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Improving Connectivity in Indonesia:

The Challenges of Better Infrastructure, Better Regulations and Better Coordination

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Improving Connectivity in Indonesia: The Challenges of Better Infrastructure, Better Regulations and Better Coordination

Henry Sandee

1. Introduction

Indonesia is the largest economy in Southeast Asia, ninth largest in the world (PPP), and a member of ASEAN and the G-20. Its GDP per capita is US$3,510 in 2014 (at current prices), significantly behind neighboring Malaysia (US$10,452). Indonesia is a vast nation with a population of over 250 million. It is the world's largest archipelagic state and encompasses over 17,500 islands, of which some 6,000 are inhabited. Indonesia extends 5,120 kilometers from east to west and 1,760 kilometers from north to south. The island of Java, where 58 percent of the population lives, is the most densely populated island in the world. Today Indonesia is one of the most decentralized countries in the world, divided into 34 provinces, 511 districts and cities, and some 72,000 villages. As part of the decentralization process, villages have received some funding for local investments over the years, but recent legislation has increased this funding significantly.

Indonesia is increasingly aware of the importance of connectivity in such a vast archipelago. The previous Government of Indonesia's Master Plan for Acceleration and Expansion of Economic Development in Indonesia (2011) includes a connectivity strategy aimed at linking locations to enable the flow of goods, services and people. Connectivity matters for two reasons. First, it results in lower poverty rates. Connecting rural areas to larger markets (located in cities and on other islands) provides households with improved access to goods and services at lower and more stable prices. Poverty rates are higher in remote areas of Indonesia: 55 percent of the population in Papua in isolated eastern Indonesia is poor compared with 30 percent of the population in West Java. But even in Java and Sumatra, the core islands in the archipelago where most of the population and economic activity are concentrated, poverty rates are higher in districts that are isolated from the larger urban centers (World Bank, 2010; Susenas, 2012). Second, improved connectivity contributes to greater diversification in production and exports, given that it helps businesses to develop competitive advantages in higher value-added goods by producing them more cheaply and, most crucially, in a more reliable and predictable manner. Interviews with manufacturing exporters suggest that in peak months some 10 percent of Indonesia's exports may quite literally miss the boat due to poor connectivity between industrial hinterlands and ports.

The Government refined and expanded its connectivity strategy through the release of a Logistics Blueprint (2012) as a Presidential Decree. The motto of the Blueprint nicely summarizes the key issues in improving connectivity: "Globally connected and domestically integrated for economic development and social welfare".

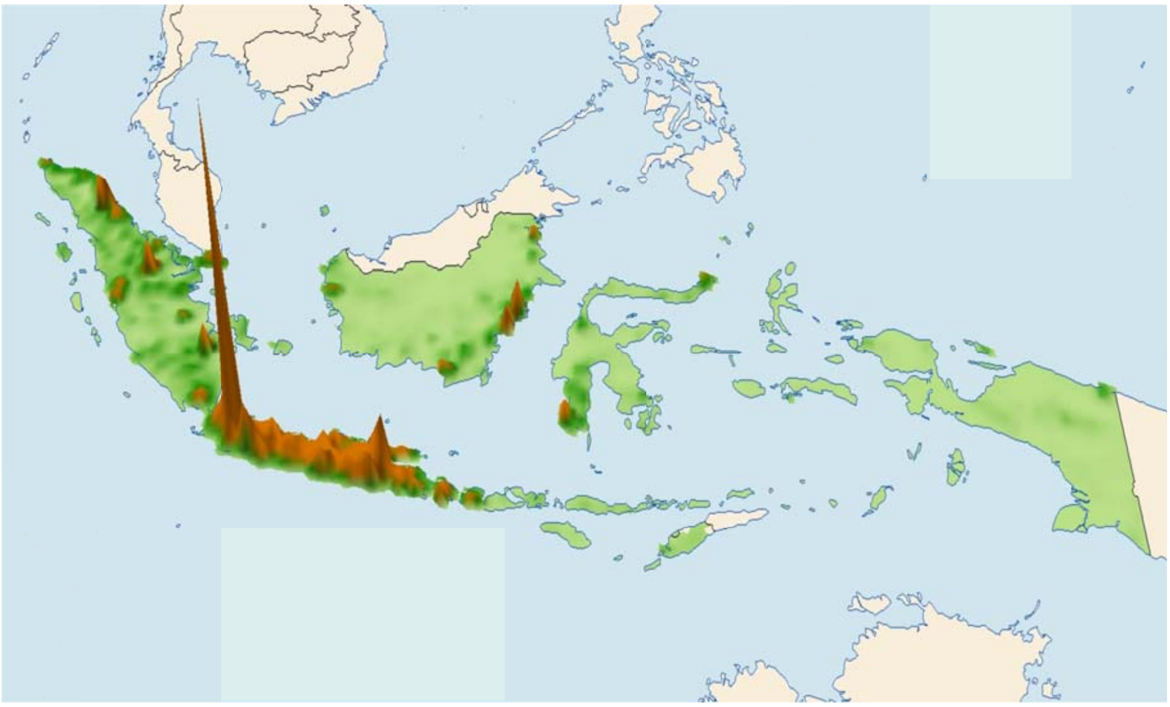
Poor connectivity contributes to high logistics costs. Indonesia spends over 24 percent of its GDP on logistics—moving goods into, out of, and around the country. If Indonesia were as efficient as Thailand, its economy would save US$80 billion annually in otherwise lost logistics costs (Economist Intelligence Unit, 2015). A private commission survey for the World Bank (2015) inn five cities found that total logistics costs incurred by Indonesian manufacturers account for 20 percent of sales, higher than in both Thailand (15 percent) and Malaysia (13 percent). The survey also points out that inventory carrying costs contribute 26 percent of total logistics costs of Indonesian manufacturers, far higher than in Thailand and Malaysia. High inventory costs are typically due to uncertainties in the arrival of raw materials and inputs. In the survey, manufacturers explained that supply chain reliability is often more important than cost. Poor reliability helps to explain why manufacturers have been slow in gaining the confidence to outsource logistics activities to third-party service providers.

This paper provides an assessment of the challenges that Indonesia is facing in improving its participation in global production networks and the distribution of goods throughout the archipelago. We start with an assessment of the current connectivity challenges that Indonesia is facing. This baseline is presented in Section 2. In Section 3, the paper looks at Indonesia's efforts in implementing logistics reform and improving connectivity, and provides a summary of the country's strategy. In Section 4, we argue that the challenges remain substantial especially in the areas of improving hard and soft infrastructure, including logistics, regulatory reform and coordinating the implementation of the connectivity strategy. Limited progress has been achieved in these areas to date and poor connectivity remains a major bottleneck in Indonesia's economy. In Section 5, the paper reviews the need for changes in policy if Indonesia is to improve connectivity throughout the archipelago. The main message is that upgrading infrastructure, regulatory reform and better coordination within the Government all need to be prioritized simultaneously for progress to be made, and dealing with them separately is far less effective.

