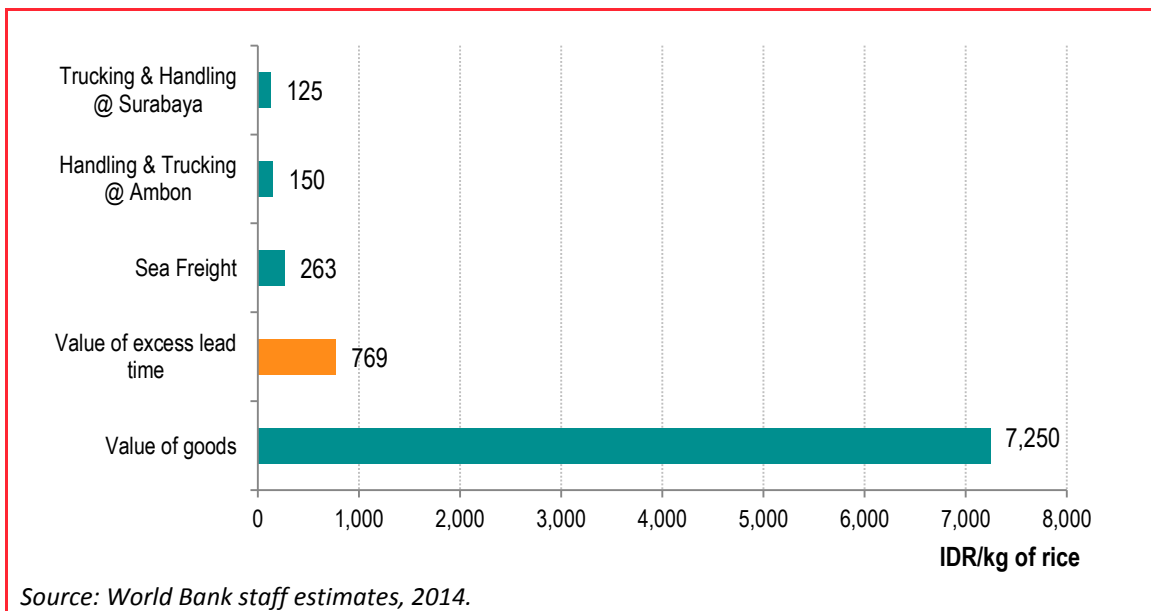
**Reliability and the value of time, together with non-transport and cargo-handling costs, explain most of the logistics costs in Indonesia.** A simple calculation of total logistics costs for goods shipped from the two main hubs on Java shows that the value of time is the main source of costs for maritime supply chains. As seen in Figure 10, sea freight costs account for 1.5 percent up to a maximum 6 percent of the value of the goods (estimated at US\$15,000 per container), whereas the value of time is typically estimated at 1 percent

per day applied to lead time, which captures the total time from start to finish. Lead time includes shipping time, and time at the port (for loading and unloading at the port of origin and destination), as well as any delays accounting for the frequency of calls (e.g., missing a boat).

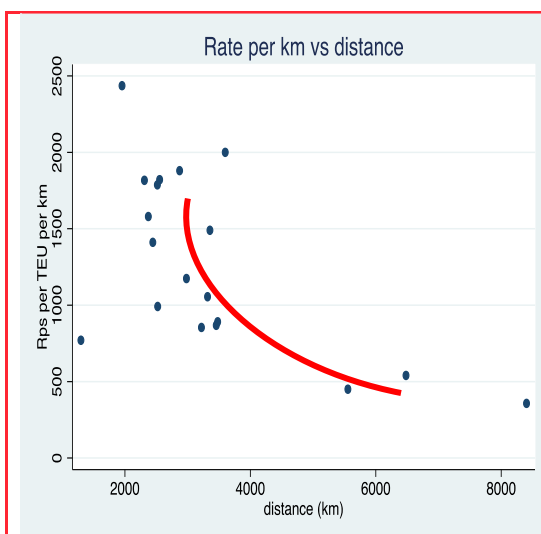
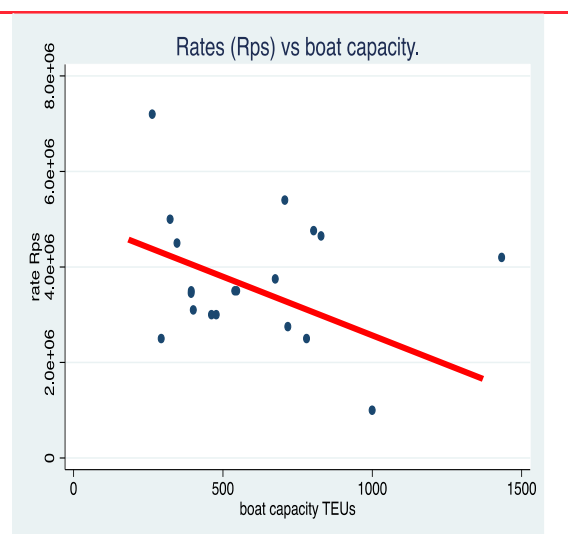
**Figure 10. Sea freight cost vs. value of shipped from the two hubs in Java (Jakarta and Surabaya)**



**The largest cost-saving opportunity lies in reducing the time component of logistics costs.** The value of time represents the cost of unreliable logistics services and it represents the largest share of logistics costs compared with sea freight and handling costs. Even for a relatively low-value commodity such as rice, on a supply chain from Surabaya to Ambon the sea freight cost is not a very high (5 percent) as a proportion to the value of 1.0 kg of rice, which is about the same magnitude of the handling and costs for short-distance freight transport/dryage (Figure 11). From a consumer perspective, most of the gains would stem from making supply chains more reliable, thereby decreasing the time component of logistics costs.

**Figure 11. Value comparison of logistics cost components vs. value of one container of rice**


Unable to accurately measure the true costs of unreliability, Indonesian producers usually complain about the high cost of domestic freight. However, domestic freight rates are already responding to market mechanisms. Shipping rates are determined by distance on the routes and/or ship capacity, which is consistent with market efficiency. As Figure 12a shows, freight-shipping rates increase with distance (larger distances incur higher rates). Furthermore, the shipping rate increase based on the distance is lower than the actual increase in distance. Similarly, shipping rates are higher dependent on ship capacity (larger vessels charge higher rates), thus shipping lines have been introducing progressively larger ships on more active routes, resulting in economies of scale.

**Figure 12a. Shipping rate (IDR/km) vs distance (km)**

**Figure 12b. Shipping rate (IDR) vs boat capacity (TEU)**


Source: World Bank staff estimates, 2015.



**Other sources of uncertainty include the time spent in port (i.e., turnaround time), which in turn increases shipping time.** There is a strong association between shipping time on domestic routes and time spent in port (Figure 13). Turnaround times are often uncertain and unreliable, as many ports have a significant dispersion of turnaround times around the average. Shipping lines have to anticipate this uncertainty into their own schedules, thus shipping times increase by two days if a vessel stays at a given port for more than three days. The causes of uncertainty include port performance, the quality of port services, and congestion.

**Figure 13. Shipping time vs turnaround time (days)**



*Source: World Bank staff estimates, 2015.*

## Behind the Lack of Reliability in Logistics Performance

**Indonesian manufacturers perceive the lack of reliability in logistics services as the major constraint for their businesses.** Reliability is a key dimension on logistics performance and it is usually the result of a combination of low-performing areas. Infrastructure gaps, governance obstacles, supply-chain weaknesses and low-quality services summarize a bundle of issues behind the lack of reliability in logistics performance.

**Investment in infrastructure has long been seen as one of the key impediments to Indonesia's development. From the sea freight logistics perspective, the inefficiency in port services due to the lack of appropriate infrastructure greatly affects the performance of the rest of the supply chain.** Some of the larger and busier ports are currently able to operate at an acceptable performance level given the constraints on hinterland connections and the regulatory difficulties of expanding activities with private sector participation. However, all ports in Indonesia (large, medium and small) are in need of upgrades regarding capacity, access and/or technology changes. Improvements in sea-side access to ports (i.e., channels), and the quality of the layout of the infrastructure (i.e., berths), as well as the terminal equipment in both the quayside and the yard-side, will need to be approached on a case-by-case basis through the development of detailed feasibility studies and technical designs.

**Although the gaps in infrastructure continue to impose strains for traders, the surveys of domestic shipping lines undertaken for the study suggest that the efficiency of port services are affecting them equally and impeding their businesses from meeting schedules.** The following table shows some of the most important productivity problems that were mentioned in the survey.

**Table 1. Problematic port services identified**

Location	Issues
Pre-berth	<ul style="list-style-type: none"><li>• <b>Availability of slots and programming of berth window is problematic</b> (e.g., Belawan, Biak, Manokwari, Sorong, Surabaya)</li><li>• <b>Maritime pilotage services are not efficient</b> (e.g., Ambon, Belawan, Jakarta, Jayapura, Surabaya)</li></ul>
At berth	<ul style="list-style-type: none"><li>• <b>Working hours and productivity of labor/longshoremen (TKBM) are problematic and mediocre</b> (e.g., Ambon, Anggrek, Bengkulu, Bitung, Gorontalo, Jayapura, Surabaya, Toli-Toli) with no change over the past five years and in some cases it is reported to have worsened</li></ul>
At the yard	<ul style="list-style-type: none"><li>• <b>Total Stuffing and stripping of containers</b></li><li>• <b>Ship turnarounds in ports are generally slow</b></li></ul>

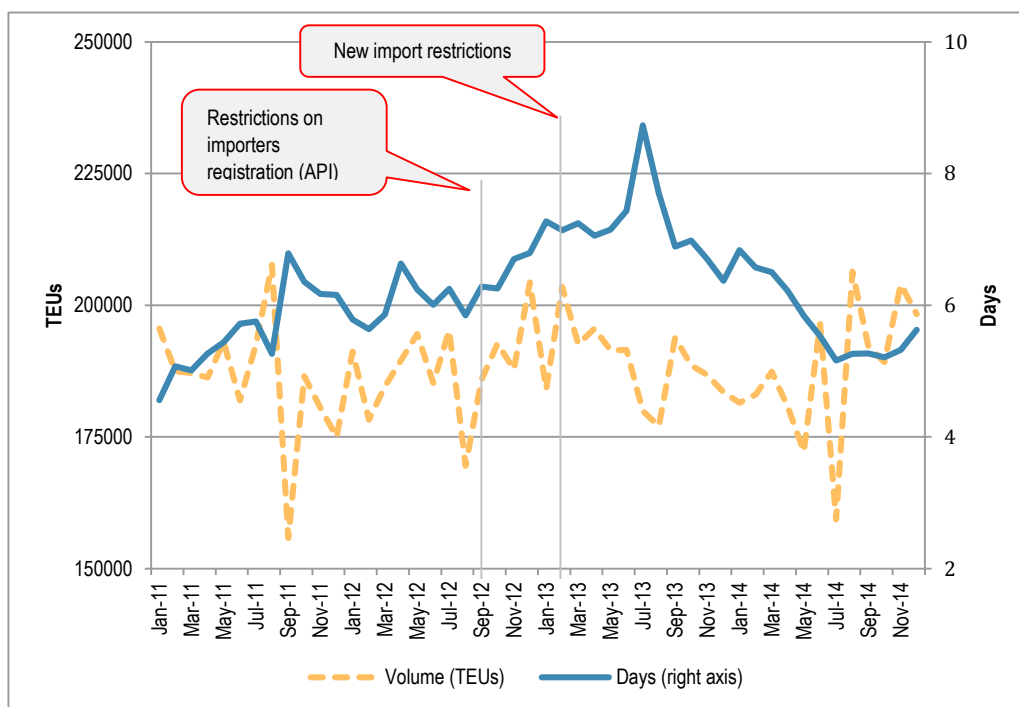
*Source: World Bank Survey, 2014.*

**Port trade facilitation issues and long dwell times are causing additional lead time and logistics costs for producers.** Container dwell time measures the total time spent on removing containers, from the time a vessel arrives in port to the point when the container leaves the port premises. For producers, especially those of exports and re-exports, longer dwell time means delays in the availability of inputs, increasing uncertainties and requiring higher inventory levels and carrying costs.

