

# Policy Brief

## The Proposed Cilamaya New International Port is a Key for Indonesian Economic Development: Geographical Simulation Analysis

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By Ikumo Isono and Satoru Kumagai

*Many foreign investors are now interested in Indonesia, especially in the automotive sector, because of its growing attraction as a market and production site. At the same time, there is concern that poor infrastructure and delays in infrastructure development are impeding the economic growth of the country. Our Geographical Simulation Model assesses the economic impacts of two key infrastructure projects, i.e., Cilamaya New International Port and an access road between Cikarang and Tanjung Priok. The model shows that delays in construction will hamper the economic growth of Indonesia.*

### 1. Background

In 2011, Indonesia became the largest automotive market in ASEAN, with sales of more than 890,000 vehicles. Sales and production are expected to increase steadily. Toyota and Daihatsu proposed new low-cost eco car models at the international motor show in Jakarta in 2012. Many automotive companies showed interest in expanding their factories or starting production in Indonesia, especially in the area along the Jakarta-Cikampek toll-way. In fact, most of the major auto assemblers are located along the toll-way as shown in Figure 1.

Unfortunately the traffic jams in the JABODETABEK area are becoming worse, and it is urgent to fulfill infrastructure needs in this area. At the middle-income level of economic development, infrastructure in metropolitan areas is essential to fostering industrial agglomeration and human resources which activate inter-firm division of labor and industrial upgrading (Fujimoto, *et al.*, 2010).

One of the most serious issues is that trucks leaving factories along

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**Figure 1. Automotive Assemblers in JABODETABEK area, and planned Cilamaya New Port and Cikarang-Tanjung Priok Access Road**



Source: Authors

the Jakarta-Cikampek toll-way must enter the city center to deliver their cargoes to ships berthed at Tanjung Priok Port, and vice versa. On October 9, 2012, the second Japan-Indonesia ministerial economic dialogue and the third steering committee meeting of the Metropolitan Priority Area for investment and industry in the JABODETABEK area (MPA) were held and endorsed the master plan for the MPA, which identifies 45 priority projects including 18 fast track projects. The construction of Cilamaya New International Port was designated as a fast track project, which should be commenced by the end of 2013.

The Indonesian Government plans to expand the capacity of Tanjung Priok Port in North Kalibaru. It will construct three container terminals and two oil and gas terminals, raising the capacity of the port from 6 million

twenty-foot intermodal container equivalents (TEU) to 10.5 million TEU.

Cilamaya New Port with an access road to the Jakarta-Cikampek toll-way and the Cikarang-Tanjung Priok Access Road are expected to mitigate the heavy traffic congestion of the Jakarta-Cikampek toll-way. Many investors look forward to the early commencement and completion of the projects. However, there are signs of possible delays. In July 2012, Dahlan Iskan, Minister for State Owned Enterprises, said that the Cilamaya Port project should be commenced after the construction of the Kalibaru Terminal by Pelindo II because there is a worry that Cilamaya Port would decrease the profitability of the new container terminals in North Kalibaru. As for the Cikarang-Tanjung Priok Access Road, a Malaysian company has a concession for construction, but it is

reported that the project faces difficulties due to the delay in land acquisition<sup>2</sup>.

There are three research and policy questions. First, to what extent will Cilamaya Port and the access road between Cikarang and Tanjung Priok contribute to the Indonesian economy? Second, how serious is the delay in these infrastructure developments? And finally, to what extent will the automotive industry in Indonesia suffer if these two projects are not implemented?

We try to answer to these questions with the Geographical Simulation Model developed by the Economic Research Institute for ASEAN and East Asia (ERIA) and IDE-JETRO. The simulation model is known as the IDE/ERIA-GSM.

The IDE/ERIA-GSM is based on the theory of spatial economics. It is used as a tool for policy makers to judge what sorts of trade and transport facilitation measures (TTFMs) are needed, how to prioritize them, and how to combine them, by analyzing the impacts of several TTFMs on economic activities at the provincial level. It consists of an original economic model with a general equilibrium setting, original simulation programs, a huge dataset including 1,790 regions, and several parameters obtained by econometric estimation. It covers 16 countries/economies in Asia and two non-Asian economies: Bangladesh, Brunei, Cambodia, China, Hong Kong, India, Indonesia,