2. Indonesia's Economic and Demographic Geography Shape Its Connectivity Challenges

The specific features of Indonesia's economic geography shape its connectivity challenges. Indonesia is an archipelagic nation. There is significant variation in the state of economic development of the different islands and in the location of economic activities. Economic activities are concentrated mostly in Java, with some smaller clusters in Bali, Sumatra, Sulawesi and Kalimantan. Figure 1 shows how economic activity (GDP per square kilometer) is concentrated in Java and in a limited number of urban areas off Java. It should be noted, however, that this concentration is roughly proportional to population levels and distribution (World Bank, 2010; Harvard Kennedy School, 2013).

Figure 1. Indonesia's growth centers (GDP per square km)



Source: World Development Report, World Bank, 2009.

This concentration poses specific challenges to policies aimed at improving connectivity in Indonesia. The concentration of economic activity and population in Java leads to unbalanced trade between Java and the other islands of the archipelago, driving up the costs of trade. Many ships and also cargo planes leave fully loaded from Java to their destinations elsewhere in Indonesia but return almost empty. Figure 1 also introduces the importance of connectivity for the development of lagging regions. International experience shows that connecting lagging regions to growth poles may be a more effective strategy for increasing local economic development by promoting market outlets for agro-processing and labor-intensive manufacturing than solely improving infrastructure within lagging regions. The latter strategy could fail as demand in lagging regions is often weak and agglomeration economies are not well developed. Consequently, a new highway through Papua in the far east of the country will connect cities in the region physically, but may fail to connect them economically.

In an archipelago such as Indonesia, it is useful to distinguish between intra-island connectivity, inter-island connectivity, and international connectivity. The distinction is also helpful in both analyzing the bottlenecks that the country is facing and addressing the policy challenges.

2.1. Intra-island connectivity: Linking underdeveloped regions to growth centers

Intra-island connectivity refers to economic links within individual islands. The challenges of strengthening intra-island connectivity in densely populated Java differ from those in the sparsely populated areas in the eastern part of the country. In Java, freight forwarders and trucking companies face an ever increasing challenge to ensure timely delivery of goods between the metropolitan areas of Jakarta and Surabaya. In the absence of reliable and cost-effective short-sea shipping alternatives, more than 90 percent of cargo between these two cities is sent by truck. A few years ago, freight forwarders were able to guarantee delivery within 48 hours. Currently, however, contracts stipulate delivery only within 72 hours.

Intra-island connectivity challenges in eastern Indonesia are different: instead of congestion there is an absence of appropriate infrastructure that drives up the costs of transport and contributes to unreliability of delivery. The costs of transporting goods from hinterland areas in eastern Indonesia to local ports can be a substantial part of the overall supply chain costs. Sandee, Prakoso and Nurridzki (2014) found that in the case of the livestock trade in Sumbawa intra-island logistics costs are almost the same as the costs of bringing livestock from the Bima port in Sumbawa to Jakarta.

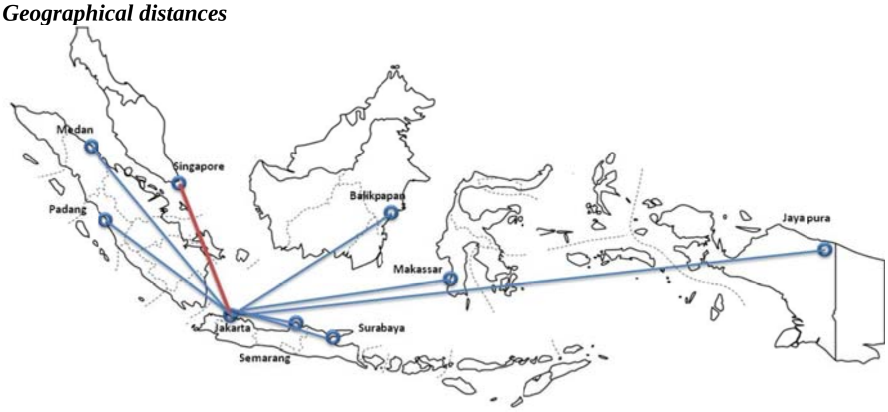
2.2. Inter-island connectivity and the importance of inter-island shipping

Inter-island connectivity is another key challenge in Indonesia. The high costs and low level of reliability of inter-island shipping have been much discussed in Indonesia (Dick, 2008; Ray, 2008). Shipping is the key mode of inter-island transport in Indonesia and most areas are largely connected economically through ports. Figure 3 compares the costs of transporting a 20-foot container by sea to a number of different domestic destinations and to Singapore. The second map demonstrates that transporting such a container from Jakarta to Padang is 2.7 times more expensive than transporting the same container to

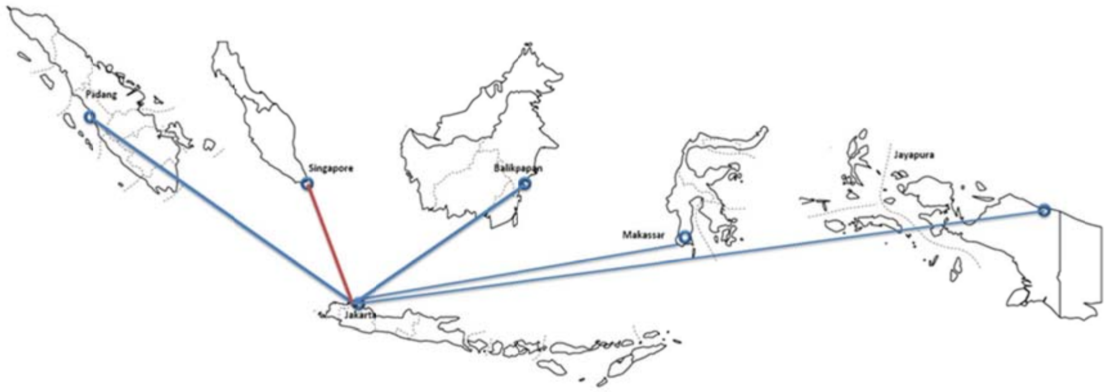
Singapore, 1.7 times more expensive to Makassar, 1.4 times more expensive to Jayapura, and 1.3 times more expensive to Balikpapan.