### Lack of coordination and governance in trade facilitation

**Administrative and bureaucratic procedures account for most of the delays in submitting the customs declaration (PIB), which is the primary explanation for longer dwell times.** Although Tanjung Priok operates close to full capacity (thus giving the terminal operators little room to manoeuvre), port infrastructure cannot fully explain the long delays in clearing containers. As shown in Figure 14, there is very little correlation between the cargo handled (TEUs) and dwell time (days). Instead, long bureaucratic processes are the main cause of delays in the pre-customs clearance stage and during the customs inspections.

**Figure 14. Dwell time (days) vs volume (TEU) in Tanjung Priok**



Source: World Bank staff analysis on JICT data, 2014

**Current facilitation efforts target automation of processes but do not question the need for the current requirements, which should undergo a review process.** The requirements need to be reevaluated and re-engineered, to comply with international standards and focus on efficiency. Current sources of complications and delays to submit the customs declaration (PIB) include:

1. **Many technical requirements** often with no strong justification by international standards (e.g., the pre-shipment inspections (PSI) recently introduced by the Ministry of Trade).
2. **Document and certificates issued after ship arrival (Table 2):**
  - Delays in obtaining the manifest customs approval BC11 (about 30 percent is submitted after arrival of the vessel) or the PSI report.

- Some documents can only be submitted to the relevant ministries after the vessel arrives (e.g., Certificate of Origin, original Bill of Lading (B/L), surveyor report).

### 3. Processing is inefficient due to many manual interventions:

- Requirement for hard copies and a lack of automation by non-customs agencies (i.e., Quarantine, BPOM). Implementation of the national single window has been slow and very partial.
- A large majority of importers in the priority channel (80 percent) experience customs rejection (i.e., SKEP) of their submission, resulting in additional delays and uncertainties..

**Table 2. Documents adding to the delay of PIB submission**

Document	Delay after vessel arrives (days)	% Respondents
Recommendation letters	31	6.4
Import license	29	10.6
Standards certificate (SNI)	8	12.1
Pre-shipment verification certificate (surveyor report)	3	12.1
Insurance policy	3	3.5
Certificate of analysis (laboratory)	3	3.5
Quarantine letter	2.9	5.7
BPOM letter	2.5	8.5
Packing list	2.5	5.0
Commercial invoice	2.5	4.3
Bill of lading	2	12.1
BC11	1	14.2

Source: World Bank survey on MITA importers, 2014

### Low quality services and regulatory barriers for innovation

**Port performance has been adversely affected by low labor productivity.** Although the results of the survey for domestic shipping lines suggest that port performance has generally improved compared with five years ago, the time spent at some ports is still sometimes as much as half of the sailing time (e.g., Belawan-Jakarta, Surabaya-Makassar). In addition, some ports have very high container-handling charges that are not associated with the quality of services. In fact, container-handling charges in Indonesia are higher in ports where total turnaround time<sup>6</sup> is longest, such as in the case for Sorong and Jayapura.<sup>7</sup> These higher charges reflect the bargaining power of unionized labor in the ports and not the productivity of the services provided.

**Indonesia's logistics service providers (LSP), such as the trucking industry and others, operate in a highly fragmented regulatory environment.** There are too many institutions issuing and implementing regulations, and as a result the plethora of rules, including fiscal rules, end up raising logistics costs. Nine

<sup>6</sup> Turnaround time (TAT) is estimated as the total time between estimated time of arrival (ETA) and estimated time of departure (ETD)

<sup>7</sup> Sorong has TAT from 50 to 89 hours, charging IDR 2,168,290 for container-handling charges, whereas Jayapura has a TAT of 72 to 96 hours, charging IDR 1,840,094 for container-handling charges.

national laws and many more ministerial decrees, not to mention a plethora of local government regulations, guide the Indonesian logistics environment. The result of this fragmentation means that:

- Laws and regulations are developed independently by each ministry resulting in frequent conflicts of interest between ministries and sectors.
- The regulatory framework does not fully recognize logistics as an activity and does not facilitate the integration of supply chain services.
- Many local government regulations target logistics as a source of revenue, requiring duplicative and unnecessary permits, fees for which no services are provided, fees for the transport and loading/unloading of goods, and trade barriers between districts.

**The regulatory environment in Indonesia does not facilitate investment in multi-activity companies and integrated services.** As a growing sector, the logistic services industry<sup>8</sup> is constantly evolving and demanding upgrades. However, there are complex rules for investing in the sector and limited access to market. Table 4 summarizes some of the most pressing problems.

**Table 3. Regulatory complexity for the logistics sector providers**

Problems	Description
Logistics integrators have to go through multiple permits for each activity	<ul style="list-style-type: none"> <li>• Typically they need to <b>separate the business into different legal entities for each activity</b>, for instance, trucking, freight forwarding and warehousing need to be registered with different agencies</li> </ul>
Restrictions in FDI undermines flexibility to establish integrated logistics providers	<ul style="list-style-type: none"> <li>• The Government revised its negative investment list (DNI) in July 2007. <b>All transportation services</b> (freight forwarding, road transport, maritime transport services, air cargo transportation services etc.) <b>are now subject to minority (49 percent) foreign ownership</b>. However, warehousing is subject to a lower threshold (33 percent) except for investment in eastern Indonesia.</li> <li>• There are gateway (i.e., port of entry) <b>restrictions on foreign companies looking to provide express delivery service (EDS) and freight-forwarders</b>. No such restrictions apply to local firms</li> </ul>
Prevalence of permits for transport operators	<ul style="list-style-type: none"> <li>• <b>Ministry of Transport reported that it processes about 2,000 permits/day</b>. Recently, the ministry also reduced processing time, extended the time validity of permits, simplified requirements, and increased the use of ICT in processing permits. However, it is not clear whether the ministry plans to streamline, through review, the remaining permits to ensure their alignment with competition, quality and safety.</li> </ul>
Monopolies for certain key activities	<ul style="list-style-type: none"> <li>• <b>Dominant players (e.g., labor union, dominant SOEs) often have influence over bottlenecked infrastructure facilities such as ports</b>. While the situation might be similar to that where private firms have control on such infrastructure, the regulatory framework to ensure access on 'last mile' infrastructure and competitive conduct of dominant players is not yet clearly enforced</li> </ul>

*Source: World Bank survey, 2014*

<sup>8</sup> Indonesia's regulatory framework recognizes the following main categories of LSPs: (i) Integrated LSPs: freight-forwarders, shipping agents, express delivery services (EDS), third-party and fourth-party LSPs (3PL and 4PL), and multimodal transport LSPs; and (ii) Specific activities such as customs clearance agents, warehousing services, trucking services.

### Regulations affecting operating environment of logistics providers

**Current fiscal rules, and more specifically VAT rules, raise the cost of freight and logistics services. There are ambiguities about the eligibility of freight and logistics operators to the VAT regime and about which guidelines apply to specific activities.** Large operators, including major shipping lines, do not operate under VAT, which means that they cannot claim back the VAT paid on their inputs, including payments for bunker fuel. The lack of clarity is also evident on the VAT rate that is applied on individual services related to international shipments: It is not clear whether the '1 percent of 10 percent' rate should be used in collecting VAT from domestic trucking, storage and handling associated with international shipping. This uncertain situation prompts many companies to set aside funds to guard against tax penalties. One way to have a more predictable tax system would be to design guidelines to extend general VAT to modern logistics operators, and eventually use the legacy fiscal regime for small-scale operators. Another problem relates to difficulty faced by shipping liners to deduct VAT from bunker fuel purchase which affects cash-flow of domestic shipping liners.

**There are also regulatory constraints concerning the acquisition of new tonnage for domestic shipping.** The cost of purchasing used vessels includes a significant premium because the vessels must be modified to meet specific requirements of Biro Klasifikasi Indonesia (BKI). This includes vessels that are currently certified by one of the thirteen members of the International Association of Classification Societies (these societies currently certify more than 90 percent of the world's international tonnage in collaborate closely with the International Maritime Organization) on updating their requirements. An equally important constraint is the restriction on chartering vessels for use in the inter-island trades. This restriction relates to the lack of legislation allowing reflagging of vessels that are bare boat chartered during the period of the charter. The ability to charter in vessels is important when serving routes that require geared vessels but have the possibility to be served by gearless vessels once the ports on this route have been upgraded.

**Similar to the fiscal rules, required administrative procedures also add delays and raise costs of logistics services.** For example, commercial warehousing operations face burdensome compulsory reporting: warehouse owners, managers or tenants must submit to the local government and the Ministry of Trade an extensive monthly administrative report on items, including name, number of items, time of entry, time of release, and daily amount of goods stored in the warehouse. The costs of maintaining such a reporting scheme translate into additional costs that are later passed to the consumer.

### Infrastructure bottlenecks

**The land freight transport industry in Indonesia is also a source of uncertainty for traders in Indonesia.** Trucking is the main mode of transport for distributing final products from production centers to the market. Traders have used these services widely as there are no other reliable alternative modes of transport such as rail or inter-island shipping. In addition, trucking may have been traditionally over-used because of the history of subsidized fuel. In fact, freight cost is comparable to international benchmarks: the average truck-trailer transport across Java is US\$1.31/km, comparable to a worldwide average of US\$1.00/km with likely longer average trip distance than trucks in Java.

**The sources of uncertainty in land freight transport come from the congestion, delays and low quality services.** Table 3 shows the main messages from the survey of 83 trucking firms operating in Greater Jakarta (Jabodetabek):

**Table 4. Key issues in land freight transport**

<b>Long idle and waiting times due to congestion or queues</b>	<ul style="list-style-type: none"> <li>• On average, one third of the total roundtrip time to and from Tanjung Priok is spent waiting at factories or in the port</li> <li>• From a return trip of 12 hours to the industrial areas in Cikarang to Tanjung Priok and back, up to 4 hours are spent idle</li> </ul>
<b>Total cost increases due to congestion and delay</b>	<ul style="list-style-type: none"> <li>• Total cost for trucking industry in greater Jakarta could be anywhere between US\$1.9 to US\$4.4 billion/year (assuming that 30 to 70 percent of registered trucks are currently operating)</li> </ul>
<b>Low efficiency in synchronizing cargo delivery and pick-up</b>	<ul style="list-style-type: none"> <li>• For example, 62 percent of trucks taking goods to Tanjung Priok port are empty on the return leg of the trip (no return containers)</li> </ul>

*Source: World Bank survey, 2014*

## Challenges in Gathering Data

Challenges in gathering data for this study reflects challenges for evidence based policy making on logistics in Indonesia. During the course of this work, the team identify issues that prevent the team from undertaking the following tasks:

- No regular survey statistics on logistics services industries (trucking, freight forwarding, shipping liners) making it difficult to present more precise picture on market and structure of logistics industries in Indonesia. Instead, many of studies on logistics relied on secondary data developed by donor funded projects.
- Data on equipment, facilities, traffic, and terminal characteristics (e.g., handling rate, labor cooperative) for individual terminal and port under Pelindo I to IV and Ministry of Transport are not publicly available. This limits ability to analyze port productivity and run a counter-factual simulation on the impact of improvement in port. This work used data from terminals obtained from Pelindo IV to perform port productivity analysis and calculating value of time in logistics.
- Restrictions to access Customs' cargo clearance data in port makes it difficult to construct dwell time indicator that separates time spent by traders on pre-customs clearance, customs clearance, and post-customs clearance.

