

CHAPTER 5 VISION TOWARDS THE YEAR 2030

5.1 STRENGTHS AND WEAKNESSES OF JABODETABEK MPA

5.1.1 Strengths, Weaknesses, Opportunities, and Threats (SWOT) Analysis

This section discusses the strengths and weaknesses determined through the SWOT analysis. The SWOT analysis looked into the target area, which is JABODETABEK MPA. Favorable and unfavorable conditions for JABODETABEK MPA were scrutinized as “Strengths” and “Weaknesses”. Favorable and unfavorable conditions outside JABODETABEK MPA, i.e., in surrounding areas such as the whole of Indonesia or Southeast Asia and beyond, were summarized as “Opportunities” and “Threats”, as shown in Figure 5.1.1.



Source: MPA Study Team

Figure 5.1.1 SWOT Analysis Framework

5.1.2 Strengths and Weaknesses of JABODETABEK MPA

(1) Strengths of JABODETABEK MPA

The strengths of JABODETABEK MPA in terms of investment and industry and the possible strategies to enhance them are summarized in Table 5.1.1.

Table 5.1.1 Strengths of JABODETABEK

Strengths	Strategies to Enhance Strengths
<ul style="list-style-type: none"> • Importance as the political and economic capital city of Indonesia; • Largest urban center of Indonesia with a population of 28 million; and • JABODETABEK is a composite of multiple cities/urban centers with characters separated by greenery. 	<ul style="list-style-type: none"> • Maintain and enhance dispersed, multi-core urban structure; • Create a new “growth pole” in JABODETABEK to activate suburban areas; and • Preserve existing greenery and agricultural lands, and enhance greenery in the city.

Source: MPA Study Team

JABODETABEK denotes the urban region surrounding DKI Jakarta (the Special Capital Territory of Jakarta), which consists of Jakarta, Bogor, Depok, Tangerang, Tangerang Selatan and Bekasi. As discussed earlier, JABODETABEK has a total population of 28 million in 2010, and spreads over an area of 6,392 km². Of this, DKI Jakarta has a population of 9.6 million in 2010 over an area of 664 km². In other words, DKI Jakarta accommodates about one quarter of the population of JABODETABEK in about 10% of its total area.



Source: MPA Study Team

Figure 5.1.2 Symbol of Jakarta: MONAS

While the population density of DKI Jakarta at 14,500 persons/km² is one of the highest among the ASEAN capital cities, that of JABODETABEK at 4,400 persons/km² is still low. This indicates that although DKI Jakarta is getting close to having an upper maximum population density, there may be ample space in its suburbs for further expansion. Suburban areas of JABODETABEK are still endowed with plenty of greenery and farmland particularly in the fringe of DKI Jakarta, and in between urban centers.

There seem to be few possible strategies to enhance the strength of JABODETABEK. First, the spatial characteristics of JABODETABEK as a dispersed, multi-core urban system must be maintained and further enhanced. As seen in a number of megacities in the world, the continuous agglomeration of a large population in a mono-centric urban system will result in extensive concentration of economic activities, and thus serious traffic congestion and escalation of property values. These urban problems would harm the sound growth of the city. The natural strength of the dispersed and multi-core urban structure will serve as an advantage to JABODETABEK.

In order to achieve this, the sub-center function in urban centers such as Bekasi, Tangerang, Tangerang Selatan, Depok, and Bogor has to be reinforced so that they could act as regional urban cores in the surrounding suburban areas. As each of the abovementioned city differs in history and character, the direction for growth has to be considered specifically for each. In addition, the existing greenery and farmland in between must be preserved in order for JABODETABEK to be of interest as a green and “eco-friendly” city, and also prevent the continuous agglomeration of urban areas.

(2) Weaknesses of JABODETABEK MPA

The weaknesses of JABODETABEK MPA in terms of investment and industry and possible strategies to eradicate such weaknesses are summarized in Table 5.1.2.

Table 5.1.2 Weaknesses of JABODETABEK

Weaknesses	Strategy to Eradicate Weaknesses
<ul style="list-style-type: none"> • Pertinent traffic jam particularly around Tanjung Priok Port and Central Jakarta; • Overpopulation at existing urban areas; • Shortage of electric power and water supply (in the future); • Water pollution (including saltwater intrusion) and solid waste; and • Vulnerability to disasters (occasional flooding, etc.). 	<ul style="list-style-type: none"> • Facilitate smooth and uninterrupted logistics flow between airport/seaport, and city/industrial estate; • Promote public transport; • Improve infrastructure (water supply, power supply, etc.); • Enhance environmental management (sewerage and solid waste); and • Increase disaster resistance of the capital city.

Source: MPA Study Team



Source: MPA Study Team

Figure 5.1.3 Weaknesses of JABODETABEK (Left: Traffic congestion, Right: Flood)

JABODETABEK experiences a serious and chronic traffic problem due to the increasing number of vehicles and limited expansion of road network as illustrated in Figure 5.1.3. Traffic jam often occurs in the city center and around Tanjung Priok Port, causing an enormous economic loss to the private sector. In order to eradicate this, the improvement and expansion of road networks to enable uninterrupted logistics and traffic flow have to be carried out. In addition, as the city’s population grows fast and large, the introduction of a public transport system such as a mass rapid transit (MRT) is urgently needed.

The shortage of electricity is a weakness in JABODETABEK, as experienced widely in a recent planned outage of electric power that affected the city’s economic activities seriously. Also, the potential shortage of water supply is a concern in the future as the population and economic activities in JABODETABEK are growing rapidly. These issues need to be matched with accelerated improvement of economic infrastructure in relevant fields.

Sewerage is very limited in JABODETABEK. Also, the collection and proper disposal of solid waste are still relatively limited. There should be more effort on environmental management since this will be crucial for its sustainable development.

Vulnerability to natural disasters, particularly flooding, is a widely felt weakness of JABODETABEK. Extensive flooding that occurred in 2002 and 2007 inundated widespread low-lying areas of JABODETABEK, which caused enormous economic loss to enterprises

and citizens. As the capital city of Indonesia, JABODETABEK must be more resilient against natural disasters particularly flooding. Also, risk of an earthquake in Sunda Straight that may affect JABODETABEK has been reported to be a potential hazard. Therefore, disaster resilience of the capital function has to be improved for a secure and safe capital metropolis.

Comparisons of the area and population between DKI Jakarta and Tokyo Special Ward as well as between JABODETABEK MPA and Tokyo Metropolitan area are presented in Table 5.1.3.

Table 5.1.3 Area and Population Distribution in DKI Jakarta, JABODETABEK MPA, Tokyo Special Ward and Tokyo Metropolitan Area

	Area	Population
DKI Jakarta	662 km ²	9.5 million (2011)
Tokyo Special Ward	621 km ²	8.8 million
JABODETABEK	6,329 km ²	28 million
Tokyo Metropolitan Area	8,014 km ²	32 million

Source: TANAKA Takaya, Chief Advisor, JICA, The Project for Capacity Development of Jakarta Comprehensive Flood Management with modification of population by the MPA Study Team

(3) Opportunities of JABODETABEK MPA

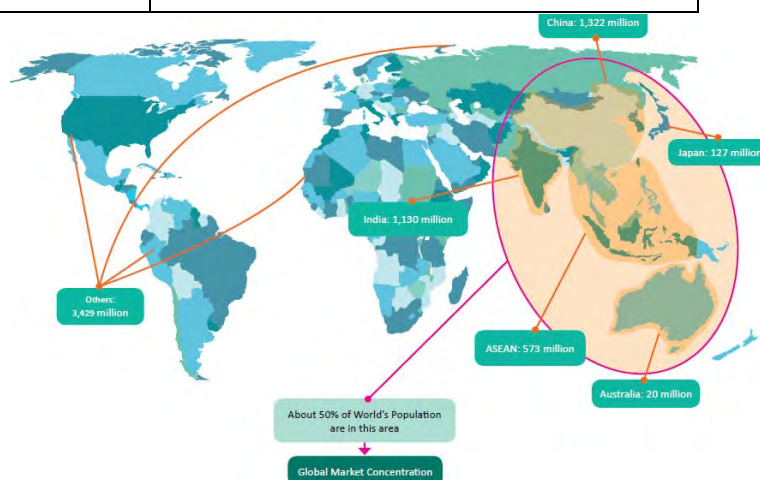
The opportunities, which denote favorable conditions surrounding JABODETABEK MPA including in and beyond Indonesia, and possible strategies to prepare for them are summarized in Table 5.1.4.

Table 5.1.4 Opportunities of JABODETABEK

Opportunities	Strategies to Prepare for Opportunities
<ul style="list-style-type: none"> Large population, strong economy, and abundant natural resources; and Huge potential market of ASEAN and beyond (including Japan). 	<ul style="list-style-type: none"> Improve regional connectivity by improving the road network; and Enhance international and domestic gateway functions through air and sea transport means (airport and seaport).

Source: MPA Study Team

The opportunities of JABODETABEK primarily lie in the enormous market of Indonesia. The population of Indonesia in 2010 was 238 million, which was the fourth largest in the world. Its economy was strong and robust, with an annual average growth rate of about 4-7% for



Source: MP3EI

Figure 5.1.4 Average Economic Growth Rates

the last ten years.

Indonesia is located in the center of Southeast Asia, which has a total market size of 573 million. In combination with China, India, Japan and others, the total market size of this region sums up to about half of the world’s population.

Connectivity will be a key concept to prepare for this opportunity, both domestically and internationally. Improving connectivity through road networks and promotion of high-grade gateway functions by air and sea will be essential and imperative, so as to closely connect the large potential of JABODETABEK to other regions of Indonesia domestically, and further to neighboring countries in Southeast Asia and beyond. In this regard, the improvement of the existing international seaport at Tanjung Priok and future development of a new seaport will be essential for accelerating the smooth flow of goods in the capital area. Also, the existing Soekarno-Hatta International Airport in JABODETABEK needs to be expanded further, followed by the development of a new international airport soon afterwards.

(4) Threats Surrounding JABODETABEK MPA

The threats, which denote unfavorable conditions surrounding JABODETABEK MPA including those in Indonesia and beyond, and possible strategies to counter these are summarized in Table 5.1.5.

Table 5.1.5 Threats Surrounding JABODETABEK

Threats	Strategies to Counter Threats
<ul style="list-style-type: none"> • Low competitiveness of Indonesia for FDI; • Insufficient infrastructure; • Weak technology and innovation; • Acceleration of investment to neighboring countries, such as Vietnam and India; and • Risk of global warming. 	<ul style="list-style-type: none"> • Encourage high-tech, high-value, and innovative industries in investing in JABODETABEK area; • Improve infrastructure strategically; • Promote human resources development through industry– university collaboration; and • Need to adapt to low-carbon society.

Source: MPA Study Team

The attractiveness of Indonesia for the Foreign Direct Investment (FDI) is still relatively low. The impediments to FDI are said to be, among others, insufficient infrastructure and weak preparedness in technology and innovation. Other nations such as Vietnam and India are attracting FDI more aggressively than Indonesia, posing a latent threat to JABODETABEK in terms of seeking and attracting more FDIs.

In order to counter this, it will be imperative to accelerate the promotion of more high-tech, high-value, and innovative industries to locate in JABODETABEK area. The Special Economic Zone (SEZ) strategy, as discussed in the SEZ Master Plan by JICA, to promote such advanced branches of industries with designated incentives may be an option to be

taken. Promoting more “industry–university collaborations” will be important as well, to encourage enterprises to conduct more Research and Development (R&D) activities.

5.2 LESSONS LEARNED FROM OTHER COUNTRIES

Before discussing the visions, attention will be given to lessons learned from other countries, including Japan, with respect to some of the issues raised above as a reference for the MPA vision to be discussed later.

(1) Natural Disasters Experienced in Japan

In recent years, “The Southern Hyogo Prefecture Earthquake in 1995” and “The 2011 off the Pacific Coast of Tohoku Earthquake” have caused serious losses in Japan (Figure 5.2.1).

<p>1-1 Disaster Management Center (Tokyo Metropolitan Gov.)</p> 	<p>1-2 Highway Fallen Down (Great Hanshin Earthquake)</p> 
<p>Headquarters of the Emergency Management Center must be built in a safe and secure setting. Source: http://www.bousai.metro.tokyo.jp/</p>	<p>Trunk logistics/transport network must be built to be strong and disaster resilient. Source: http://www.city.kobe.lg.jp/</p>
<p>1-3 Sendai Airport Damaged by Tsunami (Tohoku Earthquake)</p> 	<p>1-4 Low-lying Area Swollen by Tsunami (Tohoku Earthquake)</p> 
<p>Gateways (airport and seaport) may be dual so that closure of one could be supplemented by the other. Source: http://www.kaiho.mlit.go.jp/</p>	<p>Low-lying areas along the coast may be affected by tsunamis. Source: http://www.pref.miyagi.jp/</p>

Figure 5.2.1 Experience of Natural Disasters in Japan

One of the lessons learned from these events was the necessity to have a secured infrastructure. In the event of an extensive natural disaster, land infrastructure such as highways and roads must be maintained for use, and administrative functions must be kept functional so as to serve as an emergency response center for rescue and recovery operations.

Also, gateways such as airport and seaport are essential to emergency response operations shortly after a disaster and recovery. A lesson learned from disasters in Japan was that the essential gateway functions should have redundancy – meaning that the loss of one facility is backed up by another.

(2) Air Front Development in Texas, USA – Las Colinas

Las Colinas is a successful air front business park development in the vicinity of Dallas-Fort Worth Airport in Texas which is one of the major international airports of the USA (Figure 5.2.2).

The large development was planned to be launched between the new international airport and the City of Dallas. Las Colinas now houses about 2,000 prominent enterprises such as AT&T, Citigroup, and General Motors, together with hotels, commercial buildings, and residential units.



Figure 5.2.2 Air Front Development in U.S.A

(3) Air Front Development – Pudong, Shanghai, China

Pudong Shanghai Airport was opened in 1999 as a new international airport of Shanghai to supplement the existing Hongqiao Airport. Now, Pudong in Shanghai, China, has a successful air front economic zone development with a large international hub airport. More than half of the world's top 500 companies are located in the said economic zone (Figure 5.2.3).

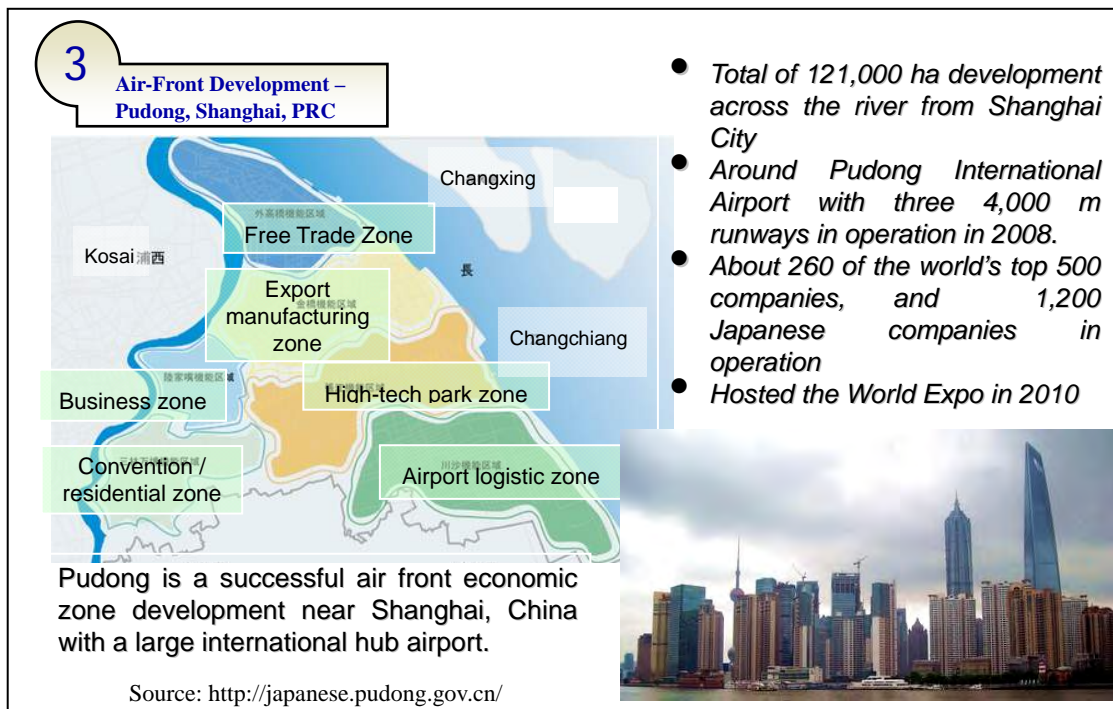


Figure 5.2.3 Air Front Development in China

(4) Science City Development, Kansai Science City, Japan

Promoting advanced science and technology is a key factor for Jakarta Metropolis. Among a the number of successful examples of such endeavors is the Kansai Science City, which is located in the Kansai Region of Japan, as shown below. Kansai Science City started in 1976 with a target to create a new center for culture, science, and research (Figure 5.2.4).

Within its total area of 15,000 ha, 12 townships with cultural/academic research centers are to be developed. As of now, there are about 100 research institutions located in Kansai Science City.




Figure 5.2.4 Science City Development in Japan

(5) Cyber City Development, Eastwood City CyberPark, Quezon City, Philippines

Eastwood City Cyber Park in Quezon City, Metro Manila, Philippines is a relatively small but interesting example of high-tech business development. This 15 ha business and residential zone was designated as an information and technology (IT) park by the Philippine Economic Zone Authority (PEZA) with special incentives. This business park now houses companies such as IBM, Citibank, Trend Micro, and Canon (Figure 5.2.5).

5

Eastwood City CyberPark,
Quezon City, Philippines



Eastwood City Cyber Park is a successful business park registered by PEZA as an IT park with designated incentives.

- A 15 ha development located in Quezon City, Metro Manila, the Philippines
- Partly financed by IFC, World Bank Group
- Divided into three main blocks: (i) the corporate block; (ii) the leisure and entertainment block; and (iii) the IT school building.
- Houses IBM, Citibank, Trend Micro, Canon, eTelecare, and TOEI Animation

Source: <http://eastwood-properties.com/>

Figure 5.2.5 Cyber City Development in the Philippines

(6) MRT for Traffic Congestion in Bangkok, Thailand

Bangkok was notorious for traffic jams due to the lack of public transportation. The operation of Bangkok's Skytrain started in 1999, and the MRT Blue Line started in 2004. Alleviation of traffic congestion is expected in the near future once the mass transit service is fully operational (Figure 5.2.6).

6

MRT for Traffic Congestion in
Bangkok, Thailand



Bangkok MRT provides mass transit services to the public with a safe, convenient, fast, reliable, and punctual metro system to alleviate traffic congestion, maintain the environment, and improve the quality of life.

- 20 km, 18 stations
- Operating Hours:
06:00 AM to 12:00 AM daily
- Frequency
 - Less than five minutes during peak hours 06:00-09:00 AM and 04:30-07:30 PM
 - Less than ten minutes during off-peak hours
- Maximum of 19 serviced rolling stocks
- Two park and ride buildings
- 11 parking areas (2,621 spaces)


Source: <http://www.bangkokmetro.co.th/>

Figure 5.2.6 Metro for Solving Traffic Congestion in Bangkok

(7) New Administrative Center in Putrajaya, Malaysia

The locations of national governmental offices are scattered in Kuala Lumpur, Malaysia. Moving from one government office to another was hard due to traffic congestion. In order to alleviate traffic congestion and achieve efficient government operation, administrative functions were relocated to the new City of Putrajaya, which is located to the south of Kuala Lumpur (Figure 5.2.7).

7 New Administrative Center in Putrajaya, Malaysia



- Relocated to attain efficient government operations and mitigate traffic congestion in Kuala Lumpur
- Access: 25 km south of the national capital, Kuala Lumpur and 20 km from Kuala Lumpur International Airport (KLIA)
- Connected to Kuala Lumpur and KLIA by a high-speed rail link
- Electronic government (e-government) equipped with the latest telecommunications technologies was established
- Total area is 4,851 ha and 38% of the area is reserved for green spaces


Source: <http://www.malaysiasite.nl/putrajayaeng.htm>

Figure 5.2.7 New Administrative Center in Malaysia

(8) Sub-center Development, Yokohama MM21, Yokohama City, Japan

Minato Mirai 21 (MM21) is a successful model of sub-center development. The MM21 functions as a sub-center of Central Tokyo by introducing a variety of urban functions such as conventions, businesses, commerce, parks, and cultural activities (Figure 5.2.8).

8 Subcenter Development, Yokohama MM21, Yokohama City, Japan



- The land used to be a dockyard and marshalling yard for national railways
- Total land area is 186 ha. About 40% of the area is reclaimed land
- MM21 is a popular tourist destination, which was visited by about 58 million tourists a year as of 2010
- Multiple functions including conventions, businesses, commerce, parks, and cultural activities, with scenic landscape attract visitors
- Mitsubishi Heavy Industries, JGC, Nissan, Fuji Xerox, etc. are established in MM21

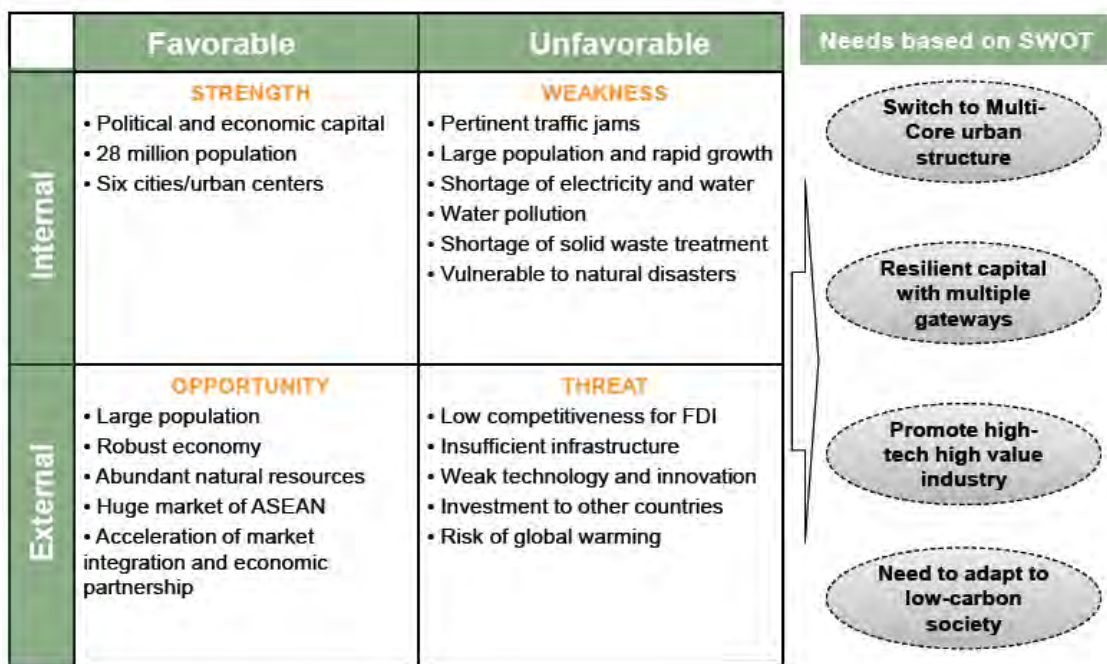
Source: <http://www.city.yokohama.lg.jp>

Figure 5.2.8 Sub-center Development in Japan

5.3 VISION 2030 FOR JABODETABEK MPA

(1) Summary of SWOT Analysis for JABODETABEK MPA

The SWOT analysis for JABODETABEK MPA revealed various issues which require action. The chart in Figure 5.3.1 summarizes the needs found by the SWOT analysis.



Source: MPA Study Team

Figure 5.3.1 Major Needs based on SWOT Analysis

The SWOT analysis generated the following four issues to be addressed:

Need 1: Switch to multi-core urban structure

The present condition of Jakarta Metropolis is affected significantly by excessive accumulation of population and businesses in the central city, which causes pertinent traffic jam, pollution of the environment, and vulnerability to natural disaster such as flooding.

Enhancing the sub-centers is considered to be an urgent need for Jakarta Metropolis, so that its satellite cities could be enlarged and become more activate. This will lead to the multi-core urban structure of Jakarta Metropolis.

Need 2: Resilient Capital with multiple gateways

As shown by extensive flooding in 2002 and 2007, Jakarta Metropolis could be affected heavily by natural disasters. As the capital city of Indonesia, Jakarta Metropolis needs to be resilient against flooding and other possible natural disasters. Even in the event of such disaster, the capital function has to be maintained without interruption. Thus, Jakarta

Metropolis has to be devised with multiple gateways including international seaports and airports as much as possible, so that the economy of Indonesia would not be affected by the disaster.

Need 3: Promote high-tech and high-value industry

The third need found in the SWOT analysis is to promote the location of innovative industry in JABODETABEK and to facilitate human resources development necessary for such innovation. This need also relates to the establishment of an institutional framework for the innovative industries such as SEZ for the nation as a whole and for the capital area. Also, the underlying issue is how to promote human resources development for research and innovation in the field of science and technology.

The keys to this issue include innovation and higher level of technology such as research and development and human resources development with industry–university collaboration.

Need 4: Need to adapt to low-carbon society

The risk of global warming is conceived widely throughout the world. As Indonesia is an island nation, the possible effects of global warming may be serious in the future. Also, Jakarta Metropolis has extensive low-lying areas vulnerable to flooding. Land subsidence is a continuing risk for the metropolis. Thus, there is a need to shift to a low-carbon society.

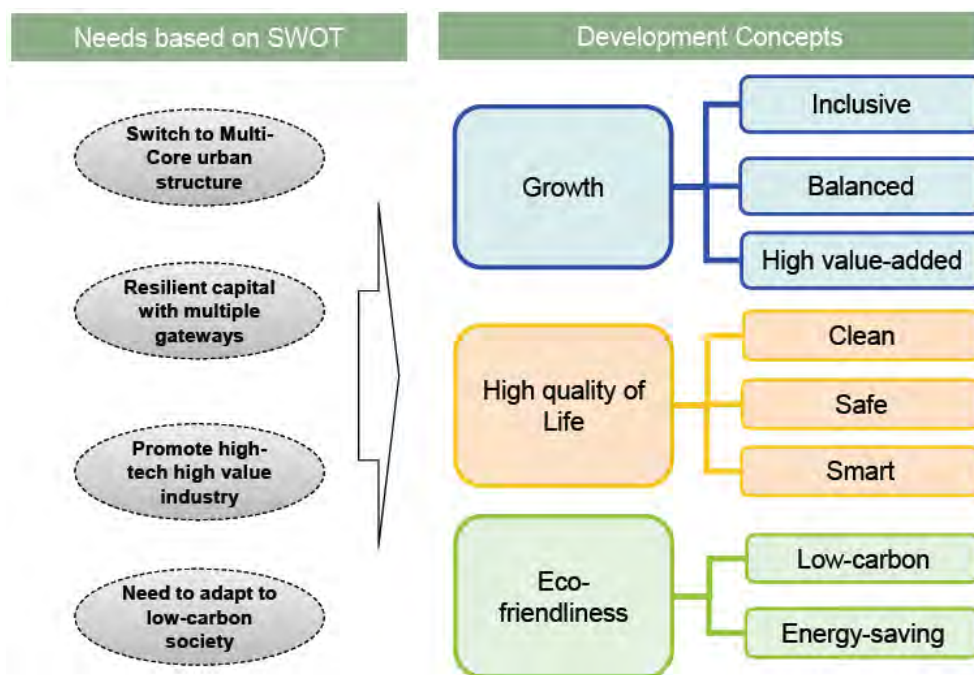
(2) Development Concepts of JABODETABEK MPA in 2030

Based on the above needs, the development concept of JABODETABEK MPA in 2030 is proposed as shown in Figure 5.3.2. The development concept has the following three pillars:

- **Growth:** Jakarta Metropolis needs to keep its growth as the engine of the entire republic. The growth must be inclusive and balanced in the sense that all segments in the society and all regions of the area will take part actively in the growth. At the same time, the engine of growth relies on high-value added industry, thus the promotion of high-tech, high-value industry will be important.
- **High Quality of Life:** Indonesia will transform into middle and upper middle economy in the near future, The achievement of high quality of life will be an important element of the vision for 2030. The primary aspect of the high quality of life rests in the cleanliness of the environment so that the life in Jakarta Metropolis is comfortable.

Also, the safety of life will be crucial for the people of Jakarta Metropolis – safety against natural disasters. In addition, “smart”, meaning intelligent in terms of systems and information technology will be a key word for the future.

- **Eco-Friendliness:** While global warming is considered as a risk for the world community, the island-nation of Indonesia shares the concern for the future and the eco-friendliness becomes a pillar in the vision. The path towards the low carbon and energy-saving society will be pursued for sustainable future of Jakarta Metropolis.



Source: MPA Study Team

Figure 5.3.2 Proposed Vision for JABODETABEK in 2030

(3) Strategies Under the Vision for JABODETABEK MPA in 2030

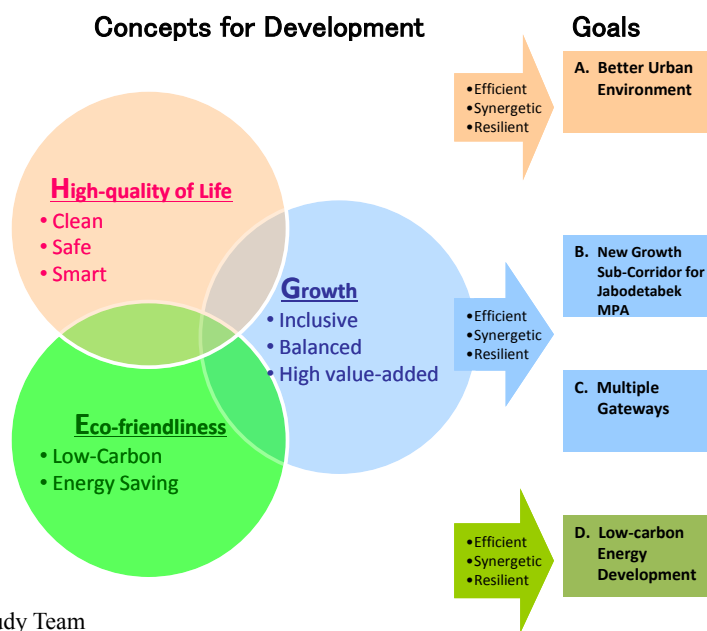
The above analyses are now bundled under four Jakarta Metropolis goals as shown in Figure 5.3.3.

The three development concepts, i.e. 1) Growth, 2) High quality of Life, and 3) Eco-friendliness, are translated into four goals to be achieved, namely a) Better Urban Environment, b) New Growth Sub-Corridor for JABODETABEK MPA, c) Multiple Gateways, and d) Low-carbon Energy Development.

- **Better Urban Environment:** High quality of life is to be realized by providing better urban environment in JABODETABEK MPA. Urban environment involves the living environment for citizens including local residents and visitors from outside. Better urban

environment is the living environment for all citizens of JABODETABEK MPA, embracing more comfortable, cleaner, safer, and smarter urban spaces. Mitigation of traffic congestion; prevention of flood; harmonization between urban space and natural environment such as green open spaces and waterways; prevention of pollutions including air, water, noise, odor; securing stable waters; etc., contribute to the creation of a better urban environment.

- **New Growth Sub-Corridor for JABODETABEK MPA:** Forming new growth sub-corridor for JABODETABEK MPA contributes in sustaining growth of not only JABODETABEK MPA but also the entire republic. The new growth sub-corridor is one of the newly shaped belt-like areas to encourage economic growth and to realize multi-core urban structure. The sub-corridor for JABODETABEK MPA is closely linked with the development of “c) Multiple Gateways” such as a new airport and a new seaport, mentioned below. The sub-corridor is to be shaped by promoting of high-tech high-value industry, enforcing research and development functions to support the industry, creating new township to complement urban functions of DKI Jakarta, undertaking infrastructure development such as road and railway, etc.
- **Multiple Gateways:** Creating multiple gateways is also conducive in keeping the growth of the entire republic as well as JABODETABEK MPA. Gateways are places, such as airports and seaports, that people and commodities can go through in order to reach other areas of the republic and other countries. Opening new gateways in addition to the existing gateways, which aims at realizing more smooth transport and logistic flow and more resilient capital functions of JABODETABEK MPA, is expected to support the growth. Creating multiple gateways involve the improvement of the existing airports and seaports, and the development of new airports and seaports.
- **Low-carbon Energy Development:** Low-carbon energy development is a development which realizes reduction of carbon dioxide emission by saving energy consumption. The development contributes to creating an eco-friendly society, in which the risk of global warming is minimized. Developments of low-carbon power supply and smart grid are the measures for low-carbon energy development.



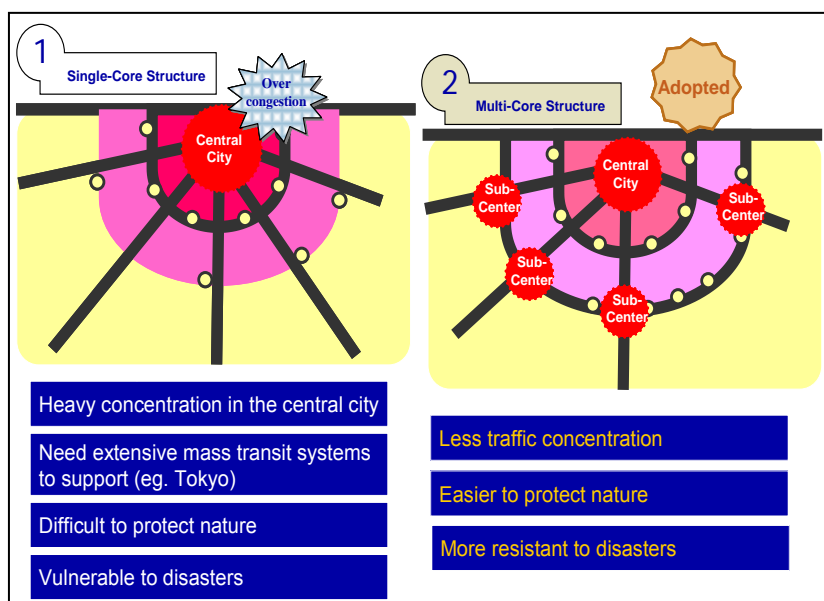
Source: MPA Study Team

Figure 5.3.3 Proposed Strategy to Realize the Visions for JABODETABEK in 2030

5.4 FUTURE SPATIAL STRUCTURE FOR JABODETABEK MPA REGION

(1) Options for the Urban Structure of JABODETABEK

The population density of DKI Jakarta at this stage is about 14,500 persons/km², which is among the highest in Asian countries. The modal share of train in DKI Jakarta is only 2%, which is very low to sustain such high population density. It means that further densification of DKI Jakarta may not be feasible.



Source: MPA Study Team

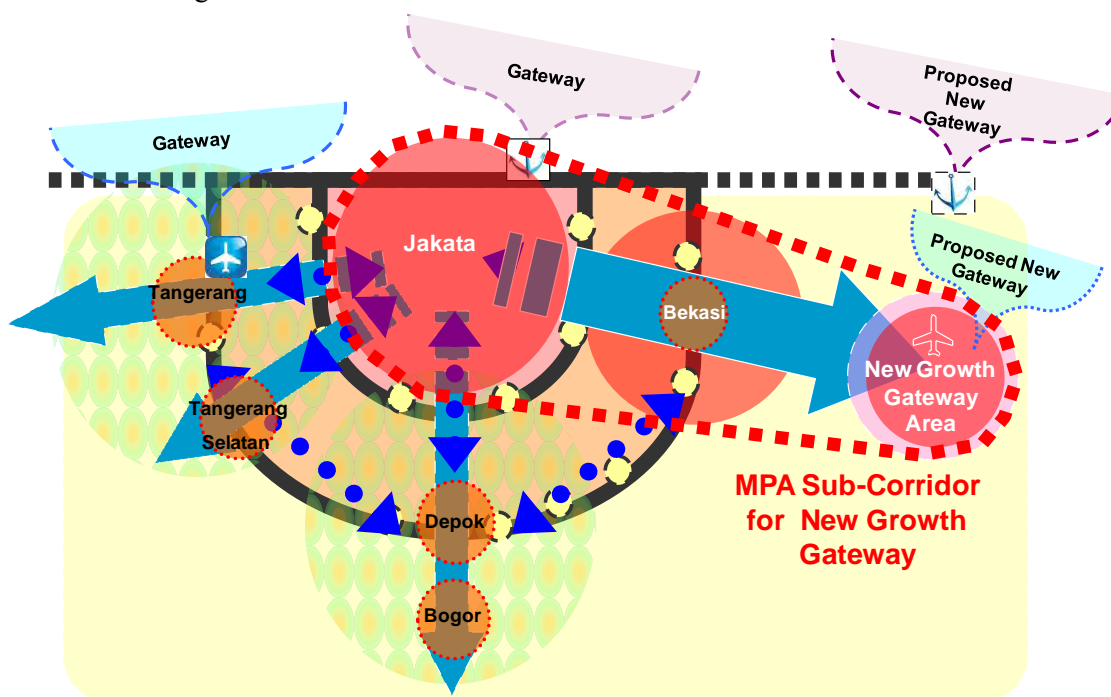
Figure 5.4.1 Comparison between Single-Core and Multi-Core

Thus, there could be essentially two possible options for the future urban structure of JABODETABEK. One is the monocentric structure with the central city growing towards its fringe. In this case, the flow of people and goods tends to concentrate in the central city, as shown in the left chart of Figure 5.4.1. Another option is the multi-core system, which

involves a central city and smaller sub-centers in its suburbs, as shown in the right chart of Figure 5.4.1. Since the size of JABODETABEK urban agglomeration is already very large (28 million population in 2010), and chronic traffic jam in the central city has already caused economic losses, the direction of a the monocentric urban structure is difficult to determine. Therefore, the multi-core structure is to be adopted as the future spatial structure for JABODETABEK MPA.

