

Development of Freight Transport in Indonesia: Towards Sustainability Transport

Elly Sinaga

Jl. Tanah Merdeka No. 62 RT 09/05, East Jakarta 13750, Indonesia

Abstract: Indonesia as the largest archipelagic country has potential market for freight transport. Unfortunately according to Logistics Performance Index (LPI) by the World Bank in 2012, Indonesia National Logistics System performance still have not optimal. Congestion become one of problem issue which caused the cost of logistics in Indonesia is more expensive for the similar routes in other Asia country. Besides, the use of road transport for freight is still dominating in Indonesia. In order to accelerate the Indonesia economy development and solve out the transport modal split issue, the government has declared the Master Plan for the Acceleration and Expansion of Indonesian Economic Development (MP3EI). In which through this policy the government is trying to improve and develop all the infrastructure of the transport sector including multimodal transport and greenhouse gas emissions (GHG) reduction. This paper tries to give explanation toward logistics transport and its problem, current condition on freight transport and the government policies in Indonesia. The method is using descriptive analyse with qualitative data and interview method to gain the detail information from the stakeholder.

Key words: Freight, transport, logistics, Indonesia, mp3ei, multimodal, greenhouse.

1. Introduction

In recent years, logistic systems have become a major issue in Indonesia. Logistics sector plays a very important role in supporting economic development for all sectors and in reducing costs and improving access to international markets which will have a direct impact on increasing trade. Logistics also plays a major role in improving the competitiveness of the economy as well as a platform to unify and harmonize the national inter-sectoral and inter-regional economic progress. Geographically, Indonesia is an archipelagic country which consists of 17,000 islands that stretches along the eighth equator. Indonesia is also has abundant natural resources that is able to produce strategic commodities.

As the largest archipelago in the world (UNDP 2013), the total population of Indonesia is projected in the next 25 years from 205.1 million in 2000 to 273.1

million in 2025 with an average growth of 1.33% (Indonesia Data Statistic, 2010). For that reason, a reliable national network of integrated logistics is expected to connect the points of production and consumption to ensure the availability of basic needs in a fair and equitable society. Indonesia's economic growth continues to increase in line with GDP growth of 6% in 2012. While the per capita GDP growth in 2012 stood at U.S. \$ 5,000. Along with the economic growth of Indonesia Human Development Index has improved from 0.422 in 1980 to 0.629 in 2012. In 2012 the unemployment rate was 6.1% while poverty rate was 11.7%.

However, Indonesia's National Logistics System performance is still far from optimal. Indonesia's logistics costs are still relatively high compared to other Asian countries. Based on a survey of Logistics Performance Index (LPI) by the World Bank in 2012, Indonesia was ranked 59, an improvement from 2010. The logistics competitiveness ranking of data for Indonesian and ASEAN countries in 2010 and 2012 is shown in Table 1.

Corresponding author: Elly Sinaga, Dr., research field: freight transport, urban transport.

Development of Freight Transport in Indonesia: Towards Sustainability Transport

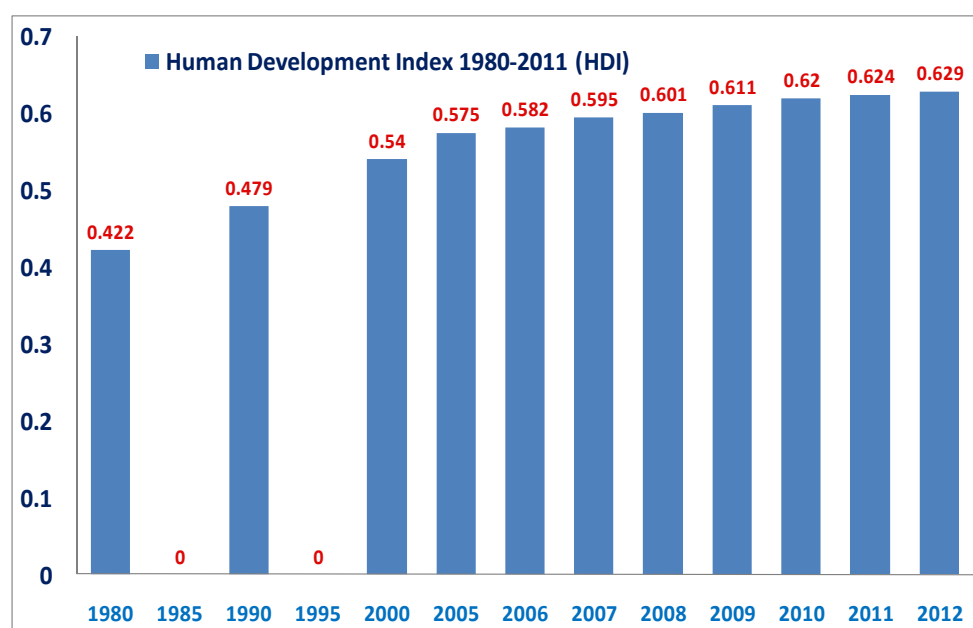


Fig. 1 Indonesia Human Development Index 1980-2012.