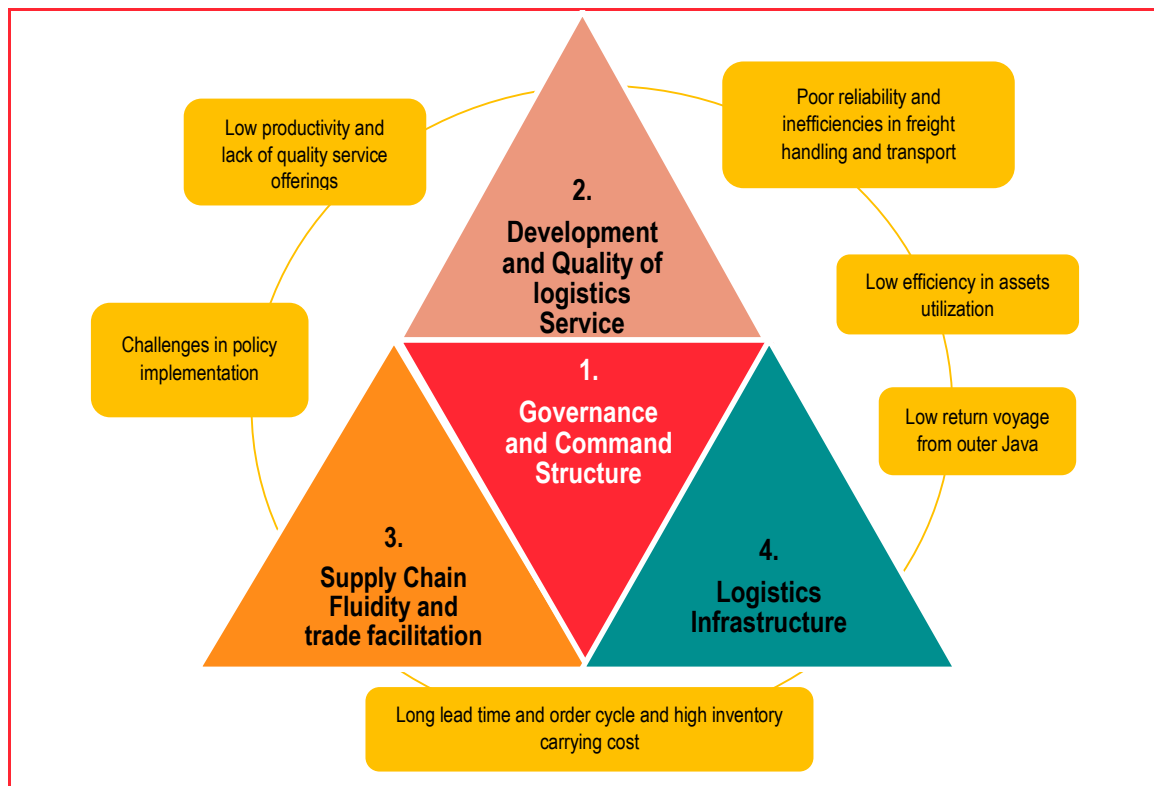
Outdated origin-destination and difficulty to obtain complete information and schedule for domestic cargo voyage for major and feeder ports presents formidable challenges for fully developing a connectivity model



## A Framework for Freight Logistics Reform

The problems in Indonesia's freight logistics unmask an interconnected relationship of four key areas: (i) logistics infrastructure; (ii) governance and command structure; (iii) supply-chain fluidity and trade facilitation, and (iv) the development and quality of logistics services/competences (Figure 15). While better infrastructure is important to streamline freight logistics and improve connectivity, it needs to be combined with the other three areas. One example is the distribution of goods to the outer islands: the logistics costs in eastern Indonesia will always be higher than those in western Indonesia due to economies of scale. But addressing and prioritizing reforms simultaneously would improve the efficiency and reliability of supply chains, which in turn would reduce the differences in costs across the country.

Figure 15. A framework for freight logistics reform



The reform plan (Table 5 and Table 6) focuses on these four areas and evaluates the impact on freight logistics costs (i.e., high, medium-high and moderate); the level of sophistication of the reform (i.e., easy, moderate, medium effort, serious effort) and the time frame in which it might be implemented. The key pillars for action are summarized as follows:

- The analysis and interviews of this work suggest that the reform process should start by strengthening governance and command structure as a key issue as logistics reform is a cross-cutting theme involving many agencies, and require capability to monitor logistics performance and impact of policy changes. Establishment of a Logistics Task Force with clear mandate to coordinate and implement reform is

needed. However, experiences from previous task forces (i.e, *Team for Investment and Export, Team for Flow of Goods, and INSW Team*) suggest that the proposed Logistics Task Force needs strong political commitment from the Government and a full-time Secretariat with adequate funds and flexibility to hire technical experts.

A “logistics observatory” is also needed to coordinate data collection in different agencies for policy researches and policy making process in logistics. Within this pillar, there is also a need to review implementation of Law no.17/2008 on Shipping to identify gaps and issues in port management and operating environment for domestic sea shipping.

- Second, developing quality in logistics services to meet growing demand. Currently the policies governing entry and permits in logistics is significantly fragmented. Reforms in this area should focus on streamlining and improving regulations to improve capability and operating environment for logistics services providers to compete, expand, and innovate. Simplify licensing/permits for 3PLs, reduce barrier to entry for freight-forwarders and clarify the use of VAT in logistics are important issues that need to be addressed. It is also important to recognize the role of FDI as source of know-how and Indonesia should implement ASEAN commitment to allow 51% foreign investment in logistics sector.
- Third is improving fluidity of the supply chain, which is essential for competitiveness of firms and ability to respond to market opportunities. The focus of this area should be to reduce cost associated with clearances and transaction with different agencies and improvement in reliability of freight scheduling through the use of electronic platforms. INSW is already partially implemented but there is no effort yet to revisit existing clearance procedures and risk management in border agencies. Similarly, Port Community System (INAPORTNET) has started to operate in Tanjung Priok but not yet in other ports.

Finally is the development of logistics infrastructure, which requires prioritization and streamlining in permits /regulations that are hampering private sector investment. To facilitate PPP in maritime logistics, Indonesia's own experience suggests that the structure for coordinating, and project preparation and execution is still weak.

**Table 5. Proposed Action Plan to improve freight logistics in Indonesia**

Action	Impact	Ease	Timeframe
<b>1 Strengthen governance and command structure</b>			
1-1 Establish a task force/ implementation unit with a clear mandate and full time Secretariat to supervise the implementation plan of action			As soon as possible "Quick Win"
1-2 Improve the availability of facts and data for informed policymaking: ("logistics observatory")			Medium term (MT)
1-3 Assess Implementation of Law no 17/2008 on Shipping to identify gaps and issues			Short term (ST)
1-4 Improve compliance in transport and logistics services (rules, safety, insurance)			MT- long term (LT)
1-5 Improve transparency and contestability of (port) services contracts			MT
<b>2. Foster development and quality of logistics services</b>			
2-1 Simplify licenses of freight-forwarders and 3PLs			ST-MT "Quick Win"
2-2 Alignment of trucking company regulations with international best practices			MT
2-3 Issue VAT guidelines for transport and logistics			ST "Quick Win"
2-4 Improve consistency of FDI regulations for logistics			MT
2-5 Facilitate skills development			MT
<b>3. Improve supply chain fluidity and trade facilitation</b>			
3-1 Reduce administrative burden of managing warehouses			ST
3-2 Encourage paperless solutions for trade-related procedures			ST-MT "Quick Win"
3-3 Publication of dwell time with breakdown on pre-customs clearance, customs clearance, and post-clearance in major ports			ST "Quick Win"
3-4 Phase out unnecessary documentary requirements			ST "Quick Win"
3-5 Anticipation in the submission of trade related information (e.g. reducing time spent for pre-customs clearance)			ST "Quick Win"
3-6 Roll out INAPORT to all Indonesian ports to synchronize maritime supply chains			ST-MT "Quick Win"



**Table 6. Detailed Plan of Action**

**Strengthen governance and command structure**

Action	Problem	Implementation/First steps	Responsibilities
<b>1-1 Establish a Task Force / Implementation Unit to supervise the implementation plan of action</b>	Connectivity and logistics are themes crossing over many agencies and sectors. Although individual actions are to be implemented by one or several agencies, it is critical for the plan of action to be supported by a comprehensive high-level implementation structure that will catalyze and monitor implementation of individual activities  It could be a time-limited implementation unit	Presidential decision, approval of the Plan of Action by the Cabinet  Definition of the work program and monitoring	Coordinating Ministry for Economic Affairs (CMEA) and Coordinating Ministry for Maritime Affairs (CMMA)
<b>1-2 Availability of fact and data for informed policy making: “observatory”</b>	Many policies on logistics reform are not based on evidence from the field and consistent and comparable data are not publicly available	Establish an autonomous logistics observatory with buy-in from all key and private stakeholders.  Start with feasibility study to define the data to be collected and analyze and prepare a business model	Working group led by CMEA, CMMA, Ministry of Transport, Bappenas, and Statistic Agency (BPS)
<b>1-3 Assess Implementation of Shipping law</b>	The Shipping Law of 2008 introduced modern organizational and operational principles in Indonesia (e.g., landlord model) and governs the organization of domestic shipping industry  There is evidence of unequal implementation in both ports.  There is also a need to review the role of BKL in using their classification to certify domestic vessels and review the possibility of allowing reflagging of vessels that are bare boat chartered during the period of the charter.	Benchmark the implementation of the law	CMMA

<b>1-4 Improve compliance in transport and logistics services</b>	Many basic regulations for the maritime sector and trucking are not enforced properly. Lack of compliance means that compliant operators are at a disadvantage and prevented from modernizing and expanding the sector. Examples include overloading of trucks, and improper insurance or manifest information in domestic shipping.	Monitor enforcement of maritime and trucking regulation. Identify the capacity constraints of agencies that prevents proper enforcement	Ministry of Transport
	Level playing field for the logistics sub-sector would be conducive for the modernization of the sector, its development, and ultimately raising the quality of service.		
<b>1-5 Transparency and contestability of (port) services contracts</b>	The costs of loading and unloading containers in ports in eastern Indonesia are high, while productivity is low compared with most ports in western Indonesia. This is partly due to monopolies or a lack of contestability of dock laborers	Review contractual practices for stevedoring companies (including dock workers' cooperatives) with view to promoting competition and transparency	Ministry of Transport

## Development and quality of logistics services

Action	Problem	Implementation/First steps	Responsibilities
<b>2-1 Simplify licenses of forwarders and 3PLs</b>	Freight forwarders and 3PLs need to obtain a multitude of licenses. The regulations for multi-modal service providers are unclear and only few companies have been able to apply successfully. There is also no clear industry category for “integrated logistics services”	Simplify the licensing schemes so that freight forwarding companies can engage in any type of logistics services without having to establish a separate company for each type of service. Reduce the number of agencies involved. Introduce classification for integrated logistics service provider (i.e., based on Central Product Classification (CPC))	Working group led by Ministry of Transport include BKPM, Ministry of Trade and Ministry of Industry
<b>2-2 Alignment of trucking company regulations on international practices</b>	Trucking regulations are relatively specific in Indonesia with ambiguities regarding type of services or geographical areas of operation. For instance, the separation of own account vs. commercial freight is not clear on the ground	Review the existing framework in detail and benchmarking against international standards in truck regulation (EU, Thailand, Malaysia)  Identify rules that should be revised and those that should be abolished	Working group led by CMMA and Ministry of Transport
<b>2-3 VAT guidelines for transport and logistics</b>	There are currently no clear guidelines for collecting and reclaiming VAT in freight logistics causing uncertainty for logistics service providers	Develop clear guidelines on implementation of VAT in freight logistics, including the possibility of claiming VAT on inputs, in order to reduce the costs for operators	Working group led by DG Tax
<b>2-4 Consistency of FDI regulations for logistics</b>	In some logistics activities the foreign equity limit is reduced to 30 percent. This limits the possibility to attract FDI in integrated services (third party providers)	BKPM to better categorize logistics in its investment list	CMEA and BKPM
<b>2-5 Facilitate Skills Development</b>	At present there is lack of in-house knowledge on logistics (e.g. supply chain planner, supply chain forecasters). Most skills development happens directly “on the job” with few standards of competency. There is a need to improve the relevance of formal education at local universities with demand for logistics skills from the industry	Facilitate dialogue with private sector (ALFI) to establish logistics training center with private sector as main contributor for funding, training curriculum and materials.	CMEA, ALFI