(2) Preferred Future Urban Structure of JABODETABEK

In addition to promoting the multi-core structure, enhancing the current spatial feature for each JABODETABEK city, conforming to the MPA objectives and vision, and preserving green open spaces are also significant in formulating the spatial structure. Bogor, Depok, Tangerang, Tangerang Selatan, and Bekasi are to be sub-centers having unique functions, such as tourism and convention functions for Bogor, research and development functions for Depok, residential functions through new town developments for both Tangerang and Tangerang Selatan, and industrial estates for Bekasi. Since promoting investment and industry is one of the objectives of the MPA Master Plan, encouraging development in and around Bekasi and creating a new growth pole of the MPA in a new township near Bekasi are emphasized in the future spatial structure. These relate to the existing industrial accumulation in the area together with ongoing discussions about the new airport and seaport as new gateways functions for the metropolis. The proposed future spatial structure is shown in Figure 5.4.2.



Source: MPA Study Team

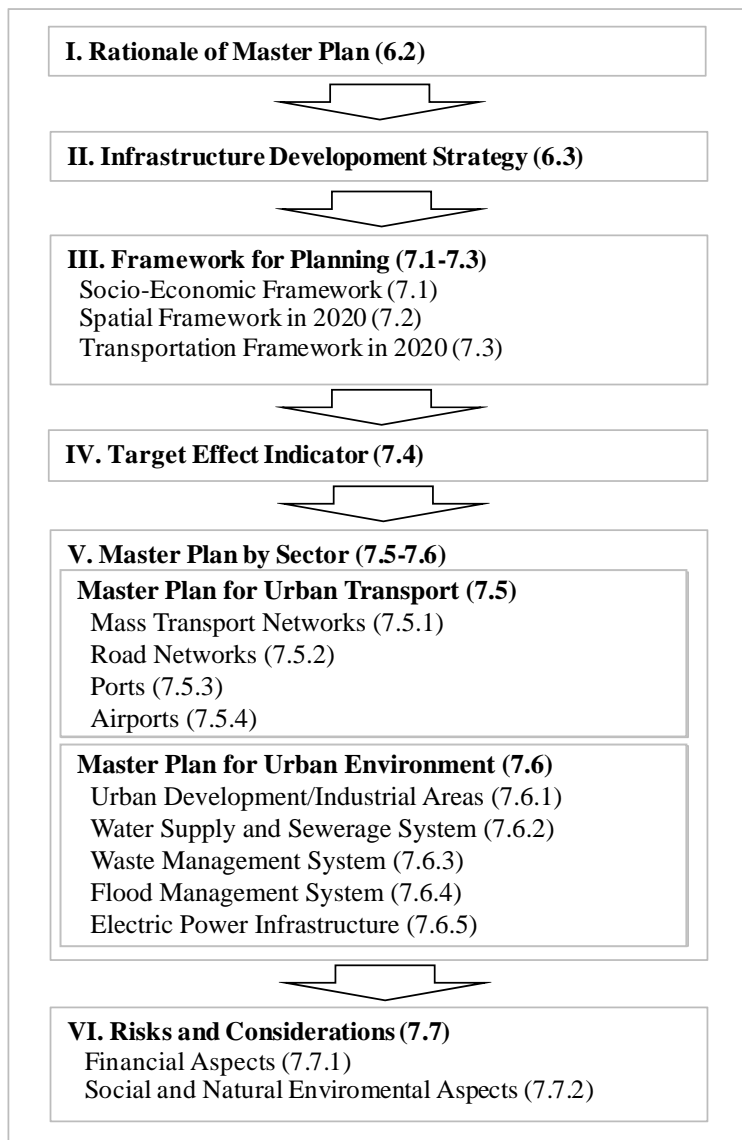
Figure 5.4.2 Schematic Future Spatial Structure

CHAPTER 6 STRATEGIES FOR MPA MASTER PLAN TOWARDS THE YEAR 2020

6.1 COMPOSITION OF MPA MASTER PLAN

This chapter and the next chapter cover the MPA Master Plan. The MPA Master Plan consists of six parts, namely: I) Rationale of Master Plan, II) Infrastructure Development Strategy, III) Framework for Planning, IV) Target Effective Indicator, V) Master Plan by Sector, and VI) Risks and Considerations.

Under the rationale of the Master Plan in Section 6.2, the superior development strategies and plans such as the National Long-Term Development Plans (RPJPN) and MP3EI are addressed. The position of MPA Master Plan among the superior development strategies and plans is also shown here.



Source: MPA Study Team

Figure 6.1.1 Composition of MPA Master Plan

The issues of infrastructure development were identified in the context of urbanization, investment, and industrial promotion in JABODETABEK MPA. The basic directions to overcome these issues were also shown in the Infrastructure Development Strategies.

Framework for planning from Section 7.1 to Section 7.3 shows preconditions for formulating master plans by sector. Preconditions in the planning process are population growth, demand of land area, person-trip demand, cargo demand, etc., in the target year of 2020.

Target Effective Indicators in Section 7.4 are the indicators by sector to be achieved through the implementation of the master plan towards the year 2020. The quantitative indicators are set, based on the framework.

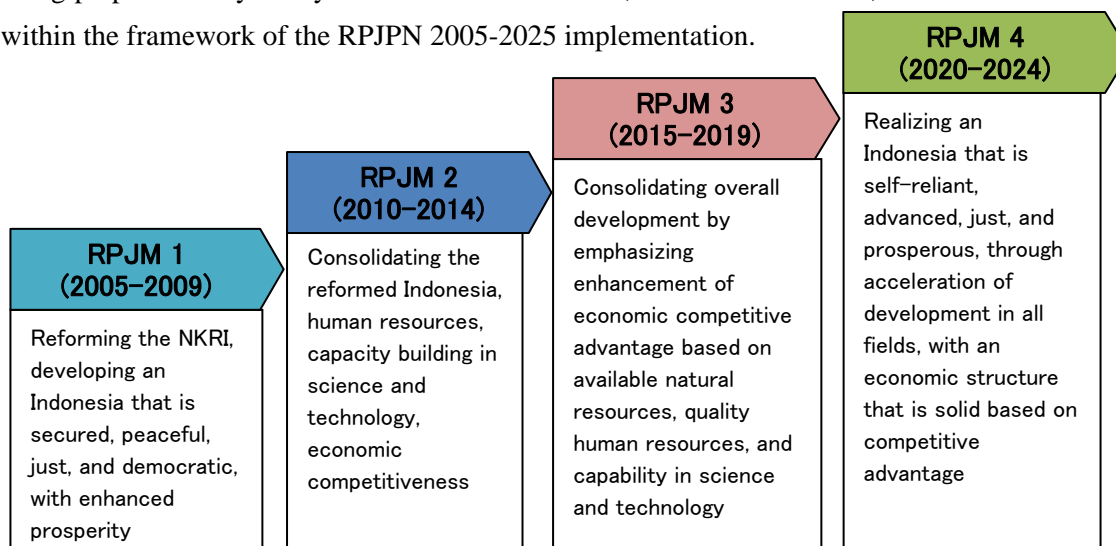
Master Plan by Sector from Section 7.5 to Section 7.6 shows the measures and projects to solve development issues mentioned in Section 6.3 and achieve the target effective indicators mentioned in Section 7.4. The sector is largely divided into urban transport sector and urban environment sector.

Risks and considerations in Section 7.7 show the hindrances in the implementation of the master plan and items to be considered for smooth implementation of the plan from the viewpoints of financial, social, and natural environment.

6.2 RATIONALE OF MPA MASTER PLAN

6.2.1 Development Plans and Strategies for Budgetary Procedure

The National Long-Term Development Plans (RPJPN) are Indonesia’s major policy documents which set out the direction toward the future. This RPJPN is prepared every five years, and the 2005-2025 version is the latest version legislated in 2007 as shown in Figure 6.2.1. Within the routine cycle of development plan preparation, Medium-Term Development Plans (RPJMN) are being prepared every five years. The current version, RPJMN 2010-2014, is the second version within the framework of the RPJPN 2005-2025 implementation.



Source: RPJMP 2010-2014

Figure 6.2.1 Contents of Four RPJMN as Stages of Development

The process for RPJPN and RPJMN preparation is followed by the annual procedure for the preparation of strategic plans (Rencana Strategis) by each government body. Annual national budget will be requested by the Minister of Finance (MOF) based on these strategic plans prepared by the ministries and other government organizations.

6.2.2 MP3EI as the Strategic Master Plan

The Master Plan for Acceleration and Expansion of Indonesia's Economic Development (Masterplan Percepatan dan Perluasan Pembangunan Ekonomi Indonesia – MP3EI) is the master plan prepared by the president to address the country's specific goals for the enhancement and acceleration of economic growth. The relation between MP3EI and RPJPN/RPJMN is therefore complementary. The MP3EI is intended to function as a complementary working document for RPJPN/RPJMN. The direction recommended in MP3EI is to transform Indonesia into a developed country by 2025 as shown in Figure 6.2.2.

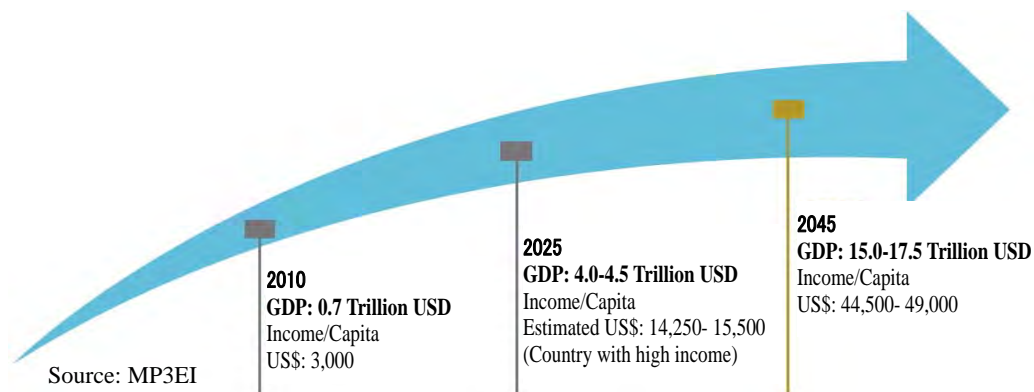
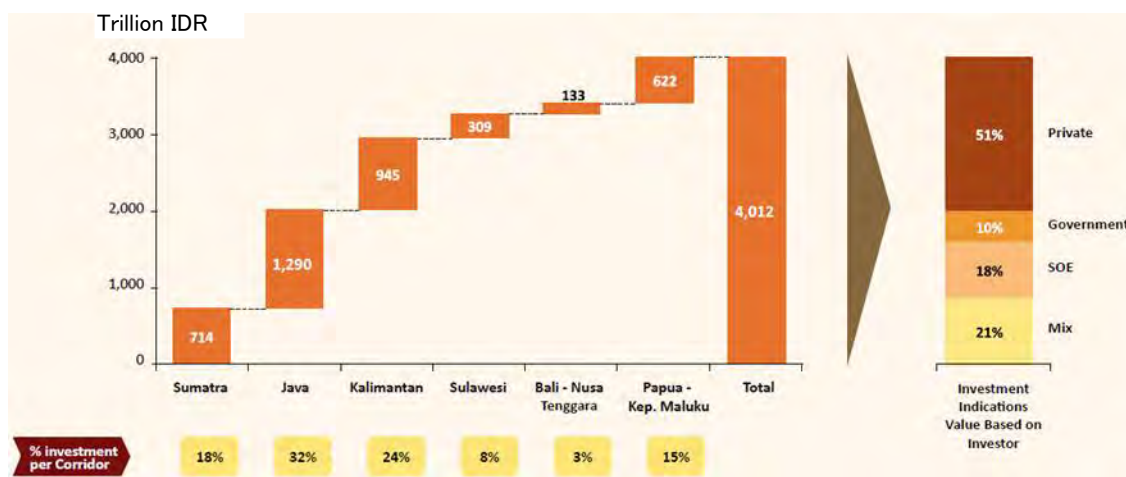


Figure 6.2.2 Economic Growth Targets in MP3EI

The implementation of MP3EI includes eight main programs consisting of 22 main economic activities. The implementation strategy of MP3EI will integrate the following three main elements:

- (1) Developing the regional economic potential of Indonesia's six economic corridors: Sumatra / Java / Kalimantan / Sulawesi / Bali – Nusa Tenggara / Papua – Kepulauan Maluku Economic Corridors;
- (2) Strengthening national connectivity, locally and internationally; and
- (3) Strengthening of human resource capacity and national science & technology capability to support the development of main programs of each economic corridor.

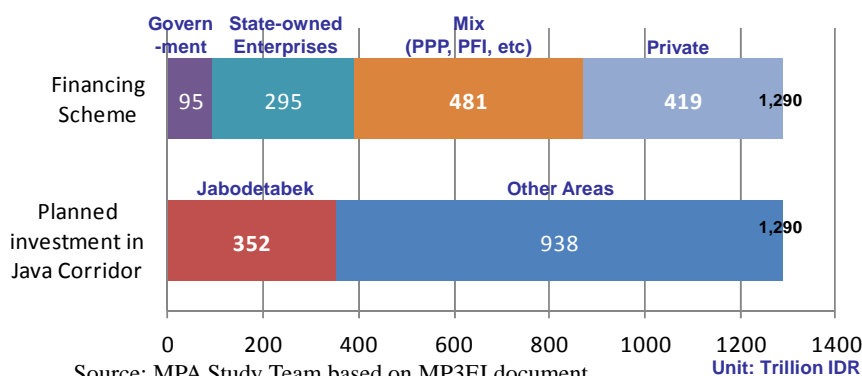
To support the development of the main economic activities within the corridors, the total investment value has been identified in MP3EI at about IDR 4,012 trillion. The government is expected to contribute roughly 10% of this cost in the provision of basic infrastructure such as roads, seaports, airport, railways, and power generation facilities. The remaining amount is expected to be financed by state-owned enterprises, private sector, and through PPP as shown in Figure 6.2.3.



Source: MP3EI

Figure 6.2.3 Distribution of Investment in the Six Economic Corridors of the MP3EI

Figure 6.2.4 shows the planned investment cost of IDR 1,290 trillion on Java Corridor by 2025. The proposed investment in JABODETABEK MPA is IDR 352 trillion.



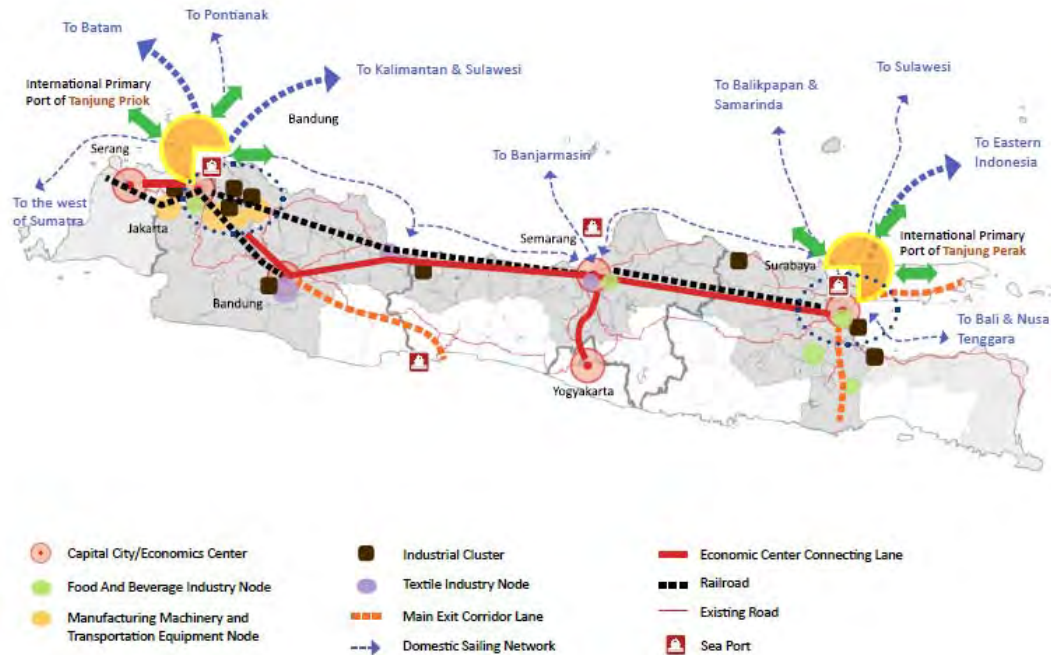
Source: MPA Study Team based on MP3EI document

Figure 6.2.4 Planned Investments in Java Corridor by 2025

6.2.3 Greater Jakarta and Java Economic Corridor in MP3EI

Among the six economic corridors identified in MP3EI, the Java Economic Corridor as shown in Figure 6.2.5 is the corridor that includes the metropolitan area of Jakarta or known as the “Greater Jakarta” area. The Greater Jakarta area as described in MP3EI, although not directly defined, corresponds to the JABODETABEK MPA.

Java Economic Corridor connects JABODETABEK MPA with Bandung, Semarang, and Surabaya, with Jakarta and Surabaya functioning as the main gateways to the rest of the areas.



Source: MP3EI

Figure 6.2.5 Java Economic Corridor in MP3EI

The Java Economic Corridor, under relatively favorable socio-economic conditions, has the potential to progress in its value chain from manufacturing-based economy to service-based economy. The corridor has the potential to serve as the benchmark for economic change, evolving from being focused on primary industry towards being more focused on tertiary industry. The issues identified for the Java Economic Corridor in MP3EI are as follows:

- (1) High GDP and prosperity gaps between provinces within the corridor;
- (2) Growth disparities throughout the value chain; the progress of the manufacturing sector is not followed by progress in other sectors;
- (3) Lack of domestic and foreign investments; and
- (4) Insufficient infrastructure.

Serious traffic congestions, low rate of access to safe and clean water, limited airport and seaport capacities, flood occurrences, and waste build-up in rivers are some of the challenges faced by JABODETABEK MPA. The development strategies specified in JABODETABEK MPA to overcome the challenges are shown in Table 6.2.1. The MP3EI also describes the vital projects under the strategy, such as the MRT North-South and East-West lines. These projects described in MP3EI were scrutinized and some were included as part of the priority projects identified in the JABODETABEK MPA master plan.

Table 6.2.1 Strategies to Overcome Developmental Challenges in JABODETABEK MPA

Category of Challenges	Strategy
High traffic congestion	Distribute business activities outside of DKI Jakarta to reduce the time of travel between business centers in the internal districts of JABODETABEK MPA;
	Development of a mass transportation system that is comfortable, safe and cheap, especially for commuters from the suburban areas (expected to reduce air pollution of more than 50 %) and with 40 % of the country's vehicles located in the JABODETABEK MPA, it will significantly reduce the amount of national subsidies on fuel. The money gained from subsidy reduction could be used by other regions in Indonesia that are more in need;
	Development of an interconnected mass transportation network that is easily accessible to all the activities around the business and government centers;
Limited airport and seaport capacities	Development of an efficient logistics network of production centers in the region and other inter-related production centers; and
Flood occurrence, and waste buildup in rivers	Development of sewerage and drainage systems that can address the deterioration of environmental quality (accumulation of garbage, informal settling and flooding).

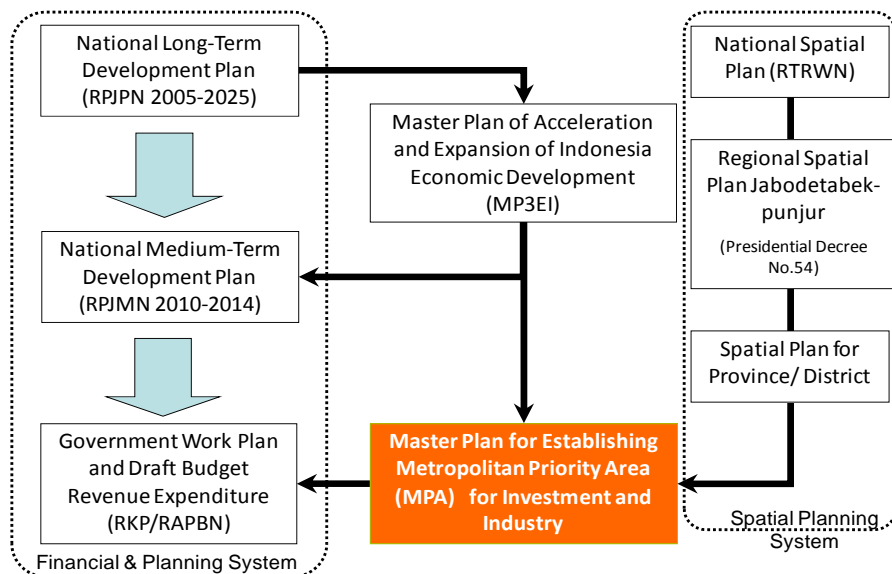
Source: Compiled from MP3EI document

JABODETABEK MPA, identified as Greater Jakarta in Java Economic Corridor, is expected to achieve robust economic growth and serve as stimulant for growth in other regions. With the lack of urban and industrial support infrastructures as the bottleneck for growth, the improvement of Jakarta's transport, housing, and industrial estates are the pressing issues for the capital. Furthermore, with regard to Jakarta's role in inducing economic ripple effects to the rest of the country, infrastructure development of Jakarta can be mentioned as a requisite condition in achieving the goals of MP3EI.

6.2.4 MPA Master Plan Contribution to the Achievement of MP3EI's Objectives

The master plan for establishing JABODETABEK MPA (MPA master plan) is in line with MP3EI as well as other existing superior plans in Indonesia as shown in Figure 6.2.6. The preparation of MPA master plan is aimed at following the orientation of MP3EI, which is positioned to encourage the realization of long-and medium-term national development plans. The objectives of the JABODETABEK MPA master plan include realization of the ideas in the plans by providing support for the development of government work plans and draft budgetary schemes at the national, provincial and regional levels.

Furthermore, the JABODETABEK MPA master plan is also found to be consistent with the spatial planning system (RTRW). Latest versions of the national, provincial, and regional spatial plans were taken into account in JABODETABEK MPA master plan.



Source: MPA Study Team based on MP3EI document

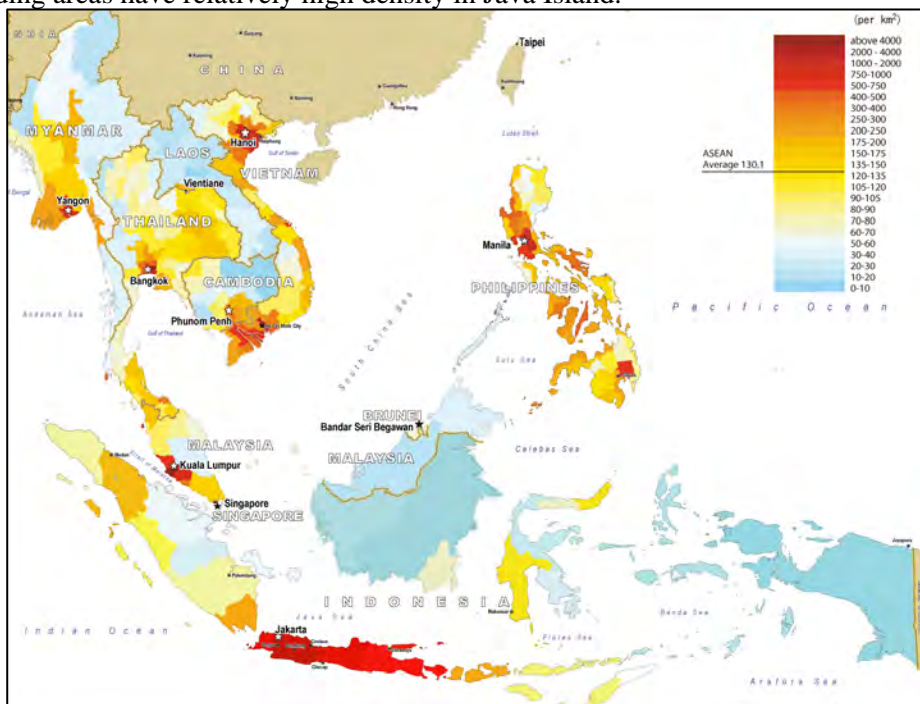
Figure 6.2.6 MPA Master Plan in line with MP3EI, Financial and Spatial Planning Systems

6.3 INFRASTRUCTURE DEVELOPMENT STRATEGY

6.3.1 Necessity of Infrastructure Development

(1) Infrastructure Development in the Context of Urbanization

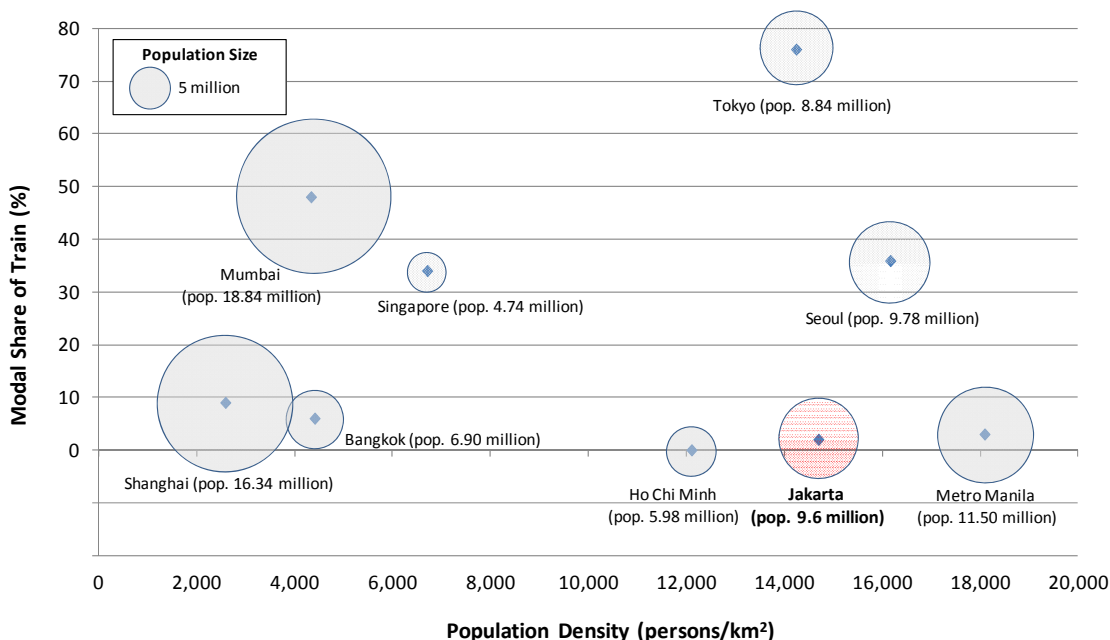
The population density of Indonesia, especially Java Island including the capital city of Jakarta, is higher than that of the other ASEAN countries as shown in Figure 6.3.1. Jakarta and its surrounding areas have relatively high density in Java Island.



Source: ERIA Study Team based on population statistics of each country

Figure 6.3.1 Map of Population Density in ASEAN Region

Figure 6.3.2 shows the population density and modal share of train for major cities in Asia. The population density of Jakarta is comparable to the metropolis in Asia such as Manila, Seoul, and Tokyo, but the modal share of train in Jakarta is much lower than that of Seoul and Tokyo, etc. This imbalance between high population density and low modal share of railroad in Jakarta manifests that urban transport development has not caught up with urbanization.

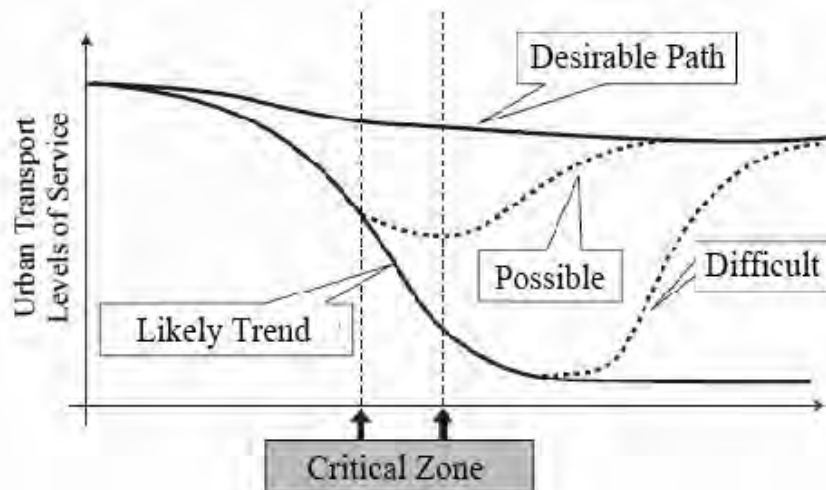


Source: MPA Study Team based on UN for population density and statistics of each country for modal share of train
Figure 6.3.2 Population Density and Modal Share of Train in Major Asian Cities

In general, uncontrolled urbanization and degradation of infrastructure services will be promoted and persist, when the timing to develop infrastructure is missed.

It is pointed out that a critical zone exists in the process of urbanization. The critical zone is the time after which a city has difficulty to improve its infrastructure service level. If infrastructure is not developed, the service level of existing infrastructure continues to deteriorate due to no response to the increasing demand of infrastructure caused by urbanization. This is called the “Likely Trend”. As shown in Figure 6.3.3, it will be difficult for newly developed infrastructure to cope with the urbanization since the timing of development is after the critical zone. It is because the development needs great amount of additional investment including land acquisition and resettlement cost.

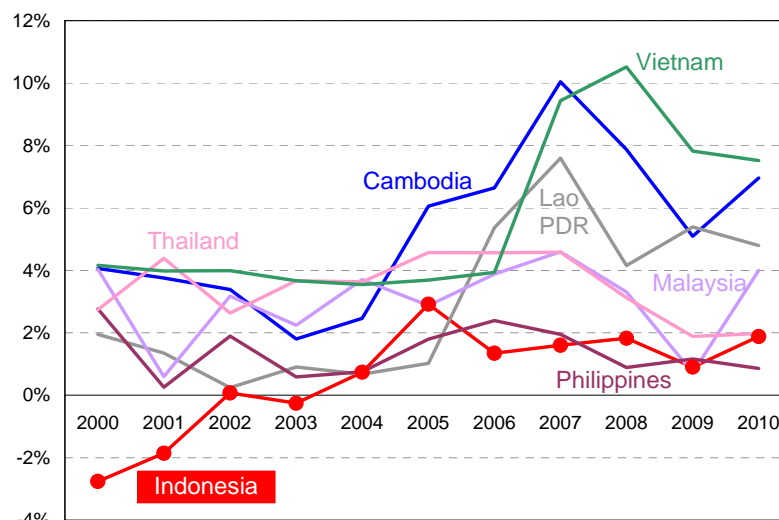
At present, the service level of infrastructure in Jakarta is on the line of “Likely Trend”. To improve urban transport level of service toward “Desirable Path” in Jakarta, infrastructure should be urgently developed.



Source: UTCE and ALMEC, Infrastructure Development and Service Provision in the Process of Urbanization
Figure 6.3.3 Path of Urban Transport Levels of Service in the Process of Urbanization

(2) Infrastructure to Attract FDI

Urgent infrastructure development is mentioned to improve urban transport levels of service in the previous sub-section. Necessity of infrastructure is also supported from the viewpoint of attracting foreign direct investments (FDIs). Indonesia is merely one of the various investment destinations for foreign investors, so Indonesia needs to provide a comprehensive investment portfolio to be more attractive to investors than any other countries to catch more FDIs. Since Indonesia is a member of ASEAN, it will compete with other Asian countries over attracting FDIs. Figure 6.3.4 shows the ratio of FDI and GDP. It illustrates that the higher the ratio, the higher the FDI. The ratio of FDI and GDP in Indonesia has been moving slowly in the past 20 years.



Source: World Economic Forum, Global Competitiveness Report 2011-2012

Figure 6.3.4 Annual Change of FDI/GDP Ratio of Developing ASEAN Countries

Situation of infrastructure development is an important indicator of “competitiveness” in attracting FDIs. It is because the condition of infrastructure largely influences business activities, so the situation is a conclusive factor for a company to decide whether or not it expands its

business overseas. Stable logistic infrastructure and secured electric power are indispensable for corporate activities. Although the situation of infrastructure varies among countries, a country with more improved infrastructure is chosen as the best investment destination.

Viewing the world competitiveness of Indonesia, as shown in Table 6.3.1 based on "The Global Competitiveness Report 2011-2012". Indonesia has relatively high score in Macro-economic environment and market size. Indonesia ranked 76th in the competitiveness-related index for infrastructure. The rankings of labor market efficiency and technological readiness were also low, and both rankings at 94th.

Table 6.3.1 Rank of Competitiveness-related Index
Rank (out of 142 countries)

	Global Competitiveness Index 2011-2012	Institutions	Infrastructure	Macroeconomic environment	Health and primary education	Higher education and training	Goods market efficiency	Labor market efficiency	Financial Market development	Technological readiness	Market size	Business Sophistication	Innovation
Singapore	2	1	3	9	3	4	1	2	1	10	37	15	8
Malaysia	21	30	26	29	33	38	15	20	3	44	29	20	24
China	26	48	44	10	32	58	45	36	48	77	2	37	29
Thailand	39	67	42	28	83	62	42	30	50	84	22	47	54
<i>Indonesia</i>	46	71	76	23	64	69	67	94	69	94	15	45	36
India	56	69	89	105	101	87	70	81	21	93	3	43	38
South Africa	50	46	62	55	131	73	32	95	4	76	25	38	41
Brazil	53	77	64	115	87	57	113	83	43	54	10	31	44
Vietnam	65	87	90	65	73	103	75	46	73	79	33	87	66
Russian Federation	66	128	48	44	68	52	128	65	127	68	8	114	71
Philippines	75	117	105	54	92	71	88	113	71	83	36	57	108

Source: World Economic Forum, Global Competitiveness Report 2011-2012

Furthermore, if individual evaluation is seen about the items (five items of a road, a railroad, a port, an airport, and an electric power supply) of an infrastructure, Indonesia is lower than an ASEAN average at all the items, and the road and the electric power supply are much less than the ASEAN average especially.

Focusing and looking on the breakdown of infrastructure consisting of five sectors, namely: Roads, Railroads, Ports, Air transport, and Electricity, the scores of all five sectors in Indonesia are lower than the ASEAN average. Especially, the scores of roads and electricity in Indonesia are substantially below the ASEAN average.

6.3.2 Level of Infrastructure Development in JABODETABEK MPA

The levels of infrastructure development in JABODETABEK for nine target sectors of MPA were reviewed in this section. The nine target sectors are largely divided into two groups, namely, Urban Transport and Urban Environment. The delay of infrastructure development in

JABODETABEK is obvious, and the shortage of investment in infrastructure development will raise a concern or become a bottleneck for economic growth.

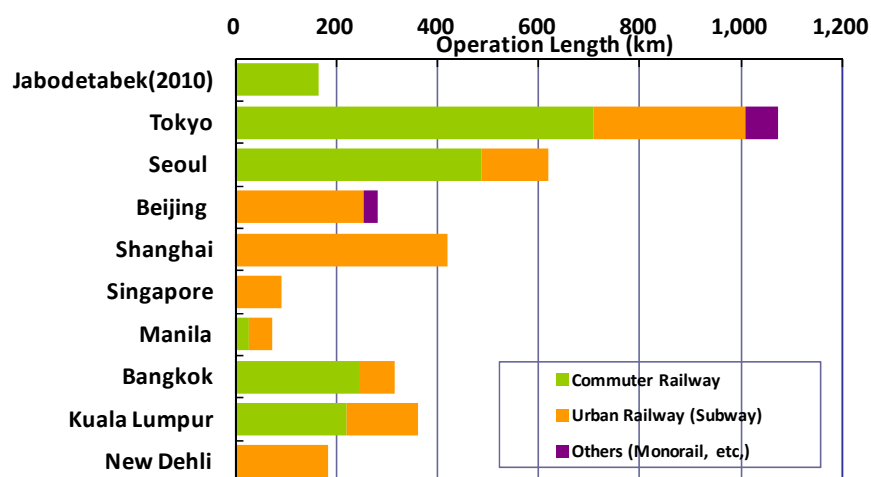
(1) Infrastructure for Urban Transport

Except for improvement of new busways, public transportation in DKI Jakarta has not been improved as expected. Only piers for elevated monorail were constructed before the Asian currency crisis, but the remaining works for the monorail construction have not been completed so far. The start of the construction MRT under Japanese ODA loan is also imperative.

In DKI Jakarta, there is a possibility to fall into the "gridlock" state, where the occupancy road area of both vehicles and motorcycles exceeds the gross road area, and traffic jam will get serious in a couple of years.

Mass Transportation Networks

Total length of railway service in JABODETABEK is 200 km, shorter than that of major cities in other countries. Construction of MRT in DKI Jakarta did not start yet, and improvement of railway has not been seen.

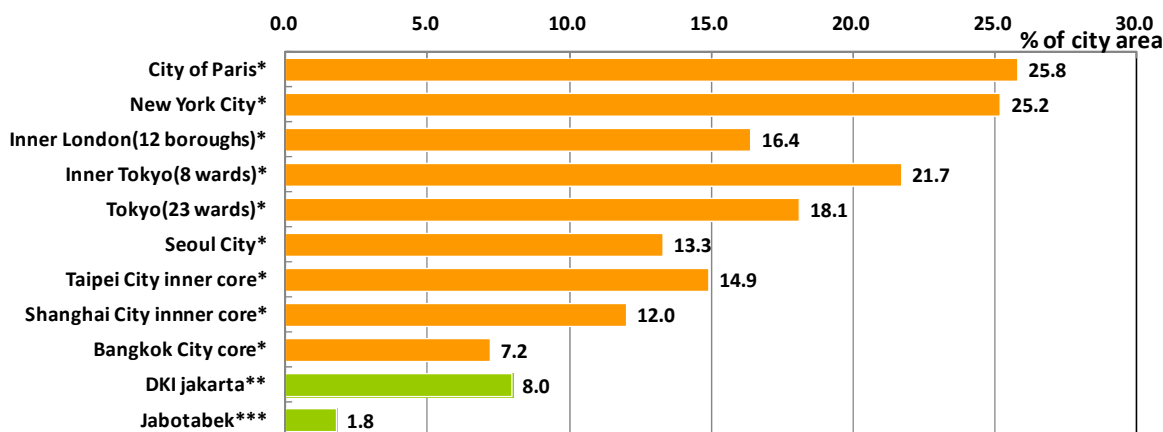


Source: JICA Study Team for JABODETABEK Railways Capacity Enhancement Project, Documents from PT. KAI, Suji de miru Tetsudou 2010 (MLIT) F/S Report of Red Line

Figure 6.3.5 Total Length of Railways in Major Asian Cities

Road Networks

Road density in DKI Jakarta is only 8% as shown in Figure 6.3.6 which is lower among the cities in other countries. However, the number of vehicles has been increasing. Traffic jam is becoming a serious problem year after year.