Source: UNDP 2013 and CIA World Factbook, 2013

Table 1 Logistics Performance Index ASEAN Countries.

Negara	2010	2012
Singapura	2	2
Malaysia	27	29
Thailand	35	38
Filipina	44	52
Vietnam	53	53
Indonesia	75	59
Myanmar	133	129

Source: World Bank, 2012

Table 2 The Ranking Comparative of Indonesia and ASEAN Country Performance.

ASEAN Country	LPI		Custom		Infrastructure		International Shipment		Competence		Tracking & Tracing		Timelines	
	Rank	Score	Rank	Score	Rank	Score	Rank	Score	Rank	Score	Rank	Score	Rank	Score
Singapore	1	4.13	1	4.10	2	4.15	2	3.99	6	4.07	6	4.07	1	4.39
Malaysia	29	3.49	29	3.28	27	3.43	26	3.40	30	3.45	28	3.54	28	3.86
Thailand	38	3.18	42	2.96	44	3.08	35	3.21	49	2.98	45	3.18	39	3.63
Philippines	52	3.02	67	2.63	62	2.80	56	2.97	39	3.14	39	3.30	69	3.30
Vietnam	53	3.00	63	2.65	72	2.68	39	3.14	82	2.68	47	3.16	38	3.64
Indonesia	59	2.94	75	2.53	85	2.54	57	2.97	62	2.85	52	3.12	42	3.61
Rata-Rata Score		3.29		3.03		3.11		3.28		3.20		3.40		3.74

Source: World Bank, 2012

The LPI measures six dimensions of country performance which are efficiency of the clearance process, quality of trade and transport infrastructure, ease of arranging competitively priced shipments,

logistics competence and quality of logistics services, tracking and tracing and timeliness. The comparative ranking of Indonesia and ASEAN country performance is showed in Table 2.

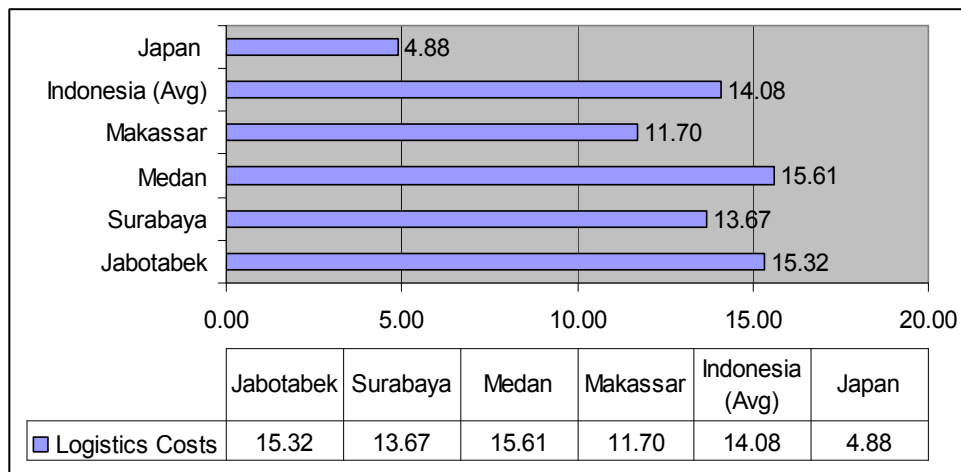


Fig. 2 The Cost of Indonesia Transportation Logistics.

Indonesia's logistics costs are very high compared to other countries. Average logistics costs in Indonesia approaches 14.08% of the production Cost. In contrast, Japan's logistic cost averages at 4.88% of production cost, as can be seen in Figure 2:

2. Materials and Method

Based on the introduction above, this paper is to find out the current condition and problems of the freight transport in Indonesia which caused the logistic cost in Indonesia expensive. Also this paper is trying to figure it out through the government policy regarding the freight transport and the opportunity toward sustainable transport.