## Improve fluidity in supply chain and trade facilitation

Action	Problem	Implementation/First steps	Responsibilities
<b>3-1 Reduce administrative burden of managing warehouses</b>	Each month every commercial warehouse that stores goods deemed by the Government as "basic necessities/important products" needs to submit monthly report to DG of Domestic Trade. While the objective is understandable (to monitor hoarding), implementation will not be easy as goods are often in transit for distribution and mixed with other products.	Socialize Permendag 90/2014 and obtain clarity whether warehouses owned by logistics service providers are subject to such an onerous process. Use sample for audit/inspection of warehouses to check log-book for flow of necessity/important products from warehouse	Ministry of Trade
<b>3-2 Encourage paperless solutions for trade-related procedures</b>	Importers currently go through multiple clearances from different government agencies, for some products including clearances from city, provincial governments, regional offices of line ministries and the central offices of the ministries	Fully implement the Indonesian National Single Window System (INSW) and eliminate clearance requirements that do not add meaningful value such as ensuring health and consumer safety	Customs, CMEA
<b>3-3 Publication of Dwell time with breakdown on pre-customs clearance, customs clearance, and post-clearance in major ports</b>	Dwell times in ports are far worse than international competitors yet except in Tanjung Priok, dwell time is not being consistently measured and reported. This deprives policy makers of a key tool to systematically identify problems and determine remedial actions and to help shippers decide which ports to use.	Port operators mandated by Government to measure dwell times in all international ports and domestic container terminals and to post data on open data websites. Institute sanctions for failure to monitor/report.	CMMA
<b>3-4 Phase out unnecessary documentary requirements</b>	Many import requirements have a strong negative impact on trade logistics, as the importers have to submit more paperwork, which is often not available in time. Among the requirements, the requirement by Ministry of Trade for pre-verification is especially problematic in term of costs and delays	Start a collective review process that includes fast track for elimination of the most problematic NTMs. The review should balanced the trade facilitation impact with the social goals of the measure (e.g. health, environment) Pre-verification inspection reports provide no intrinsic value. Eliminate their use	CMEA
Action	Problem	Implementation/First steps	Responsibilities



<b>3-5 Anticipation in the submission of trade related information</b>	At present only priority importers can submit their manifest prior to arrival in Indonesian ports. Such early submission contributes to lowering dwell time in ports	Customs review with the private sector the possibility of extending the possibility to submit manifest prior to arrival of the ship	Customs
<b>3-6 Roll out INAPORT to all ports in Indonesia to synchronize maritime supply chain</b>	Vessels and port services do not coordinate arrivals and departures. (domestic shipping)  The movement of cargo in most ports is not well monitored due to the absence of proper systems	Deployment of INAPORT net (an IT solution) beyond Tanjung Priok in major ports (Belawan, Surabaya, and Makassar).	Working group led by CMMA, includes Ministry of SOE, Ministry of Transport, CMEA, Customs
<b>3-7 Increase productivity by sharing port operational know how</b>	There is a wide disparity in port productivity between ports. Difference of exposure to international practices and lack of mobility means that operational staff in ports in secondary ports have typically less experience with productivity  A positive experience in Pontianak, where IPC brought experienced staff form TP to re-engineer the process, so that operational efficiency could be improved with minimum investment and transfer of know-how	Set up a cross-support mechanisms with IPC so that experience staff can support operations in other ports  Definition of priority port for re-engineering	Ministry of Transport, IPC (Pelindo II)
<b>3-8 Introduce action plan to encourage 24/7 operations of ports</b>	Some facilities are not available at night or during the weekend, while containers arrive in Jakarta 24/7 and the international terminal is also open 24/7	Encourage 24/7 operations in ports, and adjacent facilities (container depot). Ensure that agencies have budget allocation to support 24/7 operations	All border agencies

#### Invest in logistics infrastructure

Action	Problem	Implementation/First steps	Responsibilities
--------	---------	----------------------------	------------------

<p><b>4-1 Prioritize and Sequence investments in ports based on connectivity impact and streamline permits/license procedure for investment</b></p>	<p>Prioritize domestic port investment (infrastructure and equipment) according to its impact on freight logistics and connectivity</p> <p>Procedure for private sector to obtain permits/license to invest in developing or upgrading ports takes long time</p>	<p>MOT jointly with financiers agree on list of priority projects including soft needs to solve organizational issues at the local level</p> <p>Definition of criteria to assess and categorize the project</p> <p>Identify steps for obtaining permits/license for developing or upgrading ports that can be streamlined</p>	<p>Ministry of Transport, CMEA, CMMA, Bappenas, BPKM</p>
<p><b>4-2 Improve port hinterland interface</b></p>	<p>Improve port-hinterland interface in the most constraint port-hinterland environments in eastern Indonesia</p> <p>Solutions should be adapted to the local situation and could involved local ICD or distribution center</p>	<p>Define connectivity program for eastern Indonesia with all relevant stakeholders (Public Works, MOT, <i>Pelindos</i>)</p> <p>Experiment with pilot project</p>	<p>Ministry of Transport, Ministry of Public Works, Ministry of Trade, CMEA</p>
<p><b>4-4 Encourage PPP in logistics facilities</b></p>	<p>Encourage private investment (full or PPP) in logistics facilities including distribution centers or in container freight stations outside port areas</p>	<p>Definition of a master plan to assess the demand for surfaces in the different regions, with eventually a staggered schedule and different TORs (joint project, Transport, Commerce).</p>	<p>CMEA, Ministry of Finance (PPP unit)</p>

# Annex

## Presentation on Reducing Freight Logistic Costs in Indonesia



### SUMMARY

- **Connectivity in freight logistics is important for Indonesia to grow faster, transform its economy and promote shared prosperity**
- Producers recognize that **reliable freight logistics is key in determining the competitiveness of supply chains**
- Indonesia's archipelagic character presents a unique challenge because **poor sea-port-land connectivity** gives rise to long and broken supply chains, especially to eastern Indonesia where it is almost impossible to have a reverse supply chain to the west
- World Bank team analysis suggests that the **freight rate is not the main component driving logistics costs in Indonesia**. The more important issues **are low reliability and excessive time in freight logistics**
- **Improvements in domestic connectivity** depend primarily on reducing delays in maritime freight and better port hinterland interfacing of supply chains, especially in Eastern Indonesia
- **International connectivity** is handicapped by a **burdensome process for imports and excessive regulatory burden** on logistics services
- Freight logistics problems in Indonesia are complex and simply **building infrastructure will not be enough**. Policymakers should consider improving the regulatory and incentive environment by addressing **governance and command structure** in freight logistics; **minimizing chokepoints in trade facilitation** to allow faster lead times for producers; and encouraging **competition and development of quality logistics services**

## Facing the challenge: Freight logistics as a key component for Indonesia's development

- Indonesia's GDP needs to grow by some 8% annually to avoid the middle-income trap and to improve the well-being of the bottom 40% of its population
- Given Indonesia's archipelagic nature, connecting supply chains and spatially separated sources of supply and demand can help to diversify economic activities
- Without improving freight logistics, the country will suffer missed opportunities from greater internal and international economic integration, leading to slower growth than necessary and more time to achieve its development goals

Reducing poverty & vulnerability

Diversifying economic activities

Tapping emerging opportunities

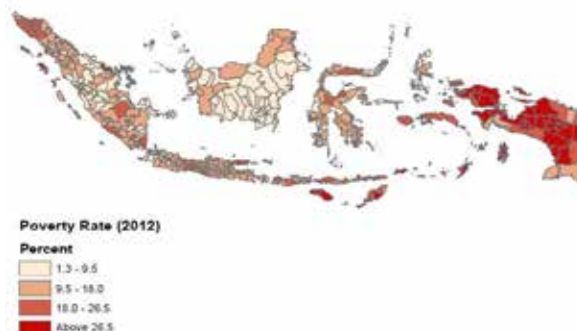
3



## Higher connectivity helps to link poorer regions to growth centers

- Vulnerable households and poverty rates are higher in remote areas of Indonesia:
  - **55% of the population in Papua are poor and vulnerable**, compared with 30% of the population in West Java
  - Even in Java and Sumatra the **poverty rates are higher in districts that are isolated**
- For growth to reduce poverty and facilitate shared prosperity, Indonesia has to **remove barriers that are preventing lagging regions from linking into more growth** generating opportunities

Poverty rates tend to be higher in remote areas



Source: SUSENAS

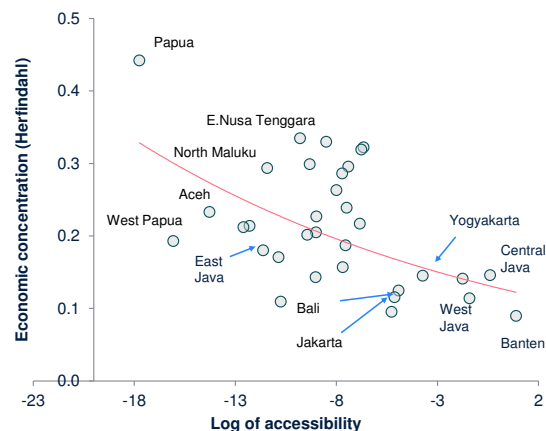
4



## Better freight logistics can help regions to better exploit their comparative advantage

- **Economic isolation further undermines the ability of regions to fully exploit their comparative advantages**
- Papua is more remote than West Papua. It has far lower GDP per capita growth (-3% vs. 15%, 2007-12) and is half as economically diverse as West Papua
- Despite potential in tourism, fisheries, and mineral processing, poor freight logistics contributes to the lack of development of those industries in Maluku, Papua, and East Nusa Tenggara
- Proximity to the main gateway port of Tanjung Priok in Jakarta helps firms in Banten and West Java regions to access inputs and markets

### Poor freight logistics can impair efforts by regions to diversify their economies



Source: estimates from BPS data

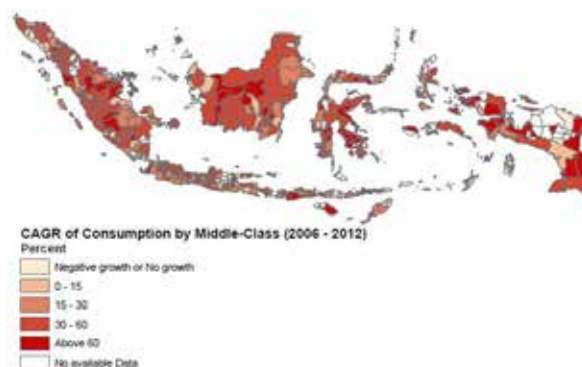


5

## Reliable freight logistics will help producers to deliver goods to meet demand from emerging consumer class

- **Around 18% of the population is “consumer class”, contributing to 46% of household consumption, while another 43% of the population is “emerging consumer class” contributing to 37% of household consumption**
- **The consumer class is growing by 21% per year**
- **Java still hosts 60% of the consumer class**
- **But regions in eastern Indonesia are also showing a rapid increase in their consumer class**
  - These new consumers are changing the pattern of consumption demand: higher demand of processed products as income elasticity for those products is higher than for “basic goods”