Source*: Sustainable Transport Development in East Asian Megacities (2005)

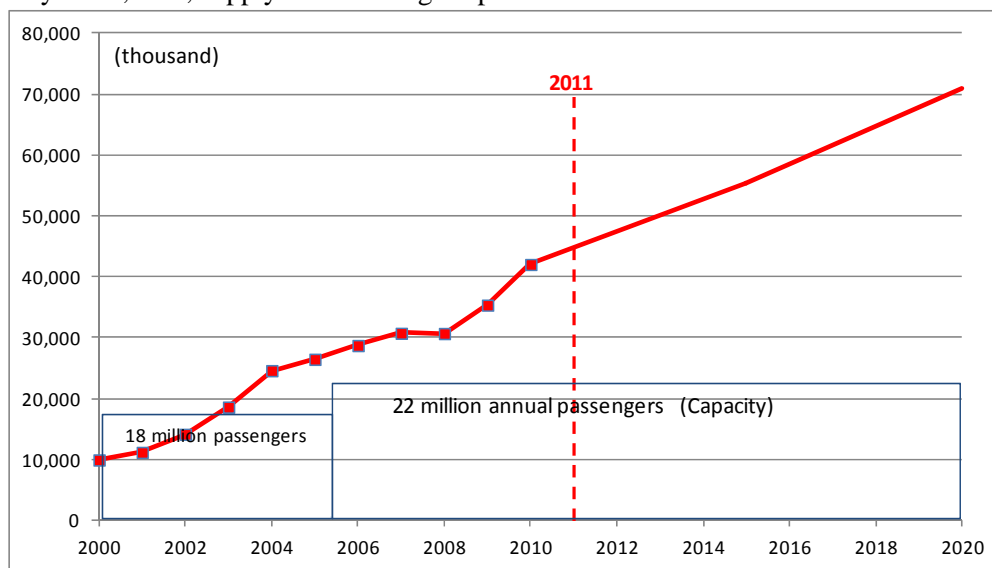
Source**: Dalam Angka 2010

Source***: The Study on Integrated Transportation Master Plan for JABODETABEK (Phase 2) (2002)

Figure 6.3.6 Road Density in Major Asian Cities

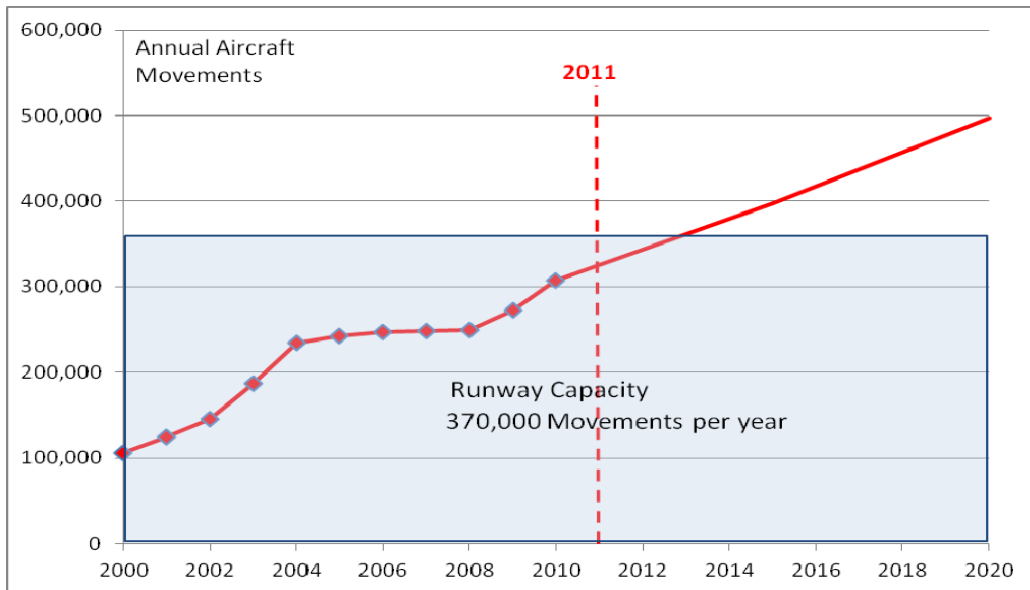
Airports

Both the number of passengers and number of landing and departure of flights at the Soekarno Hatta International Airport are increasing, and these will likely continue. Annual number of passengers has already exceeded the upper limit, same with the number of landing and departure of flights by 2013; thus, supply has not caught up with the demand.



Source: JICA Study Team and the Directorate General of Civil Aviation (DGCA) of the Ministry of Transportation

Figure 6.3.7 Annual Change of Annual Passengers at the Soekarno Hatta International Airport

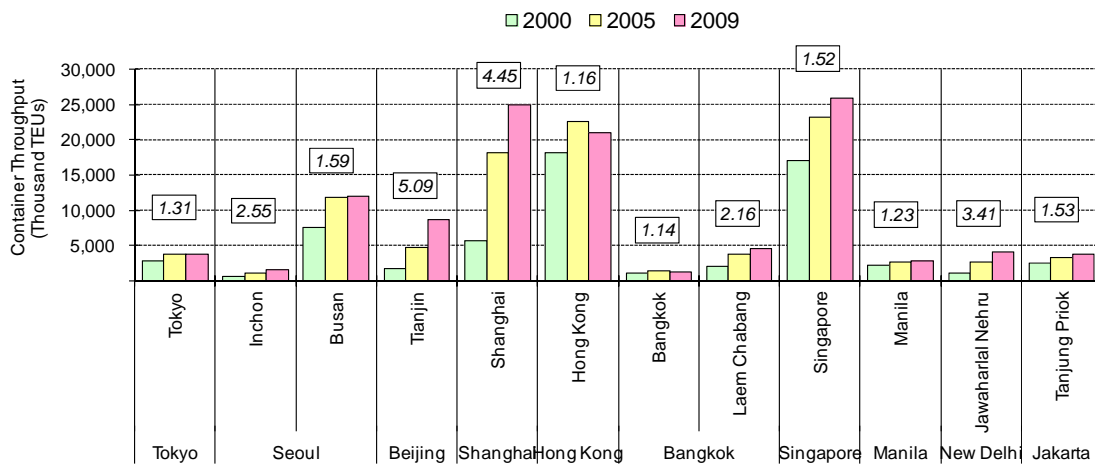


Source: JICA Study Team and the Directorate General of Civil Aviation (DGCA) of the Ministry of Transportation

Figure 6.3.8 Annual Change of Aircraft Movements

Ports

Container throughput of Tanjung Priok Port is lower than that of the main ports of other neighboring countries. The rate of increase in container throughput from 2000 to 2009 remains at 1.53, and it is also fairly low compared with the main ports of other countries as shown in Figure 6.3.10. Trade volume among ASEAN members is shown in Figure 6.3.11. The volume dealt in Singapore is the largest. Indonesia is lagging behind Singapore.



Source: Containerization International Yearbook (Informa)

Figure 6.3.9 Comparison of Container Throughput at Main Ports of Asian Countries



Source: ERIA Study Team based on the data from the Direction of Trade, IMF, 2009
Note: Trade volumes less than USD 100 million are not shown in the figure

Figure 6.3.10 Trade Volume among ASEAN Members

(2) Infrastructure for Urban Environment

Urban problems such as shortage of power and water supplies, delay in development of sewerage, and low collection rate of solid waste, are evidently seen in Jakarta as urbanization is progressing. Such problems in insufficiency of public services including power supply, water supply, and sewerage, offset the productivities brought about by urbanization. Thus, these will lead to the deterioration of urban living environment with negative impact on water contamination.

Industrial Area/ Urban Development

Densification of Jakarta has also progressed so far. If this continues, traffic jam, living environment, and vulnerability to disasters will get worse. Measures to address the progressing densification are required in urban development. As for industrial estates, problems of infrastructure stretching to multi-sectoral problems such as electric power shortage, insufficient highways and roads, as well as lack of labor capacity were identified.

Water Supply and Sewage System

The piped water coverage ratio in Jakarta is about 50% and access ratio to sewerage is only 2%. These ratios are among the lowest in major Asian cities. Especially, the access ratio to sewerage is extremely low, which causes water pollution.

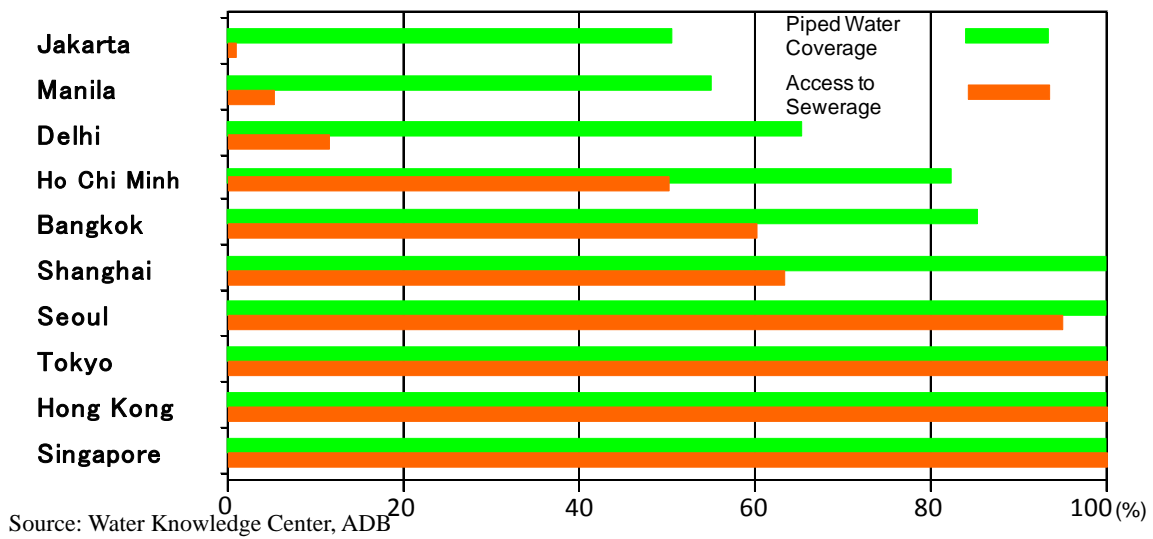
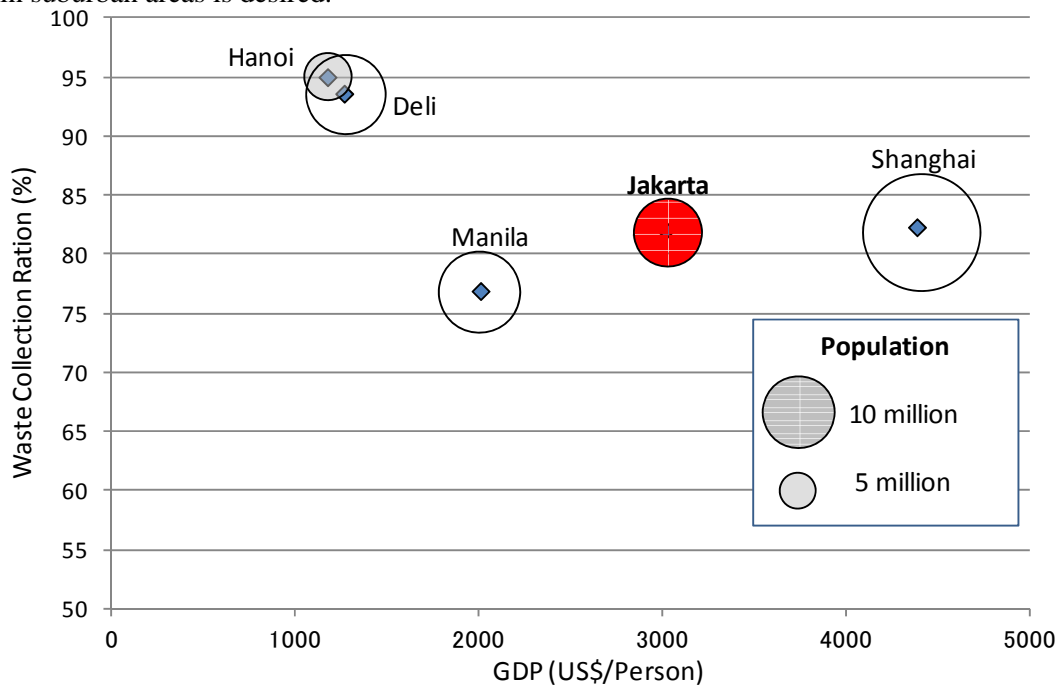


Figure 6.3.11 Comparison of Water Supply and Sewerage Development in Major Asian Cities

Waste Management System

The waste collection rate of DKI Jakarta is 82%, which is comparatively good against other cities in Asian countries. However, JABODETABEK MPA was overlooked. The collection rate in some areas such as Kabupaten Bogor did not reach 30%. Also, improvement of collection rate in suburban areas is desired.



Source: MPA Study Team based on Asian Green City Index (Economist Intelligence Unit)

Figure 6.3.12 Comparison of Waste Collection Ratio and GDP Level in Asian Cities

Flood Management System

The improvement of flood control based on the master plan progresses slowly, but floods have

occurred frequently causing an increase in outflows due to uncontrolled development in catchment areas. The inundated area of flood in 2002 reached 526 km², equivalent to 8.6% of JABODETABEK MPA. About 60% of DKI Jakarta was inundated and 150,000 persons were forced to evacuate during the flood of 2007.

Electric Power Infrastructure

The demand of electricity in JABODETABEK MPA will grow, as the population and industrialization in the area grow. It is predicted that reserve margin will be less than 30% in 2014 and 2015; therefore, upgrading of reserve margin is desirable.

6.3.3 Infrastructure Needs by Industrial Sectors

(1) Necessary Infrastructure at Industrial Estate

The needs of Japanese companies which have factories in industrial estates in Asian countries are summarized in “Private Sector Perceptions of Challenges and Opportunities by Japanese Infrastructure Users”. The target industrial sectors are divided into four industries, namely: 1) automobile industry, 2) electric and electronic industry, 3) chemical industry, and 4) machine industry. The target infrastructure sectors in the needs analysis are six, namely: roads including highways and local roads, seaport, airport, mass transportation including railroads, power supply, and water supply and sewerage. Solid waste treatment and flood control are not included in this analysis. Solid waste treatment is generally executed through the efforts of private companies in industrial estates. As for flood control, most of the companies select sites which have low flood risk, so the need for flood control is satisfied.

1) Automobile Industry

Supporting industries for automobile are suppliers of broad and cover steel, electricity and electronics, machinery, tires, etc., including various parts suppliers. Just-In-Time (JIT) production system is common in automobile industry for trimming inventory costs, so manufacturers of finished vehicles and various parts suppliers are required to synchronously produce and transport the vehicles. The infrastructure needs for automobile industry as shown in Table 6.3.2 are related with JIT production system.

Table 6.3.2 Infrastructure Needs of Automobile Industry

Infrastructure		Infrastructure Needs	Importance
Road Networks	Highway	To connect factory and seaport (for exports), and factory and major markets of the country (for domestic sales).	○
	Local roads	For JIT operation, logistics line connecting parts suppliers and automobile firms is very important. Suppliers tend to locate near assembly firms, and local roads (network and congestion) are important.	◎
Ports		As interdependence among countries progresses, exports to other countries is becoming more important. A deep berth for large ships and a wide yard for cars are needed.	○
Airports		Less important for production since most of the automobile parts are large and heavy, and are delivered through sea. However, it is very important for engineering function and/or regional headquarters to support business trips of staffs.	△
Mass Transportation Networks (Railroad)		Railroad is not much used for logistics mainly because door to door delivery is impossible.	△
Electric power infrastructure		Energy (electricity) provision is prerequisite for automobile manufacturing. In many cases, industrial park is providing (supplemental) power services.	○
Water Supply / Sewerage		Industrial water supply is needed. For simple manufacturing such as CKD assembling of motorbike, water supply is not a critical factor.	○

Note: ◎: Very important, ○: Important, △: Less important

Source: Compiled Private Sector Perceptions of Challenges and Opportunities by Japanese Infrastructure Users by JBIC and NRI

2) Electric and Electronic Industry

Electric and electronic industry covers wide variety of products. The products are largely divided into two types, namely, export-oriented products including semiconductor apparatus and audiovisual equipment, and local market-oriented products including typical home electronics such as refrigerator and washing machine. For both types, products are transported through roads after procuring parts from local suppliers. For export-oriented products, seaports and airports as well as roads are necessary for the transport of products as shown in Table 6.3.3. For export-oriented device and products, if simple knockdown assembling is possible, in other words, all parts are imported and assembled products are exclusively exported, spot (focused) area development is effective. In this case, a firm imports knockdown parts from other countries via air transportation, assembles them in its factory, and exports the products to other countries. This type of factory does not need supporting industry, road network or seaport, and is able to be established even in an island country.

Table 6.3.3 Infrastructure Needs of Electric and Electronic Industry

Infrastructure		Infrastructure Needs	Importance
Road Networks	Highway	In some cases, highways are important to connect suppliers and assembly makers. For selling products domestically, access roads to markets are very important.	○
	Local roads	Local roads are important for scheduled logistics operation.	○
Ports		For export-oriented firms, depending on the size and value-added, seaport is very important. Not only the seaport facility but also IT system and customs operation should be efficient.	○
Airports		Airport is very important especially for high value-added electronic devices and products. A simple assembling factory can be established near an international airport.	◎
Mass Transportation Networks (Railroad)		Railroad is not usually used for logistics.	△
Electric power infrastructure		Electricity is very important. Industrial estates are providing supplemental private power generation services. In developing countries, there is always an anxiety for shortage of power supply.	◎
Water Supply / Sewerage		Water supply is almost prerequisite for site selection.	○

Note: ◎: Very important, ○: Important, △: Less important

Source: Compiled Private Sector Perceptions of Challenges and Opportunities by Japanese Infrastructure Users by JBIC and NRI

3) Chemical Industry

The products of chemical industry are various and production process also varies on type of product. However, it is more or less common for chemical products that the raw material is liquid, unprocessed resources, or chemical products by other companies. It is also common that 24-hour operation is necessary because products are produced by chemical reaction.

The most advantageous location is either adjoining land of a bulk port where raw material is disembarked or an agglomerated area of the same chemical industries, or both. It is because weight and volume of raw material are so large that transport cost can be minimized where the companies in the industry locate their factories at such advantageous areas. Table 6.3.4 shows the infrastructure needs of the chemical industry.

Table 6.3.4 Infrastructure Needs of Chemical Industry

Infrastructure		Infrastructure Needs	Importance
Road Networks	Highway	Since chemical industry requires a lot of raw materials, the need for a reliable road, which secures routes between factories and ports are high.	◎
	Local roads	Reliable local roads among the factories are necessary, but do not need to have redundant road network.	○
Ports		Needs for a reliable bulk cargo terminal and custom process for smooth transport are very high.	◎
Airports		Except for urgent procurement of high quality products, the need for airports is not high.	△
Mass Transportation Networks (Railroad)		A railroad is rarely used, so the need for a railroad is relatively low.	△
Electric power infrastructure		Power is supplied through self generation of electricity in many cases. The need for electric power is relatively low.	△
Water Supply / Sewerage		Water is needed but in many cases water supply and sewerage system are self procured.	○

Note: ◎: Very important, ○: Important, △: Less important

Source: Compiled Private Sector Perceptions of Challenges and Opportunities by Japanese Infrastructure Users by JBIC and NRI

4) Machinery Industry

Machinery industry requires less number of parts than automobile industry. In addition, these parts are available in local markets. The size of finished machinery products is generally large, so the products are usually transported via containers. The products in this industry are mostly domestic market oriented, so the products are not transported over a long distance. Table 6.3.5 presents the infrastructure needs of the machinery industry.

Table 6.3.5 Infrastructure Needs of Machinery Industry

Infrastructure		Infrastructure Needs	Importance
Road Networks	Highway	Access to suppliers and local market is very important.	◎
	Local roads		◎
Ports		The ratio of local procurement of raw materials and parts is fairly high. The product of the industry is mainly sold in the domestic market. Therefore, use of seaports in this industry is less frequent than that in other industries. The need for seaports is low.	△
Airports		Since it is rarely used except for air transportation of light and high quality products, the need for airports is low.	△
Mass Transportation Networks (Railroad)		Although railroad may be use as a complement of road transport, the need for it is not high at this stage.	△
Electric power infrastructure		Since electricity is used in large quantities and extensively for production in the machinery industry, there is a need for sufficient quantity of stable electric power supply.	◎
Water Supply / Sewerage		Water supply and sewage are needed, although the level provided by industrial estates seems adequate.	○

Note: ◎: Very important, ○: Important, △: Less important

Source: Compiled Private Sector Perceptions of Challenges and Opportunities by Japanese Infrastructure Users by JBIC and NRI

The importance of infrastructure considering the needs of the four industries is summarized in

Table 6.3.6. The importance of road is higher than that of any other infrastructure. This result agrees with the common needs of entrepreneurs investing in industrial estates in major Asian cities.

Table 6.3.6 Infrastructure Needs of All Four Target Industries

Infrastructure		Infrastructure Needs			
		Automobile	Electric and Electronics	Chemical	Machinery
Road Networks	Highway	○	○	◎	◎
	Local roads	◎	○	○	◎
Ports		○	○	◎	△
Airports		△	◎	△	△
Mass Transportation Networks (Railroad)		△	△	△	△
Electric power infrastructure		○	◎	△	◎
Water Supply / Sewerage		○	○	○	○

Note: ◎: Very important, ○: Important, △: Less important

Source: Compiled based on Private Sector Perceptions of Challenges and Opportunities by Japanese Infrastructure Users by JBIC and NRI

(2) Infrastructure Needs of Industries of Indonesia by ORGANDA and KADIN

Needs to improve the infrastructure have been raised by the National Road Transport Operators Association (ORGANDA) and Indonesia Chamber of Commerce and Industries (KADIN). The ORGANDA raised that the major problems in infrastructure are traffic jam in Jakarta between industrial areas and Tanjung Priok Port and large-scale flood in Jakarta. On the other hand, KADIN said that the major problem is the frequent planned electric power outage. To sum it up, the major needs of infrastructure by Indonesian industrial communities are solution to mitigate the traffic jam, reduce the flood risks, and provide stable supply of electric power.

(3) Infrastructure Needs of Industries of Indonesia by JJC

The “Proposal for a Golden 5-Year Plan for the Improvement of Indonesia’s Business Environment during its Golden Years by the Jakarta Japan Club Foundation (2010)” proposed to improve the infrastructure. The proposal pointed out that improvement of essential infrastructure in particular for logistics and distributions of goods such as ports, roads, railways, toll roads in Java, especially for public transportation system in Jakarta (including Mass Rapid Transportation system) should be enforced in the early stages. Not only urban transport and logistics, urban environmental improvement including sewerage disposal project were also mentioned. Infrastructure needs of Indonesian industries by JJC are summarized in Table 6.3.7.

Table 6.3.7 Infrastructure Needs of Indonesian industries

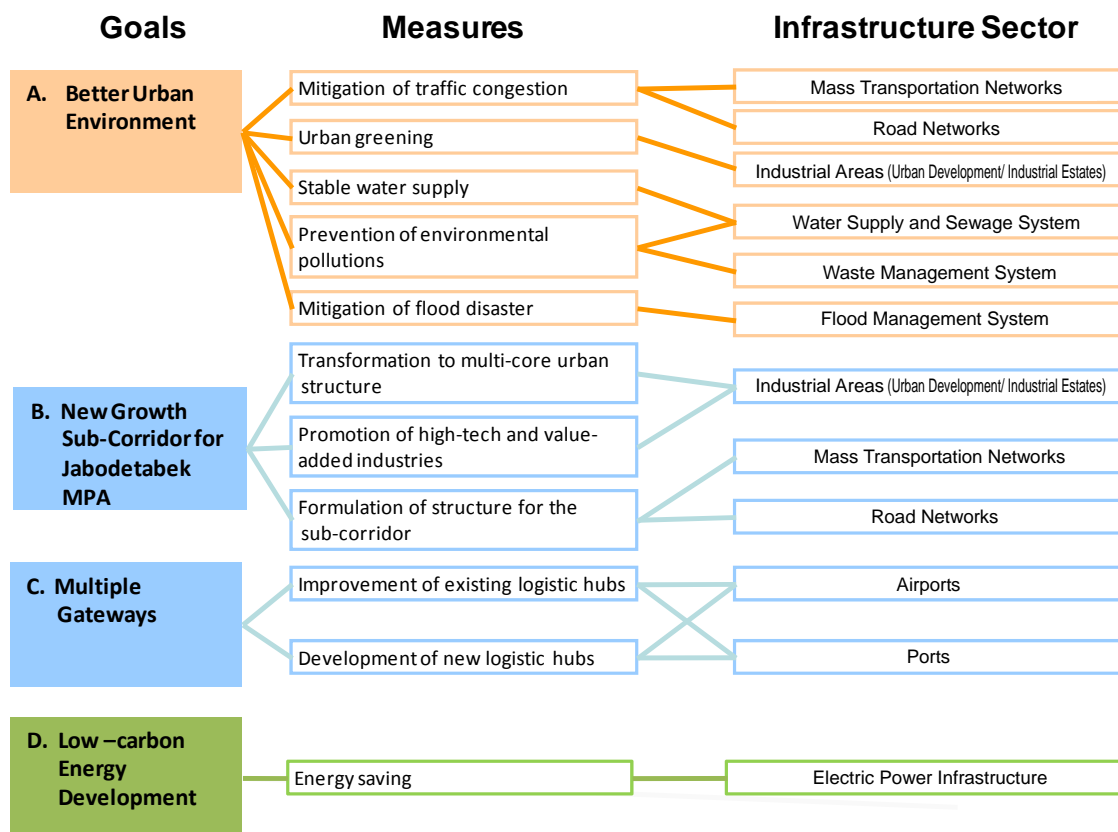
Area	Request
Urban Transport	To improve transportation network such as seaports, toll roads, railways, bridges, and airports: <ul style="list-style-type: none"> - to overcome the current limited function of Tanjung Priok Port with the construction of a new seaport, etc. - to improve and resolve traffic issues concerning access roads to Tanjung Priok Port (or the new seaport) - to develop a Mass Transit system (MRT, etc) to reduce traffic congestion in Jakarta - to improve access from Soekarno Hatta Airport to and from central Jakarta
Urban Environment	<ul style="list-style-type: none"> - Further development to increase electricity capacity - Projects on water supply to ensure a safe supply of water as well as sewage disposal - Project on flood prevention project for the rainy season - Construction of affordable homes for low and middle-income community - Project on solid waste management

Source: Proposal for a Golden 5-Year Plan for the Improvement of Indonesia's Business Environment During its Golden Years by the Jakarta Japan Club Foundation(2010)

As such, the needs tend to be higher for infrastructures for logistics and distribution of goods such as seaport, roads, railway, and airport. The needs for power supply, water supply and sewerage, flood control, and solid waste management are also indentified; however, the needs for urban environmental infrastructure support the needs for urban transport infrastructure.

6.3.4 Infrastructure Development in MPA Vision

Four goals, namely: 1) Better Urban Environment, 2) New Growth Sub-Corridor for JABODETABEK MPA, 3) Multiple Gateways, 4) Low-carbon Energy Environment, have been formulated to realize the development concepts, i.e.: High-quality of Life, Growth, and Eco-friendliness in MPA Vision 2030. To achieve these goals, infrastructure development is crucial. Figure 6.3.14 shows the relation among the four goals in the vision, necessary measures to achieve the goals, and infrastructure sectors corresponding to the measures.



Source: MPA Study Team

Figure 6.3.13 Position of Target Infrastructure Sectors in MPA Vision

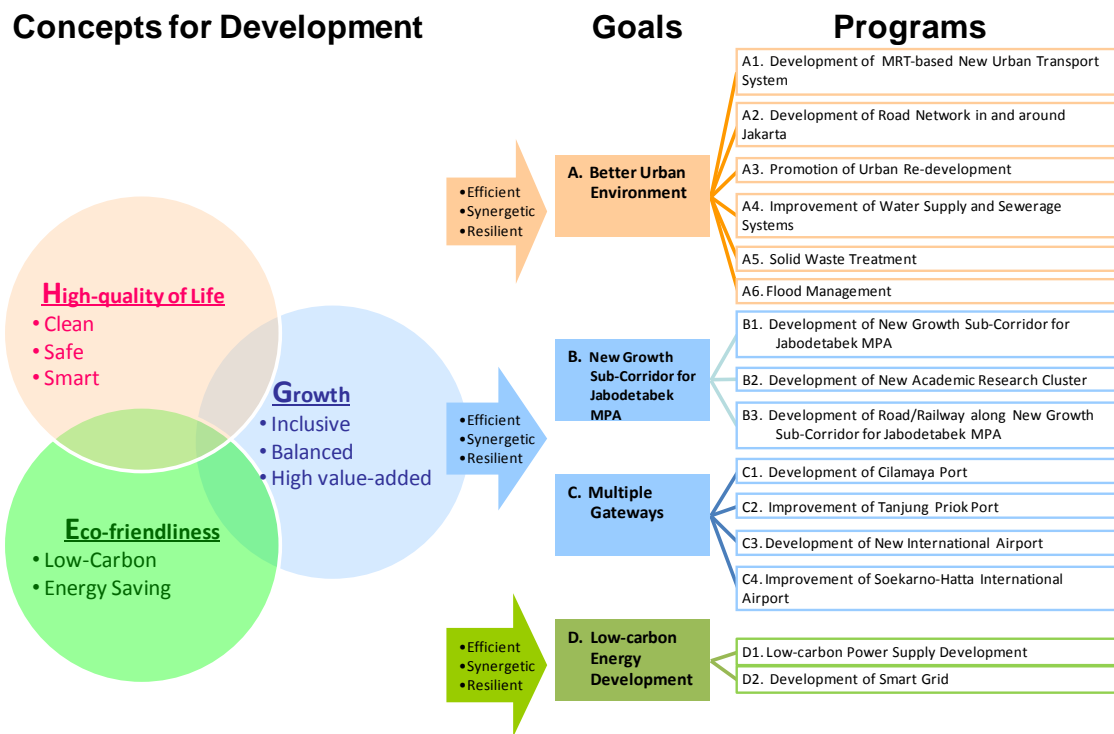
6.3.5 Infrastructure Development Strategy

(1) Basic Approach to the Strategy

The infrastructure needs for urban transport including road, seaport and electric power in industrial sector are fairly high as described in the previous sections. Although these needs are to be addressed by all development partners, the promotion of infrastructure development which can bring about efficiency, synergy, and resiliency is required to realize the needs as illustrated in MPA Vision 2030. Efficiency, synergy, and resilience are enhanced through coordination among sectors in line with the positioning of each infrastructure sector in the vision, rather than implementing development of each sector individually.

(2) Infrastructure Development Programs in MPA Vision

The programs of infrastructure development to achieve the goals of MPA Vision 2030 are shown in Figure 6.3.15. In the master plan of each infrastructure sector mentioned in Chapter 7, the MPA study team sets target effective indicators towards 2020 and also identify potential priority projects including potential fast track projects to be implemented under the programs.



Source: MPA Study Team

Figure 6.3.14 MPA Vision and Infrastructure Development Programs

(3) Priority Issues of Infrastructure Development

1) Urban Transport

For realizing “Better Urban Environment”, mitigation of traffic congestion is one of the most prominent development issues in infrastructure development for JABODETABEK MPA. The development of road network is highly required, but difficulty in land acquisition leads to stagnant or slow development of road network. In addition to road network development, development of mass transit network is essential. The following are priority issues in public transportation and road sectors to mitigate traffic congestion;

- Mass Transportation Networks : increase in passengers’ movement by railway/bus including development of MRT, access railways, commuter railways, etc.
- Road Networks: increase in average vehicle speed through improvement of road network in JABODETABEK MPA

Seaports and airports will be the core of development of “Multiple Gateways” in the goal set in the MPA Vision 2030. However, the service of existing airports and seaports cannot meet the increasing demand. Both improvement of the existing airports and seaports and development of new airports and seaports are required from now on. The following are priority issues in seaport and airport sectors to meet the increasing demand;

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- Ports : increase in international container cargo capacity through the expansion of Tanjung Priok Port and development of new Cilamaya Port
- Airports : increase in annual passengers capacity through the improvement of Soekarno Hatta International Airport and development of new airports

2) Urban Environment

JABODETABEK MPA has the prime issue of transforming from single-core urban structure to multi-core urban structure as mentioned above. Development of new township and new industrial estates is located in suburban areas, taking into account locational advantages of new airports and seaports. The development should be conducive in forming the “New Growth Sub-Corridor for JABODETABEK MPA”. The following are priority issues in urban development and industrial estate sector to shifting to multi-core urban structure;

- Urban Development: promotion of new township development in suburban areas and redevelopment of the existing urban areas such as relocating sites of industrial estates, in line with the transformation from single-core urban structure to multi-core urban structure
- Industrial Areas : expedition of industrial estates at suburban areas

For realizing “Better Urban Environment”, stable water supply, prevention of environmental pollutions, and mitigation of flood, are important development issues. The following are priority issues for water supply and sewerage, solid waste treatment and flood control sectors.

- Water Supply and Sewerage : improvement of piped water service coverage and sewerage coverage in DKI Jakarta
- Waste Management System : increase in treated/disposed volume of solid waste
- Flood Management: securing of capacity of flood water discharge to the sea

Stable power supply is important for industries for the smooth operation of their businesses. Energy saving is also expected in the long run, but securing power supply is a prominent issue in the power supply sector.

- Electric Power Infrastructure : securing of power supply capacity by securing reserve margin for peak demand

CHAPTER 7 MASTER PLAN BY SECTOR TOWARDS THE YEAR 2020

7.1 SOCIO-ECONOMIC FRAMEWORK

7.1.1 Regional Characteristics

(1) Current Locational Features

Table 7.1.1 and Figure 7.1.1 show the locational features of each area of JABODETABEK MPA and Karawang. DKI Jakarta is surrounded by Depok in the south, Tangerang in the west, Tangerang Selatan in the southwest, and Bekasi in the east. Bogor is located south of Depok.

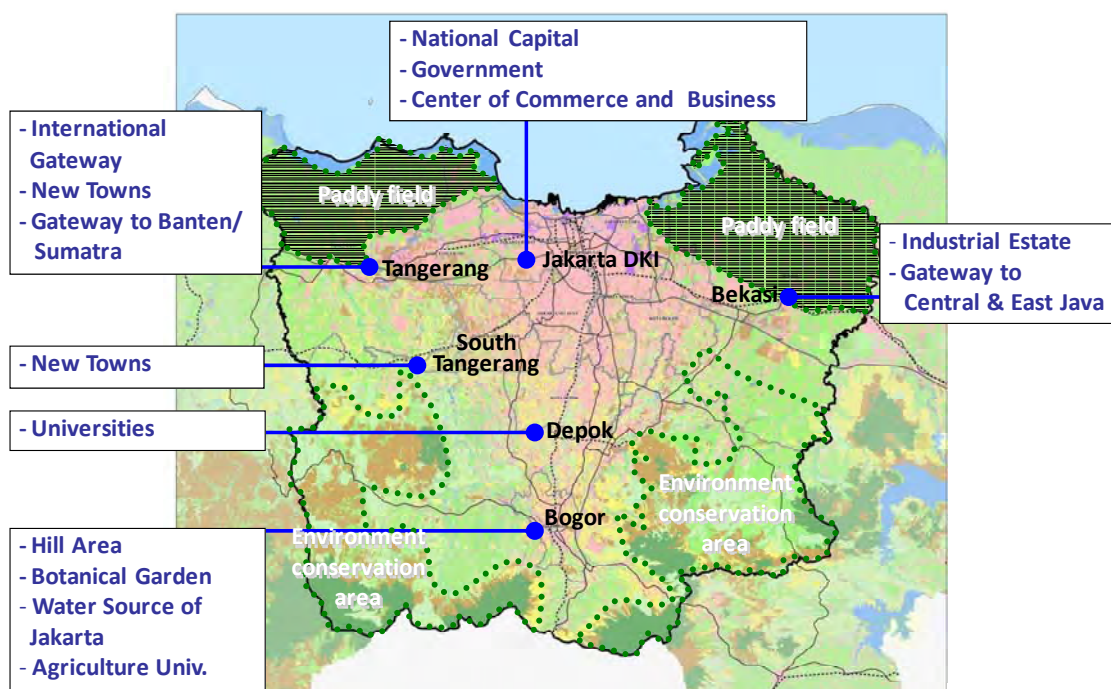
DKI Jakarta is the national capital and the urban area where government offices and business centers are agglomerated. The modal share of public transportation, especially railway, is only 2%, which is the lowest among Asian capital cities. Overly congested traffic situation is one of the most serious problems in DKI Jakarta.

Bogor, located at the foot of two volcanoes, is a tourist destination. Depok is home to some universities including the University of Indonesia. Tangerang has a new town development, where the Soekarno-Hatta International Airport (SHIA) is located. Tangerang Selatan, near Serpong, has large scale new town development including Bumi Serpong Damai (BSD) City. Industrial estates, where foreign manufacturers have invested, are mainly located at Bekasi.