This paper is using descriptive analyse method with qualitative data. The data collecting are from desk study, website and interview with the stakeholder.

3. Result and Discussion

Because of the congestion in the streets of Jakarta, trucks can only make one trip per day to or from the industrial area. Which causes shipping costs to be twice more expensive than in Malaysia or Thailand.

As can be seen in Figure 3 above, the difference between the distance of Cikarang - Port of Tanjung Priok (55.4 miles) and Pasir Gudang-Port of Tanjung Pelepas (56.4 km) is negligible, but it cost 300 USD more in Jakarta. The high logistic costs in Indonesia

can also be seen when comparing local to international logistic cost. For example, the shipping cost of container from Padang to Jakarta Rp 5, 4 million, while the shipping cost of the same container from Jakarta to Singapore is only Rp 1, 8 million. The price of cement in Papua's twenty times higher than the price of cement in Jakarta, because of this prohibitively high shipping cost.

Transport of goods should be served by all modes of transport by land, sea, air and rail. However, Indonesia today is still dominated by road transport. Transportation development focus was also directed to the road transport sector, consequently, the sector, along with the number of vehicles, grows rapidly. Meanwhile, marine and rail transport is neglected, given the rise of the dependence on the use of road transport vehicles.

Trucking is the preferred mode of transportation within Java and between Java and Sumatra given the fact that sea transportation is at least 30-40% cheaper. Flexibility and lead time are the two main criteria for shippers/consignees to choose their mode of transportation. Based on the information from the stakeholders, the price comparison of goods according to the alternative modes choice within Java island can be seen in Table 3.

The Government of Indonesia through the Presidential Decree No. 32 of 2011 has declared the Master Plan

Development of Freight Transport in Indonesia: Towards Sustainability Transport



Fig. 3 The Comparative of the logistic cost from the Industrial Area to the Port between Indonesia and Malaysia.

Source: World Bank, Investing in Indonesia's Institution

Table 3 Mode of Transportation Comparison Within Java.

	TRUCKING	RAIL	SEA TRANSPORT
Price (Rp.) per TEU	7.500.000	N.A.	2.000.000-2.500.000 (ocean fare) 1.500.000 (two port handling charge)
Lead Time	1-2 days	3-4 days	7-8 days
Capacity	Limited by road capacity and congestion	The rail between Jakarta and Surabaya is for both passenger and freight, but passenger has higher priority. Every train has 20 units of 40 Container per trip. There are 2-5 freight trains between Jakarta and Surabaya. Assuming 5 trains, the annual capacity is about 16.000 TEU per year.	Feeder service between TanjungPriok and Tanjung Perak is very limited.
Service Frequency	Very frequent and flexible	Service is regular, every day there is 2-5 freight carrying trains	Service is infrequent.

Source: Informants of stakeholder, 2013

for the Acceleration and Expansion of Indonesian Economic Development (MP3EI). MP3EI is a strategic directive for the acceleration and expansion of Indonesia's economy within 15 years from 2010 to 2025 which has its roots in the 2005-2025 Long Term National Development Plan. MP3EI is expected to accelerate existing development programs, especially in promoting the added value of leading sectors of economic, energy and infrastructure development, as well as human resource development and science and technology. Some measures are formulated which

focused by setting 8 main program and 22 main economic activities as well as through the establishment of six (6) economic corridors as centers of growth which is expected to boost economic development in all regions of the archipelago.

By utilizing the Master Plan for Acceleration and Expansion of Indonesia's Economic Development (MP3EI), Indonesia aims to earn its place as one of the world's developed country by 2025 with expected per capita income of USD 14,250-USD 15,500 with total GDP of USD 4.0-4.5 Trillion. To achieve the