### Where is the new consumer class? Everywhere!

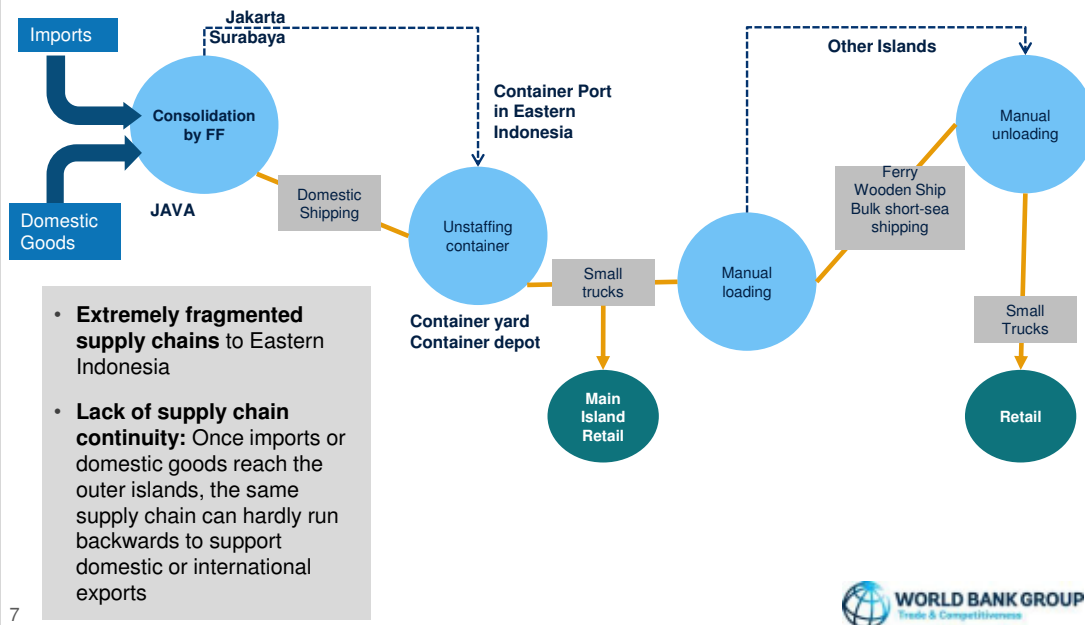


Source: SUSENAS data



6

## But the maritime supply chain is long and fragmented



## Benchmarking logistics performance: The baseline

- Before any efficiency improvement can be made in freight logistics there is a need for a **baseline of current freight logistics performance** in Indonesia:

- This section of the report looks at overall **performance measurements** from the perspective of logistics service providers (LSP) and from manufacturers

- **Reliability** is a key logistics performance issue AND **inventory holding cost** is the highest component of overall logistics costs

Measuring logistics performance

Logistics costs/sales

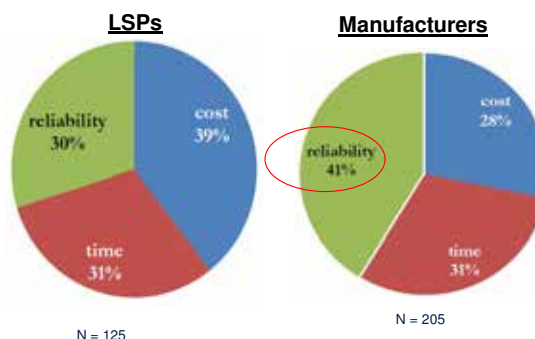
Top issues for freight logistics in Indonesia

## Producers care more about reliability than costs of logistics

It is important to know how service providers (LSPs) and users of those services (manufacturers) perceive relative importance of key logistics performance:

✓ Survey results suggest that **LSPs prefer low logistics costs (39%) over reliability (30%) and timeliness (31%)**. This is understandable as LSPs are unlikely to be cargo owners

✓ **Meanwhile, manufacturers tend to place more emphasis on reliability (41%) over cost (28%) and timeliness (29%)**. These findings reinforce the hypothesis that reliable supply chains are important for manufacturers to plan production, manage their inventory and hence leverage their scale economies



Source: WB & LPEM-FEUI surveys of freight forwarders and manufacturers in Jakarta, Surabaya, Bekasi Semarang, Medan, Makassar and Palembang

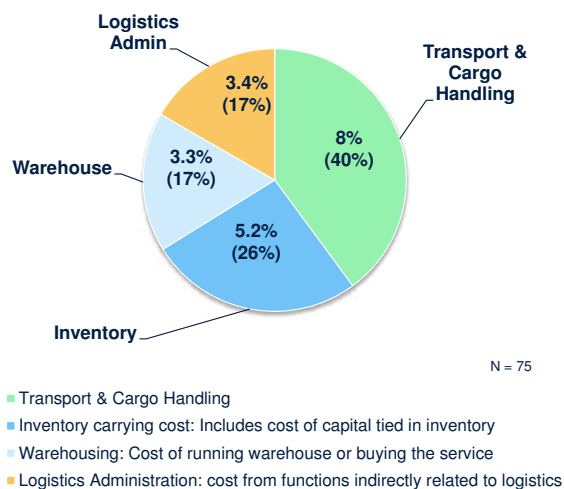


9

## Transport costs only explains 17% of the logistic costs in Indonesia

- **Logistics cost/sales is more precise than logistics cost/GDP** and enables comparisons within industrial sectors
- This concept measures at the micro level and is not comparable to costs as a percentage of GDP which is measured at the macro level
- Countries that use logistics cost/sales include Japan, Finland and Germany
- Survey of 205 firms in Jakarta, Bekasi, Semarang, Surabaya, Medan, and suggests that **logistics cost/sales of Indonesian manufactures is around 19-20%**, which is higher than in Thailand and Malaysia (15% and 13%)
- Aside from transport and cargo handling, the result suggests that **inventory carrying cost contributes to 26% of logistics cost incurred by Indonesian manufacturers**

### Components of Logistics Cost/Sales (%) Total Logistics Cost/Sales = 20%



Source: WB & LPEM-FEUI survey in 5 cities in Indonesia

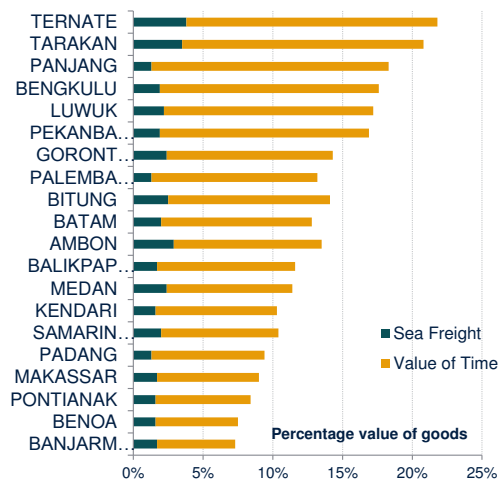


10

## Instead, reliability and value of time explain most of total logistics costs in Indonesia

- The value of time throughout the maritime supply chain is the largest component of the logistics costs
- Sea freight cost only accounts for 1.5% to max 6% of the value of goods
- The value of time is typically estimated at 1% per day which is applied to lead time
  - Shipping time
  - Time at port (unloading, unstuffing)
  - Delays accounting for the frequency of calls (e.g. missing a boat)

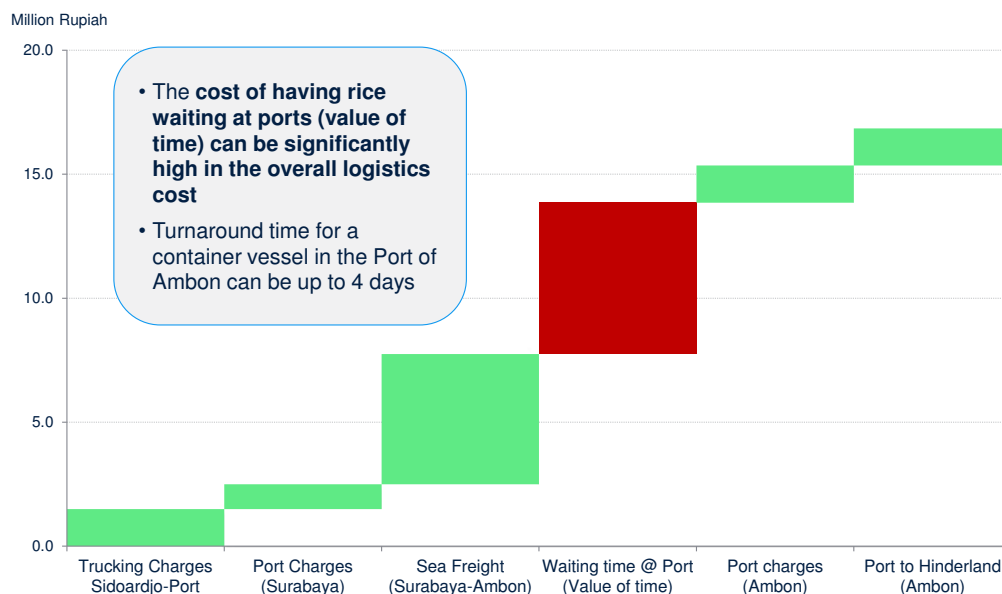
Logistics costs for goods shipped from the two hubs in Java (Jakarta and Surabaya)



11



## Example: Logistics cost scenario for 1 TEU of rice from Surabaya to Ambon



12

Source: WB Survey of shipping liner 2014, Ministry of Trade survey 2014

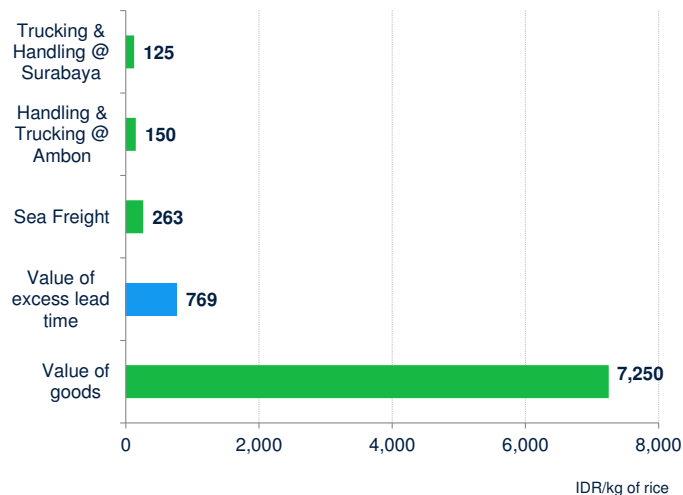




## The largest cost-saving opportunity is to reduce the time component of the logistics costs

- ✓ Even for a relatively low value commodity like rice, **sea freight cost is not a very high (5%)** in proportion to the value of 1 kg of rice
- ✓ **Handling and drayage costs are about the same magnitude as sea freight cost**
- ✓ From a consumer perspective **most of the gains would come by making the supply chain more reliable hence decreasing the time component of logistics costs**

Example: Logistics cost scenario for 1 TEU of rice from Surabaya to Ambon

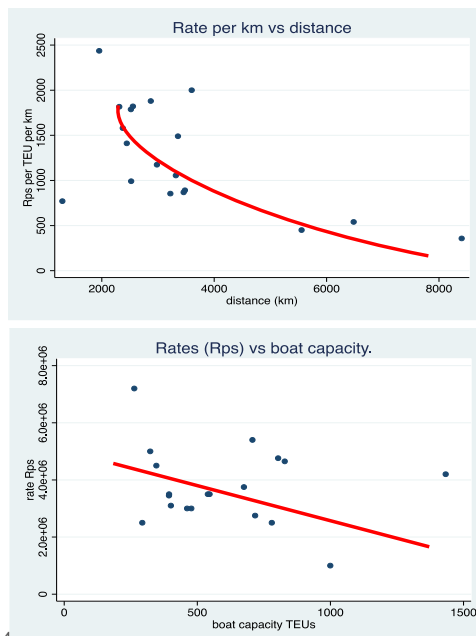


Source: WB Survey results 2014, Ministry of Trade survey 2014



13

## Maritime example: domestic freight rates in Indonesia are already responding to market mechanisms



- **Shipping rates are determined by distance on the routes or ship capacity, consistent with market efficiency:**