Figure 3: Maps of economic distances based on air passenger ticket costs and sea transport costs of 20-foot container from Jakarta to major Indonesian cities and Singapore

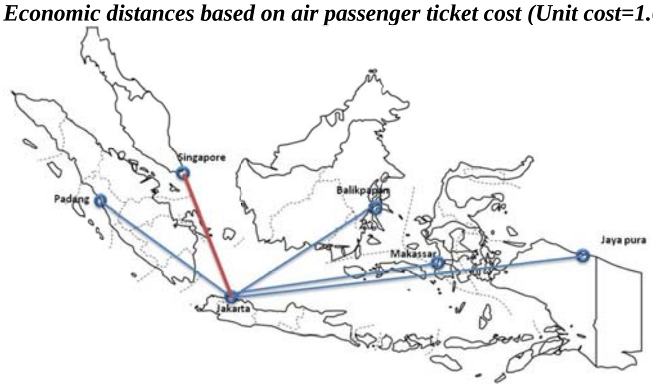
Geographical distances



Economic distances based on sea transport cost (Unit cost=1.00 Distance to Singapore)



Economic distances based on air passenger ticket cost (Unit cost=1.00 Distance to Singapore)



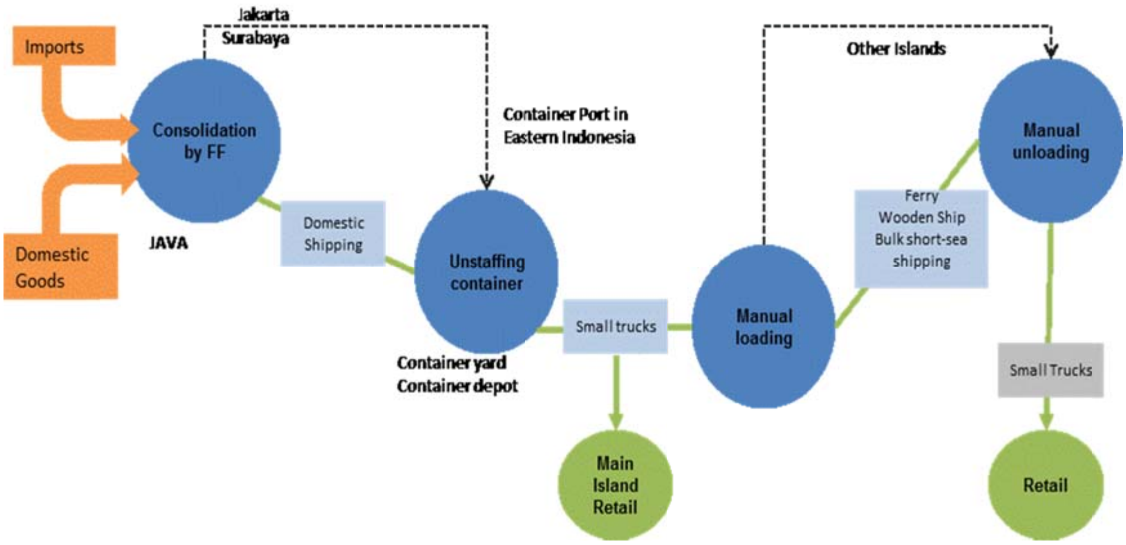
Economic distances for sea transport calculated with the cost/mile for a 20-foot container from Jakarta to Singapore as a base unit (US$0.23/mile=1.00). Economic distances for air transport calculated with cost/mile for air passenger ticket costs from Jakarta to Singapore as base unit (Rp 936/mile=1.00). The second map measures the cost of sending this container from Jakarta to other destinations using as unit measure the cost per mile of transporting it from Jakarta to Singapore (US$0.23/mile=1.00). The third map on air passenger cost is constructed similarly.
Sources: World Bank calculations based on Maersk, Lion Air and Garuda (2011)

The map comparing the cost of passenger tickets on airplanes between the same destinations shows the opposite pattern. Relatively speaking, it is far cheaper for a passenger to fly from Jakarta to domestic destinations than to Singapore. Air transport costs declined following the liberalization of the sector and the higher level of competition between airlines. The maritime sector is also characterized by free entry and freely determined fees, and yet the costs of domestic transport are significantly higher than international shipping costs. There are several reasons for this. First, sea transport suffers from more unpredictability and the costs of waiting before loading and unloading can take place can be considerable. Second, the sea shipping sector suffers from an important backhaul problem. Most ships returning from Eastern Indonesia to Java are filled for some 10 percent only and there is almost no backhaul.

Further World Bank (2015) analysis provides more insight into the composition of shipping costs in Indonesia. The study found that shipping costs are largely driven by the high logistics costs of transport between hinterland and the long waiting times that ultimately translate into higher shipping costs. The study found that for shipping goods to eastern Indonesia, the freight costs account for up to 1.5 to 6 percent of the value of the goods, while the value of (waiting) time can account for up to 18 percent of the value of the goods. Such a high value of time is caused by excessive time spent in transit (shipping). Connectivity to eastern Indonesia is characterized by broken supply chains leading to excessive time needed for loading and unloading cargos, together with other delays, such as trucks missing a vessel, the late arrival of a vessel at the port, port congestion, etc.

Figure 3 below illustrates the complexity of connectivity by sea to eastern Indonesia. A standard supply chain from Java to eastern Indonesia makes stops at two different ports and goods are loaded and unloaded, mostly manually, at least three times before arriving at the final destination. The role of small trucks in these fragmented supply chains is important in bringing the goods from local ports to the hinterland. The waiting time in ports is frequently unpredictable, which means shipping lines have difficulty in accepting new orders because they do not yet know when their ship will return to Java to pick up the new cargo.

Figure 3. Indonesia's maritime connectivity: a long and fragmented supply chain



Source: World Bank, 2015.

The owner of the goods at the final destination is usually unaware of the status of his shipment because tracking and tracing of goods is often not possible. Consequently, retailers are forced to carry larger inventories than normally necessary, raising overall logistics costs. Such fragmented supply chains make it even more difficult to plan sending cargo in the return direction from the outer islands to meet domestic demand in Java and Sumatra, or for export markets. The high unreliability of maritime supply chains makes it very difficult to plan trading from eastern Indonesia. For instance, a ship arriving in the port of Sorong (in Papua) may have a turnaround time of between 5 and 15 days. In the absence of cold storage facilities in or near the port, this means that the trade of agricultural and fisheries products (both perishable) between eastern Indonesia and the ports of Jakarta and Surabaya is almost impossible.