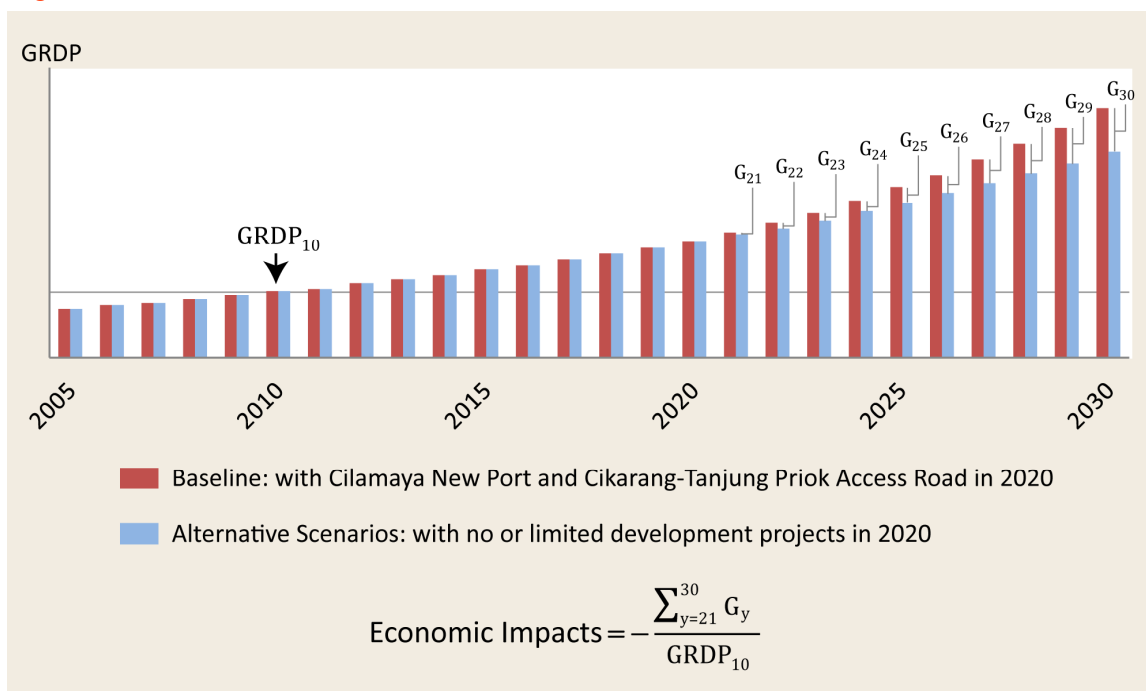
Japan, Lao PDR, Macao, Myanmar, Malaysia, the Philippines, Singapore, Thailand, Vietnam, the United States, and the European Union (EU). In the model, individual firms select and combine transport modes such as trucks, sea transport, air transport, and railways. In addition to physical infrastructure, the model includes political and cultural nontariff barriers and preferences in order to capture "behind the border" issues, based on the estimation of the barriers from trade statistics and the Doing Business data compiled by the World Bank.

The model contributed to providing a rationale for the prioritization of infrastructure projects in the Comprehensive Asia Development Plan (CADP, ERIA 2010) and was referred to in the Master Plan on ASEAN Connectivity (MPAC, ASEAN 2010). Simulations by the model were also utilized in the Indonesian Economic Development Corridor (IEDC) project proposed by ERIA, the Government of Indonesia, and the Minister for Economy, Trade and Industry (METI) of Japan. It provided materials for the Masterplan for Acceleration and Expansion of Indonesian Economic Development (MP3EI, Government of Indonesia 2011).

## **2. Scenarios**

The economic impacts in the model can be illustrated as Figure 2. Every simulation starts from 2005. We assume that some infrastructure

**Figure 2. Baseline and Alternative Scenarios**



Source: Authors

projects are completed by 2010. The baseline scenario assumes that Cilamaya Port and an access road between Cikarang and Tanjung Priok are completed in 2020 and extends the projection up to 2030. The alternative scenario assumes that neither Cilamaya Port nor access road between Cikarang and Tanjung Priok is constructed and again runs the simulation up to 2030. We compare the economic situations, e.g., regional GDP (GRDP), between the baseline scenario and the alternative scenario from 2021 to 2030 and derive the economic impact of the infrastructure projects as a difference between the two scenarios. We also conduct a simulation to identify the economic impact of Cilamaya Port, by assuming that we only have the access road between Cikarang and Tanjung Priok and no Cilamaya Port.

Specifically, we set three scenarios as follows<sup>3</sup> :

**Scenario 1 (Baseline: construction of Cilamaya Port and the Cikarang-Tanjung Priok Access Road)**

In 2015, the average speed of trucks becomes 15km/h in the JABODETABEK area and the Jakarta-Cikampek toll-way up to kilometer-68 because of heavy traffic congestion.