Table 7.1.1 Characteristics of Each Area in JABODETABEK MPA

City/Area	Current Locational Features
DKI Jakarta	National capital with excessive concentration of urban functions
Bogor	Located at the foot of two volcanoes
	Puncak Pass at elevation of 1,500 m
	Botanical Garden
	Sources of water supply for DKI Jakarta
Depok	Location of universities including University of Indonesia
Tangerang	Located near Soekarno-Hatta International Airport (SHIA)
	New Towns, including Lippo-Karawaci
Tangerang Selatan	New Towns, including BSD City
Bekasi	Good Access to Tanjung Priok Port
	Existing Industrial Estates
Karawang	Existing Industrial Estates
	Gateway to Bandung, Central and East Java
	Rice fields
Pulau Seribu	Several small islands in the Java Sea
Other Areas	Rice fields located northeast and northwest of DKI Jakarta

Source: MPA Study Team based on existing land use, development plans and the respective spatial plans (RTRW)



Source: MPA Study Team based on existing land use, development plan and the respective spatial plans (RTRW)

Figure 7.1.1 Locational Features of JABODETABEK MPA and Karawang Areas

(2) Future Image

As the programme ends in 2030, the development of each area will be shaped according to its current locational features as described above. It is more effective and efficient, in terms of time, cost, historical importance, etc., to enhance the existing features of each locality rather than disregard these features in the development process. The developmental vision for each area is summarized in Table 7.1.2.

In view of the conservation of agricultural lands and natural reserves, the government will retain the rice fields located northeast and northwest of DKI Jakarta, the water sources in south of DKI Jakarta, including Depok and Bogor, and the natural environment of the islands and the seas in Pulau Seribu. In this regard, development at the northeast, northwest, and south of DKI Jakarta and on Pulau Seribu will be discouraged.

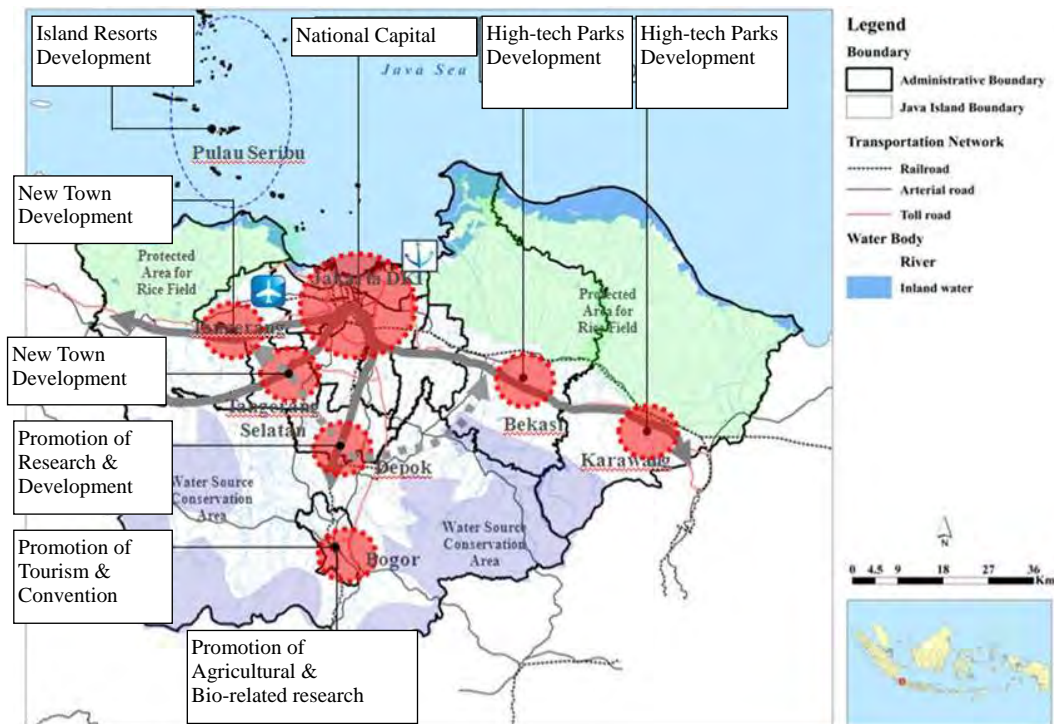
Therefore, the development of urban features, including industrial estates and residential areas, are toward the east and west of DKI Jakarta, such as Bekasi and Karawang in the east and Tangerang in the west.

The geographical vision for each city in the future is described in Table 7.1.2 and plotted on a map, as shown in Figure 7.1.2. The reference for the current locational features is presented in Table 7.1.1.

Table 7.1.2 Development Vision for Each Area in JABODETABEK and Karawang

City/Area	Future Image
DKI Jakarta	National capital with decentralization of some urban functions to other areas
Bogor	Promotion of tourism and convention functions Promotion of bio-related research and developmental functions Conservation of water sources
Depok	Promotion of research and developmental functions
Tangerang	New town development
Tangerang Selatan	New town development
Bekasi	High-technology parks development
Karawang	High-technology parks development Conservation of rice fields
Pulau Seribu	Development of island resorts Conservation of island and marine environment
Other Areas	Conservation of rice fields

Source: MPA Study Team based on locational features



Source: MPA Study Team based on locational features

Figure 7.1.2 Development Vision for JABODETABEK MPA and Karawang

In this Study, JABODETABEK MPA is classified into four areas depending on the characteristics of each area as shown in Table 7.1.3. The concerned Kota and Kabupaten in a classified area are similar to one another not only in terms of physical location and locational features, but also on the type of administration.

As far as administration is concerned, Kota Depok used to be a part of Kabupaten Bogor whereas Kota Tangerang Selatan used to be a part of Kabupaten Tangerang. In addition, Kota Depok and Kabupaten Bogor have partnership in the provision of some public services, such as water supply and solid waste management.

Table 7.1.3 Classification of JABODETABEK MPA

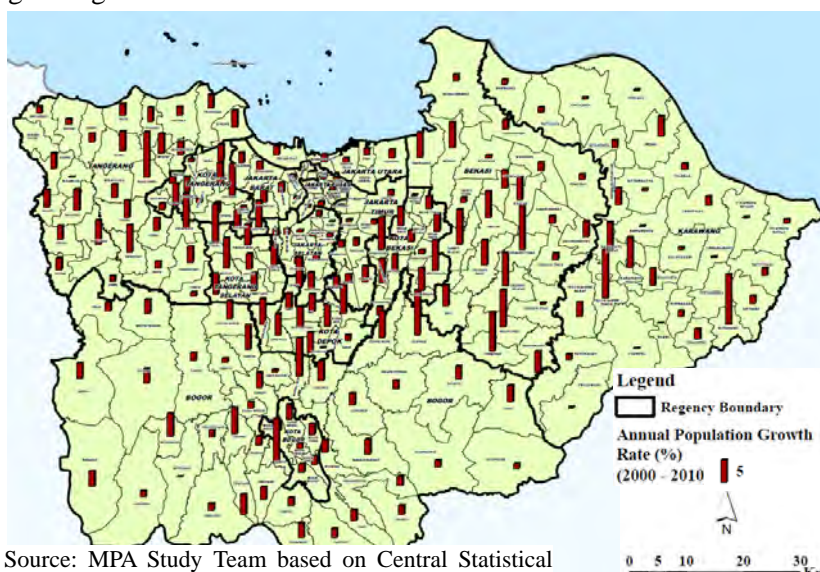
Classified Area	Concerned Province	Concerned Kota and Kabupaten	Locational Features
DKI Jakarta	DKI Jakarta	DKI Jakarta	National capital
MPA East	West Java	Kota Bekasi and Kabupaten Bekasi	Industry grouping
MPA South	West Java	Kota Depok, Kota Bogor, and Kabupaten Bogor	Residential, research and development facilities, and nature reserves
MPA West	Tangerang	Kota Tangerang, Kabupaten Tangerang, and Kota Tangerang Selatan	Residential areas in new towns

Source: MPA Study Team

7.1.2 Socio-Economic Framework in 2020

(1) Population Forecast

The present population of JABODETABEK MPA is approximately 28 million, which makes it one of the biggest urban agglomerations in the world today. Figure 7.1.3 shows that the annual population growth in DKI Jakarta is relatively low compared with many rapidly-growing suburban areas.

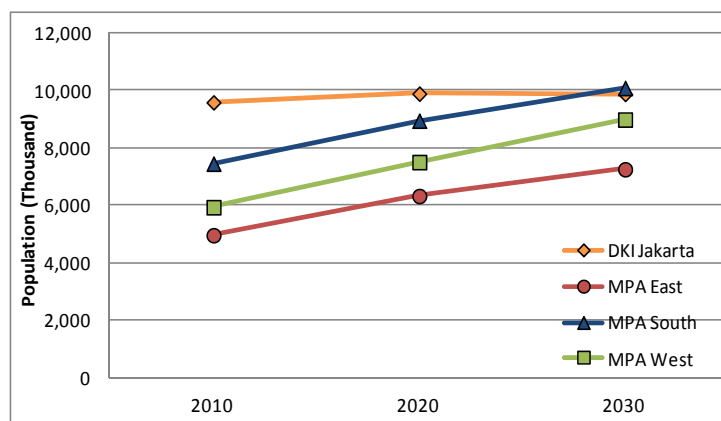


Source: MPA Study Team based on Central Statistical

Figure 7.1.3 Annual Population Growth (2000–2010)

Forecast of the population was conducted based on the available data from the long-term development plans (RPJPD) of the cities and regencies, and on BAPPENAS population projection for 2025. Readily-available population projection figures for 2020 and 2025 in RPJPDs were compiled and adopted in this Study. For some cities and regencies, the population forecast figures were not indicated in their RPJPDs, in which case BAPPENAS population projection for 2025 figures were used. The population projection for 2030 was calculated using the time-series linear regression with intercept adjusted to 2025 figures.

The result of the projection, as presented in Figure 7.1.4 and Table 7.1.4, showed that the population of the urban agglomeration is expected to grow continually and rapidly, reaching to approximately 33 million in 2020, and 36 million in 2030.



Source: Projection figures compiled and calculated by MPA Study Team from cities' and regencies' RPJPD and BAPPENAS data.

Figure 7.1.4 Projected Population in JABODETABEK MPA Area

In this study, the cities and regencies comprising the JABODETABEK MPA were classified into four depending on the characteristics of each area. Population in MPA East and MPA West are expected to achieve more rapid growth rates compared with the rest of the areas, while the growth rate of DKI Jakarta, which is already low, will likely remain the same in future.

Table 7.1.4 Forecast Population for JABODETABEK MPA (in thousands)

	2010	2020	2030	Annual Growth Rates (2010-2030)
JABODETABEK MPA	27,951	32,680	36,220	1.3%
DKI Jakarta	9,588	9,890	9,880	0.2%
MPA East	4,966	6,330	7,260	1.9%
MPA South	7,456	8,950	10,090	1.5%
MPA West	5,941	7,510	8,990	2.1%

Note: MPA East consists of Kota Bekasi and Kabupaten Bekasi.

MPA South consists of Kota Depok, Kota Bogor, and Kabupaten Bogor.

MPA West consists of Kota Tangerang, Kota Tangerang Selatan, and Kabupaten Tangerang.

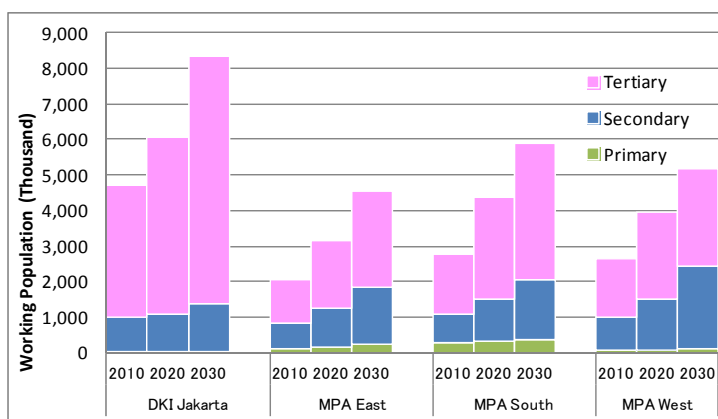
Note : Figures may not add up to total due to rounding.

Source: Projection figures compiled and calculated by MPA Study Team from cities' and regencies' RPJPD and BAPPENAS data.

(2) Projection of Working Population

The working population or number of persons gainfully employed in JABODETABEK MPA in 2010 was 12 million. Future growth figures of the working population up to 2020 and 2025 were collected and compiled from the cities' and regencies' RPJPD documents. Projections for the cities and regencies with no available figures were calculated with reference to the growth trend of the production and productivity of the three industrial sectors, together with the growth trend of the working population as against the resident population. Figures for 2030 were calculated using the time-series linear regression with intercept adjusted to 2025 figures.

The result of the data collection and estimate of the future number of workers, showed that the working population of the JABODETABEK MPA is projected to grow at an annual rate of 3.4%, which means that the total working population will double to 24 million in



Source: Projection figures compiled and calculated by MPA Study Team from cities' and regencies' RPJPD

Figure 7.1.5 Projected Working Population in JABODETABEK MPA Area

2030 as presented in Table 7.1.5 and Figure 7.1.5. The growth rate of 3.4% is less than half of the GRDP growth rate, which implies that labor efficiency is expected to double in 2030.

Among the four areas comprising JABODETABEK MPA, MPA East and MPA South are projected to have the highest growth rates of working population at 4.2%. In MPA East, the working population of its secondary sector is the main contributor to this growth. This reflects the situation of large scale manufacturing establishments which are densely integrated in the area. The area's tertiary sector working population will also grow rapidly at an annual rate of 4.0%. This implies that the growth of secondary sector will require supporting industries, which are essentially the tertiary sector industries. On the other hand, growth of the working population in MPA South is expected to be composed mainly of the tertiary sector. Working population in DKI Jakarta is expected to shift at relatively modest growth level. Nevertheless, the working population of DKI Jakarta will remain the highest among the four areas in the JABODETABEK MPA.

Table 7.1.5 Projection of Working Population in JABODETABEK MPA (in thousand)(1/2)

	2010	2020	2030	Annual Growth Rates (2010-2030)
JABODETABEK	12,158	17,519	23,940	3.4%
Primary	515	606	700	1.5%
Secondary	3,371	4,699	6,537	3.4%
Tertiary	8,272	12,214	16,703	3.6%
DKI Jakarta	4,689	6,052	7,184	2.2%
Primary	28	28	26	-0.4%
Secondary	983	1,033	1,075	0.4%
Tertiary	3,678	4,991	6,083	2.5%
MPA East	2,036	3,136	4,612	4.2%
Primary	129	168	221	2.7%
Secondary	684	1,093	1,655	4.5%
Tertiary	1,223	1,875	2,736	4.1%

Table 7.1.5 Projection of Working Population in JABODETABEK MPA (in thousand)(2/2)

	2010	2020	2030	Annual Growth Rates (2010-2030)
MPA South	2,784	4,380	6,319	4.2%
Primary	285	324	347	1.0%
Secondary	793	1158	1748	4.0%
Tertiary	1,706	2,898	4,224	4.6%
MPA West	2,649	3,951	5,825	4.0%
Primary	73	86	106	1.9%
Secondary	910	1415	2059	4.2%
Tertiary	1,666	2,450	3,660	4.0%

Note : Primary sector = Agriculture, forestry and fisheries.

Secondary sector = Mining, manufacturing, construction and utilities.

Tertiary sector = Trading, transport, communication, finance and other services.

Note : Figures may not add up to totals due to rounding.

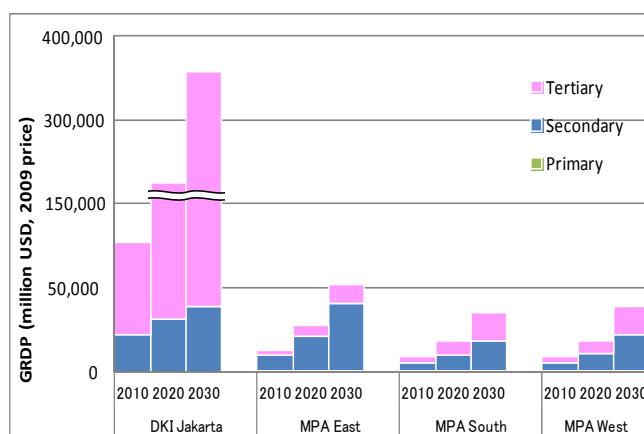
Source: Projection figures compiled and calculated by MPA Study Team from cities' and regencies' RPJPD

(3) Forecast Growth in Production

The GRDP of JABODETABEK MPA in 2010 was estimated to be approximately USD 108 billion (at 2009 prices, calculated from BPS data 2009). Out of the total figure, USD 66 billion or 61% of the total GRDP is attributed to tertiary sector production, while USD 41 billion or 38% of the total GRDP, is attributed to the secondary sector. Primary sector accounted for only 1% of the total GRDP of the JABODETABEK MPA.

The forecast GRDPs of JABODETABEK MPA for 2020 and 2030 were estimated using the available growth projection figures in the RPJPD documents of cities and regencies. The future growth figures for cities and regencies with no specific growth rates written in their RPJPD documents were taken from the growth figures of other cities/regencies which have similar industrial structure characteristics. The GRDP figures for 2030 were estimated using the 2025 - 2030 growth rate figures calculated by time-series linear regression.

As a result of the data consolidation and calculations, the GRDP of JABODETABEK MPA was projected to increase to USD 227 billion in 2020, then further to 454 billion USD by 2030. The estimated average annual growth rate is approximately 7.4%, which is almost equivalent to the high growth scenario in MP3EI. The composition of the industrial sector is estimated to change



Source: Projection figures compiled and calculated by MPA Study Team from cities' and regencies' RPJPD

Figure 7.1.6 Projected GRDP in JABODETABEK MPA Area

gradually, where the percentage of the tertiary sector will rise to 73.6% in 2030.

Table 7.1.6 and Figure 7.1.6 show that GRDP figures for the four areas of the JABODETABEK MPA are expected to grow at an annual rate of 7% or more. Among the four areas, economic growth of DKI Jakarta is expected to be higher than the rest at 7.5%. Next high growth area is MPA East, which is expected to grow at a rate of 7.3%, through the rapid growth of its secondary sector. Similar growth pattern is also expected in MPA West, while the growth in MPA South is more reliant on the tertiary sector.

Table 7.1.6 Projected GRDP in JABODETABEK MPA (USD million, at 2009 prices)

	2010	2020	2030	Annual Growth Rates (2010-2030)
JABODETABEK	108,200	227,200	453,500	7.4%
Primary	1,000	1,300	1,700	2.7%
Secondary	41,300	72,200	117,500	5.4%
Tertiary	65,900	153,700	334,300	8.5%
DKI Jakarta	77,200	162,800	328,700	7.5%
Primary	100	100	100	0.0%
Secondary	21,700	31,500	38,800	2.9%
Tertiary	55,400	131,200	289,800	8.6%
MPA East	12,700	27,800	52,100	7.3%
Primary	200	300	400	3.5%
Secondary	9,600	21,100	40,500	7.5%
Tertiary	2,900	6,400	11,200	7.0%
MPA South	9,000	18,000	35,300	7.1%
Primary	300	400	500	2.6%
Secondary	5,200	9,600	18,200	6.5%
Tertiary	3,500	8,000	16,600	8.1%
MPA West	9,300	18,600	37,400	7.2%
Primary	400	500	700	2.8%
Secondary	4,800	10,000	20,000	7.4%
Tertiary	4,100	8,100	16,700	7.3%

Note : Figures may not add up to totals due to rounding.

Source: Projection figures compiled and calculated by MPA Study Team from cities' and regencies' RPJPD

(4) Trends of Population, Working Population and Production Growth in JABODETABEK MPA

By comparing the prospective trends in population, working population and production, four areas comprising the JABODETABEK MPA can be said to follow different growth patterns depending on their socio-economic characteristics as presented in Table 7.1.7.

Table 7.1.7 Growth Trends of JABODETABEK MPA Area

	Population	Working Population	Production	Characteristics
DKI Jakarta	Stable, with low growth rate	Moderate growth	Very high growth in tertiary sector	Service oriented high value-added structure
MPA East	Rapid growth	Rapid growth notably in secondary sector	High growth in secondary and tertiary sectors	Balanced growth led by development of industrial estates and supporting industries
MPA South	Moderate growth	Rapid growth in tertiary sector	Very high growth in tertiary sector	Moderate growth with strong service sector
MPA West	Very rapid growth	Very rapid growth in secondary sector	High growth in secondary and tertiary sectors	Rapidly developing with increase of residents and manufacturing industries

Source: MPA Study Team. Refer to Table 7.1.3, 7.1.4, and 7.1.5.

DKI Jakarta is expected to continue its rapid economic growth with significant contribution from the tertiary sector. With low growth in population as well as working population, the area's individual productivity will continue to grow rapidly, maintaining the lead from other areas. This trend reflects DKI Jakarta's service-oriented high value-added economic framework.

MPA East is projected to grow in terms of population as well as economy at a rapid pace, together with MPA West. MPA East has relatively high proportion of tertiary sector working population and production. Projection of the area's economic growth can be characterized by more balanced growth of secondary and tertiary sectors. This trend implies that the area's growth boosted by further development of industrial estates will be supported by the service sector development. It should also be noted that the growth of primary (agricultural) sector is expected to continue, in balance with the other sectors.

MPA South is also an area with high proportion of tertiary sector contribution to its economy. Although its population growth will not be as rapid as with the MPA East and West, it will be robust as compared with that of DKI Jakarta. Prominent feature of the area's future growth pattern is the tertiary sector's rapid growth, next only to DKI Jakarta. The trend signifies the area's strength in service sector businesses, including tourism.

MPA West registered the fastest growing population rate among the four areas. The growth is the consequence of an active residential area development in and around the city of Tangerang Selatan. The area's secondary sector will achieve high growth, both in terms of production and working population. The area's primary sector, as with MPA East, is expected to continue growing. The growth pattern of the area represents MPA West's potential to accommodate residential, industrial, and agricultural development on its relatively large land area available.

7.2 SPATIAL FRAMEWORK IN 2020

7.2.1 Development Framework for 2020

(1) Projection of Land Use

1) Framework for Urban Areas

Although the urban area is mainly residential, it also includes commercial and small/house industries. The total gross area includes lot spaces and roads.

These urbanized areas, including both existing and new areas, are to be developed to meet the demand of future population growth in the JABODETABEK MPA. To meet the future demand, measures like encouraging high density land use at the existing urban areas and developing new urban areas at existing open spaces will be adopted. The necessary urbanized areas to be used in the future will be planned on the basis of the following premises;

- It is assumed that the population density in the existing urban areas will decrease by 3% inside DKI Jakarta for further decongestion, and the population density in the suburban areas will increase to 5% to promote more equitable redistribution of urbanization in 2020.
- Since a new urban area was developed recently, the population density in the inner districts of DKI Jakarta was assumed to be 200 persons/ha, and in the suburban areas, it was assumed to be 100 person/ha.
- New urban areas are identified based on the area's population density and future population in 2020.

As presented in Table 7.2.1, JABODETABEK MPA will require development of an area of 37,580 hectares to accommodate the additional population in 2020.

Table 7.2.1 Development Framework for Residential Areas

	2010				2020					
	Area (ha)	Population (thousand)	Urban		Population (thousand)	Existing Urban Areas		New Urban Areas		2010-2020 Area (ha)
			Area (ha)	persons /ha		Population (thousand)	persons /ha	Population (thousand)	persons /ha	
MPA	680,062	27,953	163,390	171	32,672	28,610	175	4,062	-	37,580
DKI Jakarta	63,991	9,588	43,360	221	9,889	9,280	214	609	200	3,050
MPA South	330,451	7,457	49,910	149	8,948	7,840	157	1,108	100	11,080
MPA West	137,257	5,942	37,240	160	7,507	6,260	168	1,247	100	12,470
MPA East	148,363	4,966	32,880	151	6,328	5,230	159	1,098	100	10,980
Karawang	191,356	2,125	21,080	101	2,746	2,230	106	516	100	5,160

Source: MPA Study Team, estimates by future population and population density.

2) Framework for Industries

The assumptions for future industrial framework in urban areas are shown in Table 7.2.2. The framework for industrial estates is to have large scale support infrastructure to boost the industry. However, small-scale or individual factories are excluded in the framework. The location of an industrial estate is guided by Regulation No. 24/2009 of the Government of the Republic of Indonesia. The necessary industrial areas in the future will be planned on the basis of the following premises;

- The Study Team estimated the increase in supply of working population for secondary sectors in 2020.
- The Study Team estimated the land areas of industrial estates in Indonesia capable of accommodating the increase in large and medium scale enterprises working population. This is based on the Indonesian average working population density of 126.2 worker/ha in an industrial estate (Density is based from the Indonesian Investment Guide 2009, ASEAN Japan Center and the estimate is based on the existing industrial zones in the country under the Indonesia Investment Guide 2009, ASEAN Japan Center).
- The proportion of Indonesia Investment Guide 2009, ASEAN Japan Center).
- The proportion of workers, except for small enterprise, was about 60% in 2007 based on Badan Pusat Statistik (BPS) (Small industries and handicraft industries; totaled to 7,289,726 with secondary working population of 17,796,194 = 41%; the remaining of 59% is for the other enterprise workers). The number of industrial estate workers in JABODETABEK MPA and Karawang was estimated at 42% in 2010 as presented in Table 7.2.3. Since new large factories were planned to be located in industrial estates, the target capacity was estimated at 60% in 2030 and this will be 50% in the middle of 2020.
- The basis of the Study Team's estimates of the required land area for industrial estates in JABODETABEK MPA and Karawang is the secondary GRDP ratio. DKI Jakarta is excluded in the land requirement since there is no space established for a new industrial estate. The secondary workers of DKI Jakarta are assigned in suburban areas.
- It is assumed that small/house industries workers are not counted as part of the industrial estates working population. The estimated land area for small/house industries is included in urbanized area as presented in Table 7.2.2.

Table 7.2.2 Development Framework for Small/House Industries

	2010		2020			
	Working Population (thousand)	Estimate Area (ha)	Working Population (thousand)	2010 - 2020		Total Area (ha)
				Working Population (thousand)	Area (ha)	
MPA+	2,092	4,300	2,503	410	800	5,100

Note: MPA+ consists of JABODETABEK MPA and Karawang.

The land for Small/House industries is included in urbanized area.

Source: MPA Study Team estimates were based on future secondary working population and average existing working population densities

As presented in Table 7.2.3, JABODETABEK MPA and Karawang area will require new industrial estate land of 6,800 ha for the additional working population in 2020.

Table 7.2.3 Development Framework for Industrial Estate

	2010				2020							
	Secondary Working Population (thousand)*1	Industrial Estate		Estimate worker ratio (*2/*1)	Secondary Working Population (thousand)*3	Estimate worker ratio *4	Industrial Estate Working Population (*3 x *4)		Secondary GRDP Increase 2010 - 2020 (US\$)		New Industrial Estate Area (ha)	Total Industrial Estate (ha)
		Area (ha)	Estimate Working Population (thousand)*2				(thousand)	2010 - 2020				
MPA+	3,597	11,923	1,505	42%	5,005	50%	2,503	860	-	-	6,800	18,723
DKI Jakarta	983	1,089	137		1,033		137	0	-	-	0	1,089
MPA South	793	240	30		1,158		2,365	860	4,400	19.0%	1,290	1,530
MPA West	910	850	107		1,415				5,200	22.4%	1,520	2,370
MPA East	684	5,654	714		1,093				11,500	49.6%	3,370	9,024
Karawang	227	4,090	516	306	2,100	9.1%	620	4,710				

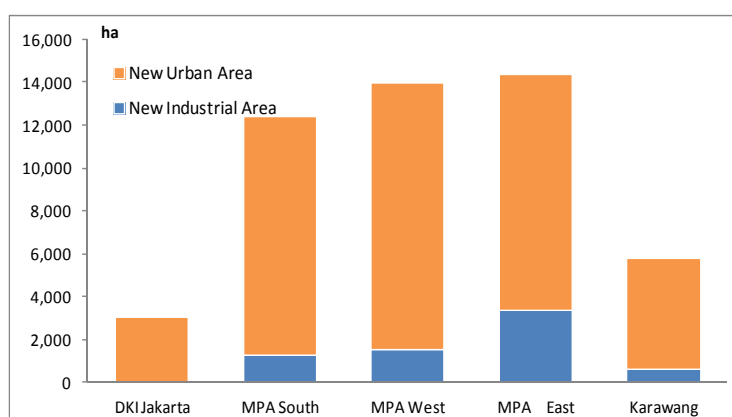
Note: MPA+ consists of JABODETABEK MPA and Karawang. Under construction is excluded in 2010.

Source: Indonesia Industrial Estate Directory 2011-2012, HKI

MPA Study Team estimates based on future secondary working population, secondary GRDP and average existing working population densities.

(2) Spatial Framework

The expansion of new urban and industrial estate areas is summarized in Figure 7.2.1. The new urban area expands to suburban areas to distribute population more evenly, since DKI Jakarta is already highly urbanized.



Source: Establishment by MPA Study Team Refer to Table 7.2.1 and 7.2.2

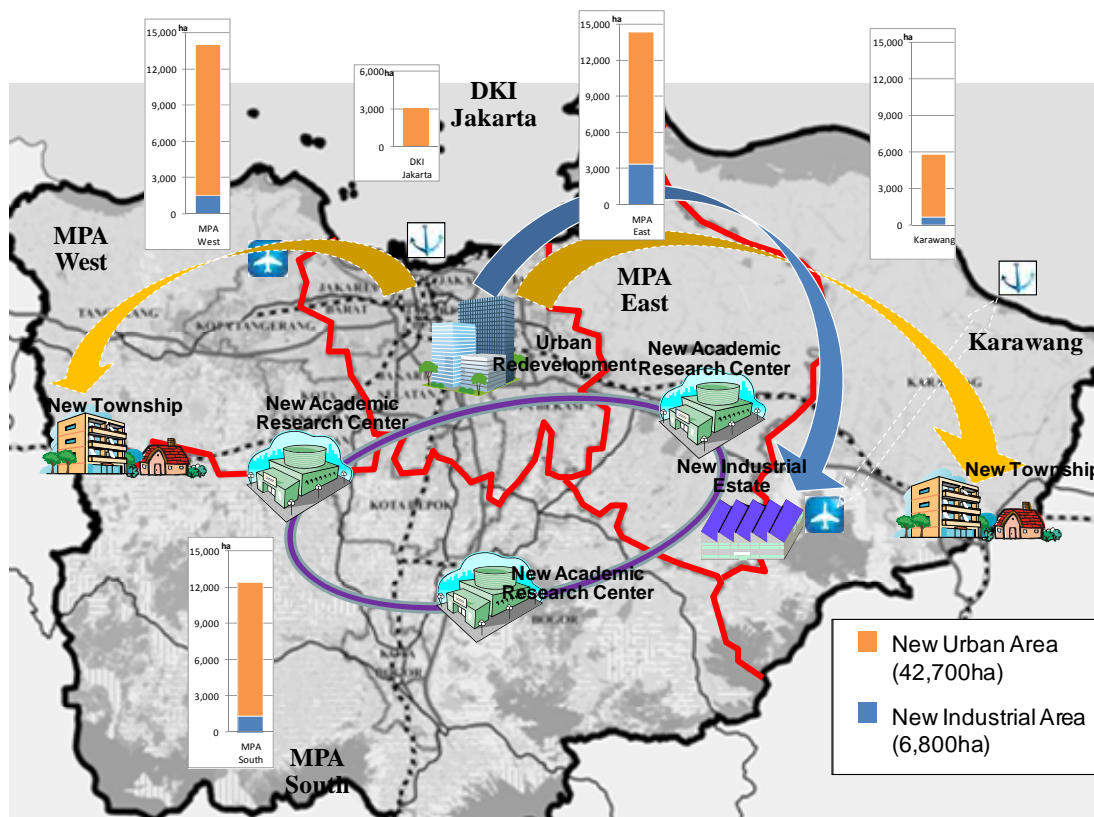
Figure 7.2.1 New Urban/Industrial Area

The scale of urban land use in 2020 is summarized in Table 7.2.4. This area is less than the area in the spatial plan. The spatial plan has specified land use. Since it is urban areas less than the area of spatial plan, the framework has adjusted to the spatial plan.

Table 7.2.4 Spatial Framework

		Land Use			Spatial Plan (km ²)	Margin (km ²) Spatial – Land Use
		2010 (km ²)	2020 (km ²)	2010 - 2020 (km ²)		
JABODETABEK MPA	Total	6,802	6,802	-	-	-
	Urban	1,695	2,134	439	4,274	2,140
	Non-Urban	5,105	4,668	-437	2,513	-2,155
DKI Jakarta	Total	640	640	-	-	-
	Urban	472	503	31	548	45
	Non-Urban	168	137	-31	80	-57
MPA South	Total	3,305	3,305	-	-	-
	Urban	506	630	124	2,000	1,370
	Non-Urban	2,799	2,675	-124	1,304	-1,371
MPA West	Total	1,373	1,373	-	-	-
	Urban	383	523	140	678	155
	Non-Urban	989	850	-139	694	-156
MPA East	Total	1,484	1,484	-	-	-
	Urban	334	478	144	1,048	570
	Non-Urban	1,149	1,006	-143	435	-571
Karawang	Total	1,914	1,914	-	-	-
	Urban	214	272	58	-	-
	Non-Urban	1,700	1,642	-58	-	-

Note: Urban = Settlement (residence and commerce) and industry including infrastructure.
 Non-Urban = Forest, farm, field, inland water, plantation, rice field, dry agricultural land and open land.
 Refer to Table 2.1.1 for land use in 2010. Land use in 2020 has been added to Table 7.2.1 and 7.2.2.
 Spatial Plans for urban area are B1, B2 and B4. Intermingled low-density housing and agricultural land (such as B2) are in Non-Urban. These are measured in the map by GIS.
 Source: MPA Study Team estimates based on the existing land use and respective spatial plans (RTRW).



Source: MPA Study Team, refer to Table 7.2.1 and 7.2.2

Figure 7.2.2 Image of Multi-Core Structure

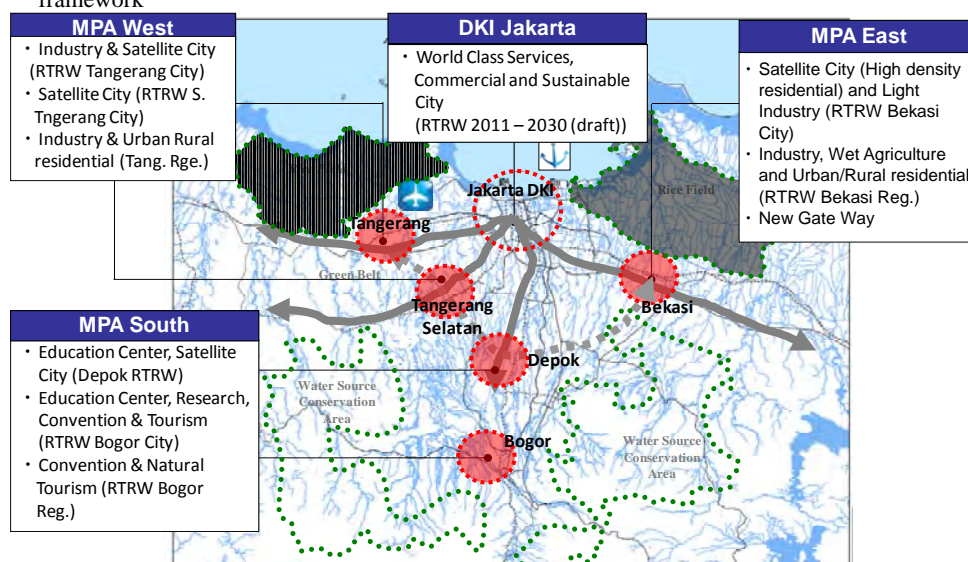
7.2.2 Directions of Development and Conservation

Directional pathways for development and conservation may vary depending on the site location. The directional pathways are extracted from the existing areas' settings as well as from the future plans mentioned above. Table 7.2.5 shows the directions of development and conservation for JABODETABEK MPA.

Table 7.2.5 Future Regional Development Directions for JABODETABEK MPA

Area	Development and Conservation Directions
JABODETABEK MPA	<ul style="list-style-type: none"> - Redistribution of business activities outside of DKI Jakarta - Strengthening of disaster preparedness and response - Securing of stable power and water supply - Improvement of road network - Development of efficient logistics network - Improvement of access to gateways
DKI Jakarta	<ul style="list-style-type: none"> - Creation of green open spaces - Improvement of living environment through sewerage development and proper solid waste management - Development of mass transportation system - Development of interconnected mass transportation networks - Development of smart communities - Improvement of the existing seaport
MPA East	<ul style="list-style-type: none"> - Improvement of living environment for low-income citizens and workers in industrial estates - Development of industrial estates especially for high value added industries including development of smart communities - Development of new gateways - Protection of agricultural land along the coast
MPA South	<ul style="list-style-type: none"> - Promotion of research and development functions - Promotion of tourism and convention functions - Conservation of water sources
MPA West	<ul style="list-style-type: none"> - Improvement of living environment including provision of affordable housings - Improvement of the existing airport - Protection of agricultural area along the coast

Source: MPA Study Team, based on respective spatial plans (RTRW), development strategies and socio-economic framework



Source: MPA Study Team, based on respective spatial plans (RTRW), development strategy and socio-economic framework

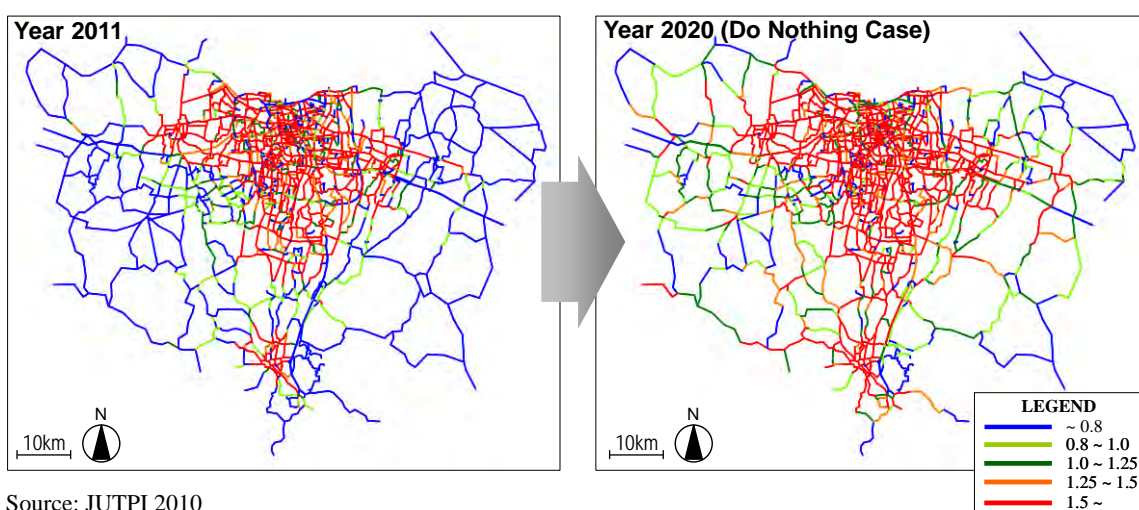
Figure 7.2.3 Future Regional Development Directions for JABODETABEK MPA

7.3 TRANSPORTATION FRAMEWORK IN 2020

7.3.1 Person-Trip Demand and Supply Perspective

(1) Traffic Situation in 2020

Without any improvements on the transportation system, traffic situation will get worse and almost all streets would be congested attaining the volume capacity ratios of more than 1.0 as illustrated in Figure 7.3.1. This ratio is calculated by dividing traffic volume on a road by its capacity.