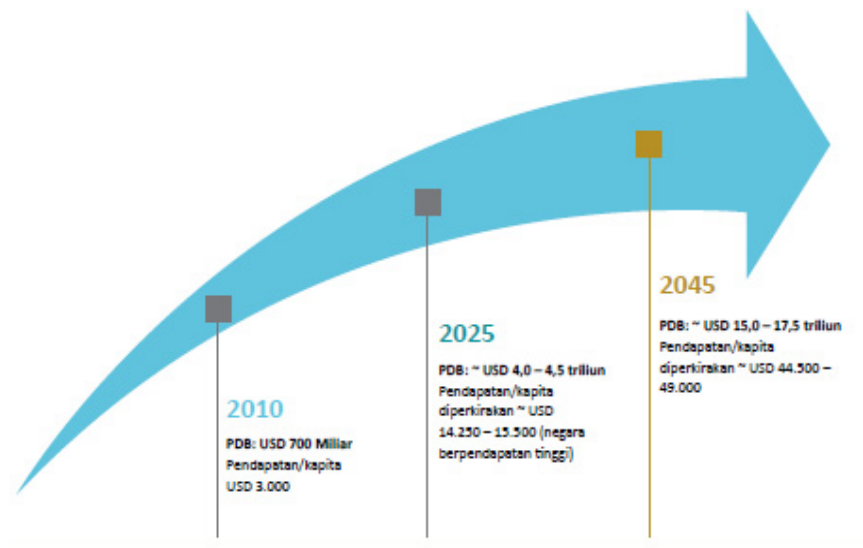


Fig. 4 Plans for Indonesia's GDP.

Source: MP3EI, 2011

above objectives, real economic growth of 6.4-7.5 percent is expected for the period of 2011-2014. This economic growth is expected to coincide with the decrease in the rate of inflation from 6.5 percent in 2011-2014 to 3.0 percent in 2025. The combined growth and inflation rates reflect the characteristics of a developed country. Plans for Indonesia's GDP is illustrated in Figure 4.

The vision of MP3EI is to create a self-sufficient, advanced, just and prosperous Indonesia. Towards the realization of the vision are 3 main goals:

1. Increase value adding and expanding value chain for industrial production processes, and increase the efficiency of the distribution network. In addition increase the capability of the industry to access and utilize natural resources and human resources. These increases can be attained by the creation of economic activities within regions as well as among regional centers of economic growth.
2. Encourage efficiency in production and improve marketing efforts to further integrate domestic markets in order to push for competitiveness and strengthen the national economy.
3. To push for the strengthening of the national innovation system in the areas of production, process, and marketing with a focus on the overall

strengthening of sustainable global competitiveness towards an innovation-driven economy.

MP3EI expected to accelerate the development of existing development programs, especially in promoting the added value of leading sectors of economic, energy and infrastructure development, as well as human resource development and science and technology. Within the plan, there are 8 main program and 22 main economic activities as well as the establishment of 6 economic corridors as centers of growth which is expected to boost economic development in all regions of the archipelago. Therefore the future economic development of Indonesia will be done with a "Not business as usual", ie Indonesia no longer will export raw materials, but should increase the added value and the expansion of the value chain of the production process in order to enhance the competitiveness of the national economy.

Industrial development, on the other hand will also contribute to the increase of environmental damage, biodiversity reduction caused by the exploitation of natural resources, natural disasters caused by climate change and declining levels of social welfare. In order to balance between economic activity with subsequent environmental documents MP3EI is equipped with environmental protection measures. Infrastructure