In 2020, Cilamaya Port and the access road between Cikarang and Tanjung Priok are constructed. The average speed on the access road between Cikarang and Tanjung Priok is set at 22.3km/h. Speed on the access road to Cilamaya Port is assumed to be 45km/h. We assume the same shipping access from/to Cilamaya Port to/from other domestic/international ports as those from/to Tanjung Priok port. Because of

this traffic mitigation, the average speed on the section of toll-way between Bekasi and kilometer-68 is improved to 24km/h. The speed of the other JABODETABEK area worsens to 12km/h.

### **Scenario 2 (Only Cikarang-Tanjung Priok Access Road is constructed)**

In 2015, the average speed of trucks becomes 15km/h in the JABODETABEK area and the Jakarta-Cikampek toll-way up to kilometer-68 because of heavy traffic congestion.

In 2020, only the access road between Cikarang and Tanjung Priok is constructed. The average speed on this access road is set at 22.3km/h. The speed achieved in the JABODETABEK area, including the Jakarta-Cikampek toll-way, worsens to 12km/h.

### **Scenario 3 (No construction of Cilamaya Port or the access road between Cikarang and Tanjung Priok)**

In 2015, the average speed of trucks becomes 15km/h in the JABODETABEK area and the Jakarta-Cikampek toll-way up to kilometer-68 because of heavy traffic congestion.

In 2020, with no infrastructure construction, the speed in the JABODETABEK area, including the Jakarta-Cikampek toll-way, worsens to 12km/h.

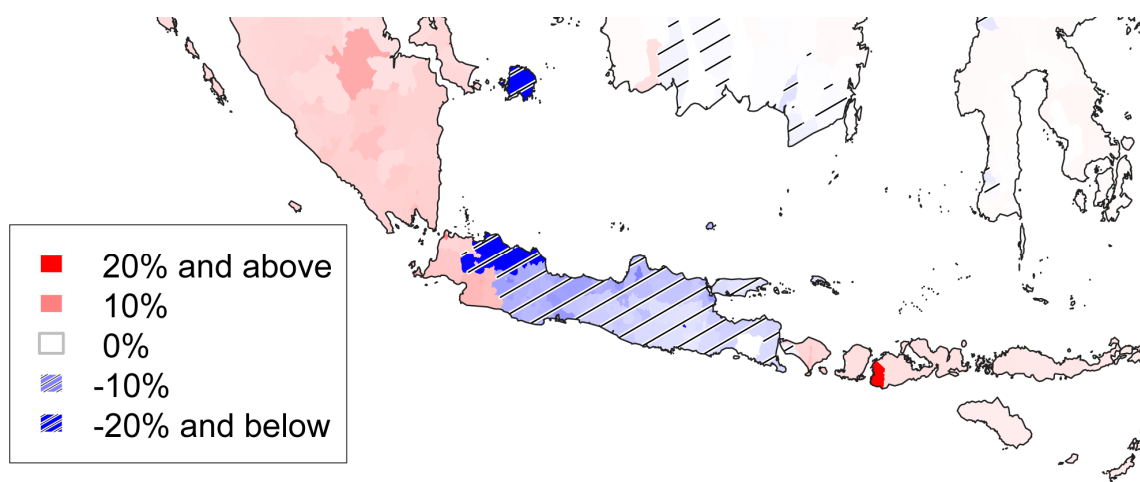
What will happen in the model if neither Cilamaya Port nor the access

road between Cikarang and Tanjung Priok is constructed? First, firms in the congested Jakarta area will incur larger time costs, leading to lower profitability. Second, workers' wages fall, resulting in lower consumer expenditures. Lower income and consumption in the Jakarta area decrease the attractiveness of the area for firms and consumers, leading to lower inflows of firms and households and smaller changes in industry structure. Higher transport costs due to traffic congestion also impede consumers wishing to purchase various products from various regions, where it also decreases the income inflow of households. Those impede GRDP and per capita GRDP growth in the regions and may also slow down the GDP growth of the whole country.