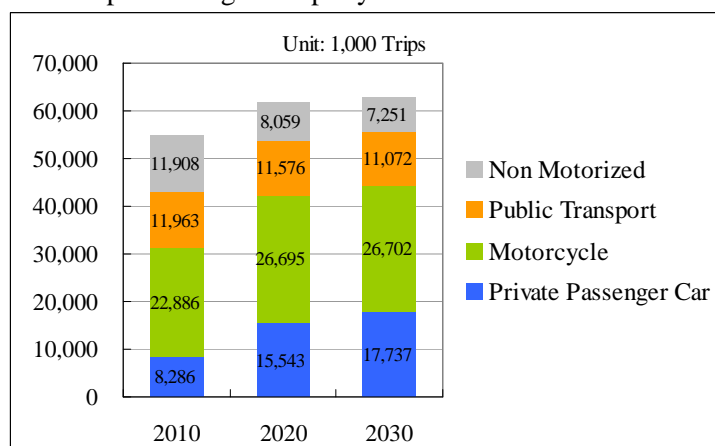


Source: JUTPI 2010

Figure 7.3.1 Volume Capacity Ratios for Do-Nothing Case in 2020

(2) Person-Trip Demand Growth in JABODETABEK MPA Area

In accordance with the anticipated growth of population and vehicle ownership in the next two decades, the total person-trips made by private passenger cars and public transportation are expected to grow rapidly.

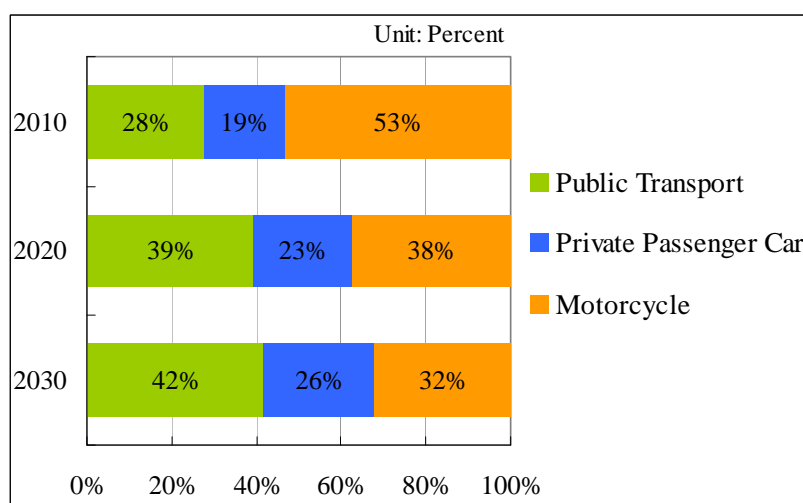


Source: JUTPI 2011

Figure 7.3.2 Trip Generation in JABODETABEK MPA Area

It is expected that the current motorcycle-owning households might purchase private passenger cars as their household income increases; therefore, the share of motorcycle would decrease while the share of private passenger cars is expected to increase.

This implies that the trips made by private passenger cars will continue to increase and will result to further traffic congestion in JABODETABEK MPA. Since road network can no longer be developed in the urban areas due to high density land areas and difficulty in land acquisition, all kinds of countermeasures should be taken to deal with urban transportation problems in the JABODETABEK MPA.



Source: JUTPI 2011

Figure 7.3.3 Estimated Modal Share: 2010 – 2030

(3) Performance Goals for Public Transportation and Road Sector

To overcome the issues on public and road transportation mentioned above, some evaluation index targeted in 2020 is set as shown in Table 7.3.1, which can be fulfilled in case all projects proposed in JABODETABEK MPA and projects planned in other master plan studies are completed. Projects on public and road transportation proposed in JABODETABEK MPA cover major projects which are expected to be the backbone of transportation in JABODETABEK MPA.

Table 7.3.1 Trip Generation in JABODETABEK MPA

Concept in Vision 2020	Impact Indicators by Planned Projects	Impact Indicators by Planned Projects	
		2010	2020
High Quality of Life	Coverage of Railway and Busway in Urban Areas	27%	45%
Growth	Average Travel Speed from Suburban to CBD during the Morning Peak Period	7 km/h	15 km/h
Eco-Friendliness	PM-10 Emissions per capita	0.25	0.22

Source: JUTPI 2011, all the projects of MPA and JUTPI in the medium-term are assumed to be completed in 2020.

7.3.2 Cargo Demand and Supply Perspective

(1) Industrial Estates and Manufacturing Sites

Factories serve as the major origin and destination of goods. For instance, a factory imports parts and materials from abroad and the manufactured or assembled products are distributed to domestic markets or are exported to abroad. Cargoes are transported between port and factories, and between factories, or between markets and factories. The location distribution of factories has a close relationship with the traffic pattern to and from the port.

In the JABODETABEK MPA, the distributions systems of existing industrial estates are shown in Table 7.3.2. The composition of industrial areas in MPA East (Kota/Kabupaten Bekasi) amounted to 25.9%. Industrial estates and manufacturing factories are major origins and destinations of cargoes.

In 2020, the required land area for the development of industrial estates in JABODETABEK MPA area and Karawang is estimated at 18,723 ha.

Table 7.3.2 Industrial Estate in JABODETABEK and Karawang in 2020

	Industrial Estate (ha)	Share (%)
DKI Jakarta	1,089	5.8%
MPA South	1,530	8.2%
MPA West	2,370	12.7%
MPA East	9,024	48.2%
Karawang	4,710	25.2%
Total	18,723	100.0%

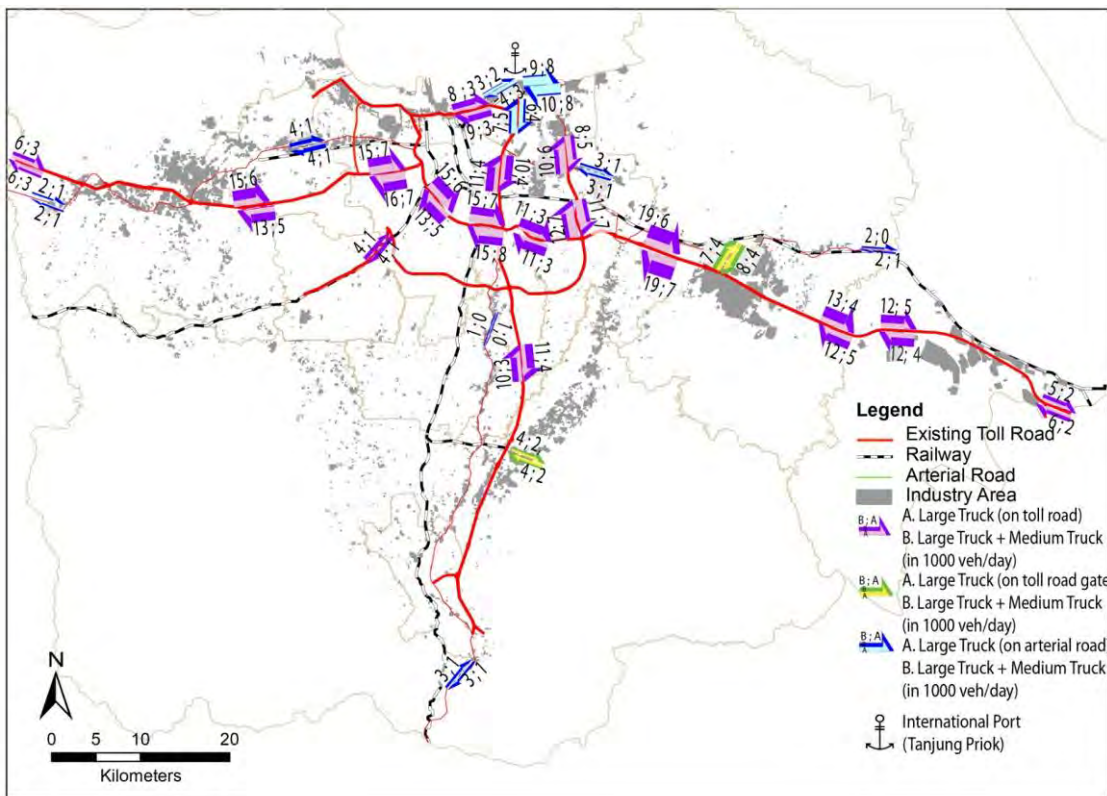
Note: DKI Jakarta does not have newly developed industrial estate for the period from 2010.

Source: Refer to Table 7.2.3

(2) Truck Movements on the Road Network

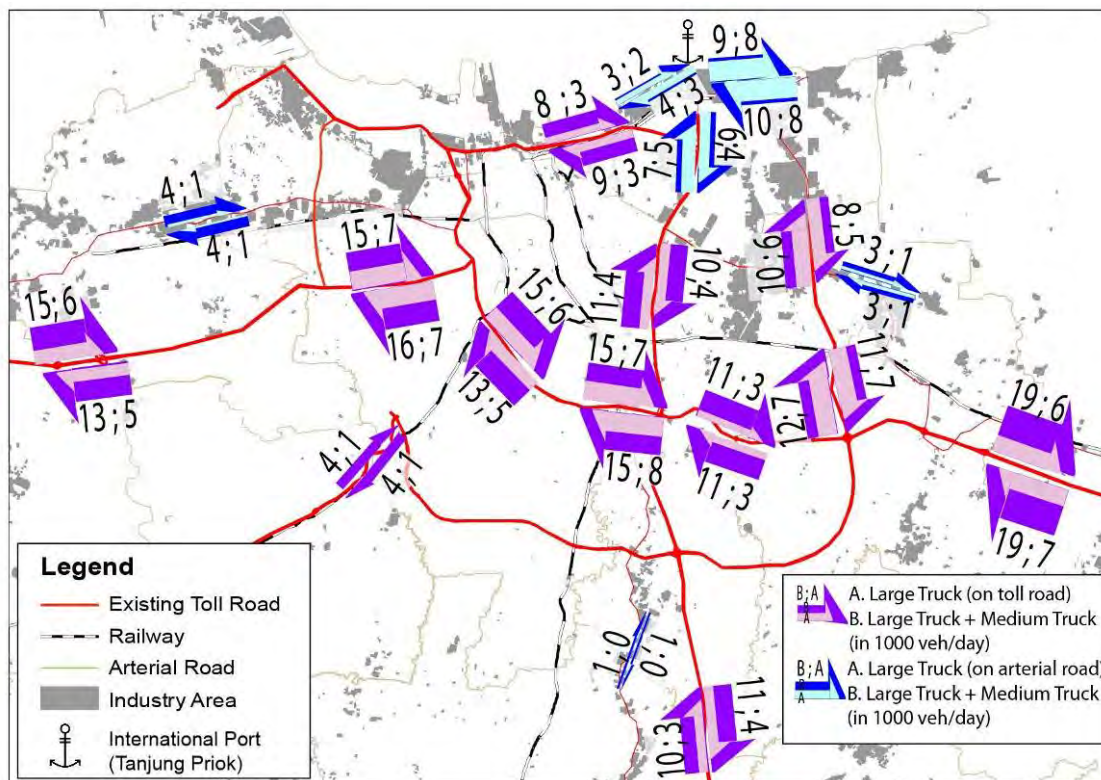
Truck movements on toll roads and major arterial roads are illustrated in Figure 7.3.4. Large trucks ply the radial inter-regional toll roads, i.e., Jakarta - Cikampek Toll Road, Jakarta - Merak Toll Road and Jagorawai Toll Road. Presented in Figure 7.3.5 are more details on truck movements in JABODETABEK MPA. Roughly, there are around 11,000 to 15,000 large trucks traversing the Cawang - Tomang section of the Jakarta Intra-urban Tollway.

Compared to the toll road, the number of large trucks using the radial arterial roads, such as Jalan Daan Mogot and Jalan Raya Bekasi are relatively small with 2,000 vehicles per day for both directions. Large numbers of trucks were observed in the arterial roads of the surrounding areas of Tanjung Priok Port.



Source: Traffic Count Survey for JUTPI, 2008

Figure 7.3.4 Truck Movements and Distribution of Manufacturing Factories

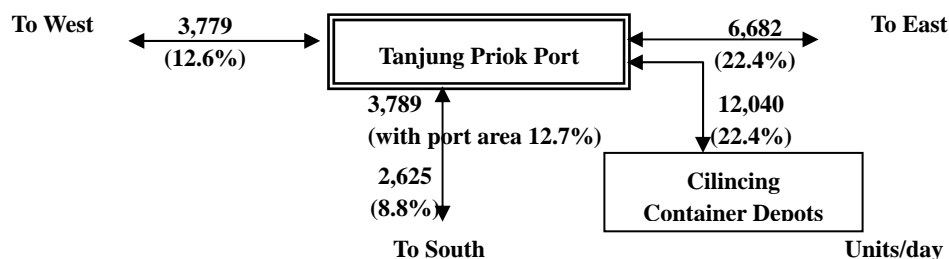


Source: Traffic Count Survey for JUTPI, 2008

Figure 7.3.5 Large and Medium-sized Truck Movements in JABODETABEK MPA

(3) Truck Traffic to and from Tanjung Priok Port

Based on the origin/destination (O/D) survey conducted in the Tanjung Priok Port Master Plan, the directional traffic flows to/from Tanjung Priok Port are shown in Figure 7.3.6. The biggest directional traffic flow is to/from the east (6,692 units per day), considering that, except for Cilincing container depots, many container depots and large industrial complexes are located at the eastern side of the port. This result matched the distribution of the industrial estates in JABODETABEK MPA.



Source: JICA, The Project of Master Plan Study on Port Development and Logistics in Greater Jakarta Metropolitan Area (2011, JICA)

Figure 7.3.6 Average Trucks Directional Traffic Flow Diagram

(4) Demand Forecast for the Sub-transport Sector

1) Cargo Demand Forecast at the Port

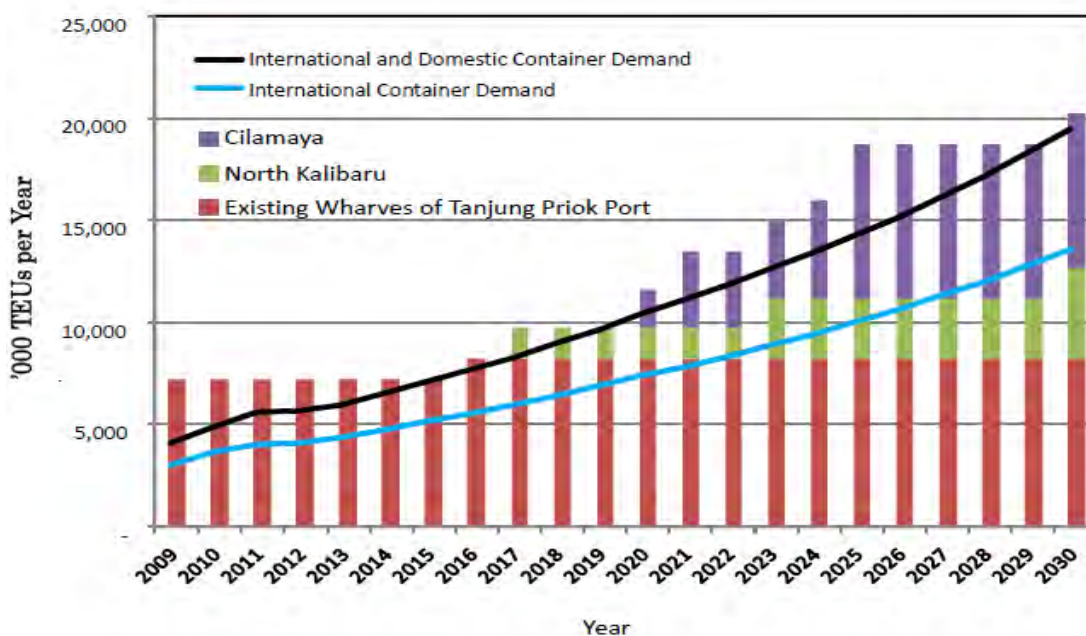
According to the Tanjung Priok Port Master Plan of the Ministry of Transport in 2011, total container handling volume will reach 9.54 million TEU in 2020, consisting of international containers of 7.26 million TEU and domestic containers of 2.28 million TEUs as presented in Table 7.3.3. Meanwhile, the total non-container cargo handling volume in 2020 will be 79.7 million tons, with 61.2 million tons of international cargo and 18.6 million tons of domestic cargo. Both container and non-container cargo volumes in 2020 will reach more than twice in 2011.

Table 7.3.3 Cargo Demand Forecast in Port

Item	Year			2020/ 2011	2030 /2011	
	2011	2020	2030			
Container (Thousand TEU)	Total	3,804	9,539	17,738	2.51	4.66
	International Total	2,736	7,255	13,356	2.65	4.88
	Export	1,291	3,628	6,678	2.81	5.17
	Import	1,445	3,628	6,678	2.51	4.62
	Domestic Total	1,068	2,284	4,382	2.14	4.10
	Loading	544	1,142	2,191	2.10	4.03
	Unloading	524	1,142	2,191	2.18	4.18
Non-Container (Thousand TEU)	Total	36,258	79,702	140,868	2.20	3.89
	International Total	28,596	61,153	106,183	2.14	3.71
	Export	12,980	23,244	36,396	1.79	2.80
	Import	15,616	37,909	69,787	2.43	4.47
	Domestic Total	7,662	18,549	34,685	2.42	4.53
	Loading	5,244	13,237	25,396	2.52	4.84
	Unloading	2,417	5,312	9,289	2.20	3.84

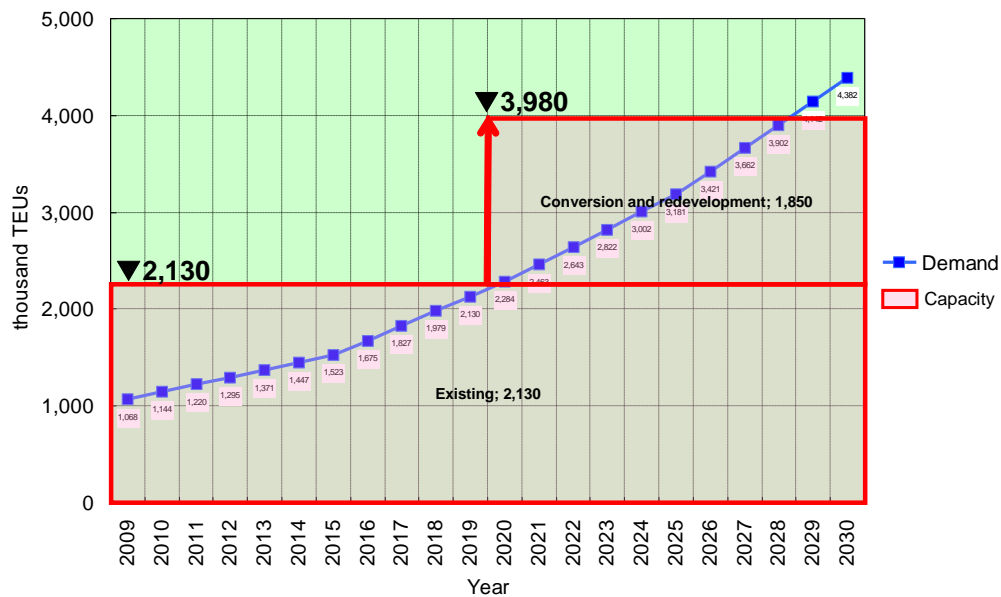
Source: Lampiran Peraturan Menteri Perhubungan, Nomor PM 42 Tahun 2011, Rencana Induk Pelabuhan "Greater" Jakarta (Tanjung Priok), 2011.04

In order to accommodate the rapid growth of container handling volume, the new container terminal development was planned at North Kalibaru and Cilamaya. Figure 7.3.7 and Figure 7.3.8 show the international and domestic container cargo demand forecast and the capacity planned in the Interim Report of the Preparatory Survey for Cilamaya New Port Development Project conducted by JICA. Regarding the international /domestic container cargo, existing capacity at Tanjung Priok is estimated 7.2 million TEU, which will be surpassed in 2015. The North Kalibaru Container Terminal Stage 1 is scheduled for completion in 2017 and Stage 2 will operate starting in 2023. According to the Interim Report, the capacity of container handling in Tanjung Priok Terminal in 2017 is estimated around 9.7 million TEU by development of the North Kalibaru stage 1 and 11.2 million by stage 2 in 2023 and 12.7 million by stage 3 in 2030, while the demands in 2017 is forecasted around 8.1 million TEU. The Cilamaya Container Terminal Phase 1 will be available in 2020 and its capacity will be 3.75 million TEU and subsequently the phase 2 facilities with capacity of 3.75 million TEU will be developed in 2026 to accommodate the international container cargo demand at 13.4 million TEU and domestic demands of 6.0 million TEU in 2030. The total international/domestic container demands forecast will be 19.4 million TEU, while the total capacity of container handling by Tanjung Priok and Cilamaya new terminal will become 20.2 million TEU.



Source: The Preparatory Survey on Cilamaya New Port Development Project Interim Report

Figure 7.3.7 Balance of Capacity and Demand in International and Domestic Container Handling at Tanjung Priok Terminal and Cilamaya Terminal



Source: M/P Study on Port Development and Logistics in Greater Jakarta Metropolitan Area (JICA)

Figure 7.3.8 Domestic Container Cargo Demand Forecast and Capacity

2) Cargo Demand Forecast of Air Transport Sector

According to the demand forecast in the JICA Master Plan Study on Multiple-Airport Development, the total airport cargo in DKI Jakarta would reach 730,000 tons in 2020. These include 334,000 tons of international cargo and 396,000 tons of domestic cargo as presented in Table 7.3.4. The size of air cargo volume in 2020 will be almost twice that of 2010.

Table 7.3.4 Cargo Demand Forecast for Airport

Item	Year					
	2005	2010	2015	2020	2025	2030
Total Cargo (Ton)	336,112	496,877	606,000	730,000	854,000	976,000
International Total	159,134	256,642	286,000	334,000	382,000	429,000
Arrival	74,073	129,680	144,000	170,000	196,000	221,000
Departure	85,061	126,962	142,000	164,000	186,000	208,000
Domestic Total	176,979	240,235	320,000	396,000	472,000	547,000
Arrival	59,656	73,065	94,000	114,000	134,000	153,000
Departure	117,323	167,170	226,000	282,000	338,000	394,000

Source: JICA, Master Plan Study on Multiple-Airport Development for Greater Jakarta Metropolitan Area in the Republic of Indonesia Progress Report 2011.03

3) Cargo Demand Forecast for Railway

According to the National Railway Master Plan issued in 2011, the cargo volume of railway transportation would drastically increase in the next 20 years as presented in Table 7.3.5 and Table 7.3.6.

Table 7.3.5 Cargo Demand Forecast for Railway

Item	Year			
	2006	2009	2020	2030
Total Cargo (thousand Ton)	17,273	18,923	530,463	995,500
Java	3,900	3,975	281,607	534,000
Sumatra	13,373	14,948	218,213	403,000
Kalimantan	0	0	13,095	25,000
Sulawesi	0	0	14,143	27,000
Papua	0	0	3,405	6,500

Source: Kementerian Perhubungan Ditejen Perkeretaapian, Rencana Induk Perkeretaapian Nasional, 2011.04

*Demand forecast in 2020 was estimated by MPA Study Team.

Table 7.3.6 Railway Cargo Demand Forecast in Java (O/D Matrix) in 2030

	KI Jakarta	Jawa Barat	Jawa Tengah	DI Yogyakarta	Jawa Timur	Banten	Total
KI Jakarta	0	31,854	11,849	1,838	5,548	14,878	65,967
Jawa Barat	32,257	0	39,722	6,160	18,598	25,038	121,775
Jawa Tengah	10,363	34,302	0	12,469	82,268	8,043	147,445
DI Yogyakarta	1,106	3,658	8,574	0	8,772	380	22,490
Jawa Timur	4,784	15,834	82,502	12,793	0	3,652	119,565
Banten	15,755	26,180	9,739	668	4,416	0	56,758
Total	64,265	111,828	152,386	33,928	119,602	51,991	534,000

Source: Kementerian Perhubungan Ditejen Perkeretaapian, Rencana Induk Perkeretaapian Nasional, 2011.04

7.3.3 Future Vision of Logistics

(1) Logistical Changes towards 2020

The planned logistics towards 2020 are summarized below:

1) Increase in the Number of Industrial Estates and Factories alongside Economic Growth

The relocation of industrial estates and factories will be far-off from DKI Jakarta, especially on the east side of DKI Jakarta where new large industrial estates will be developed. This will transfer the major origin/destination of goods to the east side of DKI Jakarta.

2) Increase in Container Cargo Handling Volume

The new factories will contribute to the container cargo traffic to/from the port and will induce an increase in container handling volume at the port.

3) Increase in Domestic Cargo Volume alongside Economic and Population Growth

The parallel growth of population and economy of Indonesia will accelerate goods consumption, some of which will be imported from abroad, and some of which will be dispatched from DKI Jakarta to other areas such as Sumatra, Kalimantan, Sulawesi, etc. which will translate to an increase in international and domestic cargo handling volume at the port.

4) Increase in Demand for Value-added Logistics Services

The increase in the movement of goods requires more sophisticated logistics system. The need for value-added logistics services such as on-time delivery, distributive processing, etc. would be increasing.

5) Increase in Demand for Environment-friendly Logistics Services

In order to meet the needs of an environment-conscious society, logistics also have to consider the environmental aspects, such as transportation systems with less CO₂ emissions, less traffic congestion, etc.

(2) Logistics Vision beyond 2010

The basic concept of future logistics plan in 2020 is as follows:

1) Multi-Port system

Currently, Tanjung Priok Port is the only international port in the West Java area and it covers vast hinterland areas. This results to concentration of goods movement to the Tanjung Priok Port and traffic congestion around the port. The transportation between factories located in the vicinity of DKI Jakarta and the port is highly inefficient and limited to just one round-trip per truck because of heavy traffic congestion. Considering the location of origin/destination of goods and the rapid growth of container cargo handling volume at the port, a new container terminal is planned in Cilamaya as the second international port in the West Java area. These two ports, Tanjung Priok Port and the new Cilamaya Port will function as the main ports of the West Java area and will share the wide hinterland of JABODETABEK and its vicinities.

2) Provision of Efficient Logistics Services through Installation of Logistics Facilities

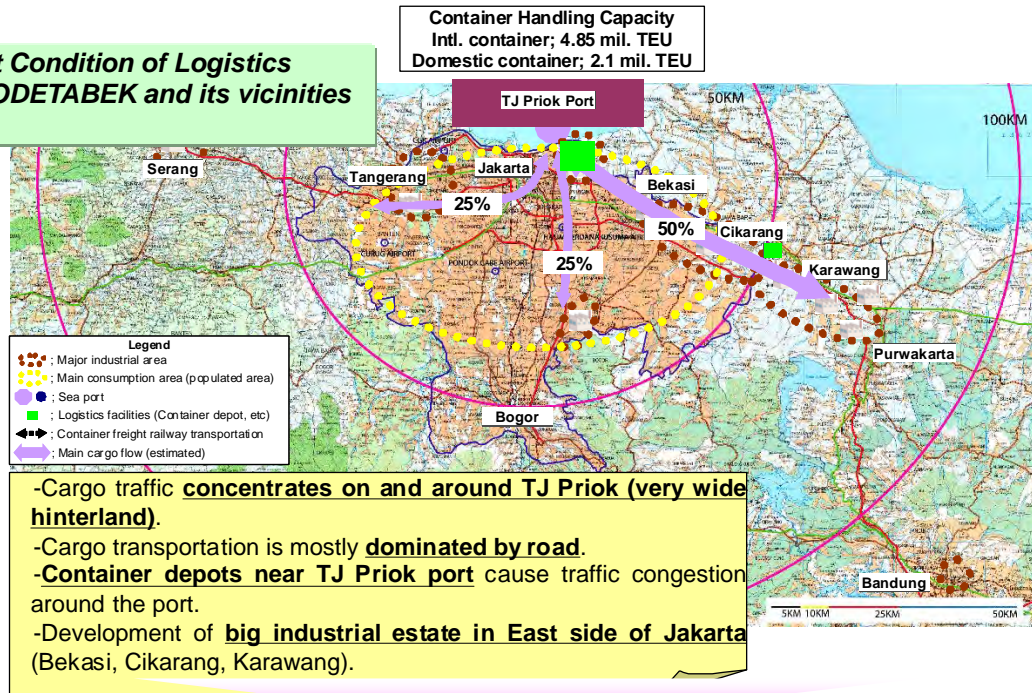
As mentioned in the logistics plan towards 2020, the need for value-added logistics services will increase. The intensive logistics facilities at the strategic locations providing value-added services would realize the establishment of an efficient logistics network.

3) Utilization of freight railway transportation

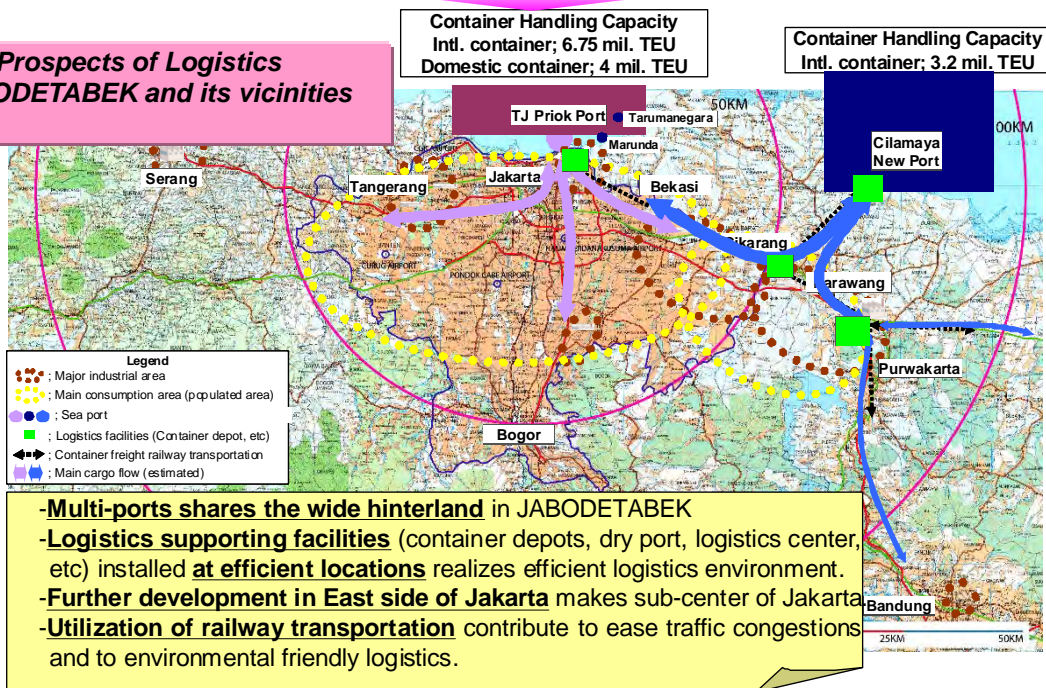
In order to reduce traffic congestion and realize eco-friendly transportation of goods, use of freight railway transportation is recommended.

The present condition of logistics around JABODETABEK area and its vicinities and the logistics plan for the future with proposed logistics facilities are summarized and presented in Figure 7.3.9.

**Present Condition of Logistics
in JABODETABEK and its vicinities**



**Future Prospects of Logistics
in JABODETABEK and its vicinities**



Source: MPA Study Team

Figure 7.3.9 Present Condition and Logistics Plan for JABODETABEK MPA and its Vicinities

7.4 TARGET EFFECT INDICATORS

The target effect indicators to achieve the concept of the development of JABODETABEK MPA towards 2020 are summarized in Table 7.4.1. The master plan by sector in Sections 7.5 and 7.6 will be formulated for the achievement of these targets.

Table 7.4.1 Target Effect Indicator (1/2)

SECTOR	TARGET EFFECT INDICATOR (Narrative)	TARGET EFFECT INDICATOR (Quantitative)		DESCRIPTION	Source
		2010 (Base)	2020 (Target)		
Urban Transport					
Mass Transportation Networks	Increase passenger movement by Railway/Bus	27 %	45 %	Share of railway/bus in urbanized area is expanded from 27% (2010) to 45% (2020).	*1
Road Networks	Average vehicle speed during the morning peak hour	7 km/hour	15 km/hour	Average vehicle travel speed will be doubled from 7 km/h (2010) to 15 km/h (2020).	*1
Ports	International /domestic container cargo capacity	7.2 million TEU	11.6 million TEU	Unload 35% of the container handling volume from DKI Jakarta (Tanjung Priok Port) to new Cilamaya Port.	*2
Airports	Annual passenger capacity	22 million passengers	90 million passengers	Actual annual passengers have already reached 42 million at SHIA in 2010.	*3
Urban Environment					
Urban Development	Accelerate multi-core urban development	-	4 million people in new urban areas at suburban areas	Reduce 3% of population density of DKI Jakarta, and increase by 5% in suburban area	*4
Industrial Area	Expedite new industrial estates development	-	6,800 ha at suburban areas	High-value-added industries are introduced to suburban areas.	*5
Water Supply	Improve piped water service coverage (DKI Jakarta)	54 %	77%	Piped-water supply will be improved from 40.8 m ³ /s (2010) to 68.3 m ³ /s (2020).	*6
Sewerage System	Improve sewerage coverage ratio	2%	20%	Population using sewerage system will be expanded from 0.1 million (2010) to 2 million (2020) people.	*7
Waste Management System	Treated/disposed volume	4,500 tons/day	9,000 tons/day	Treated/disposed rate will be enhanced from 40% (2010) to 60% (2020).	*8

Table 7.4.1 Target Effect Indicator (2/2)

SECTOR	TARGET EFFECT INDICATOR (Narrative)	TARGET EFFECT INDICATOR (Quantitative)		DESCRIPTION	Setting Bases
		2010 (Base)	2020 (Target)		
Flood Management System	Capacity of discharging flood water to the sea	pumping capacity of 60 m³/s	pumping capacity of 126 m³/s	Reduce the risk of flooding in line with the Master Plan by PU/DKI Jakarta. Polder and retention pond are provided to secure pumping capacity.	*9
Electric Power Infrastructure	Secure reserve margin for peak demand	More than 30%	More than 30%	Secure 30% of reserve margin (Peak Demand/ System Capacity) in Java-Bali System.	*10

Source: Setting by MPA Study Team based on *

*1; JUTUPI (JABODETABEK Urban Transportation Policy Integration), JICA

*2; M/P Study on Port Development and Logistics in Greater Jakarta Metropolitan Area, JICA

*3; Airport Master Plan Study, JICA

*4; MPA M/P Report, Section 7.2.1 (1)

*5; MPA M/P Report, Section 7.2.1 (1)

*6; MPA M/P Report, Section 7.6.2 (3)

*7; The Project for Capacity Development of Wastewater Sector through Reviewing the Wastewater Management Master Plan in DKI Jakarta, 2011

*8; MPA M/P Report, Section 7.6.3 (3)

*9; MPA M/P Report, Section 7.6.4 (3) and East Pump Station at Pluit project etc.

*10; PLN RUPTL 2011-2020 and MPA M/P Report, Section 7.6.5 (1)

(1) Urban Transport

1) Mass Transportation Networks

Chronic traffic congestion is an issue for public transportation. The target effect indicator of the sector is the number of passenger using the railway/bus. Share of railway/bus in urbanized area will expand from 27% in 2010 to 45% in 2020 through the development of MRT-based new urban transport systems, development of railway along the new growth sub-corridor, and railway access to Soekarno-Hatta International Airport and the busway network development.

2) Road Networks

Chronic traffic congestion is also an issue for road sector. The causes of traffic congestion are surge in number of cars and motorcycles as well as insufficient road network. The target effect indicator of the sector is the average vehicle speed during the morning peak hour. Average vehicle travel speed will be doubled from 7 km/hour in 2010 to 15 km/hour in 2020 through the development of a road network in and around Jakarta, traffic flow improvement and transportation demand management, development of access road to seaport and airport, etc.

3) Ports

As economy grows in Jakarta Metropolitan Area, the container volume handled at

Tanjung Priok Port has been increasing. It is forecasted that the international container cargo for Jakarta Metropolitan Area will surpass the capacity of the existing Tanjung Priok Port in 2014. The target effect indicator of seaport sector is the international container cargo capacity. The capacity will increase from 4.9 million TEUs in 2010 to 9.1 million TEU in 2020 through the improvement and expansion of the existing facilities in Tanjung Priok and the development of a new international port.