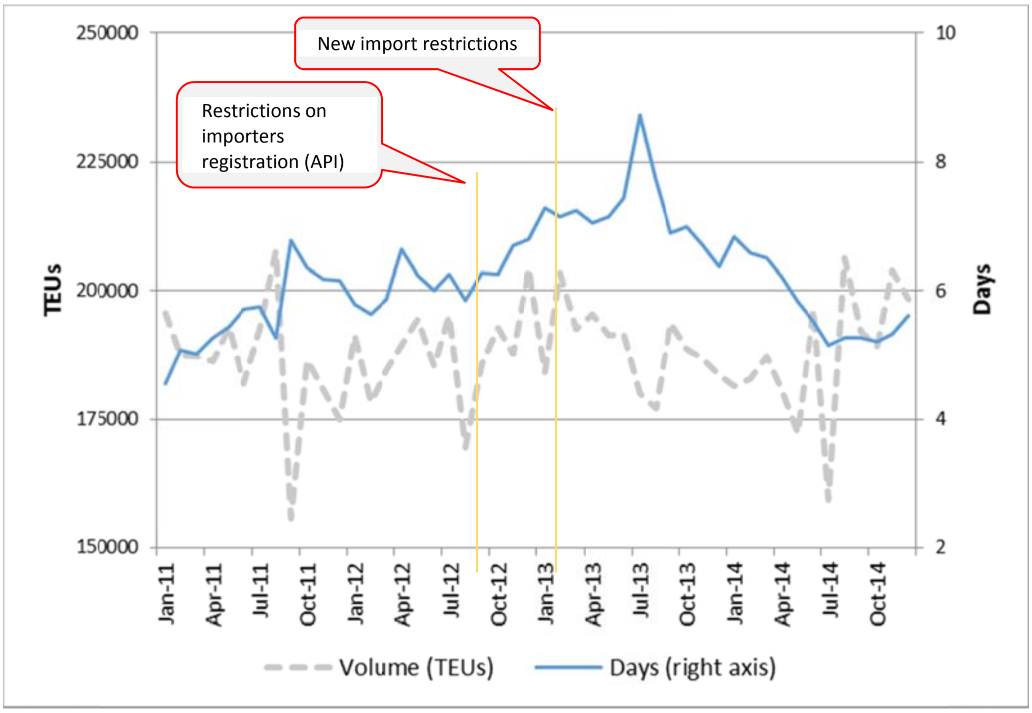
2.3 International connectivity: Getting domestic products to foreign markets and efficiently managing imports

Indonesia's international connectivity is a third key challenge in Indonesia. International connectivity is about enabling domestic products to enter foreign markets at competitive prices. It also concerns the ease with which domestic manufacturers and consumers can obtain imported inputs and consumer goods at affordable prices. A study by ITB Bandung (2012) shows that the cost of bringing a container from industrial zones to international ports is about US$750 in the case of Indonesia, while only US$475 in the case of Malaysia, even though the distance that container trucks have to cover is almost the same in both countries. The difference is mainly due to the high costs of congestion in the Indonesian case, with trucks spending more than 60 percent of their time in traffic jams, but exacerbated by the absence of a truck booking system in the port of Jakarta. Most trucks entering the port to drop a container for export return empty because freight forwarders have already contacted other trucking companies to pick up imported cargo. This is because freight forwarders prefer to have a truck on stand-by and do not want to be confronted with uncertainty over when exactly an exporting truck might be available.

Over the past few years, sophisticated fruit and vegetable producers from West Java have managed to penetrate markets in the Middle East. Plans for expansion of exports through air cargo were afoot. Inspection of exports was done by the airlines in sophisticated premises in collaboration with Indonesian Customs authorities. However, in 2013, the Government issued a new regulation appointing three companies (with strong links to the bureaucracy) as the sole responsible agents for the inspection of exports, although they lacked the specialized equipment to do the inspections. Consequently, airlines felt obliged to continue doing their own inspections. The introduction of these new agents added to costs and caused delays, making it more difficult for traders to guarantee timely delivery, so essential in the trade of perishable products.

International connectivity also concerns the process through which imports for final consumers and manufacturers/processors are managed. One of the key indicators of the bottlenecks in the import process is container dwell time, which measures the time from the moment a container is unloaded from a vessel until it leaves the gates of the port. The majority of containers are distributed to West Java, which is the heartland of Indonesia's medium- and large-scale industry. Importers in Indonesia face two issues with respect to dwell time in the port of Jakarta, which handles some 70 percent of all containers coming into Indonesia. First, dwell time has been increasingly steadily over the past few years, although by late 2014 it became a priority issue and a significant reduction was achieved by reducing red lane inspections. Second, dwell time remains an uncertainty for many importers. It may take four days before the container is released, but it could also take more than 10 days despite the recent policy initiatives.

Figure 4. Dwell time (days) vs volume (TEU) in Tanjung Priok, port of Jakarta



Source: World Bank analysis on JICT data, 2014

Figure 4 gives an overview of recent dwell time data for the largest container terminal in the port of Jakarta. The data confirm that dwell time has not declined since early 2011 in contrast with trends in many other ports in the region. However, direct comparisons of dwell time in ASEAN ports should be made with care, as methodology to measure dwell time is not the same throughout the region. Moreover, ports like Jakarta receive some 40 to 60 percent of their containers from nearby ports in Singapore and Malaysia, limiting the time available to prepare all of the documentation (ship manifest, bill of lading, etc.) that needs to be handed over to the Jakarta port authorities to facilitate a smooth clearance process. Figure 4 also shows that the number of containers imported through the Jakarta port has only slightly increased in the period 2011-14 indicating both the consequence of a more restrictive import regime, and the greater contribution of domestic products in the manufacturing sector and direct consumption.

3. Indonesia's Connectivity Strategy

The overview presented above summarizes the main issues and challenges that Indonesia needs to overcome if it is to improve its connectivity and benefit from better integration in global networks and the more efficient distribution of goods throughout the archipelago. These issues and challenges are widely recognized in Indonesia and have been discussed in numerous stakeholder meetings involving the Government and the private sector (State of Logistics in Indonesia, 2013, 2015). The Government has designed a broad connectivity strategy that looks at, among others, logistics, infrastructure, ICT, and regulatory reform as key pillars (Sislognas, 2012). Indonesia's strategy distinguishes a number of 'drivers' or pillars for intervention.

Indonesia's connectivity strategy focuses explicitly at both strategic (basic) commodities and export commodities, and aims to improve both global and domestic integration. However, the strategy document highlights that domestic integration is seen as the top priority and a prerequisite for successful participation in global networks. There is awareness that import trade facilitation is important to ensure that manufacturers have timely access to affordable inputs. However, the strategy also indicates that protecting domestic producers, especially smaller firms, by improving domestic connectivity is considered of utmost importance. The reality, however, is that this argument is often also used by vested interests to keep their grip on the domestic market and keep competitors away, leading to consumers paying higher prices. Although not stated explicitly, the connectivity strategy tends to prioritize domestic integration over global integration. It sees these two as not always mutually reinforcing, which complicates the implementation of its action plan.