- Shorter distances get higher rates, and longer distances get lower rates
- Shipping rates increase is lower than the increase in distance
- **Shipping lines introduce progressively larger ships on more active routes, resulting in economies of scale**

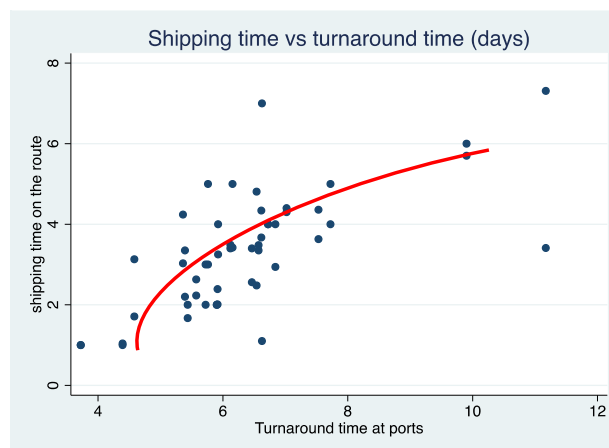
$$\text{rate} \sim (\text{distance})^{\frac{1}{2}} (\text{boat capacity})^{-\frac{1}{4}}$$



14

## Maritime example: more uncertainty at port increases shipping time

- There is a **strong association between shipping time on the domestic routes and time at ports** (turnaround time)
- The primary explanation is that in many ports there is significant dispersion of turnaround time around the average, i.e. **turnaround times are highly uncertain and unreliable**
- **Shipping lines have to anticipate this uncertainty in their schedules**
- The **causes of uncertainty include, port performance, quality of service, and congestion**



15



## Low efficiency of ports and port services are undermining reliability in freight logistics

- Improvements in seaside access to ports (channel), quality of the layout of the infrastructure (berth) as well as terminal equipment (quay- and yard-side) need to be approached on a **case-by-case basis** through the development of detailed feasibility studies and technical designs
- Surveys of domestic shipping lines undertaken for the study suggest **the efficiency of port services are equally affecting them from meeting their schedule:**

### Pre-berth

- **Availability of slots and programming (berth window) are problematic** (i.e., Belawan, Biak, Manokwari, Sorong, Surabaya)
- **Maritime pilotage services are not efficient** (i.e., Ambon, Belawan, Jakarta, Jayapura, Surabaya)

### At berth

- **Working hours and productivity of labor/longshoremen (TKBM) are problematic and mediocre** (i.e. Ambon, Anggrek, Bengkulu, Bitung, Gorontalo, Jayapura, Surabaya, Toli-Toli) with no improvement over the past 5 years. On the contrary, in some cases it is reported to have worsened

### At the yard

- **Total stuffing and stripping of containers**
- **Ship turnarounds in ports are generally slow**



## Port performance: Greatly affected by low labor productivity

- Surveys of domestic shipping lines undertaken for the study suggest that port performance compared with 5 years ago has improved in general
- However, the **time spent at some ports is sometimes as much as half of the sailing time** (ex. Belawan-Jakarta, Surabaya-Makassar)
- **Higher container handling charges are not associated with quality of service, but reflect the bargaining power of unionized labor.** In fact, container handling charges are higher in some places (e.g., Papua) where the total turnaround time (ETD-ETA) is highest

Port of destination	Waiting time	Time at berth (effective)	Time at berth (idle)	Turnaround time	Container Handling Charges
Sorong	24 hours	16-21 hours	10 hours	50-89 hours	IDR 2,168,290
Jayapura	24-72 hours	48 hours	60 hours	72-96 hours	IDR 1,840,094

17



## Key issues in land freight transport/trucking

Trucking is the main mode of transport for distributing final products from production centers to market in Indonesia. There is concern that **trucking may be over-used** in Indonesia because of **subsidized fuel**, coupled with the **absence of reliable alternative modes of transport** (such as rail or inter-island shipping)

Main messages coming out of the survey of 83 trucking firms operating in Greater Jakarta (Jabodetabek) identified the following issues:

### Long idle and waiting times due to congestion or queues

- On average, 1/3 of roundtrip time to and from Tanjung Priok is spent waiting at factories or in the port
- Out of one return trip of 12 hours to the industrial areas in Cikarang to Tanjung Priok, approximately 4 hours are spent idle

### Freight cost is comparable to international benchmarks

- The average cost for truck-trailer transport from the port to destinations in Greater Jakarta and West Java is US\$3.59/km, as opposed to a worldwide average of just US\$1.00/km. This high cost is despite the use of subsidized fuel. Average truck-trailer transport across the whole of Java is US\$1.31/km.

### Total cost increases due to congestion and delay

- Total cost for trucking industry in Greater Jakarta could be anywhere between \$.1.9 to \$4.4 billion/year with the assumption that 30%-70% of registered trucks are operating

### Low backhaul and low efficiency in synchronizing cargo delivery and pick-up

- For instance, 62% of trucks taking goods to Tanjung Priok port are empty on the return leg of the trip (no return containers)

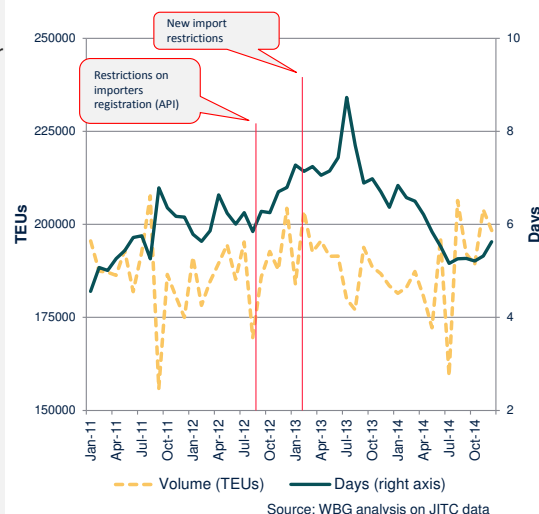
18



## Poor trade facilitation causes longer lead times for producers

- **Container dwell time measures total time spent removing containers from the time a vessel arrives at port**
- **Dwell time affects terminal performance** as longer dwell time implies lower container turnover
- **Long dwell time causes delays in productive activities** (especially exports and re-exports) and can **increase uncertainty**, which leads to higher inventory costs for consignees
- The port is located in a dense urban area and is operating at close to full capacity: congestion is disruptive for trade and the port-city environment
- **Data from JICT suggest very little correlation between cargo handled and dwell time**
  - Data suggest that **port infrastructure cannot fully explain long delays** in clearing containers
  - Instead, **new non-tariff measures (NTMs) with long bureaucratic processes are likely to cause problems in pre-customs clearance and customs inspections**

### There has been little correlation between dwell time and import volume



19

## Prior to submitting the PIB, manufacturers and importers face complex time-consuming bureaucratic requirements and procedures

Importers submit customs declaration (PIB) with paperwork from other sources. Sources of complications and delays include:

1. **Many technical requirements**, often with no strong justification by international standards (e.g. the pre-shipment inspection by the MoT)
2. **Submission of PIB is delayed** by documents and certificates most of which are issued after ship arrival:
  - **Delays in obtaining the manifest customs visa BC11** (about 30% is submitted after arrival of the vessel) **or the PSI report**
  - **Some documents can only be submitted to the relevant ministries after the vessel arrives** (COO, original B/L, surveyor report)
3. **Processing is inefficient due too many manual interventions**:
  - **Requirement of hard copies and lack of automation** by non customs agencies. Implementation of the national window has been slow and very partial
  - A large majority of importers including in the priority channel (80%) experience **rejection (SKEP) of their submission resulting in additional delays**
  - **24/7-services are not working**: Government official who signs the document is not present and there is no replacement.

Documents which potentially add the delay for PIB submission	Number of days delay after vessel arrives	% respondents
Recommendation Documents	31	6.4
Import license	29	10.6
SNI	8	12.1
Pre-shipment Verification certificate (Surveyor Report)	3	12.1
Insurance Policy	3	3.5
Certificate of Analysis	3	3.5
Quarantine Document	2.9	5.7
BPOM Document	2.5	8.5
Packing List	2.5	5.0
Commercial Invoice	2.5	4.3
Bill of Lading	2	12.1
BC11	1	14.2

Source: WB survey on MITA importers

**Current facilitation efforts target automation of processes but do not question the need of current or new requirements which needs a review process**



20

## Complex institutional set-up and fragmented regulatory environment in the logistics sector

- Indonesia's regulatory framework recognizes the following main categories and components of the logistics service provider (LSP)
  - Integrated LSPs:** freight-forwarders, shipping agents, express delivery services (EDS), third-party and fourth-party LSPs (3PL and 4PL), and multimodal transport LSPs.
  - Subsidiary services:** customs clearance agents, warehousing services, trucking services.
  - Other value-added services:** entire supply-chain management.
- Regulatory fragmentation:** Indonesia's LSPs operate in a **highly fragmented regulatory environment**. The logistics environment is regulated by 9 national laws and many more ministerial decrees, not to mention a plethora of local government regulations. Another indication is that 15 ministries are members of the National Logistics Team. The results of this fragmentation mean that:
  - Laws and regulations are developed independently by each ministry resulting in **frequent conflicts of interest** between ministries and sectors.
  - None of the regulations takes a truly **holistic perspective** of the entire logistics environment.
  - Many local government regulations target logistics, requiring duplicative and unnecessary permits, fees for which no services are provided, fees for the transport and loading/unloading of goods, and trade barriers between districts.

21



## Complex rules for investing in the sector and limited access to market

Logistics integrators have to go through multiple permits for each activity

- Typically they need to **separate the business into different legal entities for each activity**, for instance, trucking, freight forwarding and warehousing need to be registered with different agencies

Restrictions in FDI undermines flexibility to establish integrated logistics providers

- The Government revised its negative investment list (DNI) in July 2007. **All transportation services** (freight forwarding, road transport, maritime transport services, air cargo transportation services etc.) **are now subject to minority (49%) foreign ownership**. However, warehousing is subject to lower threshold (33%) except for investment in Eastern Indonesia.
- There are gateway (i.e., port of entry) **restrictions on foreign companies looking to provide express delivery service (EDS) and freight-forwarders**. No such restrictions apply to local firms

Prevalence of permits for transport operators

- Ministry of Transport reported that it processed 2,000 permits/day**. Recently the Ministry also reduced processing time, extended the time validity of permits, simplified requirements, and increased the use of ICT in processing permits. However, it is not clear whether the Ministry plans to streamline, thorough review, remaining permits to ensure their alignment with competition, quality and safety

Monopolies for certain key activities

- Similar in fixed-line and energy sector in Indonesia, **dominant players (e.g. labor union, dominant SOEs) often has influence over bottlenecked infrastructure facilities such as the port**. While the situation might be similar to that where private firms have control on such infrastructure, the regulatory framework to ensure access on 'last mile' infrastructure and competitive conduct of dominant players is not yet clearly enforced

22



## Problems with implementing VAT in freight logistics

### Ambiguities and problems with the implementation of value-added tax (VAT) in freight logistics:

- **Uncertainty with VAT on international freight:** Logistics operators often asked to pay VAT from international freight services. This situation prompts many companies to set aside funds to guard against tax penalties
- **Uncertainty over the scope of services subject to VAT on freight-forwarding:** The rate is 10% of 10% of the *transaction value*, but it is not clear which services fall under the rule. Should the *transaction value* include freight charges and other activities (storage, document handling, etc.)?
- **Lack of clarity on VAT on individual services related to international shipment:** It is not clear whether 1% of 10% rate should be used in collecting VAT for the domestic trucking, storage and handling services that are associated with international shipping
- **Inability to offset output VAT with VAT paid on inputs:** Express delivery and freight forwarding are not allowed to credit VAT paid on inputs. Major domestic shipping companies have complained that they cannot credit VAT on bunker fuel purchased from PT. Pertamina