4) Airports

The Soekarno-Hatta International Airport cannot accommodate air passenger demand and the gap between demand and supply will constantly increase as economy grows. It is expected for the airport to have a capacity of 90 million passengers per year considering the demand, therefore, an expansion of the facilities at the existing airport and the development of a new airport are required.

(2) Urban Environment

1) Urban Development

Densification in DKI Jakarta has progressed so far and future continuation of the densification will lead to more serious urban problems such as traffic congestion, environmental pollution, etc. To avoid this situation and to attract investment and industry, urban development in suburban areas need to be encouraged. The target effect indicator of urban development sector is the acceleration of multi-core urban development. In 2020, four million people will live in new urban areas at suburban areas, mainly through new township development.

2) Industrial Areas

To keep the economic growth stable, more employment opportunities should be created. In this sense, promoting industry is very important in the Study. The target effect indicator for the industrial estate sector is to expedite new industrial estates development. New industrial estates attracting high-value-added industries are to be developed, by taking the advantage of the agglomeration of the existing industrial estates and future development such as new airport and new seaport.

3) Water Supply

To sustain people's lives and economic activities, access to safe water is vital. As economy and population grows in JABODETABEK, addressing the increase in water demand becomes difficult. The target effect indicator for water supply is to improve piped water service coverage (DKI Jakarta). The service coverage ratio will increase from 54% in 2010 to 77% in 2020 mainly through the "DKI Jakarta – Bekasi – Karawang Water Supply (Jatiluhur)", hereinafter refer to as "Jatiluhur Project"..

4) Sewage System

Sewerage coverage ratio in 2010 was only 2% in Jakarta. Most of the wastewater in the city was not treated. Since the population and economy in the area are expected to grow, rivers can easily be deteriorated due to water contamination if proper measures are not considered. The target effect indicator for sewerage sector is to improve sewerage coverage ratio. The ratio will go up to 20 % in 2020 mainly through the development of sewerage system in DKI Jakarta.

5) Waste Management System

As population grows, the amount of waste generation is expected to grow. The collection rate of solid waste in DKI Jakarta was nearly 80% but the rates of other kota were less than 50% while the rates of kabupaten were less than 20%. It is indispensable to keep the environment clean through the improvement of solid waste management. The target effect indicator for solid waste management sector is to increase the treated and disposed waste volume. Treated and disposed waste volume of 9,000 tons/day is to be attained in 2020 mainly through the development of a new landfill site and intermediate treatment facilities.

6) Flood Management System

DKI Jakarta has been hit by large scale floods, and the floods have damaged urban functions in the city. To secure a normal function, as the national capital of Indonesia, measures to reduce flood damages are necessary. The target effect indicator for flood control is to increase the capacity of discharging flood water to the sea. The pumping capacity will increase from 60 m³/s in 2010 to 126 m³/s in 2020 mainly through the development of urban drainage systems, reconstruction of East Pump Station at Pluit, etc.

7) Electric Power Infrastructure

Stable power supply is crucial for smooth business operations in JABODETABEK MPA. However, power outage has occurred in the area. Stable power supply is a key issue for power supply sector. The target effect indicator is to secure the reserve margin for peak demand. Securing more than 30% of reserve margin to meet the peak demand in 2020 is targeted. Development of coal-fired plants, improvement of voltage qualities, etc. are to be implemented to attain the target.

7.5 MASTER PLAN FOR URBAN TRANSPORT

7.5.1 Mass Transportation Networks

(1) Issues

The growth of household income has brought a dramatic growth on the number of cars and motorcycles. The development of residential area near I.C. in the suburban area has encouraged the preference of commuting by private transport mode. In contrast, the lack of capacity and maintenance of public transportation has caused delays and traffic accidents. Losing confidence on public transport and the inconvenience of transferring to/from another mode have caused a decrease in the share of income or ticket sales and service level of public transportation.

However, the traffic volume of road transport has already been beyond the capacity of the road network. Furthermore, from the viewpoint of urban environment, the improvement of public transport has been urgently required.

The target effect indicator for public transportation towards 2020 is shown in Table 7.5.1.

Table 7.5.1 Target Effect Indicator for Public Transportation

SECTOR	TARGET EFFECT INDICATOR (Narrative)	TARGET EFFECT INDICATOR (Quantitative)		DESCRIPTION
		2010 (Base)	2020 (Target)	
Mass Transportation Networks	Increase passenger movement by Railway/Bus	27 %	45 %	Share of railway/bus in urbanized area is expanded from 27% (2010) to 45% (2020).

Source: MPA Study Team based on JUTPI 2011

(2) Measures

1) Revision of SITRAMP

The urban transportation master plan for JABODETABEK was established by SITRAMP in 2004. Seven years have passed since the master plan was prepared; the situation mentioned in the master plan has significantly changed due to the remarkable economic growth of the region and increase in the number of cars and motorcycles. One of the objectives of JUTPI is the revision of the SITRAMP Master Plan specifically for projects starting from 2009, to reflect the changes in the socio-economic situation.

2) Goals of Urban Transportation System Development in JUTPI

Primarily, JUTPI examined the validity of the goals for the urban transportation system development listed as follows:

- a) Efficiency in transportation system to support economic activities;

- b) Equity in transport for all members of the society;
- c) Environmental improvement related to transport; and
- d) Transportation safety and security.

Each goal is described in Table 7.5.2. The progress review of the projects and programs proposed in SITRAMP provides lessons on project implementation. The examination of the progress confirmed that the goals for urban transportation system development identified in SITRAMP are still valid under the present revision of the transportation master plan.

Table 7.5.2 Goals of Urban Transportation System Development in SITRAMP

Goals of Urban Transportation System Development	Description
Efficiency in transportation system to support economic activities	Traffic congestion leads to a considerable amount of economic loss to the society due to increase in vehicle operating costs, longer travel times, tardiness and environmental degradation. Efficiency in transportation can be achieved by balancing transportation demand and transportation network capacity. Alleviation of traffic congestion can be dealt with in three ways: 1) by increasing road capacity through the development and improvement of the road network; 2) by optimizing utilization of the existing road capacity by using traffic control systems and providing traffic information; and 3) by decreasing excessive vehicular traffic demand through transportation demand management (TDM) and diversion of private mode users to public modes of transportation. At the same time, the promotion of public transportation would also contribute toward economic efficiency by reducing vehicular traffic demand on the congested road network. Mass transit systems have an advantage over private modes of transport in terms of travel costs and lesser consumption of space in the urban area. The combination of both approaches mentioned above will create an efficient transportation system.
Equity in transport for all members of the society	A minimum level of transportation service should be provided to all members of the society in order to secure a socially-acceptable minimum level of service. In JABODETABEK, the mobility of low-income groups is limited due to their insufficient income. The role of public transportation is thus of great importance in providing affordable means of transport for the lower income people to access urban services. At the same time, it is necessary to develop transportation facilities for the physically challenged. Such facilities are seldom seen in JABODETABEK at present and a gradual improvement of the transportation facilities is needed.
Environmental improvement related to transport	Air pollution caused by motorized vehicles should be minimized through emission control of automobiles, promotion of public transport and traffic demand control, especially in congested areas. Countermeasures to reduce PM10 should be the main focus, particularly in the study area. Noise at roadsides and residential areas shows unacceptably high levels except during midnight. Reduction of noise pollution caused by automobiles also should be targeted through frequent and appropriate vehicle maintenance and driving manners improvement.
Transportation safety and security	Since lives are invaluable, fatalities and injuries due to traffic accidents will bring grave grief to family members and friends. Traffic safety should be enhanced and the number of accident victims should be minimized through the enforcement of laws and regulations, intensive public campaigns, and training and education for drivers as well as the general public. Improvement of traffic facilities through engineering design would contribute to the reduction of traffic accidents. Railway accidents should also be minimized by improving the signalling facilities as well as by disseminating information regarding the dangers of unconventional riding behaviour of commuters, and by enforcing closure of train doors during running times.

Source: Tabulation has been made based on SITRAMP 2004.

3) Urban Transportation Policy and Strategy in JUTPI

In the previous SITRAMP urban transportation master plan, to achieve the different goals for transportation system development, the following four transportation policies were identified for the JABODETABEK region, and these four policies remain essential in the revision of the master plan:

- a) Promotion of Public Transportation Use
- b) Alleviation of Traffic Congestion
- c) Reduction of Air Pollutants and Traffic Noise
- d) Reduction of Transportation Accidents and Improvement of Security

4) Public Transportation System Development Measures in JUTPI

In the revised urban transportation master plan in JUTPI, various projects were proposed to tackle the urban transportation problem. The revised master plan promotes the importance of public transportation system, in particular, development of mass transit systems. Road network development is also of great significance, although the land acquisition for road development is often difficult. It is also recommended to introduce transportation demand management (hereinafter referred as TDM) such as car traffic restraint scheme. Road pricing is one of these policy measures. A new organization called JABODETABEK Transportation Authority is proposed to be established for the implementation of public transport schemes and TDM projects. The public transportation network development plan in JUTPI, shown in Figure 7.5.1, aims to meet the passenger demand as previously discussed in Section 7.3.1.

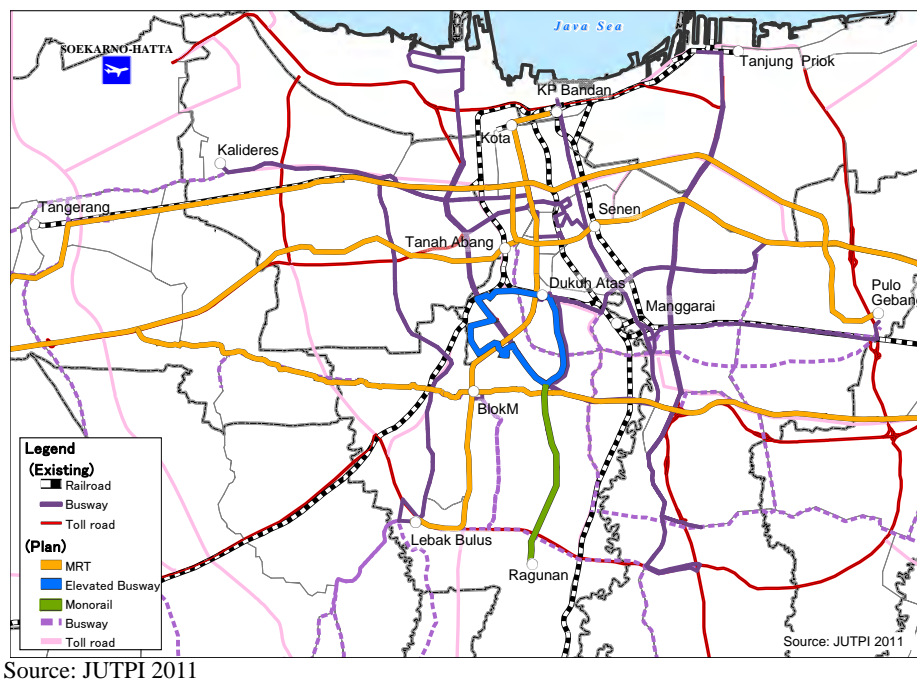


Figure 7.5.1 JUTPI Public Transportation Network 2030

The public transportation systems development includes bus and railway transport. The development of bus transportation systems and interchange facilities proposed in JUTPI are listed in Table 7.5.3.

Table 7.5.3 Proposed Measures for Transportation Policy

Transportation Policy	Proposed Measures
1) Public Transportation Use Promotion Policy	<ul style="list-style-type: none"> • Increase of railway transportation capacities and improvement of levels of service • Enhancement of maintenance systems for electric train-cars • Improvement of railway operations management • Financial reforms on railway operations • Enhancement of inter-modalities • Provision of extensive public transportation networks • High-intensity land development in the surrounding area of railway stations • Prioritization of public transportation • Reformation of bus operations management • Public transportation fare policy reforms
2) Traffic Congestion Alleviation Policy	<ul style="list-style-type: none"> • Efficient use of the existing road networks • Construction of flyovers, underpasses and connecting links • Clearing of illegal occupants on the road • Transportation Demand Management (TDM) • Traffic control improvement • Securing of lands for road development
3) Air Pollution and Traffic Noise Reduction Policy	<ul style="list-style-type: none"> • Establishment of environmental management schemes • Implementation and enhancement of air pollutant/noise emission standards • Enhancement of vehicle inspection and maintenance programs • Environment-friendly driving behaviour
4) Safety and Security Improvement Policy	<ul style="list-style-type: none"> • Vehicle inspection of private vehicles • Proper maintenance of roads • Rehabilitation and installation of traffic signalling system • Rehabilitation of railway signalling system • Introduction of ATS(ATP) System • Grade separation between railway and road, and provision of railway crossings • Improvement of security • Enforcement of laws and regulations

Note: Countermeasures are quoted from SITRAMP 2004 and selected based on the progress of the projects.
Source: JUTPI 2011

5) Public Transportation System Development Projects in JUTPI

Public transportation system development projects proposed in JUTPI are listed in Tables 7.5.4 and 7.5.5. Listed in Table 7.5.4 are the projects related to bus transportation and interchange facilities, whereas Table 7.5.5 provides descriptions of the projects related to railway transportation system.

Table 7.5.4 Bus Transportation System and Interchange Facility Development

Code	Project/Program	Length (km)	Project Cost (IDR billion)	Schedule			Responsible Institution
				Short (2011-2015)	Medium (2016-2020)	Long (2021-2030)	
PB01	Bus Rapid Transit (BRT) System Development (dedicated and priority lanes) including information and ticketing system	435	2,882	√	√		JTA
PB02	Park & Ride Facility Development for BRT	20 loc.	1,000	√	√		JTA/Local Government
PB03	Integrated/Multimodal Facility Development	20 loc.	1,200		√	√	JTA/DKI Jakarta
PB04	Bus Terminal Development	22 loc.	1,100	√	√		Local Government
PB05	Improvement of facilities for pedestrians and cyclists to access to BRT station	50	200	√	√		JTA/Local Government
PB06	CNG Station Development	10 stations	500	√	√		Pertamina / PGN / Ministry of Mineral Resources / Ministry of Trade
PB07	Reforming General Bus Licensing System	-	100	√	√		JTA/Local Government
PB08	Restructuring General Bus Network (Area-wide Route License and Neighbourhood Area License)	-	100	√	√		JTA/Local Government
PB09	Capacity Development Program	-	50	√			JTA / Ministry of Transportation / Local Government
PB10	Rejuvenation of Bus Fleets (Periodic Motor Vehicle Inspection System with Workshop/Mechanic Accreditation System and financial incentives)	-	500	√	√		JTA / Ministry of Transportation / Local Government
PB11	Procurement of Articulated Buses and Buses for BRT	1,350 Buses	4,000	√	√		JTA

Note: Land acquisition cost is not included in the Project Cost of public bus development
Source: JUTPI 2011

Table 7.5.5 Railway Systems Development Project (1/3)

Code	Project/ Program	Length (km)	Project Cost (IDR billion)	Schedule			Responsible Institutions
				Short (2011 -2015)	Medium (2016 -2020)	Long (2021 -2030)	
PR01	Bekasi Line Double Double Tracking, Electrification and Elevation	35	9,734	√			Directorate General of Railways, Ministry of Transportation
PR02	Serpong Line Short Cut Between Palmerah and Karet	5.2	1,448	√			JTA / Directorate General of Railways, Ministry of Transportation
PR03	Tangerang Line Short Cut	1.3	1,000		√		ditto
PR04	West Line Double Double Tracking (Karet – Manggarai)	4.3	1,662		√		ditto
PR05	Manggarai – Pondok Jati Short Cut	2	597		√		ditto
PR06	MRT East-West Alt. 1 (Balaraja – Cikarang)	Ph.1: 27.0 Ph.2: 38.8+22.8 Total 89	Ph.1:39,647 Ph.2:16,000	√	√	√	JTA / Directorate General of Railways, Ministry of Transportation / DKI Jakarta
PR07	Airport Access Alt. 1 (Manggarai - Tangerang - Cengkareng)	33	5,000		√		JTA / Directorate General of Railways, Ministry of Transportation
PR08	Serpong Line Double Tracking between Serpong and Tanah Abang	23.4	2,580	√			Directorate General of Railways, Ministry of Transportation
PR09	MRT East-West Alt. 2 (Karawaci – Thamrin)	31.1	15,000		√		JTA / Directorate General of Railways, Ministry of Transportation / DKI Jakarta
PR10	MRT East-West Alt. 3 (Kembangan – Pulo Gebang)	27.7	12,000			√	ditto
PR11	MRT East-West Alt. 4 (Kunciran – Bekasi Timur)	42.5	24,000			√	ditto
PR12a	MRT North-South (Kampung Bandan – Lebak Bulus)	23	32,158	√	√		Directorate General of Railways, Ministry of Transportation, DKI Jakarta
PR12b	MRT North-South (Lebak Bulus – Ciputat)	5	2,800		√	√	JTA / Directorate General of Railways, Ministry of Transportation, DKI Jakarta
PR13	Outer Ring Railway	100	20,000			√	Directorate General of Railways, Ministry of Transportation
PR14	Development of Railway Spare Parts Factory for Jabotabek Railway	-	455	√			Directorate General of Railways, Ministry of Transportation / Private Sector
PR15	Training Program for Railway Electrical, Signaling and Telecommunication System	-	360	√	√	√	Directorate General of Railways, Ministry of Transportation / PT. KA

Table 7.5.5 Railway Systems Development Project (2/3)

Code	Project/ Program	Length (km)	Project Cost (IDR billion.)	Schedule			Responsible Institution
				Short (2011 -2015)	Medium (2016 -2020)	Long (2021 -2030)	
PR16a	Improvement of Station Facility on the Bogor Line	-	575	√	√		Directorate General of Railways, Ministry of Transportation
PR16b	Improvement of Station Facility and Provision of New Station on the Serpong Line	-	802	√	√	√	
PR17	Purchase of Electric Train Cars for the Bogor Line	-	18,423	√	√	√	
PR18a	Improvement of Station Facility and Provision of 2 new stations (Matraman St. and Bekasi Timur St.) on the Bekasi Line	-	1,419	√	√	√	
PR18b	Development of a New Station between Bogor and Cilebut on the Bogor Line	1 station	154		√		
PR18c	Improvement of Station Facility and Provision of 2 new stations (New Kuningan St. and New Sudirman St.) on the Eastern/ Western/ Tj. Priok Line	-	1,085		√	√	
PR18d	Improvement of Station Facility on the Tangerang Line	-	156			√	
PR19	Station Square Development	67 stations	357	√	√	√	JTA / Directorate General of Railways, Ministry of Transportation / PT. KA
PR20	Train Radio System	-	737	√	√	√	Directorate General of Railways, Ministry of Transportation / PT. KA
PR21	Rehabilitation of Signaling /Telecommunication Facilities	-	2,226	√	√	√	Directorate General of Railways, Ministry of Transportation
PR22a	Railway Facilities Improvement (Depot, Substations, Feeder System and Platform) on the Bekasi Line	-	3,506	√		√	Directorate General of Railways, Ministry of Transportation
PR22b	Railway Facilities Improvement (Electrification, Double Tracking, Depot, Track Layout, Feeder System, Voltage, Interlined Breaking System and Substations) on the Serpong Line	-	3,781	√	√	√	Directorate General of Railways, Ministry of Transportation
PR22c	Railway Facilities Improvement (Depot, Substations, Track Layout, Electrification, Feeder System and Interbreaking System) on the Bogor Line	-	2,936	√	√	√	Directorate General of Railways, Ministry of Transportation
PR22d	Improvement of (Track, Depot, Signaling Facility, Feeder System and Substations) on the Eastern/ Western/ Tj. Priok Line	-	997	√	√		Directorate General of Railways, Ministry of Transportation

Table 7.5.5 Railway Systems Development Project (3/3)

Code	Project/ Program	Length (km)	Project Cost (IDR billion)	Schedule			Responsible Institution
				Short (2011 -2015)	Medium (2016 -2020)	Long (2021 -2030)	
PR22e	Railway Facility Improvement (Double Tracking, Depot, Track Layout, Voltage, Interlined Breaking System, Feeder System and Substations) on the Tangerang Line	-	5,104	√	√	√	Directorate General of Railways, Ministry of Transportation
PR23	Automatic Train Protection (ATP) System	-	713	√	√	√	Directorate General of Railways, Ministry of Transportation
PR24	Airport Access Alt. 2 (Along Toll Roads)	-	2,578	√			PT. Sarana Multi Infrastruktur (SMI)
PR25a	Monorail Green Line (Circular Line)	14.3	3,874	√			DKI Jakarta
PR25b	Monorail Green Line Tail Line (Green Line Extension)	7.8	2,906		√		DKI Jakarta
PR26	Construction of Workshop at Depok	-	1,389	√			Directorate General of Railways, Ministry of Transportation
PR27	Railway Crossings Improvement	-	3,620	√	√	√	Ministry of Public Works, DKI JKT, related Kota and Kabupaten, Directorate General of Railways, Ministry of Transportation

Source: JUTPI 2011

(3) Selecting the Public Transportation System Development Projects in JABODETABEK MPA

1) Passenger Demand on Public Transportation Network in 2030

The forecast passenger demand on the proposed public transportation network in JUTPI is illustrated in Figure 7.5.2. The JABODETABEK railway and MRT system will be the backbone of the public transportation system in the region that will serve significant number of passengers.

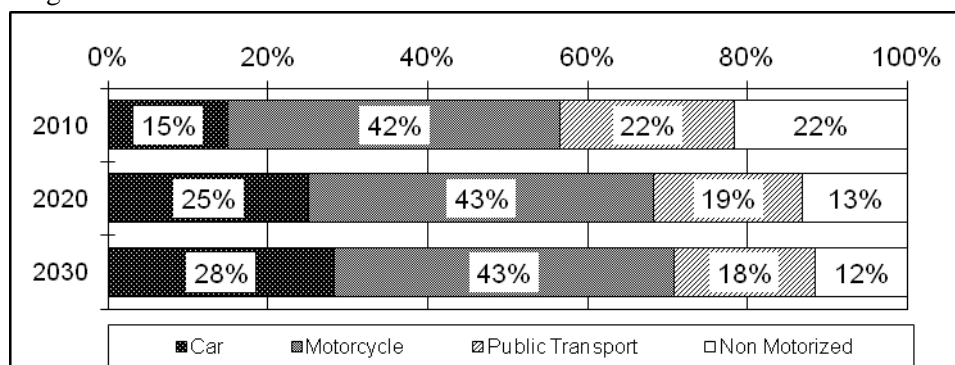


Source: JUTPI 2011

Figure 7.5.2 Passenger Demand on Public Transportation Network 2030

2) Change in Modal Share after Implementing the Master Plan

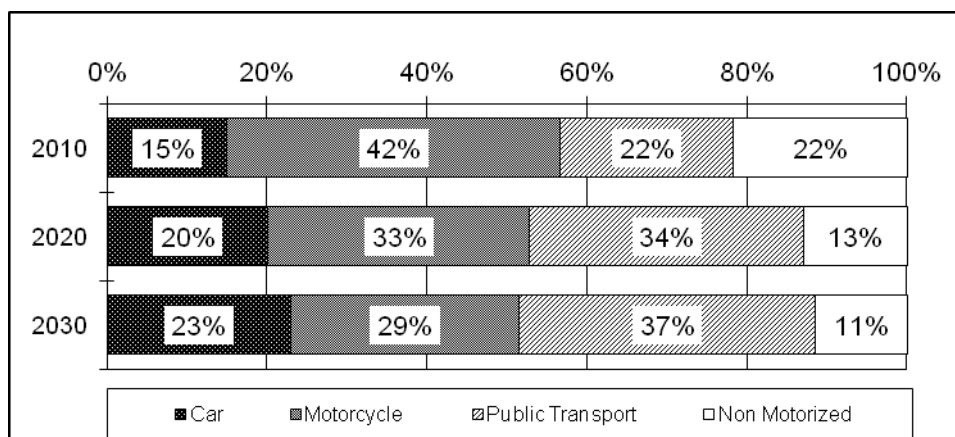
The modal share of public transportation was forecasted to decrease from 22% in 2010 to 19% in 2020 and 18% in 2030 if the planned public transportation system development was not undertaken, as shown in Figure 7.5.3. In contrast, the share of private passenger cars will increase from 15% in 2010 to 25% in 2020 and 28% in 2030. This implies that the increase of car traffic demand will contribute to significant traffic congestion.



Source: JUTPI 2011

Figure 7.5.3 Modal Share Distribution for Case Without Public Transportation Improvements

If the development of the public transportation system is in accordance with the proposed implementation program in the master plan, the share of public transportation will increase from 22% to 34% in 2020 and 37% in 2030, as depicted in Figure 7.5.4.



Source: JUTPI 2011

Figure 7.5.4 Modal Share Distribution for case with Public Transportation Improvements

3) Development of MRT-based New Urban Transport Systems

As explained in Sub-section 7.3.1, the forecast person-trip demand forecast will increase gradually towards 2020, but person-trips made by private passenger cars will increase more rapidly due to forecast on the increase in household income, and subsequent increase of car ownership.

Road network development will not be able to catch up with the rapidly increasing car traffic demand due to difficulty in land acquisition in urban areas. Consequently, modal shift to public transportation is required to accommodate enormous person-trip demand in the city. Promotion of public transportation would contribute to the achievement of a “Better Urban Environment” in the region. Development and improvement of mass transit systems includes;

- A1 (1) Jakarta Mass Rapid Transit (MRT): N-S I, N-S II, E-W as FTP 3.1
- A1 (2) JABODETABEK Railways Capacity Enhancement Project (Phase I) as FTP 3.2 and Further Improvement as Phase II
- A1 (3) Development of Jakarta Monorail

In addition, provision of good access to railway stations and bus terminals would support enhancement of public transportation use. Introduction of common ticket system that can be used for other transportation modes (e.g. bus rapid transit, taxi) and commercial purposes (e.g. retail shop, kiosk, automatic vendor machine) with high security, expandability and processing speed, will also improve convenience in the use of public transportation.

- A1 (4) Station Plaza Development and Park & Ride System Enhancement
- A1 (5) Introduction of Common Ticketing System (Smart Card)

4) Development of Railway along the New Growth Sub-Corridor

Railway access to the Cilamaya Port is proposed to support cargo movement handled in the Cilamaya Port in addition to the access road. Jakarta – Bandung is an emerging economic corridor and more people travelling around the area are expected to use the corridor. To meet the future demand, development of a High-Speed Railway is proposed. This railway is planned to serve passengers to and from the new international airport in Karawang.

B3 (4) Construction of Freight Railway to New Cilamaya Seaport
B3 (6) Construction of Jakarta-Bandung High Speed Railway via the New International Airport

5) Railway Access to Soekarno-Hatta International Airport as Multiple Gateway

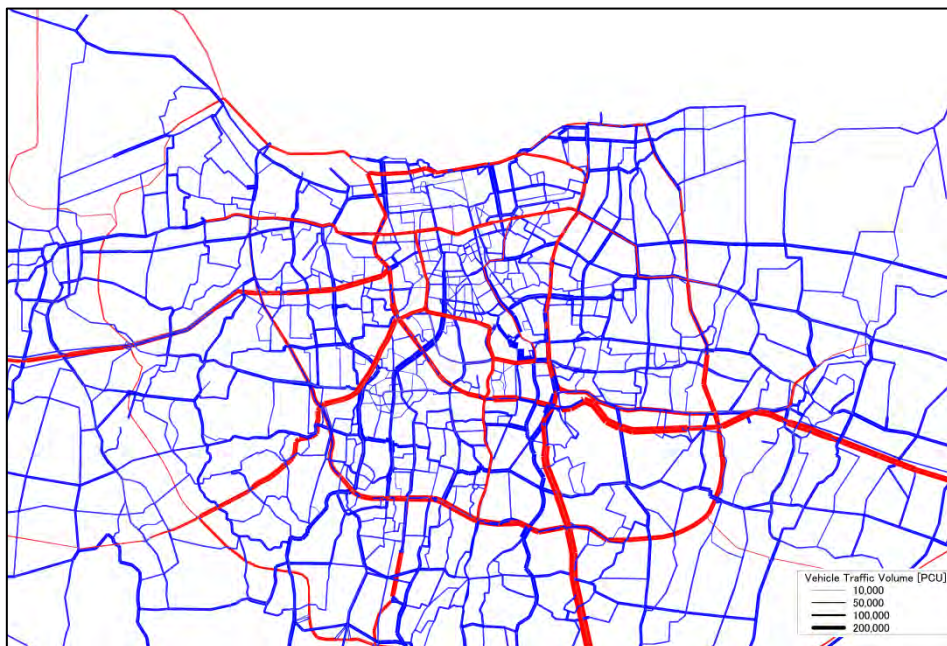
Multiple gateways are proposed in JABODETABEK MPA Vision 2030. The SHIA is still expected to play an important role as an international airport hub in the region. Currently, SHIA does not have a railway access, thus, air passengers depend on road-based transport modes, such as private passenger cars and buses. However, travel duration of these road-based transport modes is often prolonged by traffic congestion on the road network. Since air passengers are keen on punctuality, they need more reliable modes of transportation, such as railways. Thus, it is proposed to improve airport access with the construction of a railway.

C4 (2) Construction of Access Railway to Soekarno-Hatta International Airport as FTP 5.1
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7.5.2 Road Networks

(1) Road Traffic Demand

As mentioned in Section 4.3.4, traffic congestion in the region is severe and chronic due to the surge in the number of cars and motorcycles as well as insufficient road network. Travel speed in some roads connecting to the city center and suburbs is less than 10 km/h during peak hour. In addition, further increase of car and motorcycle demand is projected. The vehicular volume demand forecast (in PCU: passenger-car unit) on the road network development plan of JUTPI is illustrated in Figure 7.5.5.

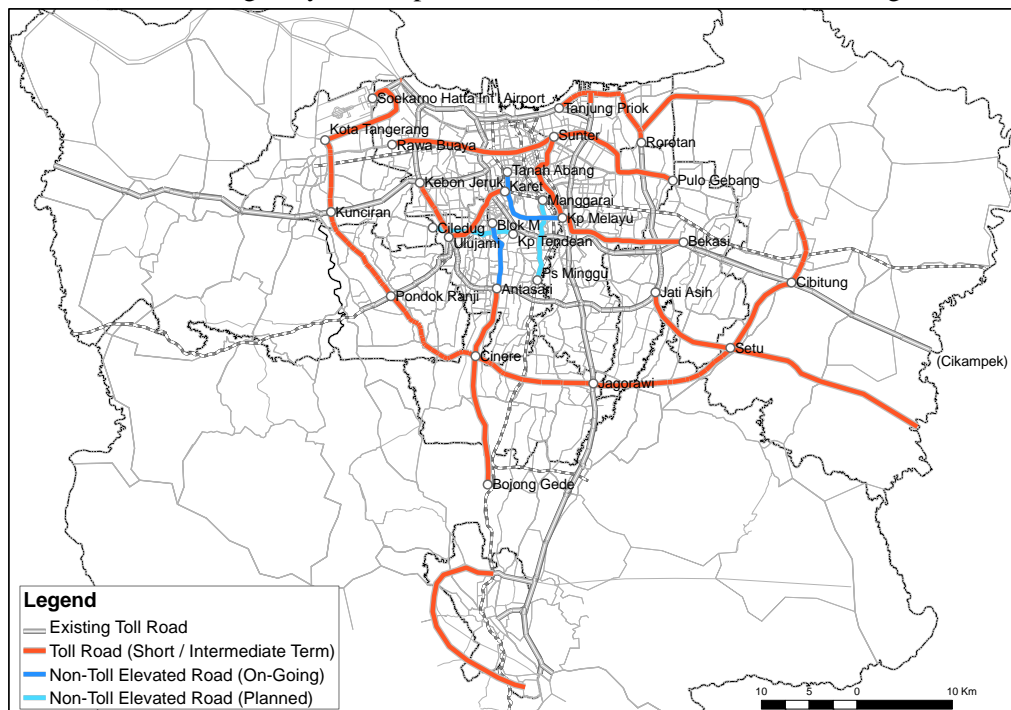


Source: JUTPI 2011

Figure 7.5.5 Projected Traffic Demand on the Road Network in 2030

(2) Road Network Development Plan

As explained in Section 7.5.1, the urban transportation master plan has been revised by JUTPI, and in this master plan, a road network development plan for JABODETABEK is presented. The target year in the JUTPI master plan is 2030, and the proposed road network (Intensive Highway Development Scenario) for 2030 is shown in Figure 7.5.6.



Source: JUTPI 2011

Figure 7.5.6 Road Network Development Plan 2030 in JUTPI

The proposed road projects in JUTPI are listed in Table 7.5.6.

Table 7.5.6 Road Development Projects Proposed in JUTPI (1/2)

Code	Projects/Programs	Length (km)	Project Cost (IDR billion)	Schedule			Responsible Institutions
				Short (2011 -2015)	Medium (2016 -2020)	Long (2021 -2030)	
R01	Jakarta Outer Ring Road (W2 Section)	7.7	1,482	√			PT. Jasa Marga
R02	Jatiasih – Cikampek Toll Road	31.9	745			√	Private Sector / PT. Jasa Marga
R03	Tg. Priok Access from JORR	12.1	6,263	√			Ministry of Public Works
R04	2 nd JORR (Outer-outer Ring Road)	108.2	13,610		√	√	Ministry of Public Works / Local government
R05	Extension of Serpong Toll Road to Tigaraksa	32.5	3,500			√	Private Sector Participation
R06a	Depok – Antasari Toll Road(JORR – 2nd JORR)	8.0	2,584	√			PPP
R06b	Depok – Antasari Toll Road(2nd JORR – Citayam)	11.1	713			√	PPP
R07	Kalimalang Toll Road	13.9	4,472		√		Private Sector / PT. Jasa Marga
R08	Balaraja – Teluknaga Toll Road	35	2,252			√	PPP
R09	Bogor Outer Ring Road Section II and III	7.2	1,233	√	√		PT. Marga Sarana Jabar
R10a	Six Inner Toll Road (Rawa Buaya – Sunter Toll Road)	19.0	9,761	√			DKI Jakarta / Private Sector
R10b	Six Inner Toll Road (Sunter - Pulo Gebang Toll Road)	14.7	7,378	√			DKI Jakarta / Private Sector
R10c	Six Inner Toll Road (Duri Pulo - Kampung Melayu Toll Road)	11.4	5,960		√		DKI Jakarta / Private Sector
R10d	Six Inner Toll Road (Ulujami - Tanah Abang Toll Road)	8.3	4,255		√		DKI Jakarta / Private Sector
R10e	Six Inner Toll Road (Kemayoran - Kampung Melayu Toll Road)	9.6	6,954		√		DKI Jakarta / Private Sector
R10f	Six Inner Toll Road (Pasar Minggu - Casablanca Toll Road)	9.6	5,720		√		DKI Jakarta / Private Sector
R11(1)	Arterial Road Development for Regional Development and Enhancement of Bus Service Coverage (Widening)	228.3	8,181	√			Local Government
R11(2)	Arterial Road Development for Regional Development and Enhancement of Bus Service Coverage (New Road)	76.2	3,896	√			Local Government
R11(3)	2-lane Standardization for Regional Development	34.3	1,179	√			Local Government
R12a	Access Road to Tangerang Line Railway Stations	24.6	858	√	√		JTA
R12b	Access Road to Serpong Line Railway Stations	53.1	1,171	√	√		JTA
R12c	Access Road to Bekasi Line Railway Stations	64.0	1,771	√	√		JTA
R12d	Access Road to Bogor Line Railway Stations	61.6	1,486	√	√		JTA
R13	City Bypass Development	10	440	√	√	√	Major Cities
R14	Pasar Ikan Access Road	1.2	219	√	√		DKI Jakarta

Table 7.5.6 Road Development Projects Proposed in JUTPI (2/2)

Code	Projects/Programs	Length (km)	Project Cost (IDR billion)	Schedule			Responsible Institutions
				Short (2011 -2015)	Medium (2016 -2020)	Long (2021 -2030)	
R15a	Four Non-Toll Elevated Road (Kampung Melayu - Tanah Abang)	8.1	2,374	√			DKI Jakarta
R15b	Four Non-Toll Elevated Road (Pangeran Antasari – Kebayoran)	4.8	1,280	√			DKI Jakarta
R15c	Four Non-Toll Elevated Road (Pasar Minggu – Manggarai)	11.6	3,399		√		DKI Jakarta
R15d	Four Non-Toll Elevated Road (Ciledug – Tendean)	9.5	2,766		√		DKI Jakarta
R16	Flyovers/Underpasses at Bottleneck Intersections	60 locations	5,348	√	√	√	Ministry of Public Works, DKI JKT, related Kota and Kabupaten
R17a	Road widening for the Busway System (Perintis – Bekasi Raya)	2.1	64	√	√	√	JTA (after establishment) / Road Administrator
R17b	Road widening for the Busway System (Bekasi Raya)	21.2	646		√		ditto
R17c	Road widening for the Busway System (Bogor Raya (1))	6.5	198	√	√		ditto
R17d	Road widening for the Busway System (Bogor Raya (2))	17.6	536	√	√		ditto
R17e	Road widening for the Busway System (Ciledug Raya)	11.3	344	√	√		ditto
R17f	Road widening for the Busway System (Daan Mogot (1))	5.6	293	√			ditto
R17g	Road widening for the Busway System (Daan Mogot (2))	9.3	487		√		ditto
R17h	Road widening for the Busway System (Serpong Raya)	9.3	226	√	√		ditto
R17i	Road widening for the Busway System (Siliwangi)	13.2	79	√	√		ditto
R17j	Road widening for the Busway System (West side of Pulogadung)	0.9	27	√	√		ditto
R18	Widening of the Existing Roads to accommodate Bus Lanes	56.5	2,495	√			Ministry of Public Works, West Java and Banten Provinces, relevant Kota and Kabupaten
R19	Road Maintenance	-	19,830	√	√	√	Road Administrator
R20	Non-Motorized Facility Development	253	904	√	√	√	Road Administrator

Source: JUTPI 2011

(3) Issues and Targets

The severe traffic congestion is hindering the economic growth of the region. Alleviating traffic congestion is therefore the first and foremost concern in terms of land transportation. As a measure of traffic congestion, a simple and clear target of travel speed was employed. It is expected to double the travel speed during the morning peak hour by the target year 2020.