The connectivity strategy acknowledges the importance of *upgrading infrastructure*. Improvements are proposed by mode of transport. The strategy also stresses the need for smooth interfaces between multi-modal transportation networks, so that goods can move rapidly from one mode to another. Much attention is paid in the infrastructure strategy to moving production and trade away from densely populated Java. The strategy introduces new hub ports in North Sumatra and North Sulawesi, far away from Jakarta. It is envisaged that by 2050 international vessels will no longer sail to Jakarta or Surabaya in Java, but instead dock in North Sumatra and North Sulawesi, where containers will subsequently be distributed throughout the archipelago on domestic vessels. However, while the plans for new hub ports are being developed, substantial investments are simultaneously being made to extend Indonesia's major international ports in Jakarta and Surabaya to accommodate growth in demand and the expansion of the manufacturing sector in Java. The development of new hub ports is of course a long-term strategy, but these plans vis-à-vis ongoing expansions of ports in Java once again raises the question of priority setting by the Government.

Regulatory reform that aims to create a business environment conducive to lowering logistics costs is another pillar of the connectivity strategy. The regulatory reform process is intended to: simplify trading regulations for exports and strategic commodities; improve port and border management; facilitate transport across regions; and prepare laws and implementing regulations for multi-modal logistics service providers. The strategy stresses that regulatory reform should also include harmonizing and simplifying regulations issued by various ministries and agencies, as well as synchronizing regulations among central and local governments.

The *upgrading of human resources* in logistics is another key pillar of the connectivity strategy. The aim here is to increase the availability of qualified professionals in logistics through skills certification and introduction of vocational and academic education programs. At present, small- and medium-sized enterprises (SMEs) in particular have difficulty selecting providers because there is no clear method to identify quality services. This pillar also includes policy actions to strengthen the competitiveness of domestic logistics service providers and notes that incentives are needed to promote an increase in the quality and quantity of private participation in the sector.

The strategy also recognizes the importance of the *further introduction of Information and Communication Technology (ICT)* to promote connectivity. In particular, strengthening the Indonesia National Single Window (INSW) and the introduction of broadband internet services to eastern Indonesia are identified in the strategy document. A National Single Window is an electronic system through which all imports and exports in a country should be channeled and cleared. When fully implemented it should avoid face-to-face contacts between importers, exporters and agencies during the process. In many parts of eastern Indonesia rapid business contacts are frequently hampered by poor internet connections making it, for example, difficult to send contracts and documents via email or do electronic business in general.

The connectivity strategy introduces a dedicated public-private team (the Sislognas team) that will monitor and supervise the implementation of the action plan. The team is also assigned to assess the need for a special agency within the Government to coordinate and harmonize the implementation of the connectivity strategy in the longer term. Countries such as Malaysia and Thailand have set up dedicated Logistics Councils to coordinate such complex policies. A review of the action plan of

Indonesia's connectivity strategy shows that it includes a very long and detailed list of tasks to be implemented by many line ministries and agencies. In the case of some actions, for example conducting studies or assessments, budget is allocated to the relevant parties. However, in most cases, the team expects the private sector and state-owned enterprise sector to step in and provide the necessary funding.

The new Government (inaugurated in October 2014) has embraced maritime connectivity as a key development strategy for the country. In particular, it has stressed the need for strengthening inter-island connectivity. The mid-term development plan that the previous administration prepared for the period 2014-19 has now been revised (RPJMN, 2015). The new version stresses the so-called maritime axis: the development of ports is seen as a prerequisite to boost inter-island trade and bring more prosperity to eastern Indonesia. The basic philosophy is that no shipping company will be interested in offering regular services to isolated areas if they do not have an assurance that waiting and turn-around time will be relatively short and predictable. Predictability does not only rely on the quality of hard infrastructure in ports but also on the ports' capacity to handle ships and cargo efficiently. In many ports in eastern Indonesia, including the ports of Ambon and Jayapura, there are no berthing windows. This means that ships sailing to these ports may arrive on exactly the same day at precisely the same time, creating serious delays. In addition, many ports have outdated regulations on how to remunerate dock workers handling containers, adding to the logistics costs. The revised mid-term development plan calls for the upgrading of 42 ports mainly in eastern Indonesia to promote more inter-island trade (RPJMN, 2015).

4. The Major Bottlenecks to Connectivity Improvements

In this section, we look more closely at the main bottlenecks to better connectivity. This section argues that hard infrastructure, soft infrastructure/regulatory reform, and policy coordination are the key constraints. It will also show that these bottlenecks are interconnected and therefore need to be tackled simultaneously.

4.1 Hard infrastructure as a constraint to better connectivity

It is widely recognized that Indonesia's low investment levels in hard infrastructure have contributed significantly to the current connectivity problems and high logistics costs. Problems with transportation, congestion and the poor quality of roads are among the worst business constraints. Under-investment in infrastructure has been massive as energy subsidies have crowded out public spending. In 2012, spending on energy subsidies claimed more than one-fifth of the central government's budget, more than three times the allocation for infrastructure such as roads, ports, water, electricity, etc. (World Bank, Indonesian Economic Quarterly, March 2014).

Total infrastructure spending, namely investment by the central government, sub-national governments, state-owned enterprises and the private sector, has remained at only 3 to 4 percent of GDP over the past decade. This is far below the rates of above 7 percent seen before the 1997/98 Asian financial crisis, and the 10 percent and 7.5 percent spent by China and India, respectively. In addition, the outcomes of infrastructure investment appear to be unrelated to the amount invested. In roads, for example, a public expenditure review reveals that a six-fold increase in spending resulted in only 20 percent more kilometers of roadway (World Bank 2013)