### **3. Simulation Results**

Figure 3 shows the economic impacts of Scenario 3 compared with the baseline, i.e., the economic impacts of not having Cilamaya Port or the access road between Cikarang and Tanjung Priok. The economic effects are measured as the percentage of cumulative gains/losses between the two scenarios in regional GDP over 10 years (2021-2030), vis-à-vis the baseline level of regional GDP in 2010. In figure 3 the red regions will have positive economic impacts while the blue regions will have negative impacts, compared with the baseline scenario. The simulation result suggests

**Figure 3. Economic Impacts of not having Cilamaya Port or Cikarang-Tanjung Priok Access Road (cumulative of 2021-2030, compared with the GRDP in 2010)**



Source: IDE/ERIA-GSM 5

that the regions of Java which are east of Jakarta will suffer from the lack of the Cilamaya Port and the access road between Cikarang and Tanjung Priok, while other regions, especially Sumatra, will benefit if they are not built. Some firms and households will not move from Sumatra to Java because the attraction of Java is reduced due to the heavier traffic congestion, and Sumatra will therefore be slightly better off if neither Cilamaya Port nor Cikarang-Tanjung Priok Access Road is constructed.

Turning to the Indonesian economy as a whole, the simulation result shows that Indonesia will lose its GDP in 10 years by 12.1% of the GDP in 2010 if neither Cilamaya Port nor Cikarang-Tanjung Priok Access Road projects is completed. In other words, Indonesia as a country will fail to achieve GDP growth by 8.57 billion USD every year on average (85.7 billion USD over the 10 years from 2021 to 2030). The result thus makes it clear

that a delay in the construction of Cilamaya Port and the Cikarang-Tanjung Priok Access Road will severely impede the economic development of Indonesia.

Scenario 2, in which only the Cikarang-Tanjung Priok Access Road is completed in 2020, shows 9.54% of negative impact between 2021 and 2030, compared with the baseline scenario. Indonesia's GDP growth will be reduced by 6.74 billion USD every year on average (67.4 billion USD over the 10 years from 2021 to 2030), in the absence of Cilamaya Port. The result clearly tells that construction of the Cikarang-Tanjung Priok Access Road has a positive effect on the Indonesian economy but less than the impact of both projects taken together. Delay in construction of Cilamaya Port will therefore slow down the economic development of Indonesia to a large extent (Table 1).

The automotive industry will have a 5.39% loss in terms of the



**Table 1. Economic Impacts on Indonesian Economy**

Scenario	Economic Impacts (2010 prices)
Scenario 2: Only Cikarang-Tanjung Priok Access Road completed	Loss of Indonesian GDP of 6.74 billion USD every year
Scenario 3: Neither project completed	Loss of Indonesian GDP of 8.57 billion USD every year

*Note:* Compared with the Baseline where we have both Cilamaya New Port and Cikarang-Tanjung Priok Access Road.

*Source:* IDE/ERIA-GSM 5.

percentage of the GDP in 2010 when we compare Scenario 3 with the baseline scenario, which is a smaller percentage drop than the overall impact on GDP. This is because the existing automotive cluster along the Jakarta-Cikampek toll-way is too stable for the firms to move out from their existing sites. Companies in the sector even consider building new factories in the area along the toll-way, despite the traffic congestion that would impede their just-in-time production. However, the services and other sectors will have larger negative impacts, and the lack of the two projects will slow down industrial upgrading and shift from manufacturing to the services industry, and thus decrease GDP compared with the case where both Cilamaya Port and the Cikarang-Tanjung Priok Access Road are completed. As a consequence automotive sales in Indonesia are reduced.

#### **4. Policy Recommendations**

The simulation results by IDE/ERIA-GSM provide policy recommendations as follows:

1. We should be aware that the traffic congestion in Jakarta and on the Jakarta-Cikampek toll-way is a critical issue for Indonesia. Constructing the Cikarang-Tanjung Priok Access Road and Cilamaya Port will bring significant benefits to the country.
2. We should develop a better public-private partnership (PPP) scheme in constructing a new access road, so as to minimize delays in its construction. Even though it is necessary to expand private participation in many infrastructure projects, scheme setting, coordination, and monitoring of the projects should be carried out by the Government.
3. A better balance must be achieved between high economic growth and inclusive development in the country. Cilamaya Port and the access road between Cikarang and Tanjung Priok will contribute to Indonesia as a whole, even though they also bring some negative impacts on Sumatra, if we have no other infrastructure project such as Trans-Sumatran highway. As the CADP claimed, better infrastructure

projects in a primary city and connectivity between the primary city and other cities will contribute to both high economic growth and inclusive development. The simulation result in this study also demonstrates that appropriate and strategic implementation of the MP3EI is necessary, in addition to key infrastructure projects like Cilamaya Port and the Cikarang-Tanjung Priok Access Road, in order to distribute the benefits of economic growth to the whole country.

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<sup>1</sup> Investor Daily, July 25, 2012.

<sup>2</sup> Bisnis Indonesia, March 4, 2012.

<sup>3</sup> We adopted the average speed in our scenarios from the traffic flow estimation by Mitrapacific Consulindo International (2012).

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