Table 7.5.7 Target Effect Indicator for Travel Speed in the Morning Peak Hour

SECTOR	TARGET EFFECT INDICATOR (Narrative)	TARGET EFFECT INDICATOR (Quantitative)		DESCRIPTION
		2010	2020 (Target)	
Road Networks	Average vehicle speed during the morning peak hour	7 km/hour	15 km/hour	Average vehicle travel speed will be doubled from 7 km/h (2010) to 15 km/h (2020).

Source: MPA Study Team based on JUTPI 2011

(4) Road Sector Development Policy

To achieve the abovementioned target, four types of policies are required.

1) Development of the Road Network in and around Jakarta

As mentioned in the Section 4.2, road network in Jakarta and surrounding regions are fundamentally insufficient compared with other metropolitan area in the world. It is highly and urgently needed to increase the capacity of road network in the region.

2) Traffic Flow Improvement and Transportation Demand Management

In terms of traffic congestion alleviation measures, two approaches, namely, conventional supply-side approach, which expands capacity of road network and demand side approach which controls and manages traffic demand are essential. It is empirically and historically proven in many metropolitan areas in the world that one-sided approach would not succeed.

3) Development of Access Road to Seaport and Airport

To support vigorous economic development of the region in the globalized world, gateways to other regions of the world have to be strengthened. In accordance with airport and seaport development project, access roads to gateways are essential.

4) Supporting Economic Activities on New Growth Sub-corridor

Unloading Jakarta can be part of the demand-side measures to alleviate congestion as it diffuses traffic demand. By supporting the new growth sub-corridor development, it will unload the burden of the road network in the central business district of Jakarta. The growth sub-corridor cannot be sustainable without smooth traffic flow in the corridor.

(5) Road Network Development Projects in JABODETABEK MPA

1) Development of the Road Network in and around Jakarta

Based on the existing road development plan proposed in JUTPI, several important road

projects were selected in JABODETABEK MPA to accelerate the implementation of the projects.

The Jakarta Outer Ring Road has already been developed except the W2 north section. The road is expected to function as a distribution channel and as an alternative route. The Outer Outer Ring Road is a circumferential road for JABODETABEK and serves as the backbone of the JABODETABEK MPA.

A2 (2) Development of Jakarta Outer Outer Ring Road

2) Traffic Flow Improvement and Transportation Demand Management

In urban areas, grade-separation and traffic flow improvement at intersections are efficient countermeasures to augment road capacities by maximizing usage of the existing road network. The following two projects are included in this category.

A2 (1) Improvement of Road Network in JABODETABEK-Enhancement of Road Network Capacity in JABODETABEK as FTP 4.1

The coverage of the Intelligent Transport Systems (ITS) includes wide-range of transportation systems. Electronic Road Pricing (ERP) aims to alleviate traffic congestion by imposing additional charges to vehicles entering roads designated as congested roads. This can be regarded as a Transportation Demand Management (TDM) measure.

Traffic Information Systems (TIS) included in ITS provides real-time traffic flow situation to road users. The TIS can provide route guidance to drivers, especially on congested roads of the network, so that drivers can avoid the said congested road sections. In addition, bus fleet management and bus location systems are also included in ITS and also included as project in the JABODETABEK MPA Master Plan.

A2 (3) Introduction of Intelligent Transport System (ITS) in JABODETABEK

3) Development of Access Road to Seaport and Airport

It is proposed to develop a new growth sub-corridor that will aide in accelerating economic development in the JABODETABEK region. Since the new growth sub-corridor includes the new international airport and new Cilamaya Seaport, access roads are prerequisites for these facilities.

B3 (3) Construction of Access Road to New Cilamaya Seaport as FTP 1.2

B3 (5) Construction of Access Road to the New International Airport

4) Supporting Economic Activities on New Growth Sub-corridor

The existing Jakarta – Cikampek Toll Road in the new growth sub-corridor has been

widened to accommodate increasing traffic. However, the traffic has increased rapidly and has already reached the road capacity. On the growth sub-corridor, the new international airport and seaport will be developed. Consequently, additional traffic demand generated by the airport and seaport is expected. To deal with this increasing demand, the Second Jakarta – Cikampek Toll Road should be developed.

B3 (1) Construction of Second Jakarta-Cikampek Toll Road

Manufacturing is a major industry in the new growth sub-corridor and several industrial estates are located in Cikarang. The traffic congestion in the industrial estates and surrounding areas discourage economic activities. To support smooth cargo movement in the industrial areas, road network improvement is proposed in the JABODETABEK MPA.

B3 (2) Improvement of Road Network in JABODETABEK-Improvement of Road Network within the Industrial Area to the East of Jakarta as FTP 2.2

7.5.3 Ports

(1) Issues

Based on the dramatic economic growth of the Jakarta Metropolitan Area, the domestic and international container volume handled in Tanjung Priok Port has been increasing and reached 3.8 million TEU in 2009. It is forecasted that the international container cargo for Jakarta Metropolitan Area will surpass the capacity of existing Tanjung Priok Port in 2014 and will reach 13.4 million TEU in 2030. To accommodate the future demand, the construction of container terminal is required. The target effect indicator for seaport towards 2020 is shown in Table 7.5.8.

Table 7.5.8 Target Effect Indicator for Seaport

SECTOR	TARGET EFFECT INDICATOR (Narrative)	TARGET EFFECT INDICATOR (Quantitative)		DESCRIPTION
		2010 (Base)	2020 (Target)	
Ports	International /domestic container cargo capacity	7.2 million TEU	11.6 million TEU	Unload 35% of the container handling volume from DKI Jakarta (Tanjung Priok Port) to new Cilamaya Port.

Source: Cilamaya Feasibility Study team (JICA, 2012)

(2) Measures

1) Port Master Plan of Tanjung Priok Port

New Shipping Law

The GOI promulgated a new shipping law in April 2008 which calls for port

management to be conducted either by the Port Authority or Port Management Unit based on the concept of landlord port in which management is separated from operation. With this law, a framework for effective and efficient port development, management and operation through PPP could be established.

The objectives of the introduction of new PPP scheme to port development, management and operation are as follows:

- Increase operational efficiency;
- Create a system to recover state investment and raise state revenue;
- Create conditions for higher efficiency and accountability of entities in port management and operation; and
- Create a more transparent and competitive port concession scheme, consistently applied throughout the country for financially sound and efficient port development, management and operation.

Port Master Plan under MOT Regulation, No. PM42/2011.

In the New Shipping Law (No.17/2008), the most basic port plan known as the National Port Master Plan constitutes a guideline for determining the location, construction, operation, development, and preparation of Port Master Plan. The National Port Master Plan is to be implemented by the Minister over a 20-year period and may be reviewed once every five years. The Master Plan for the Main and National Port will be formulated by Port Management Body and endorsed by the Minister upon obtaining the recommendation from the governor and regent/mayor concerning its conformity with the Provincial and Regency/Municipal Spatial Plan.

MOT has issued Regulation No. PM42 on April 4, 2001 notifying the approval of the Minister of MOT on the Port Master Plan of Tanjung Priok Port. This Master Plan was formulated based on the Final Report of “the Master Plan Study on Port Development and Logistics in Greater Jakarta Metropolitan Area (JICA)”

2) Basic Strategy of Port Development Plan in Greater Jakarta Metropolitan Area

The strategy for the port development in Greater Jakarta Metropolitan Area (target year 2030) is to serve as a target and guideline for other development plans including the urgently required Phase I Project in Tanjung Priok. The Master Plan for the port development in Greater Jakarta Metropolitan Area was prepared according to the following principles: According to the Port Master Plan approved by MOT in 2012 June, the capacity of international/domestic container handling at the Port of Tanjung Priok in 2008 is estimated 7.2 million TEU's and recently the capacity has developed

into 7.2 million TEU's after the optimization of land, land reconfiguration, addition equipments and removal buildings. MP approved by MOT allows the Tanjung Priok to develop the necessary container handling facilities up to additional volume of 4.5 million TEU, assuming that the Tanjung Priok will be able to handle max 12.7 million TEU with the existing and new North Kalibaru terminals. MP approved by MOT is adopted the capacity and demands of containers for Cilamaya new terminal development and phase 1/2 development plan as described in the Final Report of JICA Port MP study.

MP approved by MOT allows the Cilamaya New Port to develop the container handling capacity up to 3.75 million TEU in Phase 1 and subsequently to develop up to 3.75 million TEU in Phase 2. Cilamaya New Port will be able to handle max 7,5 million TEU in 2025.

The facilities development plan and time to operate at Cilamaya New terminal are not changed by Port Master Plan of MOT in 2012 June.

- To propose a new terminal so as to receive increasing international containers that cannot be handled by JICT at Tanjung Priok Terminal from 2030 onwards.
- To propose a re-development plan for the existing conventional wharves in Tanjung Priok Terminal so as to improve the capacity of handling the increase in both domestic containers and conventional cargoes.
- To propose transfer of the existing petroleum jetties and their attached tank farms to a new location off the existing facilities so as to ensure safety in urban areas adjacent to the existing petroleum terminal.
- To propose transfer of the current handling facility of dust cargoes to a new location so as to reduce dust pollution in urban areas adjacent to the existing berths handling them.
- To propose a port access road connected to a road network in the port hinterland so as to enable smooth distribution of port cargoes to/from the consignors/consignees and simultaneously alleviate the additional burden caused by port traffic to city traffic within the JABODETABEK MPA.
- To propose recommendations on the improvement of railway access to Tanjung Priok Terminal for port cargo traffic in order to convert traffic from the excessively congested road to railway.
- To pay due attention to environmental issues by conducting Strategic Environmental Assessment (SEA) prior to finalizing the Master Plan, especially

focusing on the harmonization with the spatial plans of the central, provincial and regent governments and other related activities at the planned port location

- To consider the potential shallow sea terminals extending from Marunda to Tarumajaya by pursuing possible linkage with Tanjung Priok Terminal as a deep-sea terminal using barge transport.
- To propose adequate functional allotment between the existing and potential terminals, which are under the umbrella of Tanjung Priok Port, aimed at optimizing the limited resources available, including water, land, and funding

3) Potential Candidates Sites for New International Container Terminal

Figure 4.3.1 shows the development plans for the nine sites which have been proposed by various organizations including West Java Provincial Government, DKI Jakarta, Bekasi Regent, Tangerang Regent and Pelindo II and private developers.

(3) Selecting the Seaport Projects in JABODETABEK MPA

1) Criteria for Screening Potential Candidate Sites

The JICA Port MP study evaluated nine development plans proposed by various agencies and organizations. During the screening process, the following criteria have been applied:

- Designation of protected forest (Hutan Lindung) by the Ministry of Forestry;
- Conformity to the Spatial Plans of the Provincial Governments;
- Conformity to the Spatial Plans of the Regent Governments (Kabupaten);
- Ecological importance;
- Coastline changes due to erosion and sedimentation;
- JABODETABEK traffic congestion;
- Distance from the major consumption area (DKI Jakarta) in consideration of the most economical land traffic route;
- Distance from major industrial areas (area along Jakarta - Cikampek Toll Road) in consideration of the most economical land traffic route; and
- Sustainable maintenance dredging along deep sections of the access channel.

a) Proposed Strategic Principles in Formulating Port Development Plan

The following principles for making the port development plan have been adopted:

To make the most of the spatial resources

The coastal area along the Greater Jakarta Metropolitan Area is already densely occupied and space is limited and valuable. Hence, it is essential to make the most of such spatial resources.

To focus financial resources on limited port development

It is essential to focus financial resources on limited port development to save financial resources and to avoid duplication in investment.

To coordinate other activities to share limited spatial resources

It is essential to coordinate properly with various other activities in order to share limited space with each other so as to make the most of the spatial resources.

To make adequate functional allotment among marine terminals under the umbrella of Tanjung Priok Port

It is essential to make adequate functional allotment between marine terminals under the umbrella of Tanjung Priok Port so as to avoid duplications in port investments and to ensure smooth coordination with non-port related activities as a whole.

When drafting the water use plan, harmonization with JABODETABEK spatial plan based on Presidential Regulation No 54/2008 was considered.

2) Selected Development Plans in JABODETABEK MPA Study

The JICA Port MP Study recommended that the Government of the Republic of Indonesia designate the “Development of New Container Terminal at North Kalibaru” as the most urgent project to be developed in the Master Plan to be able to cope with the increasing container traffic demand in 2017 and contribute to the economies of Greater Jakarta Metropolitan Area and Indonesia as well as improve port-related logistics.

JICA Port MP Study prepared the long-term development plan on port development to alleviate the above logistics issues as explained in Chapter 3 in Jakarta Metropolitan Area. This involves the construction of a limited but urgently required container terminal at Tanjung Priok in 2017 and simultaneously development of a new port in Cilamaya in 2019 to meet the demands from 2020 to 2030. The development strategies and facilities at each terminal are described in Final Report and summarized in Table 7.5.9.

Table 7.5.9 Development Facilities at Each Terminal by JICA Port MP Study

Terminal	Development Facilities
Tanjung Priok Terminal	New International Container Terminal off North Kalibaru for handling 1.5 million TEUs with terminal area of 32 ha, berth length of 900m for Phase 1 stage1
	New Petroleum Terminal off North Kalibaru, with terminal area of 63.6 ha, berth length of 1,600 m
	Additional container terminal as stage 2 Phase 1 for handling 3.0 million TEU with terminal area of 96 ha, berth length of 1,600m-terminal, land area of 18 ha, berth length of 915 m
	New access bridge off North Kalibaru, 4 lanes with a length of 2.05 km
	Expansion of car terminal in Kalibaru, berth length of 240 m, terminal area of 3 ha
Cilamaya Terminal	New International Container Terminal off Karawang Coast, for handling 7.5 million TEU in 2025, with terminal area of 268 ha, berth length of 4,320 m for container terminal and 940 m for car terminal and multipurpose terminal
	New access bridge from the coast to the new terminal, 4 lanes, length of 800 m
	New access road from the existing Jakarta-Cikampek Tollway, 4 lanes, length of 30.6 km

Source; Cilamaya Feasibility Study Team in 2012

Status of the proposed projects in MP3EI

The Master Plan for the Acceleration and Expansion of Economic Development of Indonesia (MP3EI) recognized the importance and urgency of the development and implementation of these fast track infrastructure projects as follows:

- Advancing the Greater Jakarta Area in the Java Economic Development Corridor can be done by further developing the port of Tanjung Priok and building a new port in Cilamaya.
- The development and improvement of seaport in Tanjung Priok will expedite the flow of goods both intra- and inter-corridor, which is expected to accelerate the realization of corridors and spread economic activities in the western parts of Java.

The selected development projects for Fast Track Project and Priority Project were categorized as Multi-Gateways in JABODETABEK MPA Study.

Requests for the Development of New Port Facilities by JABODETABEK MPA Study

After Final Report of JICA Port MP Study was submitted in March 2011, the JABODETABEK MPA study proposed the following requests from shipping companies, auto manufacturers and new airport Study Team of JICA to be included as parts of the Phase 1 Project in Cilamaya New Port.

- Car terminal; details are described hereinafter as C 1 (1);
- Development of jet fuel unloading and storage facilities for a new airport; and
- Development of port-supporting area at the coastal area adjacent to the new port.

The above requests were described in the Interim Report of an additional JICA Study to the Master Plan Study called “The Survey on Cilamaya New Port Development Project (JICA)” submitted on October 27, 2011 with the following statement: “the Feasibility

Study of Phase 1 Project of Cilamaya New Port should be carried out by taking into account these requests as part of the Phase 1 Project”.

Selected Development Plans in JABODETABEK MPA Study

Considering the objectives, target year and importance of above mentioned projects, the following four projects were selected towards the year 2020 in the JABODETABEK MPA Study:

- | |
|--|
| C1 (1) Development of a New International Port as FTP 1.2 |
| C1 (2) Development of New Car Terminal at Cilamaya Port |
| C2 (1) Improvement and Expansion of Container Terminal at North Kalibaru as
FTP 1.1 |
| C2 (2) Expansion of Car Terminal at Kalibaru |

7.5.4 Airports

(1) Airport Demand

The demand forecast of total aircraft and passenger movement in JABODETABEK MPA is estimated as shown in Table 7.5.10 according to the “Master Plan Study on Multiple-Airport Development for Greater Jakarta Metropolitan Area in the Republic of Indonesia (hereinafter referred to as “Airport Master Plan Study”)”.

Table 7.5.10 Demand Forecast

		Year				
		2010	2015	2020	2025	2030
Total Air Passengers		42,043,642	56,658,100	71,395,300	86,965,000	103,353,600
Total Aircraft Movement	International	245,419	324,530	404,440	477,600	548,770
	Domestic	61,606	72,970	92,610	117,930	149,560
	Total	307,025	397,500	497,050	595,530	698,330

Source: Airport Master Plan Study Team based on data of Progress Report by JICA MP Study Team

The passenger demand at JABODETABEK MPA was estimated at about 87 million in 2025. However, the maximum passenger handling capacity of SHIA in 2025 was estimated at 60 million only. Around 27 million passengers would exceed the capacity of SHIA. The allotments of aircraft movement and passengers at both SHIA and the new airport are shown in Figure 7.5.7 and Figure 7.5.8, respectively.

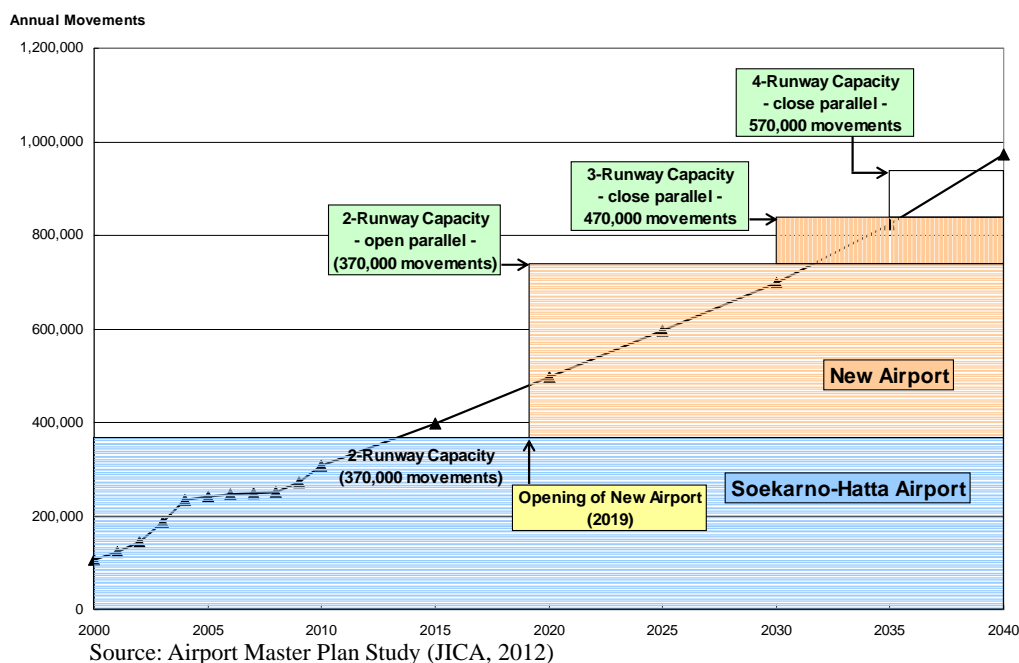
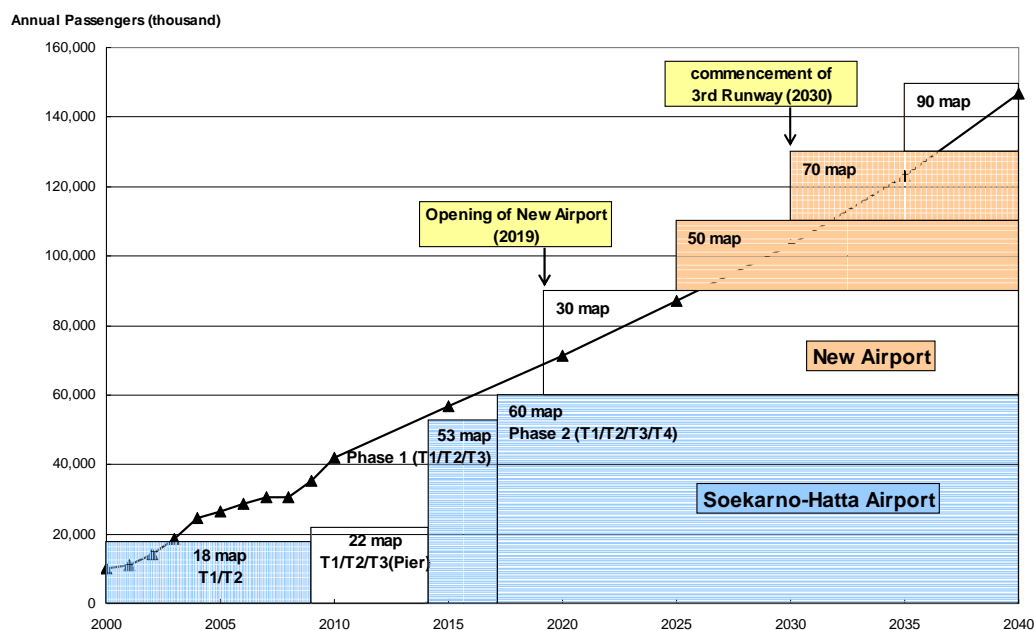


Figure 7.5.7 Allotment of Runway Capacity and Aircraft Movement



Source: Airport Master Plan Study (JICA, 2012)

Figure 7.5.8 Allotment of Terminal Capacity and Annual Passenger Demand

(2) Issues and Targets

In addition to current shortage of airport capacity to accommodate air passenger demand, this gap will continually increase due to the vigorous economic growth. In 2020, it is expected to have a demand capacity of 90 million passengers per year as shown in Table 7.5.11.

Table 7.5.11 Target Effect Indicator for Airport Passenger Capacity

SECTOR	TARGET EFFECT INDICATOR (Narrative)	TARGET EFFECT INDICATOR (Quantitative)		DESCRIPTION
		2010	2020 (Target)	
Airports	Annual passenger capacity	22 million passengers	90 million passengers	Actual annual passengers have already reached 42 million at SHIA in 2010.

Source: MPA Study Team based on Airport Master Plan Study (JICA, 2012)

(3) Development Concept

In order to increase the runway capacity of SHIA, PT. Angkasa Pura II (AP-II) has a plan to construct 3rd open runway at the north of the existing two runways. However his third runway is not authorized by the Government due to the difficulty of land acquisition of the broad area and even after authorization it will not be completed before 2020 for long project preparation and construction time. The capacity of three runways will be calculated to increase from 370,000 of two runways as shown in Figure 7.5.7 to 550,000 movements. The forecasted aircraft movements in 2020 and 2025 are 497,050 and 595,530 respectively

as indicated in Table 7.5.10, which still exceed 550,000 movements around 2020-2025.

It is recognized that the runway capacity of SHIA will be critical around 2020-2025 even after the construction of third open runway, therefore construction of another runway will be required in the JABODETABEK area as mentioned in the Airport Master Plan Study. At the same time, passenger terminal facilities would also be limited. It is a recognized necessity to open the new airport in 2019 so that the increasing demand will be shared between SHIA and the new airport.

It is concluded that the single-airport system of the current SHIA shall be converted to a multi-airport system through the construction of a new airport that can cope with the increasing demand in JABODETABEK MPA in 2025.

(4) Airport Projects

1) Improvement of Soekarno-Hatta International Airport (SHIA)

a) Improvement Plans

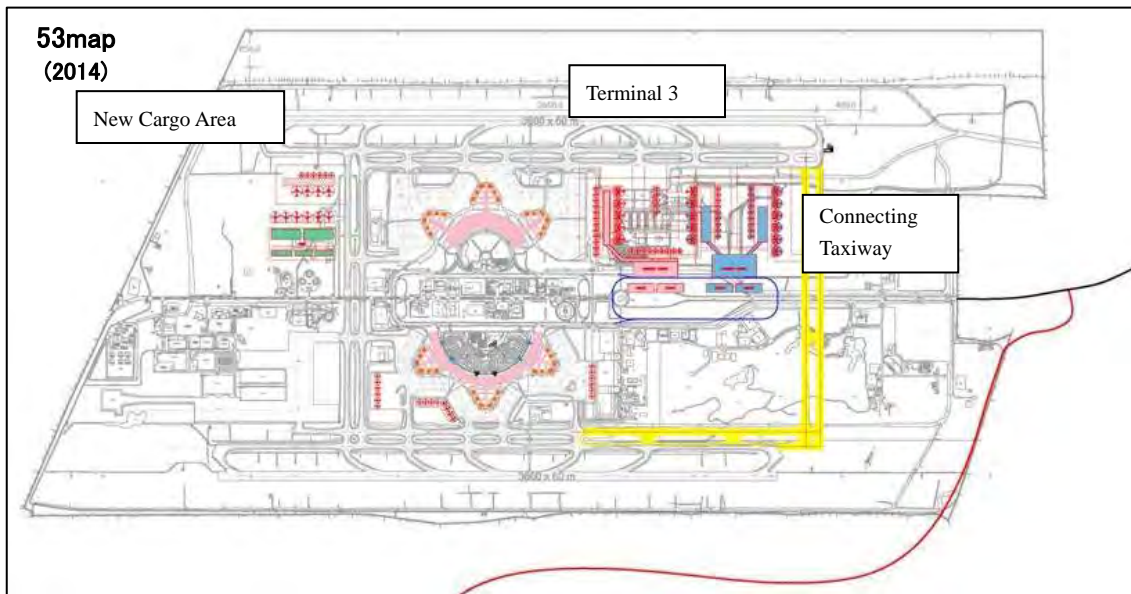
The improvement plan of SHIA was proposed by the Airport Master Plan Study taking into account the grand design by PT. Angkasa Pura II (AP-II) as provided in Table 7.5.12.

Table 7.5.12 Improvement Plan of SHIA

	Current Status (2010)	Future Development	
		Phase 1(2014)	Phase 2(2017)
Runways	2 Runways North: 3,600 m South : 3,660 m (open parallel)	2 runways North : 3,600 m South : 3,660 m (open parallel)	2 runways North : 3,600 m South : 3,660 m (open parallel)
Taxiway		Construction of connecting taxiway	
Passenger Terminal Building (floor space)	T1 : 143,000 m ² T2 : 135,000 m ² T3 : 29,000 m ²	Expansion of Terminal 3	Development of Terminal 4
		T1 : 143,000 m ² T2 : 135,000 m ² T3 : 344,000 m ²	T1 : 143,000 m ² T2 : 135,000 m ² T3 : 344,000 m ² T4 : 84,000 m ²
Cargo Terminal Building		Development of New Cargo Terminal	Expansion of cargo terminal

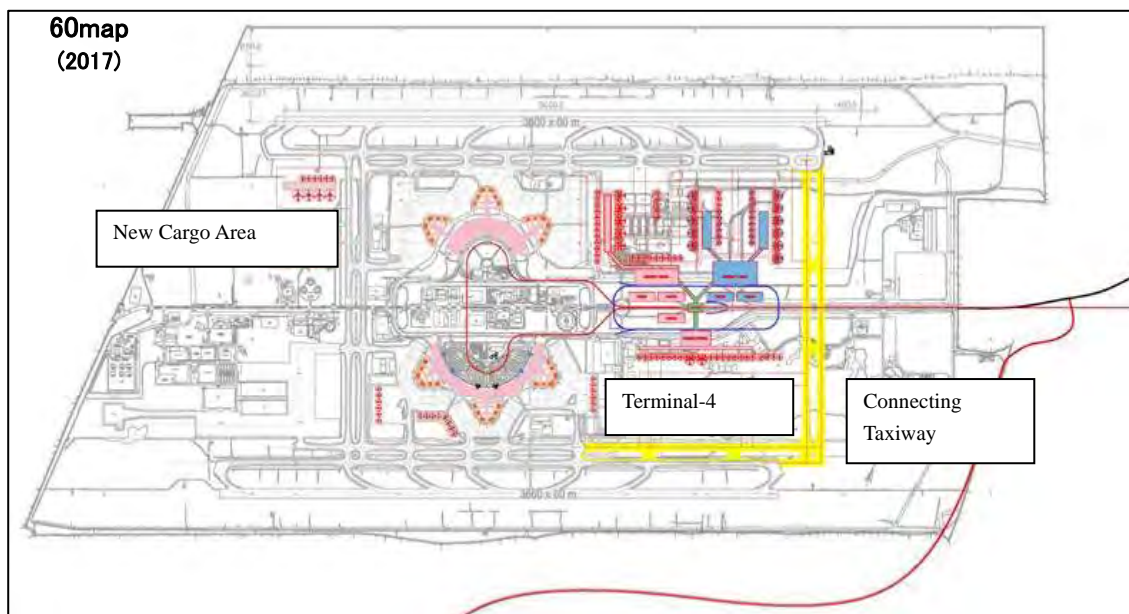
Note : T1 to T4 indicate the Terminals Nos.1 to 4
Source: Airport Master Plan Study (JICA, 2012)

The Phase I and II master plans for the improvement of SHIA in the Airport Master Plan Study are shown in Figure 7.5.9 and Figure 7.5.10, respectively.



Source: Airport Master Plan Study (JICA, 2012)

Figure 7.5.9 Master Plan of SHIA Development (Phase I)



Source: Airport Master Plan Study (JICA, 2012)

Figure 7.5.10 Master Plan of SHIA Development (Phase II)

b) Cost Estimation

The cost for SHIA development estimated in the Airport Master Plan Study (JICA, 2012) is shown in Table 7.5.13.

Table 7.5.13 Project Cost Estimate

(Unit: JPY Million)

Item	Phase 1	Phase 2	Total
Works for Runway, Taxiway, Apron and Others	14	11	25
Works for Access Road			
Passenger Terminal Building	80	26	106
Cargo Terminal Building			
Car Parking			
Total	94	37	131
Others	26	10	36
Grand Total	120	47	167

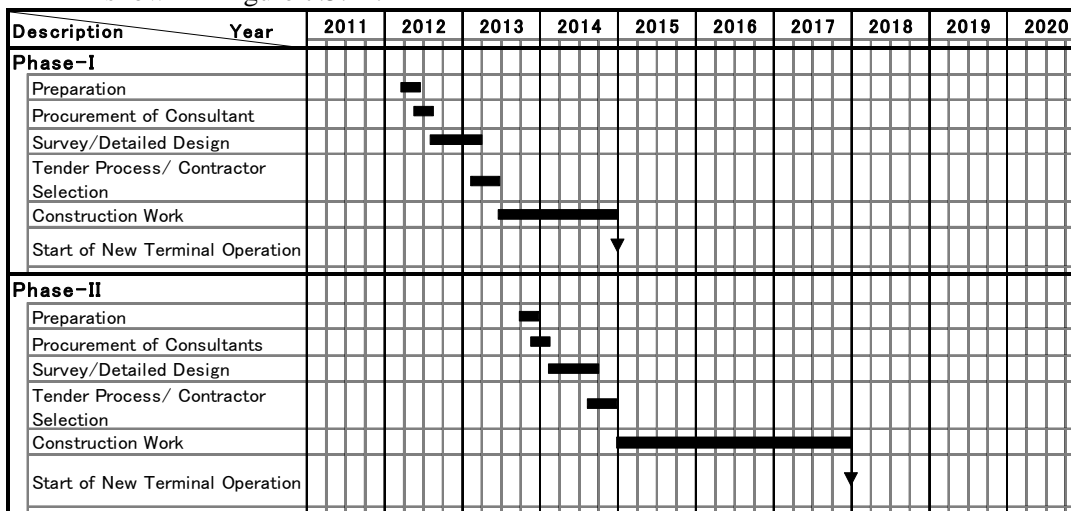
Source: Airport Master Plan Study (JICA, 2012)

c) Financial Scheme for Development

The financial scheme for the improvement of SHIA was prepared by PT. Angkasa Pura II (AP-II), the current airport operator of SHIA with the status of a state enterprise, using its own funds and loans from banks.

d) Construction/Development Schedule

The implementation schedule for the development of SHIA has been studied by the Airport Master Plan Study Team in cooperation with PT. Angkasa Pura II (AP-II) as shown in Figure 7.5.11.



Source: Airport Master Plan Study (JICA, 2012)

Figure 7.5.11 Implementation Schedule for SHIA Development

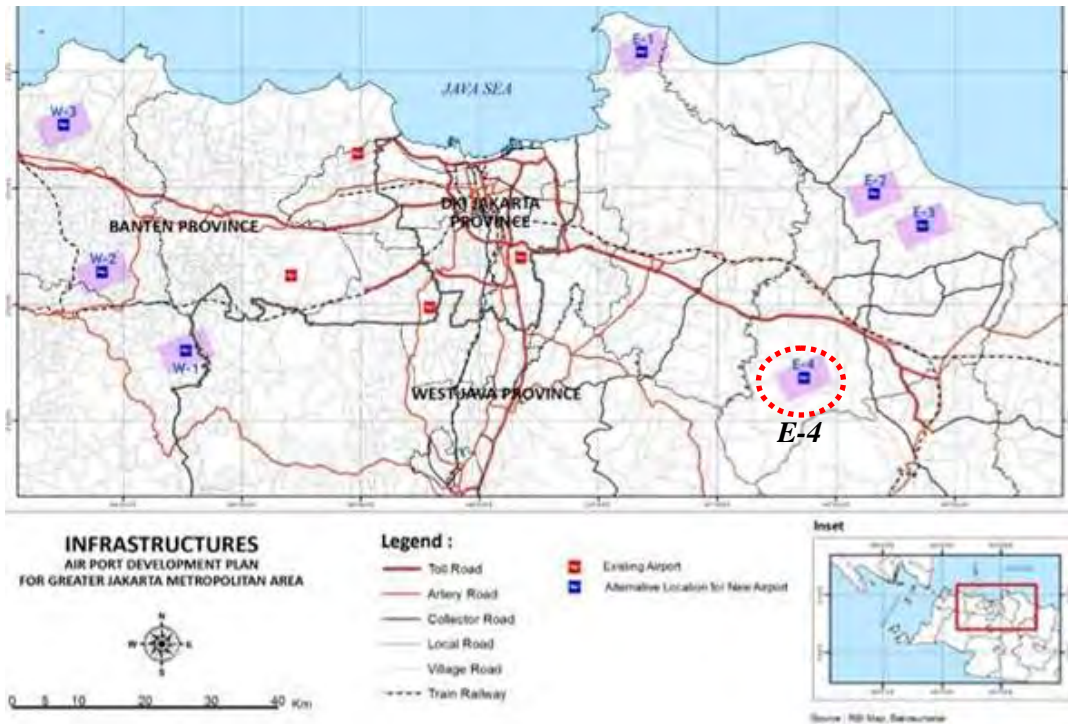
- C4 (1)a. Construction of Soekarno-Hatta International Airport as FTP 5.2 (Revitalization of Soekarno-Hatta International Airport terminals)
- C4 (1)b Construction of Soekarno-Hatta International Airport (Development of Third Runway of Soekarno-Hatta International Airport)

2) Construction of New Airport

a) Proposed Site

The location of alternative sites for the new airport is shown in Figure 7.5.12. The

southern area of Kabupaten Karawang (E-4 site) was finally selected as the new airport site through a detailed comparison study on seven alternative sites at the eastern and western sides of JABODETABEK MPA.



Source : Airport Master Plan Study (JICA, 2012)

Figure 7.5.12 Alternative Sites for the New Airport

b) Phased Development Plan

The outline of the phased development plan of the new airport is summarized in Table 7.5.14.

Table 7.5.14 Phased Development Plan

	Phased Development		
	Phase-1(2019)	Phase-2(2030)	Ultimate
Property Area	8 km x 5 km	8 km x 5 km	8 km x 5 km
Runway (Length)	Development of Two Runways A: 3,600 m B: 3,600 m (open parallel)	Development of a Third Runway A: 3,600 m B: 3,600 m (open parallel) C: 3,600 m (close parallel)	Development of a Fourth Runway A: 3,600 m B: 3,600 m (open parallel) C: 3,600 m (close parallel) D: 3,600 m (close parallel)
Taxiway		Construction of connecting taxiway	
Passenger Terminal Building	Development of terminal building 30 map	Expansion of terminal building 70 map	Expansion of terminal building 90 map
Cargo Terminal Building	Development of a new cargo terminal	Expansion of cargo terminal	Expansion of cargo terminal

Source: Airport Master Plan Study (JICA, 2012)

c) Expected Benefits

In line with the JABODETABEK MPA Vision 2030, the following are considered as the expected benefits in relation to the concepts and goals for development of JABODETABEK MPA:

(i) Multiple Gateways

- Establishment of a multiple international airport system at JABODETABEK MPA;
- Establishment of alternative airport facilities, in case of emergencies at SHIA;
- Generation of demand for international and domestic passengers and logistics at the eastern part of JABODETABEK and northwestern part of Bandung, in line with the development of a new seaport as a new international gateway;
- Creation of future potential as gateway to the planned Kertajati Aero City at the northeastern part of Bandung; and
- Establishment of an efficient aviation network for both JABODETABEK and Great Bandung Metropolitan Area through the operation of connecting flights among SHIA, the new airport, and Kertajati Airport.