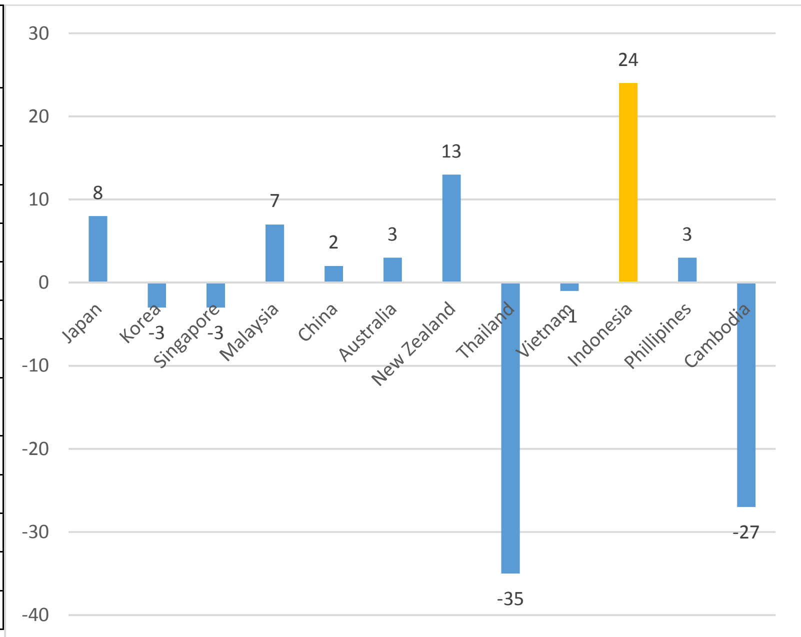
The decline in Indonesia's infrastructure investment has been broad-based but is particularly apparent in lower private sector investment. The sharp fall in private sector investment in infrastructure is of particular concern given the country's increasing focus on the establishment of public-private partnerships (PPP) to finance expansion of the infrastructure capital stock. In real terms, total infrastructure investment during 2010-12 only accounted for half of its levels during the 1995-97 period. Private sector investment experienced the largest decline, of 1.2 percentage points of GDP, from an average of 1.8 percent of GDP in 1995-97 to only 0.6 percent of GDP in 2010-12. The composition of Indonesia's overall infrastructure investment has also changed since the 1997/98 crisis. There has been a rise over the past decade in the share of sub-national government spending, where real infrastructure investments has more than doubled since the crisis to 0.8 percent of GDP. State-owned enterprises and the central government are responsible together for about 1.6 percent of GDP of infrastructure investment in 2012 (with total investment estimated at 3 percent of GDP). It is not always possible to make a distinction between investments made by state-owned enterprises and the central government, but field evidence suggests that these enterprises continue to play an important role in overall infrastructure investments (World Bank, Development Policy Review, 2014). For example, the major investments in the extension of the ports of Jakarta and Surabaya have been made by state-owned enterprises without any contribution from the central government.

Within sectoral composition, the transportation sector, in particular roads, has accounted for an increasing share of infrastructure investment. The transportation sector has seen a relatively steady build-up in its share of total infrastructure investment, from 23 percent in 1995-97 to more than half in 2010-12, and increased real investment by 13 percent during the same period. However, this has been mainly driven by sub-national road investment. According to public expenditure review (World Bank 2013) undertaken by the World Bank, the total length of district roads increased by one third between 2001 and 2009, rising from 287,577 km in 2001 to 384,810 km in 2009. However, there are a number of efficiency concerns related to this spending, such as an insufficient level of operations and maintenance spending, institutional fragmentation leading to new road investment that does not lie within an integrated transportation network, and sub-standard design and road quality. In contrast to sub-national road building, toll-road development has been exceedingly slow due to implementation challenges. The total length of toll-roads has barely increased in recent years, at just 742 km by 2010 (less than one third of the target of 2,400 km set in the Ministry of Public Works' Strategic Plan). National roads are mostly in good condition, but traffic congestion in urban areas and regional arterial roads is prevalent.

Global Competitiveness annual reports show an interesting issue that requires further explanation and may also require us to take another critical look at what is happening with infrastructure investment in Indonesia (Figure 5). The reports are based on perceptions of respondents. When ranking the overall quality of infrastructure in Indonesia the findings suggest that Indonesia is one of the

Figure 5. Overall quality of infrastructure of selected countries, 2009-10 compared with 2014-15

Country	Overall Quality of Infrastructure Ranking		
	2009-10	2014-15	Change
Japan	17	9	8
Korea	20	23	-3
Singapore	2	5	-3
Malaysia	27	20	7
China	66	64	2
Australia	38	35	3
New Zealand	45	32	13
Thailand	41	76	-35
Vietnam	111	112	-1
Indonesia	96	72	24
Philippines	98	95	3
Cambodia	82	109	-27



Source: Global Competitiveness Reports.

few countries in the region where the quality of infrastructure has improved substantially. Improvements are reported for a broad range of key sectors such as roads and ports. Nonetheless, the quality of infrastructure in Indonesia ranks far below that of Malaysia but, interestingly, it compares favorably with Thailand. This may be due to the political and social unrest that Thailand has experienced in recent years, together with serious floods a few years ago, which have adversely impacted perceptions of the quality of infrastructure in the country.

Proper ICT infrastructure is another asset for better connectivity. Documents, contracts and communications in general all benefit from faster electronic communications. By 2013, 15 percent of households in Indonesia had access to fixed and/or mobile broadband. Indonesia's targets set by the Ministry of Information and Telecommunication are ambitious: by 2019 no less than 70 percent of households should have access to broadband throughout the archipelago (Mastel 4, 2015). However, the tender for the development of broadband facilities to better connect outer islands with Java has been on hold for several years. Consequently, the contribution of ICT to better connectivity remains a problem and, for example, data exchange between ports is constrained by the lack of ICT infrastructure. As such, these ambitious targets are unlikely to be met. We discuss below in more detail how the management and implementation of tenders remains one of the most important bottlenecks to better connectivity.

4.2. Regulatory bottlenecks as a constraint to better connectivity

Connecting production centers in Java to consumers throughout the country requires the involvement of a range of logistics service providers. Likewise, Importing and exporting of goods involves various agents, such as customs brokers, freight forwarders, trucking companies, shipping companies, etc. As mentioned above, there is a gradual movement by companies to outsource such activities to third-party service providers. This can be either through integrated multi-modal logistics service providers, a range of different providers, or a combination of the two. For the logistics service industry to respond to customer needs, it needs to be able to operate with flexibility and provide a wide range of services to any part of the country. The current situation is characterized by a fragmented regulatory environment for logistics services. In practice this means that a freight forwarder hoping to offer trucking and e-commerce services need no less than three licenses from two ministries, all of which need to be renewed annually. Additional permits may be requested from local governments and local taxes have to be paid. This increases costs and leads to further uncertainties, as the length of time need for the renewal of permits is not always predictable.

The Government's connectivity strategy calls for the introduction of multi-modal licensing that would allow freight forwarders to offer a range of other logistics services without having to request additional permits beforehand. So far, however, very little progress has been made in successfully introducing such multi-modal licensing. The Ministry of Transport has prepared a decree that allows the Secretary General to issue multi-modal licenses. However, in practice the Ministry of Transport remains confused about the issuance of these new licenses and the coordination between the Directorates for Land, Sea, Air Transport and the Office of the Secretary General. Consequently, since 2014 only two companies have been granted a multi-modal license allowing them to undertake a range of logistics services along the supply chain.