Development of Freight Transport in Indonesia: Towards Sustainability Transport

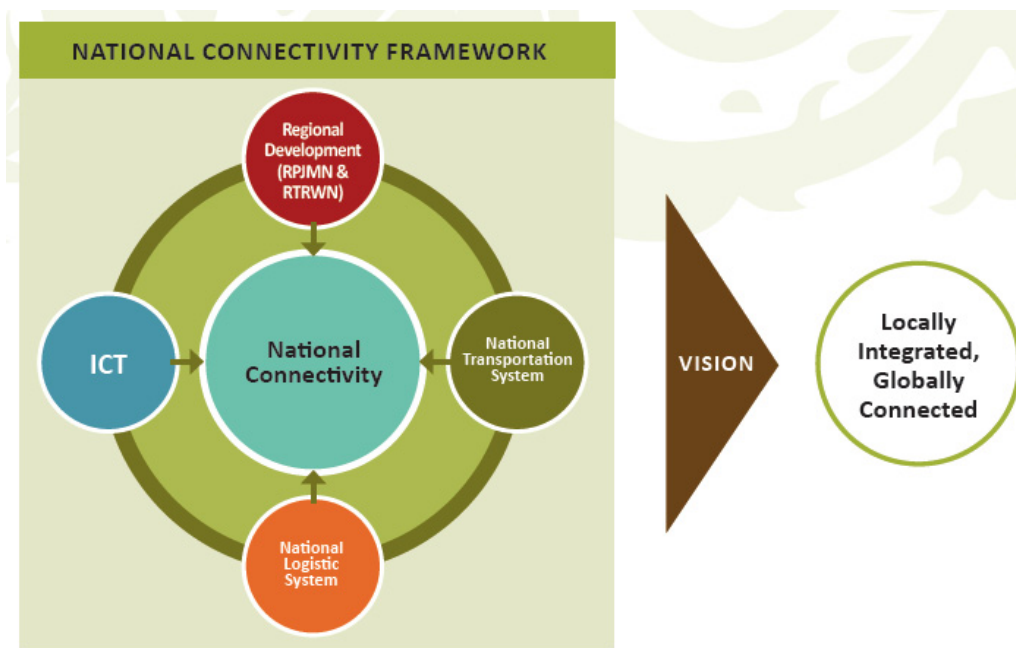


Fig. 5 National Connectivity Vision.

Source: MP3EI, 2011

development is not only directed at the development of physical infrastructure, social and financial, but also the construction of ecological infrastructure.

The success of the MP3EI depends highly on the strength of national and international economic connectivity (intra and inter region). With this consideration, the MP3EI has identified the strengthening of national connectivity as one of three main pillars. National connectivity consist of 4 (four) national policy elements i.e. National Logistic System (Sistem Logistik Nasional/Sislognas), National Transportation System (Sistem Transportasi Nasional/Sistranas), Regional Development (RPJMN/RTRWN), and Information and Communication Technology (ICT). These policies were combined in order to create an effective, efficient, and integrated national connectivity as shown in Figure 5.

The integration of the four components of national connectivity will be formulated into a national connectivity vision, which is: ‘Locally Integrated, Globally Connected’. The vision some points need to consider such as improved accessibility, ambitions for modal split toward multimodal system, increasing

sustainable energy use for the production process, high-end port activities, innovation, and the strengthening of the cooperation model private sector through PPP mechanisms.

Logistics and freight-related activities may account for up to 15 percent of human carbon dioxide emissions, in part because of fossil fuels (World Bank). More fuel-efficient vehicles and cleaner practices mean better logistics. It may be possible for logistics to diminish its carbon footprint with higher load factors or fewer trips. But emissions can be reduced the most through a shift away from higher emission transport modes—that is, if lower emission modes (which in many cases are also slower) can be made more attractive through better service delivery and predictability.

Level of greenhouse gas emissions (GHG) in Indonesia is assuming to have increased from 1.38 GtCO₂e in 2000 to 2.95 in 2020 GtCO₂e. Furthermore, the Government of Indonesia through Presidential Regulation No. 61/2011, of the National Action Plan for Greenhouse Gases, has been set for reducing greenhouse gas emissions by 41% in 2020

which is divided into 26% through our own efforts and 15% with international assistance.

4. Conclusion and Recommendations

In order to reduce greenhouse gas emissions, the use of multimodal transport for freight transport should be encouraged and developed. The definition of Multimodal transport is the carrying of goods by at least two different modes of transport on the basis of a multimodal transport contract. The aim of the multimodal transport is to create one-stop service (3 S's): single operator, single tariff and single document for cargo transport. Some of the strategies that can be done as an effort to encourage the use of transport other multimodal are:

- Infrastructure network integration;
- Integration of service network;
- Improvement of multimodal transportation company/HRD

The most important thing to encourage the use of multimodal transportation is shifting from road. Transportation movements still dominated by road transport (80%). Road transport have the lowest cost function for short distances (<500km), however, the cost rises quickly, when distance >1500km meanwhile maritime transport have the lowest cost for the length of the trip. In addition, between 500-1500km trips the rail transport have the lowest cost function. The Indonesian Government has implemented policies in order to reduce traffic load in roads, they are redirected and balanced using other modes of transportation such as rail and short-sea shipping in order to Improve multi modal. Other policies have

also been issued by the government related to rail transport, air transport and sea transport.

Some concluding remarks is that 1) currently freight transport has become a major issue and main concern in Indonesia hence the development of transport logistics is very important to be improved in terms of both regulation and operation in particular in order to reduce the high cost of logistics, 2) there is a need for better transportation management by optimizing transportation network integration e.g. port and freight railways as well as to create efficiency, effectively transportation and reducing gas emissions, 3) raising sustainable transportation spirits as the basis of the spirit of the development of transportation can be implemented through regulation, 4) in order to manifest the sustainable transportation (green transport) synergy and cooperation cross sectors are needed by conducting cooperation agreement both in national or international forum.

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