*These additional costs are passed to consumer*

23



## Burdensome reporting and incoherent FDI policy for commercial warehousing

### Commercial warehousing, regardless of the products stored, is subject to onerous reporting requirements and different limits on foreign ownership

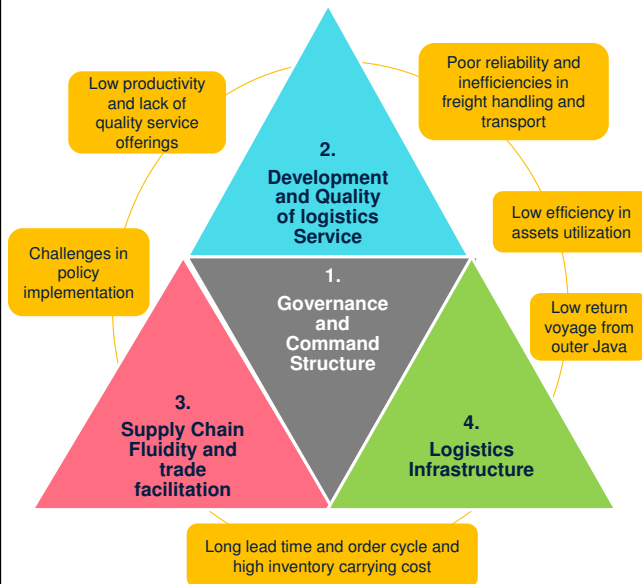
- Warehouse owners, managers or tenants must submit to the local government, copying the Ministry of Trade, a monthly administrative report on item names, the number of items, time of entry, time of release, and the daily amount of goods stored in the warehouse.
- Before 2014, warehousing was not listed under the Negative List for Investment (DNI) and was presumably open to 100% FDI. Now warehousing is listed under the DNI with a 33% of foreign equity limit. For cold-storage warehousing outside Bali, Java and Sumatra, the equity limit is 67%. It is unclear whether a 'Grandfathering Clause' applies for existing FDIs in warehousing.

*These additional costs are passed to consumer*

24



## A framework for freight logistics reform



25



- Problems in Indonesia's freight logistics unmask an interconnected relationship of 4 key areas: infrastructure, governance, fluidity and service quality/competence.
- Even if better infrastructure is important in streamlining freight logistics and improve connectivity, this still needs to be combined with three areas.
- Distributing goods to outer islands in eastern Indonesia will always be more expensive than in western Indonesia due to economies of scale issues.
- But efficiency and reliability of supply chains can be improved by addressing and prioritizing reforms simultaneously in the 4 key areas through a plan of action.

## Back-up Slides

26



## Methodology to Measure Logistics Performance

<b>Freight Forwarders</b>	The World Bank worked together with <b>ALFI</b> (Indonesian Logistics and Freight Forwarder Association) and conducted survey to 175 companies in Jakarta, Medan and Makassar
<b>Manufacturers</b>	<p>Members of <b>APINDO</b> (Indonesian Employers Organization) were selected as the primary respondent population for the survey:</p> <ul style="list-style-type: none"> <li>The World Bank in conjunction with <b>APINDO</b> organised 2 seminars to test the survey questionnaire in Jakarta and Surabaya</li> <li><b>LPEM FEUI</b> supported the data collection process in Semarang, Makassar, Palembang, Medan, Bekasi, Tangerang</li> <li>A total of around 236 responses were collected but only 205 questionnaires were usable</li> </ul>
<b>Trucking</b>	The World Bank conducted surveys of 83 trucking companies members of <b>AMBT</b> (Freight Transport Organization) and <b>ANGSUSPEL</b> (Port Freight Transport Association)
<b>Shipping</b>	The World Bank conducted structured survey interviews with <b>the main shipping companies</b> as well as some <b>smaller shipping companies</b> operating traditional vessels



## Logistics performance is weak relative to the international benchmark

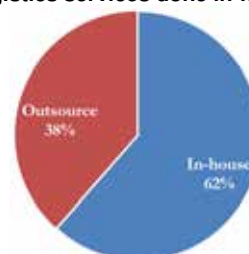
### LSPs average performance

- DIFOT: 81%
- Damage rate: 3.7%
- C2C: 13.8 days

### Manufacturer average performance

- DIFOT: 82%
- Damage rate: 2%
- C2C: 19 days
- Forecast accuracy: 81%

### Whether outsourcing is preferred than having logistics services done in-house



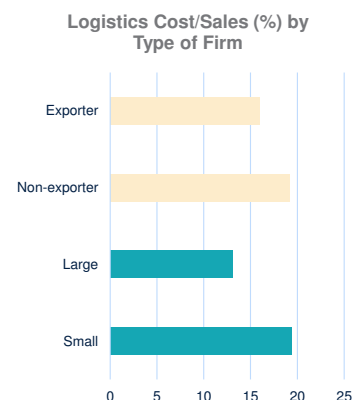
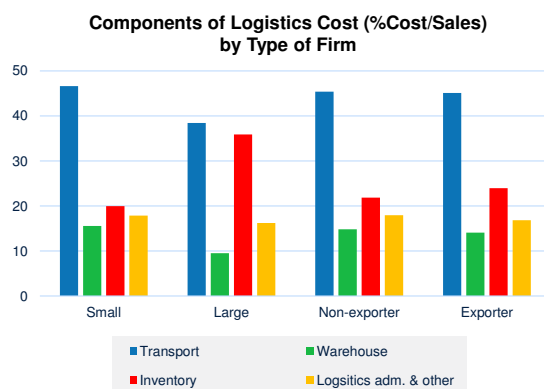
- ✓ Delivery in full and on time (DIFOT) is only 80% for LSPs and manufacturers: **2 out of 10 shipments either arrive late or damaged** (lower than benchmark for good performance DIFOT > 90%)
- ✓ Forecast accuracy of manufacturers is also relatively low as **2 out of 10 shipments are either in excess or less than what are needed** => risk of running high inventory cost

- ✓ More than half of surveyed firms still **prefer to undertake logistics arrangement in-house**
- ✓ There is a **big opportunity for outsourcing logistics activities** but availability of quality service providers is an issue



## Logistics cost breakdown by firms characteristics (manufacturing firms)

- **Total logistics cost is largest for small and non-exporting firms**, which are also the most sensitive to higher costs
- The **inventory carrying cost component is largest among large firms**, which also have the lowest transport and handling costs, and **exporting firms**.



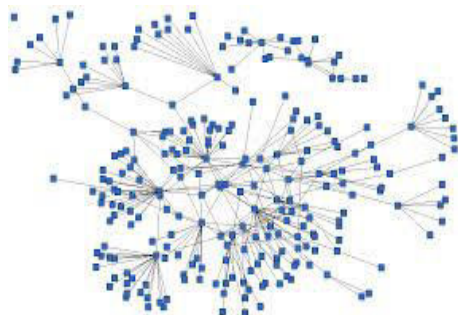
Source: WB & LPEM-FEUI survey in 5 cities in Indonesia



29

## What is connectivity? A conceptual framework

**Connectivity refers to the position of a port or region on a the network of domestic shipping**



**Connectivity of a node (port) depends on:**

- **Its connections to others**, hence the structure of the network (routes, frequencies and volumes)
- **The friction on the network**: the **total logistics costs for each of the routes** on the network including costs incurred at origin and destination



30

## Shipping connectivity can be weakened due to costs and inefficiencies at the port and hinterland supply chains

### Factors that **REDUCE** the connectivity

- **Costs and delays associated with maritime services**, frequency of service, network structure
- **Port supply chain inefficiency**, which has to do with port operation, as well as handling practices by shippers:
  - In eastern Indonesia it is frequent that ports are used as storage areas, using the yard for stripping the containers
- **Hinterland supply chains inefficiencies including:**
  - Stripping of containers on port premises
  - Local truck transportation and additional loading unloading to trucks or smaller ships to distribute the goods

### What is **special** to Indonesia

- **Very long distances**
- **Predominance of point to point route as opposed to loops**, i.e. few routes among all the possible (double start structure of the network)
- **Extreme fragmentation of the supply chain** especially at destinations in eastern Indonesia.:
  - Multiple labor intensive stuffing, unstuffing, loading unloading

31



## The impact of connectivity

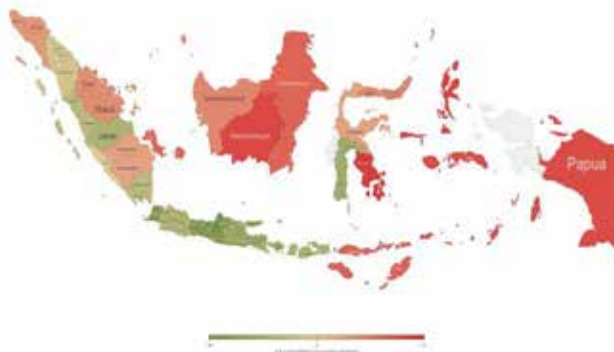
### Low connectivity can

- Increase the cost of goods imported from the hubs whether Indonesian or not
- Reduce competitiveness by reducing opportunities of shipping goods produced in the outer regions

### Impact of low connectivity can also be seen by the consumer through final prices:

- Against a common misconception, **the connectivity effect is much more than just the transportation markup** (estimated at only 2-6 % in eastern Indonesia), a universal feature
- On top of connectivity **the productivity of the retail sector may explain even more divergences** between the freight emission poles (e.g. Surabaya) and remote areas
- **Urban congestion and higher salaries also add** to logistics and retail costs.

### Price differences in Indonesia: Higher prices in remote or congested areas



32

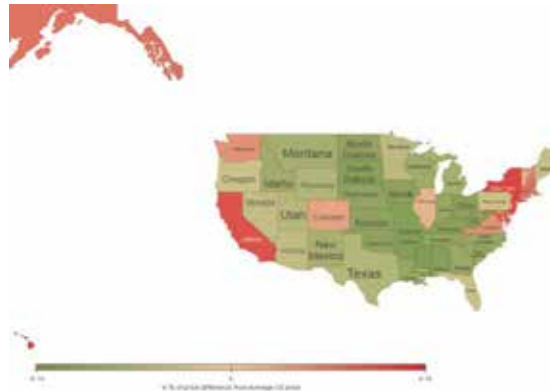


## Price differences and connectivity in the US

### Comparison between the US and Indonesia:

- Both countries **have similar regional price differences but with different dynamics**, because productivity effects are playing in different directions
- Remoteness effect on price differences is very strong in Indonesia**. This is associated with lower retail productivity and limited urban effects (Jakarta)
- In the US remoteness applies to Alaska and Hawaii, otherwise **price differences are driven by differences between urban and less urban states**.

### Price differences in the US



33

## Measuring maritime connectivity

Scheduled domestic shipping in Indonesia can be analyzed as a network of ports with capacities and costs on the edges of the networks, which constitute the routes:

- Model based on capacities, delays, rates on identified routes** from published sources and company surveys.
- Limited statistical data, only scheduled container liner shipping network can be reconstructed** using commercially available but incomplete schedules.
- By nature (unpredictable schedules), **bulk and traditional shipping brings lower connectivity** than that estimated for liner shipping.

### Port connectivity:

- Depends on the number of connections and the total logistics costs** incurred en route and at destinations
- It can be integrated into a 0 to 1 index** measuring the percentage of connections effectively accessible by their importance.