Regulatory bottlenecks are not only caused by the complexity of permits needed by logistics service providers and a Government struggling to catch up with modernization in the logistics business sector. A further important regulatory bottleneck in international connectivity concerns trade-related measures that cause delays in releasing goods from ports and airports. While most of the trade-related measures are intended to protect health and consumers, excessive use of trade regulations subjects Indonesian manufacturers to longer lead times and higher inventory costs. Box 1 gives a good example. It shows the complexity of the import clearance process. It is not only about the costs but also the uncertainties of the entire process, which risk adversely impacting the interests of this company and potentially leading it to reconsider further investments in Indonesia.

Box 1: Difficulties in obtaining permits experienced by an international cheese processor

An international company imports fresh cheese to be converted into processed cheese. About 70 percent of production is sold in the domestic market, mainly to bakeries. Despite being a regulator importer, the company experiences serious obstacles in obtaining import permits/licensing. In early 2013, the dwell time for its refrigerated containers carrying fresh cheese rose to 53 days because an import permit was incomplete, preventing the company from removing its containers from Tanjung Priok. Consequently, extra demurrage charges meant that the purchase price of the cheese rose from Rp 8 to 15 billion, while the company lost 70,000 tonnes of production, or Rp 1.1 trillion in sales.

In order to understand how this could happen, let's look at the company's import licensing process. Four permits are needed to import fresh cheese: (i) a Registered Importer Permit *(Importer Terdaftar)*; (ii) an Import Approval *(Persetujuan Impor)*; (iii) an Import Certificate *(Surat Keterangan Impor)*; and (iv) a Quarantine Permit *(Karantina Hewan).* The Import Approval (PI) is considered the most difficult to obtain due to difficulties in obtaining supporting documents, specifically recommendation letters from the Ministry of Agriculture (MoA) and the National Agency of Drug and Food Control (BPOM). The PI is only valid for six months. However, based on the company's experience, 4 to 5 months are needed to obtain a PI, meaning that importers should start renewing the PI 6 weeks after obtaining it for the same commodity and the same country of origin. The PI is issued by the Ministry of Trade.

Obtaining a Recommendation Letter from the MoA: The prerequisite for applying to the MoA for a letter of recommendation is to obtain pre-recommendation letters from local governments, including: (i) Livestock Services, District Agricultural Office; (ii) Livestock Services, Provincial Agricultural Office; and (iii) Integrated Provincial Licensing Bodies (BPPT). Importers should apply for each pre-recommendation letter sequentially. Hence, it takes 10 to 14 weeks to obtain all three letters from the three offices. The importer should then bring them to the MoA to apply for a 'final' recommendation letter, which can take a further 4 to 8 weeks. A further complication is that when applying for a pre-recommendation letter, the importer should supply detailed information on volumes and specific ports of entry. This can be impractical due to the dynamics of business operations. Also, actual imports impact the quota allocated by the local government for the next import application. It is difficult for an importer to obtain a larger quota if the previous import realization was less than planned.

This sub-section highlights that the current regulatory environment is a major constraint to better connectivity. Improvements in such soft infrastructure (regulatory review) are just as important as strengthening hard infrastructure.

4.3. Coordination for better connectivity

There is increasing awareness in Indonesia that the upgrading of hard and soft infrastructure needs to go hand-in-hand. The port of Jakarta is being extended over the period 2014-17 with three new terminals being built on an artificial island in front of the current port of Tanjung Priok. The construction of the terminals, the dredging, and the installation of new cranes are on schedule and will pave the way for the arrival of larger vessels into the port at lower cost, since it will allow direct calls without the need for transshipment in Singapore and/or Malaysia. However, the future terminal operators are still in the process of consultation and assessment of how to put in place soft infrastructure that will allow the timely release of containers from the port. In particular, improved coordination between up to 17 agencies that are involved in the clearance of imported containers will be essential.

This brings us to the third main bottleneck constraining better intra-island, inter-island and international connectivity: the difficulties of improving coordination between ministries and agencies at the national level and between national and local levels. Indonesia does have teams responsible for the implementation of the connectivity strategy and the logistics blueprint. These operate on the basis of presidential decrees. However, experience shows that teams tend to develop their own activities after experiencing difficulties in coordinating policies throughout the Government, including local governments. At the start of each fiscal year, line ministries are assigned specific tasks to be executed in accordance with the decree, but there is no monitoring mechanism. Therefore, the connectivity strategy is implemented by a stand-alone team that is not rooted in the various line ministries.

5. The Way Forward

We have broken down the concept of connectivity to intra-island, inter-island and international connectivity in accordance with the specific characteristics of Indonesia's economic geography. Subsequently, the country's connectivity strategy was outlined and the most important bottlenecks presented. In this section, we deal with two further issues. First, we look at the achievements of the connectivity team so far and note that it has concentrated on non-controversial areas due to a lack of backing from the line ministries. Second, we discuss what can be realistically achieved to build more infrastructure, tackle regulatory reform, and step up coordination in the implementation of connectivity policies.

5.1. Current implementation of connectivity reform: The path of the least resistance

The implementation of the connectivity strategy shows that strengthening domestic integration is the top priority. Regional and global integration are approached much more warily. The impact of forthcoming ASEAN integration is seen neither as an opportunity nor as a threat. The general opinion within Government circles is that trade tariffs between most ASEAN member states are already close to zero so that no substantial diversion of trade patterns is expected. Moreover, Indonesia and other ASEAN countries have introduced several (non-tariff) measures to protect themselves against any unexpected change in international connectivity. The connectivity strategy aims to reduce logistics costs in Indonesia with 5 percent of GDP by 2025. The connectivity team claims that in the period 2012-15 it has initiated and contributed to:

a. Assessment of new hub sea ports in North Sumatra and North Sulawesi (infrastructure)
b. Revitalization of domestic shipping (infrastructure)

c. Introduction of degree and non-degree training programs for logistics service providers (upgrading of human resources)
d. Support for the establishment of a dry port in West Java (infrastructure)
e. Introduction of 24/7 cargo handling at the Jakarta airport (regulatory reform)

A review of the work of the connectivity team shows that it has mainly focused on areas that are non-controversial. There is no opposition to the assessment of possible new hub ports. A different matter is whether they should actually be built at all. The same is true for the introduction of training programs for the upgrading of logistics service providers. There is general agreement that better logistics services will be beneficial to all. However, the major bottlenecks identified above remain untouched. The connectivity team has been less successful in achieving a breakthrough when it comes to finding innovative ways to fund infrastructure projects, press for regulatory reform, and execute true coordination rather than issuing recommendations to ministries and agencies.

5.2. A hard nut to crack: Financing the expansion of infrastructure in parallel with regulatory reform and better coordination

Although infrastructure investment remains at around 4 percent of GDP, improved fiscal space due to the reduction of energy subsidies offers new opportunities. However, for the time being this seems to have only resulted in the preparation of more feasibility studies rather than actual projects. For instance, the upgrading of highways, improvement of local roads feeding into highways, and strengthening ports and airports are all examples of priority projects. Many such priority projects have been on the drawing board for years and there is little evidence that they will be implemented any time soon.

The key to better connectivity is better infrastructure. The Government could increase public spending on infrastructure by further reallocating energy subsidies and/or raising the fiscal deficit. Top priority projects could be supported if these projects are well justified, well designed and professionally tendered. It is also necessary to create a regulatory environment that encourages domestic and foreign private sector investment in connectivity. The frequent changes in regulations affecting foreign investment have triggered increased wariness on the part of foreign investors considering entering the Indonesian market. Foreign vessels picking up cargo in a specific Indonesian port are not allowed to discharge any containers in other Indonesian ports as stipulated in the 2008 Shipping Law. There have been various attempts to promote public-private partnerships (PPP) in Indonesia, but the reality is that the number of PPP projects has remained very low compared with its neighbors. Coordination among ministries remains a major obstacle, while there are virtually no incentives for line ministries to undertake PPPs given their perceived complexity. There is still no lead agency for the PPP process, while there is a lack of capacity within the Government to manage such complex projects.

There is also a lack of capacity within the Government to implement large tenders for infrastructure projects that involve international firms. There are examples of substantial delays in infrastructure investments caused by a poor understanding of the rules of the game. In the case of the extension of the port of Jakarta, the Government decided to allow the state-owned port operator, Pelindo, to execute the tender because it had the financial means to do so. It also meant that Pelindo would be the majority shareholder in the project. The extension of the port of Jakarta is only one example, but the message is clear: the Government needs to boost its capacity to manage tenders, including those that require PPP.

Implementing regulations are needed to eliminate uncertainty in legislation related investments in railways, shipping, roads, etc. Some existing regulations hamper the development of infrastructure and dampen investor interest. Addressing issues related to land acquisition, investment and trade restrictions is a vital step towards attracting investors to these projects. With respect to connectivity, the promotion of quality logistics services is needed to meet growing demand for more sophisticated services. The emergence of such modern services is frustrated by the current regulatory environment that requires service providers to request and renew licenses for each logistics activity that they carry out. Frequently, permits are also needed from the local authorities in the provinces in which the service providers operate. Logistics service providers acknowledge that collaboration with foreign companies is important to introduce modern third-party logistics services that make use of ICT to track the whereabouts of shipments. The foreign equity limit for such joint ventures is not well defined yet and depends on the mix of individual logistics activities that are included. However, this mix normally changes as time proceeds, which may make it necessary to consult the Government again as to whether business operations are still within the limits of Indonesian laws and regulations. There is a need to introduce multi-modal service licenses that will allow logistics providers to offer a full range of services and change their composition whenever the market requires them to do so without prior consultation and authorization of the Government.

Trade facilitation is another import area that would benefit from regulatory reform. In Indonesia, there are many examples of trade-related measures that subject Indonesian manufacturers to longer lead times and higher inventory costs. The import clearance process involves a multitude of agencies. In principle, import declarations can be submitted online via the INSW. However, in many cases electronic signatures are not yet recognized, requiring importers to consult agencies personally. In the Indonesian case, many clearances have to be done sequentially, which is time consuming and costly. The most crucial issue for importers is the unpredictability of the import system. In mid-2015, a new regulation required importers to have all their paperwork completed before a container can be discharged in an Indonesian port. This is virtually impossible for cargo that is sent to Jakarta after transshipment in Singapore or Malaysia. Only after the feeder ship is loaded and ready for departure will the shipper know what is on board and start preparing the paper work for clearance in Jakarta. The trip from Singapore to Jakarta takes some 36 hours, which is normally not enough to obtain all clearances. This creates uncertainty, drives up costs, and forces manufacturers to invest in more inventory.

5.3. Towards a new Strategy

The new Government concentrates on better inter-island connectivity, especially upgrading of ports and shipping. This is indeed a priority for better domestic integration. The implementation of ports upgrading strategy remains an issue as it remains unclear who will take the lead in the ambitious plans to upgrade ports especially in Eastern Indonesia. The establishment of a new Coordinating Ministry for Maritime Affairs has rather introduced an additional player than provided much needed coordination to start upgrading the maritime sector. By July 2015, there are plans to establish a high-level taskforce that would report directly to the President to break through the impasse. Whether it will be effective remains to be seen. It is evident though that without better coordination Indonesia will have a hard time to improve its logistics and connectivity.

Current connectivity initiatives by existing teams either end up as recommendations that are not followed up or focus on non-controversial issues. The establishment of the dry port in West Java is a good example of how difficult it is to follow up on recommendations. No less than 9 years passed by between the recommendation of the Ministry of Transport to the regional authorities to start a dry port in West Java and its start. Streamlining decision making is key to connectivity reform but is unlikely to take place without a very strong commitment from the highest levels in Government. Countries like Malaysia and Thailand are aware of the need for coordination to foster better connectivity and have established Logistics Councils with s strong commitment from their Governments and full-time secretariats with adequate funds to hire technical experts.

In recent months, there have been hopeful attempts in Indonesia to streamline licensing and regulations. A new Presidential Instruction is prepared that will set up a team that reviews regulations of line ministries that will have a negative impact on the economy in general and on connectivity in particular. At present, line ministries continue to issue regulations prior to any assessment of what they mean to the economy. A recent example is the Ministry of Trade regulation that requires all importers to submit their paperwork prior to the arrival of the vessel in an Indonesian ports. We have mentioned above already that this is close to impossible for more than 50 percent of incoming ships. Consequently, this will cause delay in deliveries of inputs to factories and require them to invest even more in stocks. Plans for the establishment of a team to review the impact of regulations prior to their issuance has been in the making for many years but has not been very successful yet. Again, this essential requirement for better connectivity has not been met yet in Indonesia and will only be possible after a high level commitment from the Government.

Finally, Indonesia's reluctance to embrace international connectivity fully needs further scrutinizing. The public perception for the last decades has been that the country is not ready yet for full participation in the world economy and there remains a need to protect itself against more efficient producers from abroad that will "take over' Indonesian markets. The cases presented in this paper show however that efficient participation in global production networks can be extremely useful to produce competitively in Indonesia. Perhaps it is time to revive the motto of Indonesia's connectivity and logistics strategy: domestic integration *and* global connection are *both essential for economic growth and social welfare.*