Capacity given by gravity equation

$$X_{ij} = K_{ij} A_i A_j$$

Impedance K related to logistics costs

$$K_{ij} = \exp(-\sigma(\text{freight rate} + \text{value\_of\_time}))$$

Connectivity index for port I given by

$$C_i = A_i + \frac{\sum_j X_{ij}}{A_i}$$

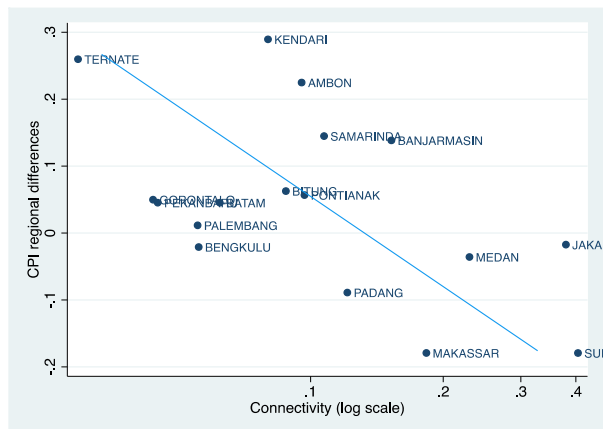
34

## Connectivity Index and Consumer Price Index (CPI) are closely related

### Three ways to improve connectivity:

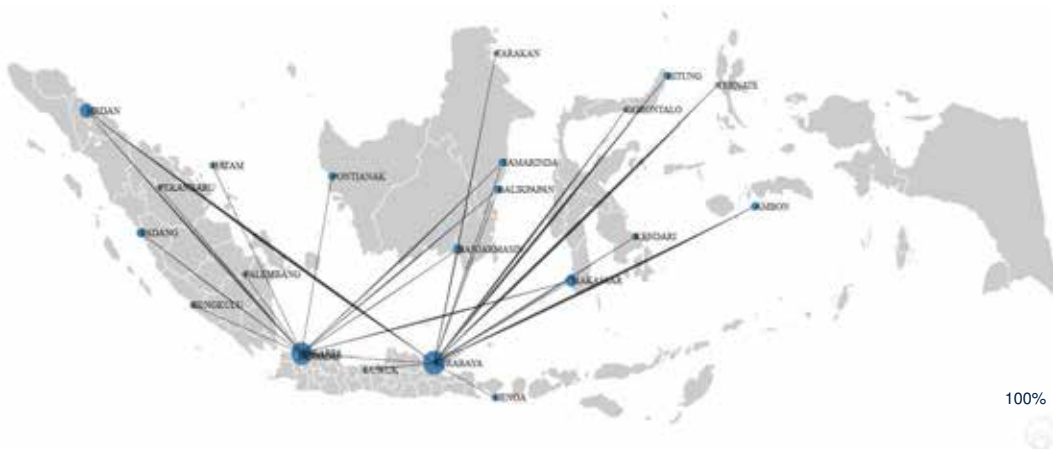
- 1. Reduction of maritime lead time** and uncertainty in lead times: a 1% improvement leads to a 5% improvement in connectivity
- 2. Better connection between ports and hinterland** in remote locations
- 3. A denser structure of the network with more connections**, which as opposed to 1 and 2 cannot be easily achieved by policies in the short to medium term

Connectivity is closely related to the price level at the provincial level:  
Higher connectivity, lower price difference



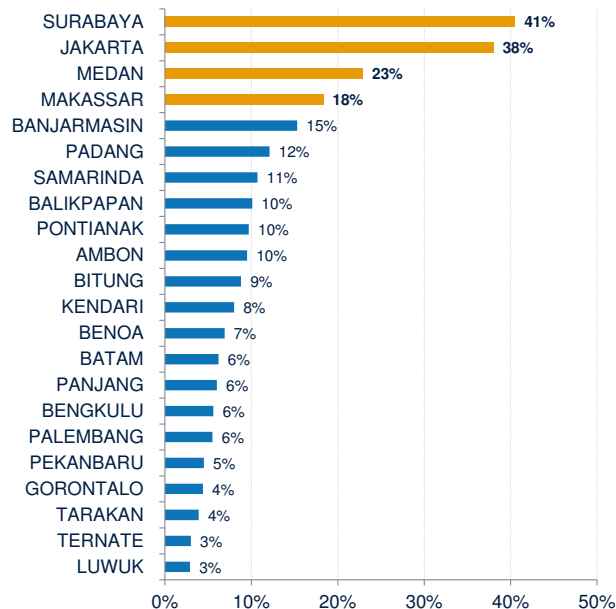
35

## Domestic maritime network connectivity



36

## Domestic maritime network connectivity



- The results are consistent with the knowledge of the importance of the ports
- The two main hubs (Jakarta and Surabaya) are connected to almost half of the network
- Medan and Makassar play an intermediary role (not Bitung)

37



## Domestic shipping: Some insights

- Domestic shipping network mainly consists of single-port-to-single port routes out of Java with some exceptions where multi-port routes have been introduced to serve the outer islands;
- Domestic shipping in Indonesia is provided by fewer than 10 shipping companies,
- Domestic shipping companies are involved in a full range of business activities:
  - Terminal operations;
  - Domestic freight forwarding;
  - Container leasing;
  - Warehousing/ 3PLs;
  - Trucking;
  - Container Yard Operation.
- The largest companies carried between 250,000 TEUs to 500,000 TEUs each per year in 2013, mainly servicing clients with FCL shipments.
- According to shipping companies, the process for renewing vessel licenses and certificates has become more cumbersome: requirement is for once a year and has to be done manually.
- The absence of third-party liability insurance is one of the reasons why ships are often abandoned in the ports.

38

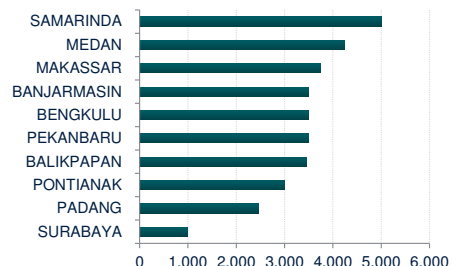


## Sea freight rates are comparable, load factors seem generally low

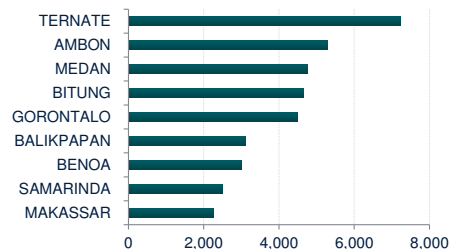
- A sample of sea freight rates quoted by shipping companies shows that these are **comparable to international rates**
- **Ranges in sea freight rates for the same route are often wide between shipping companies**, for which there is no simple explanation
- **Load factors seem relatively low** (between 10-80%) depending on the route: the average is less than 50%
- Low load factors imply that the **shipping lines are running under capacity** even for outbound routes

Routes from Jakarta

Average Sea Freight Rates (IDR/TEU) in 000



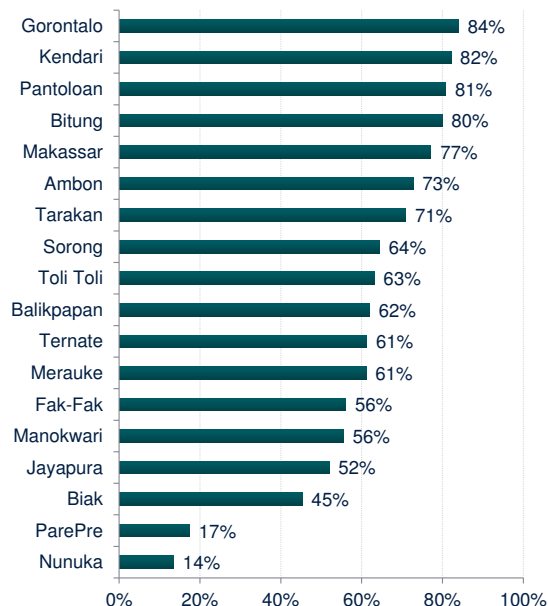
Routes from Surabaya



39



## Technical efficiency of port services: Frontier analysis



- Technical efficiency is ranging from 0 to 100%
- It represents how close a port is to its best possible productivity, given its situation (size and equipment)

40



## Example of Container Handling Charges and TBKM in Selected Ports

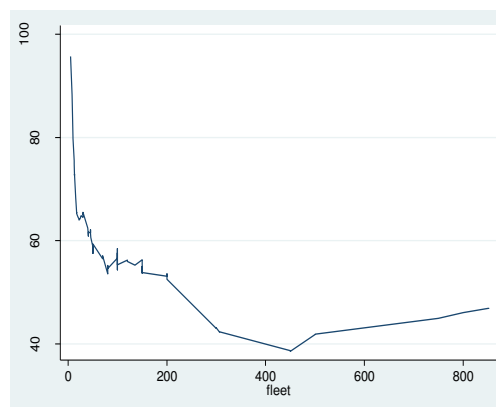
- **For a sample of 10 ports under Pelindo IV:**
  - The average container handling charge for one full TEU Container is about IDR 1.4 million, ranging from IDR 767,700 to IDR 3,291,453.
  - The average container handling charge for one empty TEU Container is about IDR 640,000, ranging from IDR 272,750 to IDR 1,532,046.
- **For a sample of 10 Pelindo IV ports, up to half of the container handling charges paid by shippers represent labor costs of longshoreman** for handling of containers and represent on average about 30% of the total container handling charges.
- In some cases where stripping of incoming containers has to be done within the vicinity of ports ("CFS") additional costs are charged in the amount of up to IDR 917,547 per TEU.



## Are large trucking companies more efficient? An example from Greater Jakarta

- There seems to be a negative relationship between the size of trucking companies and empty return cargo
- This suggests that smaller trucking companies tend to have less information in synchronizing the times when they should collect cargo

Trend of size of fleet and empty return cargo  
(localized smoothing method)



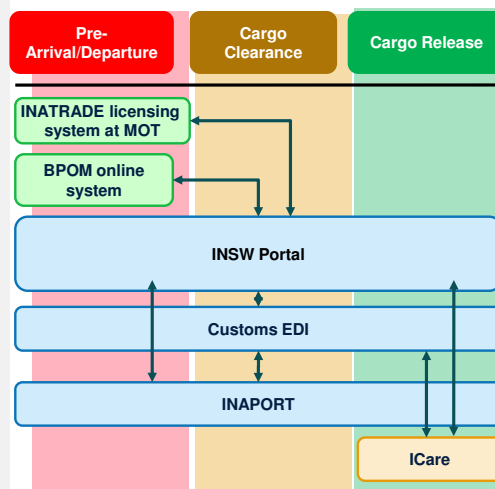
N=83



## Current trade facilitation initiatives

- No significant impact mostly because of **regulatory issues**:
  - Sharing information and service level agreements** across government agencies, as well as with private agents such as INAPORT and ICARE are not in place
  - Hardcopy requirements** are still required by regulations
  - Change management** to remove/re-engineer procedures needs a legal basis
- Building capacity** has not been properly addressed. Professionalism and standard operations at all levels need to be put in place
- Most of the improvements so far have been reached on removal logistics** and have been implemented mostly on B2B environments with Customs cooperation (ICARE, INAPORT)
- Most government agencies except Customs and BPOM still **lack ICT capabilities**
- Lack of command structure: Inter-agency cooperation is not institutionalized**, but some efforts (like the recent Mini-labs) have been successful at pointing specific problems (e.g. dwell time)

### ICT initiatives for trade facilitation



43



## Issues in the implementation of freight logistics policies

- There are **many initiatives and considerable overlap**, with occasional contradictions between them. For example the plan to have Kuala Tanjung in North Sumatra as an international hub port where all domestic shipping will be transhipped vs. the fact that the "New Priok" continues to be an international gateway undermines the credibility of the Government's plan
- The **lines of command and the governance structure of many initiatives are not clear**. Many teams have issued recommendations but they have frequently not been followed up by the line ministries they affect.
  - Connectivity Working Group for MP3EI (economic master plan of the previous government) is chaired by Vice Minister of Bappenas but without official institutional support from Bappenas and adequate command structure to coordinate policies on connectivity
  - Budget provisions for most teams are limited and occasionally stop after a number of years.
- There is **lack of monitoring of the results achieved** and the impact of the various laws, blueprints, etc. on the reduction of freight logistics costs is unclear.
- Regional and local governments have in most cases not been involved in the drafting or implementation
- Many initiatives were launched to considerable fanfare but within just a few years interest in their implementation seems to fade away.

44