(ii) New Growth Center

The following shall be considered to cope with the future demands on civil aviation activities through the promotion of socio-economic activities at the eastern part of JABODETABEK MPA in connection with SHIA and a new seaport at Cilamaya in line with IEDC/North Corridor:

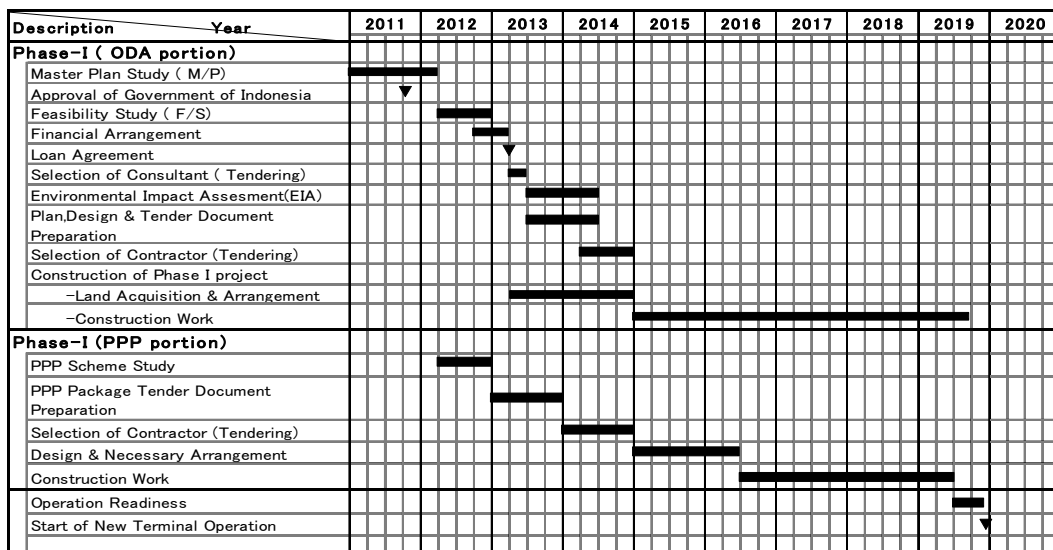
- Accommodate the increasing demand of LCC;
- Contribute to the establishment of international import/export multi-logistics centers;
- Support the establishment of a cargo-free zone with the development of industrial estates adjacent to the new airport;
- Increase the potential for assuming the role as the air gateway to “BODEBEK” and “Great Bandung Metropolitan” out of the three national activity centers of West Java Province on the West Java Province Spatial Plan 2009-2029.

(iii) Better Urban Development

- Functioning as the international gateway for the development of a multi-functional satellite city of JABODETABEK MPA, with diverse functions such as business center, industrial estate, residential area, academic and culture central, advanced medical center and sub-government function and others.
- Redistribution of the rapid urbanization of DKI Jakarta to the eastern area's satellite city through the provision of a multi-functional transportation system.

d) Implementation Schedule

The outline of the implementation schedule is shown in Figure 7.5.13.



Source: Airport Master Plan Study (JICA, 2012)

Figure 7.5.13 Implementation Schedule for New Airport Development

e) Harmonized Development with other Airports

The West Java Province has three urban centers identified in the Metropolitan Priority Areas, i.e., BODEBEK, Greater Bandung and Cirebon Metropolitan. The Kertajati Airport is planned to be constructed at a location between Great Bandung and Cirebon Metropolitan. With the completion of the Kertajati Airport, the three urban centers will have an international airport within their immediate vicinity. New Karawang Airport is planned to mainly cover the overflowing number of passengers at SHIA. The Airport Master Plan Study Team analyzed the catchment area of air traffic demand in JABODETABEK and prepared Figure 7.5.14 shown below. The catchment area overlapping between Kretajati and Karawang Airports

indicates a small area and scattered population. From the above study, share of air traffic demand of Karawang Airport will not significantly impact the traffic demand of new Kertajati Airport.

In the future, industrial development is expected to expand to the eastern part of West Java Province, and consequently air traffic demand will grow. At such time, both Karawang and Kertajati Airports will both share air traffic demand and will coexist without competition.



Source: Airport Master Plan Study (JICA, 2012)

Figure 7.5.14 Demand Catchment Area of Four Airports

C3 (1) Development of New International Airport

7.6 MASTER PLAN FOR URBAN ENVIRONMENT

7.6.1 Urban Development/Industrial Areas

(1) Current Condition of Urban Development

1) Background of Urban Development

The population of JABODETABEK MPA will reach 37 million people in 2030, and it will have the same scale as the Tokyo Metropolitan Area. Economy is also expected to grow due to increase in supply of highly-qualified labor force and expansion of markets caused by the emergence of large-middle-income level citizens. Nevertheless, DKI Jakarta will experience growth bottlenecks due to delays in the improvement of

urban infrastructure and living standards. The infrastructure improvement of DKI Jakarta is at the same time the gauge for balanced growth as dispersal of population to surrounding cities is adopted as a solution. Continuity of these measures over a long period is an urgent necessity. Urban disaster prevention and preparedness which complement some of the metropolitan functions of DKI Jakarta on risk mitigation are required. The planned urban disaster preparedness is necessary for urban growth and considering the increase in population of JABODETABEK MPA. Promoting urban disaster preparedness which corresponds to urban development is required. Urban development must aim at promoting disaster preparedness as part of advanced urban planning. This preparation is not only for the increase in population, but also for the improvement of the living conditions.

2) Current Condition of Urban Redevelopment

The locations and land areas of the on-going major urban redevelopment are shown in Table 7.6.1 and Figure 7.6.1. The features of the urban redevelopment are listed below.

- The urban redevelopment plan is developed based on the spatial plan.
- There are numerous areas for urban development along the areas near the shore, southwest and northwest of DKI Jakarta.
- The redevelopment proposed for the slum areas, and villages near the shore and riverbanks are also shown.
- The areas of redevelopment vary for each locality. However, many development areas are ten ha or less.

Table 7.6.1 Major Urban Redevelopment

No	Redevelopment	Area(ha)	No	Redevelopment	Area(ha)
1	Kawasan Perencanaan Kota Tua Jakarata	846	9	Rusun Kebon Kacang	2
2	Angke Fishermen Kampung Muara Angke	65	10	Rusun Benhil I and II	-
3	Kemayoran Complex	454	11	Rusun Tebet	17
4	Apartemen / Rusunami Cengkareng(City Park)	4	12	Rusunawa Griya Tipar Cakung	-
5	Rumah Susun/ flats Tambora	2	13	Rusun Petamburan	2
6	Rumah Susun / flats Marunda	42	14	Rusun Klender	-
7	Rusunawa (Rent flat) Waduk Pluit	2	15	Rusun Tanah Abang	4
8	Rusun Bidara Cina	2	16	Rusun Pulo Gadung	-
9	Rusun Kebon Kacang	2	17	Rusun Penjaringan	10
10	Rusun Benhil I and II	-	18	Kebon Melati Project	52

Source: MPA Study Team based on Dinas Tata Ruang, project brochures and Website for redevelopment.



Source: MPA Study Team based on Dinas Tata Ruang, projects brochures and Website.

Figure 7.6.1 Major Urban Redevelopment

3) Current Condition of Large-Scale Development

The current large-scale developments are shown in Table 7.6.2 and their locations are shown in Figure 7.6.2. The features of the large-scale developments are shown below.

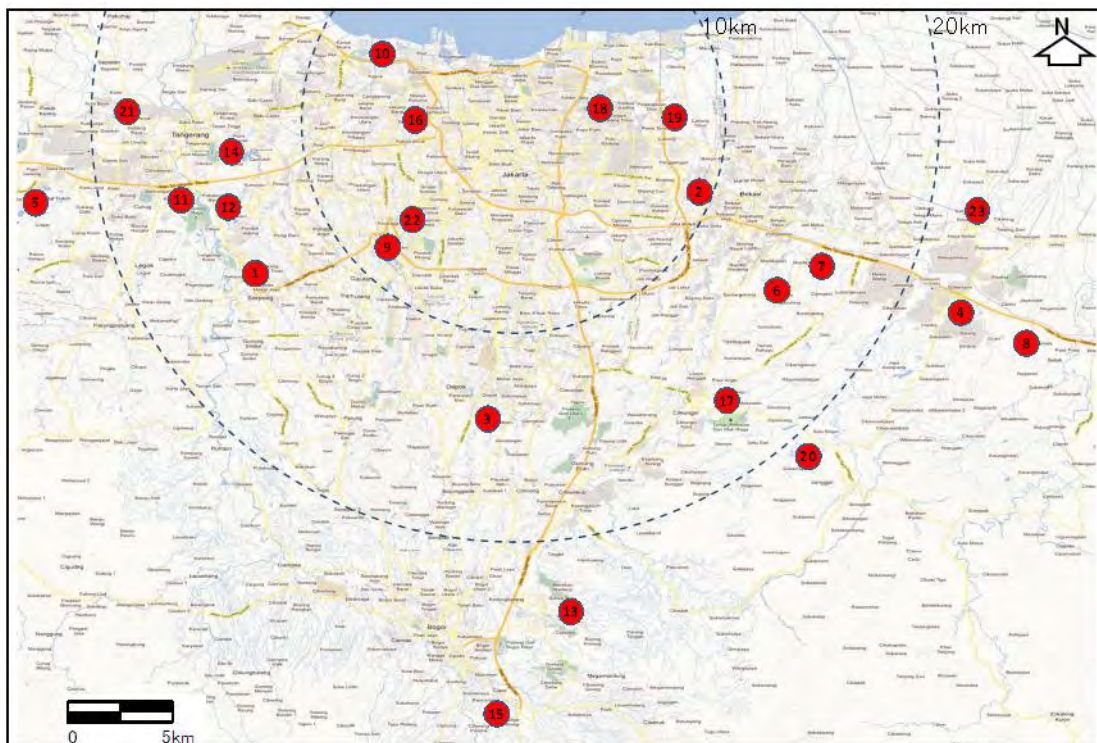
- There are ten large-scale developments, with areas of at least 1,000 ha. The development in BSD City, with a total area of 6,000 ha is the largest among the major developments.
- The developments are mainly located in the eastern and western areas, with just few developments in the southern area.
- Many developments are located along the highways.
- Major developments are located outside of the inner road.

Table 7.6.2 Major Large-Scale Developments

No	Development	Location	Area(ha)	No	Development	Location	Area(ha)
1	BSD City	Kota Tangerang Selatan	6,000	13	Bukit Sentul	Kabupaten Bogor	3,100
2	Cikarang Baru Kota Hijau	Kota Bekasi	1,400	14	Kota Modern	Kota Tangerang	470
3	Grand Depok City	Kota Depok	195	15	Rancamaya Estate		400
4	Lippo Cikarang	Kabupaten Bekasi	1,440	16	Podomoro City	DKI Jakarta	21
5	Citra Raya	Kabupaten Tangerang	2,760	17	Harvest City		1,050
6	Kota Legenda	Kota Bekasi	2,000	18	Summarecon Kelapa Gading	DKI Jakarta	500
7	Grand Wisata	Kabupaten Bekasi	1,100	19	Jakarta Garden City	DKI Jakarta	270
8	Kota Delta Mas	Kabupaten Bekasi	3,000	20	Citra Indah	Kabupaten Bogor	550
9	Bintaro Jaya	Kota Tangerang Selatan	2,389	21	Puri Jaya	Kota Tangerang	280
10	Pantai Indah Kapuk	DKI Jakarta	200	22	Pondok Indah	DKI Jakarta	450
11	Gading Serpong	Kabupaten Tangerang	1,500	23	Citragran	Kabupaten Bekasi	300
12	Alam Sutra	Kabupaten Tangerang	700	24	Maja	Kab. Lebak, Kab. Tangerang, and Kab. Bogor	10,900

Note: Maja is developing in the boundary of JABODETABEK MPA area.

Source: MPA Study Team based on PERUMNAS, projects brochures and website.



Source: MPA Study Team based on PERUMNAS, projects brochures and website.

Figure 7.6.2 Major Large Scale Developments

(2) Master Plan of Urban Development and Industrial Estate

The Ministry of Public Housing (MOPH) formulates the basic strategy of urban development and the Ministry of Industry (MOI) formulates the basic strategy of industrial development. Both urban development and industrial development have to be implemented in line with the long-term vision. Then, the master plan of urban development and industrial estate for MPA master plan follows the vision of MOPH and MOI. The visions of MOPH and MOI are summarized below.

1) Housing Development Vision

The MOPH has established the Vision of Housing Development for 2010-2014 as follows:

Short-Term Vision 2010-2014

a) Vision

"Every Indonesian Family Occupy the Liveable House "

b) Mission

- Improve climate adaptation and coordinate housing development policies and settlement implementation.
- Increase availability of affordable housing that is liveable, healthy, safe, and with adequate infrastructure support, facilities, and utilities.
- Develop a long-term housing finance system which is efficient, accountable and sustainable.
- Improve and optimize the use of housing and settlements.
- Improve the role of local government units and other stakeholders in housing and settlement development.

c) Priority of Public Housing

- Continue multi-year development of low-income apartments (Rusunawa);
- Increase the supply of livable residential units for Medium-Income People (MBM) and Low-Income People (MBR) through Rumah Sederhana Sehat (RSH), Rusunawa and Rusunami development;
- Monitor and oversee slum housing environment through the Housing and Area-Based Management Environment Slums Programme (PLP2K-BK);
- Improve access and affordability for MBM and MBR through liquidity facilities;

- Encourage housing development through self-stimulants assistance such as new development, improved quality and infrastructure-facility and utility (PSU), and facilitation of pre-certification and post-certification mentoring soil;
- Increase synergies between Centre - Region through de-centralization of flow of funds, specifically Dana Alokasi Khusus (DAK);
- Increase role of PERUMNAS in the provision of liveable housing units through Public Service Obligation (PSO) with the cooperation of local governments;
- Increase supply of PSU (region and environment) to implement Minimum Service Standard (SPM) for Public Housing;
- Encourage involvement of local governments in the development of KASIBA, LISIBA BS, and large-scale non-residential projects; and
- Develop sources of housing for long-term development financing through the National Housing Savings (TPN) development.

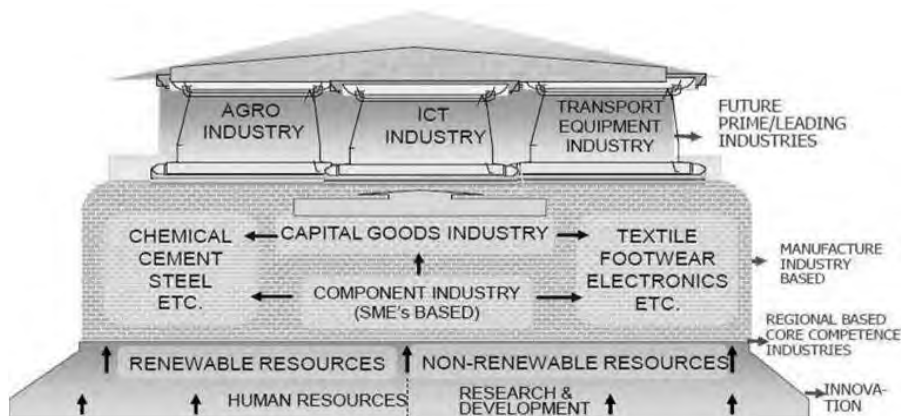
2) Industrial Development Vision

a) Industrial Development Policy by the Ministry of Industry (MOI)

MOI has prepared the industrial development plan and released the Long Term Vision in 2025 and the Short Term Vision 2010-2014 as follows:

Long Term Vision

The catch phrase of the Long Term Vision is “to become a strong industrial nation in 2025“. The future industry’s structure in 2025 is shown in Figure 7.6.3. The agro-industry, ICT industry and transport equipment industry are designated as the future prime/leading industries. The balancing and harmonization of capital goods industries, such as chemical and steel industries, and component industries, such as textile and electronics industries were taken into account.



Source: A Presentation Material by MOI at Indonesia Investment Seminar in Seoul, September 2011

Figure 7.6.3 Ministry of Industry Long Term Vision

Short Term Vision

The catch phrase of the Short Term Vision is “to strengthen the competitiveness of sustainable manufacturing industries and to build a pillar of future prospective industries in 2014”. The seven strategic goals for 2010-2014 are stated as follows:

- i) To promote an increase of industrial value-added output;
- ii) To expand domestic and international markets;
- iii) To encourage the improvement of quality in industry support services;
- iv) To facilitate mastery of industrial technology;
- v) To facilitate the strengthening of industrial framework;
- vi) To encourage the spread of industrial development outside of Java island;
- vii) To push for the increase of role of SMEs in GDP.

Also, six groups and 35 sectors of prioritized industries in the Short Term Vision are listed in Table 7.6.3.

Table 7.6.3 Six Groups and 35 Sectors of Prioritized Industries

Group	Sector
I. Manufacturing Based Industry	1. Steel 2. Cement 3. Petrochemicals 4. Ceramics 5. Electrical Machinery and Electrical Equipment 6. General Machinery Equipment 7. Textiles and Textile Products 8. Footwear
II. Agro Industry	9. Palm Oil Processing 10. Rubber and Rubber Goods 11. Cocoa 12. Coconut Processing 13. Coffee Processing 14. Sugar 15. Tobacco Products 16. Fruit Processing 17. Furniture 18. Fish Processing 19. Paper 20. Milk Processing
III. Transportation Industry	21. Motor Vehicle 22. Shipping 23. Aerospace 24. Railroad System
IV. Industrial Electronics and ICT	25. Electronics 26. Telecommunication 27. Computers and Equipment
V. Supporting Industries for Creative Industries	28. Software and Multimedia Content 29. Fashion 30. Crafts and Art Goods
VI. Small and Medium-sized Industries	31. Stone and Jewelry 32. Salt 33. Pottery and Ceramics 34. Essential Oils 35. Snack Foods

Source: Ministry of Industry, Industry Facts & Figures 2010

b) MP3EI 's Prioritized Industries and their Distribution to the Java Economic Corridor

MP3EI shows the following 13 prioritized industries. Moreover, the priority in Java Economic Corridor that includes JABODETABEK MPA is shown in Table 7.6.4.

Table 7.6.4 MP3EI' s Prioritized Industries in Indonesia and Java Economic Corridor

No.	Prioritized Industries	Java Economic Corridor
1	Palm Oil Processing	
2	Rubber Processing	
3	Coal Processing	
4	Nickel Processing	
5	Copper Processing	
6	Oil & Gas Processing	
7	Food & Beverages Processing	√
8	Textile	√
9	Machineries & Transportation Equipments	√
10	Shipbuilding	√
11	Steel Processing	
12	(Metal) Aluminium Industries	
13	ICT	√

Source: MP3EI

c) Typical Development Patterns of Industries

The development patterns of industries are broadly classified into ten groups as shown in Table 7.6.5. Most patterns, except pattern 8, shall be applicable to JABODETABEK MPA. Resource-oriented industries such as agro-industry (palm oil processing, etc.) and mineral and/or energy resource based industries (aluminium processing, etc.) should be located near the vicinity of raw materials, minerals, energy and/or water resources to be used. Further, apparel and non-metallic mineral products (glass production, etc.) shown in patterns 1, 3 and 9 may be discouraged to locate in JABODETABEK MPA, since this area is expected to introduce high value-added and high technology industries from the national industrial development perspective.

Table 7.6.5 Development Patterns of Industries (1/2)

Pattern	Features	Sub-sector
1. Metropolis-oriented industries	These industries are mainly dependent on the marketability of their products in large and metropolitan areas.	Apparel, Printing industry, Light industry for livelihood
2. High-Technology industries	These industries will be located in good physical environment with qualified human resources.	Machinery, Electrical machinery, Electronics
3. Distribution and processing oriented industries	These industries will be located at sites close to their markets with good transport facilities.	Beverage, Apparel, Non-metallic mineral product, Transport equipment

Table 7.6.5 Development Patterns of Industries (2/2)

Pattern	Features	Sub-sector
4. Port oriented industries	These industries are mainly dependent on port for importing their raw materials, resources, and parts, and also for exporting their products.	Petro-chemical, Steel, Machinery, Electrical machinery, Transport equipment
5. Airport oriented industries	These industries are dependent on airport for transporting their goods or they may be involved in aircraft industries.	Medical & pharmaceutical product, Electronics, Transport equipment
6. Technical collaboration industries	These industries will be located in areas where there is clustering of various types of technology-based industries.	Chemical product, Machinery, Electrical machinery
7. Information technology industries or related industries	These industries may be located in and around large cities.	Communications equipment industry, Software and publishing industries
8. Resource-oriented industries	These industries will be located in areas that have sufficient supply of resources such as electricity and water.	Agro-industry, Mineral-resources based industries
9. Labor intensive industries	These industries require large supply of labor.	Apparel, Non-metallic mineral product
10. Subsidiary industries	These industries may be strategically located near their parent companies in order to produce parts for them.	Plastic, Fabricated metal. Machinery (Mainly, SMCs)

Source: MPA Study Team based on Examples of Model Industrial Estates (in Japanese) 1991 by Japan Industrial Location Center, the Final Report of JICA's Feasibility Study on the Industrial Model Town in India 1995 and other sources.

d) Appropriate Type of Industries in the New Industrial Estate

In order to realize the ideas in the development plans, the new industrial estates must maintain the industries that produce high value-added products and high technology. Consistent with the visions and policies and taking into account the typical patterns of industries, the appropriate types of industry determined for the new industrial estates are electronics, ICT, transportation equipment and medical & pharmaceutical products and so on.

e) Regulation of the Government of the Republic of Indonesia No.24/2009

In this regulation, the following are taken into consideration:

- i) that in order to implement Article 20, Law Number 5 of 1984 regarding industry, it is necessary to encourage industrial development through development of industrial location in the form of industrial estates;
- ii) that the development of industrial estate is a means to develop environmentally sustainable industries, and to facilitate and attract more investments; and
- iii) that based on the considerations as referred to in i) and ii), it is necessary to stipulate Government Regulations regarding industrial estates.

Moreover, the policy on the location of a future industrial estate is provided in Articles 7 and 10.

Article 7

- (1) Industrial Company that will operate after the enactment of this Government Regulation shall be located in an industrial estate.
- (2) Obligation to locate in an industrial estate, as referred to in paragraph (1), shall not apply to the following:
 - a. Industrial companies using materials and/or production processes that require special location.
 - b. Micro, small, and medium-sized industries.
 - c. Industrial companies that will operate and locate in the regency/municipality which do not have industrial estates or where all its industrial estate plots have been used up.
- (3) Type of industry requiring special location as well as micro-, small-, and medium-sized industries as referred to in paragraph (2) items a and b stipulated by the Minister.

Article 10

- (1) Area of Industrial estate is at least 50 ha in one contiguous lot area.
 - (2) Area of certain industrial estate for micro-, small-, and medium-sized businesses is at least 5 ha in one contiguous lot area.
- (3) Development Policies

As shown in the JABODETABEK MPA Vision 2030 in Chapter 5 and future spatial structure in 2020 in Section 5.3, urban development is implemented to mitigate overconcentration in DKI Jakarta and to build a multi-core structure by distributing population to suburban areas. Research and development should be promoted in the southern area of JABODETABEK MPA, because the area has water source where large-scale development is not suitable. The coastal areas at the east and west sides should be protected as well as the agricultural land. Therefore, new urban development including new development of industrial estates, is to be promoted on the east and west of DKI Jakarta. To create a new growth sub-corridor for JABODETABEK MPA as illustrated in JABODETABEK MPA Vision 2030, the development to the eastern areas, including Kota Bekasi, Kabupaten Bekasi, and Kabupaten Karawang, is to be mainly promoted in JABODETABEK MPA Master Plan.

The New Growth Gateway Area, with a new airport and seaport at the eastern JABODETABEK MPA as the one core infrastructure of the sub-corridor, is to be developed. Moreover, a new growth center is to be established to complement

administrative functions currently centered in DKI Jakarta, by furnishing a backup function as part of the administrative functions. The new growth center will have self-reliant urban functions including disaster prevention responsibility during earthquakes, tsunamis, floods, fires, etc., and other environmental and eco-friendly functions, to become a sub-center of DKI Jakarta after 20 years. A new township at the new growth center is to be strategically developed, to prevent disorderly development and to have the characteristics of a new gateway.

Moreover, urban redevelopment for the creation of a better urban environment around the existing city areas of DKI Jakarta is to be promoted. Creating open spaces, building affordable housings, and improving transportation node are possible guidelines for urban redevelopment. Development in Maja area, stretching Kabupaten Bogor, Kabupaten Tangerang, and Kabupaten Lebak, also has to be examined in the context of urban redevelopment.

Regarding industrial development, the Medium Term Development Plan by MOI stresses the strengthening of the industrial structure and increasing the productivity of industrial enterprises as discussed in the preceding section.

Furthermore, the government has carried out some measures to accelerate growth in the regions mainly from the viewpoint of industry through: (1) acceleration of the development of Papua Province; (2) arrangement of industrial estates; (3) determination of free trade zones in Batam, Bintan, Karimun and Sabang; (4) preparation of Special Economic Zone (SEZ); and (5) reformulation of the Integrated Economic Development Zone (KAPET).

As for the development of industrial estates in JABODETABEK MPA, the above-mentioned concepts of the existing national industrial policies, as well as MP3EI and the Medium-Term Development Plan, should all be fully taken into account.

(4) Issues and Measures

Many urban developments are implemented in JABODETABEK MPA. However, as shown in Section 7.1 and 7.2, the large growths of population and socio-economy in the future are forecasted. Responding to the rapid growth by transforming from single-core urban structure to multi-core urban structure is a key concern. (Refer to Chapter 5).

Then, the setting of the urban area and industrial estate in the future is presented, in Section 7.2 and Table 7.6.6. The population density of DKI Jakarta, which is currently overcrowded, will be lessened. The population density will increase more largely in suburban areas. The working population ratio for industrial estate workers will be increased.

Table 7.6.6 Setting for Estimate of Urban Area and Industrial Estate

	Urban Area		Industrial Estate ²⁾	
	Population Density ¹⁾		Large and Medium Scale Enterprise Worker/ Secondary Worker	Working population densities in Industrial Estate
	Existing Urban Area	New Urban Area		
DKI Jakarta	-3% of existing	200 people/ ha	2010: 42%	126.2 people/ ha
Suburban Area	+5% of existing	100 people/ ha	2020: 50% 2030: 60%	

Note: 1) Establishment by MPA Study Team based on the existing population density

2) Indonesian average, Small/House factory is included in urban area.

Source: MPA Study Team

Through the execution of development policies, 4 million people will live in new urban areas in 2020. As a result, multi-core urban structure will be formed and new industrial estates of 6,800 ha will be developed in suburban areas. With this development, many workers will work in the new industrial estates.

Table 7.6.7 Target Effect Indicator for Urban Development

SECTOR	TARGET EFFECT INDICATOR (Narrative)	TARGET EFFECT INDICATOR (Quantitative)		DESCRIPTION
		2010 (Base)	2020 (Target)	
Urban Development	Accelerate multi-core urban development	-	4 million people in new urban areas at suburban areas	Reduce 3% of population density of DKI Jakarta, and increase by 5% in suburban area
Industrial Area	Expedite new industrial estates development	-	6,800 ha at suburban areas	High-value-added industries are introduced to suburban areas.

Source: MPA Study Team

(5) Basic Plans

Urban development proposed in JABODETABEK MPA Master Plan supports the promotion of new growth through the development of the new airport and seaport and acceleration of growth of JABODETABEK MPA. Moreover, modern living conditions will be created alongside urban development in order to attain a sub-center status complementing the administrative functions of DKI Jakarta. The new urban areas which will be able to accept the urban population will increase rapidly, and will promote improvement of the living environment in JABODETABEK MPA and public transportation, etc., in order to make the JABODETABEK MPA a sustainable mega-city.

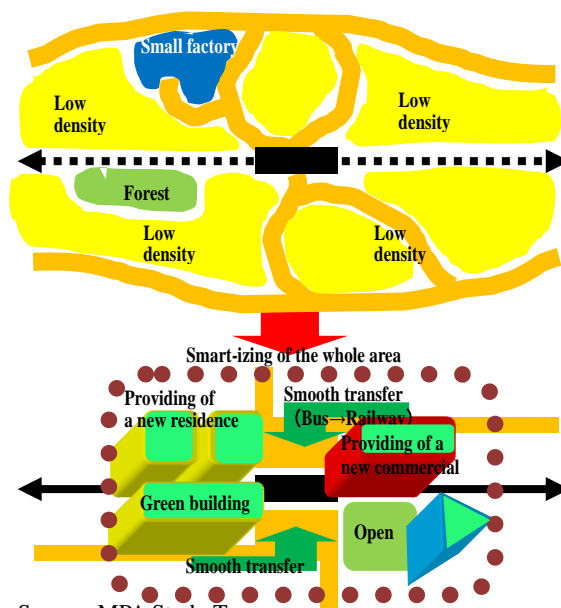
The basic directions of urban development including new growth gateway area with logistics, urban redevelopment and development of new townships, new academic clusters, and industrial estates, are enumerated below.

1) Urban Redevelopment

Where access to public transportation is fairly good and increasing population can be accommodated, facilities for urban transportation will be developed and mixed land use including residence, business, and commerce is to be promoted.

Items to be addressed in the development

- Development of urban functions such as residential buildings, commercial facilities, medical facilities, vocational training schools, research and development functions, financial centers, entertainment functions, etc.
- Development of smart city, including smart grid, utilization of Information Communication Technology (ICT)
- Development of eco-city, including full utilization of public transportation, creating green open spaces, etc.;
- Development of transportation nodes for smooth transfer between different transportation modes, and reduction of modal share for vehicle use;
- Development of disaster prevention centers; and
- Provision of public green open spaces, including provision of green roofs and green walls.



Source: MPA Study Team

Figure 7.6.4 Illustration of Urban Re-development

To sustain the population and socio-economy in the JABODETABEK MPA, some existing land use needs to be renewed. A variety of urban redevelopment projects will be implemented to follow the basic plan. Then, to accelerate the implementation, it is effective to start from the most important development as a pilot project. The pilot project will showcase the introduction advanced technology.

A3 (1) Pilot Project of Urban Development/ Re-development

2) New Growth Gateway Area with Logistics and New Townships

To mitigate the over-concentration of DKI Jakarta and to form a multi-core type

metropolitan area, new growth gateway area will be developed at the east of DKI Jakarta. Since this area is close to the new airport and seaport, it aims at producing a synergistic effect of the advantages of developing the airport and seaport and agglomerating it with the new urban functions. Moreover, redistribution of the existing urban functions of the present metropolitan area is also to be attained.

Developmental issues that need to be addressed

- Introduction of urban growth management to attain the growth as planned
- Development of public infrastructure, including roads, railways, open spaces, water supply systems, etc.;
- Development of urban functions such as residential buildings, commercial complexes, medical facilities, vocational training schools, research and development centers, financial centers, entertainment complexes, etc.;
- Development of administrative functions complementary to the existing administrative functions;
- Development of smart city, including smart grid, utilization of ICT;
- Development of eco-cities, including full utilization of public transportation, creating green open spaces; and
- Development of supporting functions in case of emergency, by adopting base-isolation structures, disaster prevention technologies, and ICT.

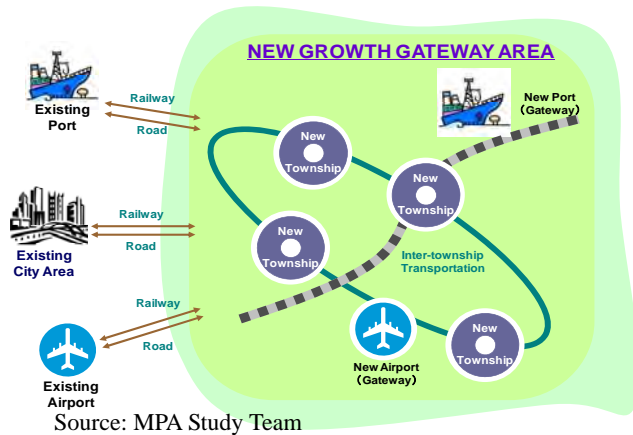


Figure 7.6.5 Illustration of New Growth Gateway Area

To accommodate the increased population, many new town areas are needed. First of all, a new urban development project as a model case will be implemented. The first project will attract development of the surrounding areas and contribute in reducing carbon energy consumption and enhancing urban environment. Then, the project will also form a multi-core structure to mitigate overconcentration of DKI Jakarta.

B1 (1) Development of New Township

Energy management for realization of sustainable society is required with advancement of clean energy technology. Development of smart technology is promoted through the implementation of a pilot project for the Smart Grid. Testing in

various cases and situations are being planned in the pilot project.

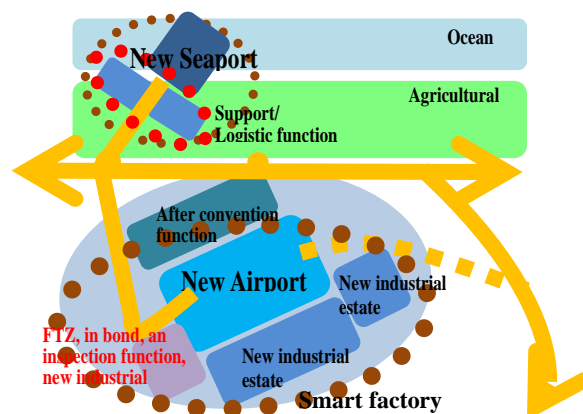
D2 (1) Smart Community (including a pilot project for the Smart Grid) as FTP 2.1

3) Industrial Areas

The industrial estates are mainly developed in the vicinity of the new airport and seaport. The development must clarify the role of JABODETABEK MPA in industrial development and support the balanced industrial development to minimize the socio-economic disparities between JABODETABEK MPA and other areas in Indonesia.

Developmental issues that need to be addressed

- Development of productive and storage functions taking advantage of the proximity of airport and seaport;
- Development of an innovative manufacturing function for high-tech and high value-added businesses;
- Development of airport- related facilities such as Free Trade Zone (FTZ), warehouses and quarantine facilities; and
- Development of smart cities, including smart grid networks and utilization of ICTs.



Source: MPA Study Team

Figure 7.6.6 Illustration of an Industrial Estate

For the promotion of high value-added industry, new industrial estate equipped with the newest function is required. High-tech industrial estates which utilized the impact of development require the preparation of a new airport and a seaport is developed.

B1 (2) Development of New Industrial Estate in the Vicinity of the New Airport

4) New Academic Clusters

As globalization progresses due to the development of the new airport, etc., the existing urban functions in JABODETABEK MPA are to be enhanced and reinforced. These developmental efforts, which are influenced by factors which include variety of local resources, the history, and achievements in Indonesia, and the national research and development functions in JABODETABEK MPA are going to be more sophisticated to level up to international standards.

Developmental issues that need to be addressed

- Reinforcing institutions of higher education, including hard measures, such as introduction of earthquake-resistant structures, and soft measures such as reinforcement of research functions;
- Development of research centers and knowledge incubation centers, including collaboration between industries and academe, and expansion of basic research functions;
- Development of sophisticated urban functions to attract researchers from foreign countries in terms of residences, commercial facilities, medical facilities, entertainment facilities, etc.;
- Improvement of existing convention functions, including improvement of accommodations and after-convention facilities;
- Development of smart cities, including smart grid networks, and utilization of ICTs; and
- Development of eco-cities, including promotion of full utilization of public transportation and creation of green open spaces.

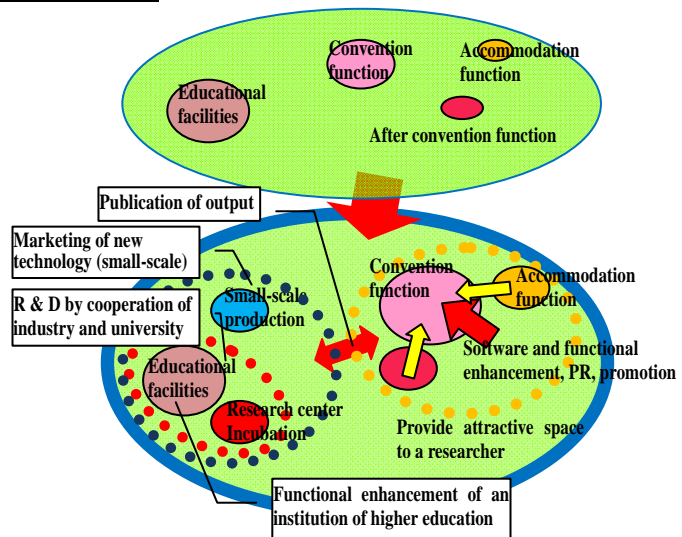
To promote high value-added industries, new industrial estates equipped with the newest functions are required. Utilization of the impact of the new airport and new seaport is to be addressed in the new industrial estate development.

B2 (1) Development of New Academic Research Cluster

5) Investment Arrangements

Urban development and Urban Re-development as a whole are not covered by the PPP Scheme (Hybrid or Shared Financing), although they will be applicable to the PPP scheme if some components of the urban development are designed as infrastructure facilities.

Thus, in order to promote urban development, it may need to utilize existing and new investment and legal/institutional schemes. The implementation of key infrastructure development shall be constructed under PPP and/or government and donors. The fund



Source: MPA Study Team

Figure 7.6.7 Illustration of New Academic Cluster

from the private sector shall be mobilized for the development of urban functions, such as residential buildings, commercial complexes, medical facilities, financial centers and entertainment facilities. Consequently, the cooperation and demarcation among stakeholders/investors shall be indispensable.

More specifically, the following arrangements presented in Table 7.6.8 will be proposed. About incentives such as provision of subsidies or tax reduction for urban developers, the government may designate the following requirements:

- (a) Provision of certain number of housing units for low and medium-income people;
- (b) Provision of open space or small parks for public use;
- (c) Development of smart community from the viewpoint of energy saving and quality of life;
- (d) Disaster prevention measures and resilience to damage; and
- (e) Creation of barrier-free environment.

Table 7.6.8 Investment and Regulatory Arrangements for Urban Development (1/2)

Components	Schemes/Major Players
Investment and Financial Arrangements	
1. Promotion of infrastructure development and maintenance for urban development	PPP, public or private investment *According to Government Regulation No. 52/ 2011, the tax allowance will be provided for building construction in the city for processing, distribution and storage of drinking water, wastewater and drainage.
2. Procurement of land	Public sector *The New Land Acquisition Law No. 2/ 2012 requires that the source of funding for land acquisition in public interest is the State Revenues and Expenditures Budget (APBN) and/or Regional Revenues and Expenditures Budget (APBD).
3. Development and maintenance of parking lots, parks, open space and other urban facilities	Public and private sector
4. Provision of residential buildings, commercial complexes, and so on	Private sector
5. Utilization of public land	Public sector *Public sector will rent out public land to the private sector for certain period.
6. Provision of subsidies, loans, equity and government guarantees	Public sector * Infrastructure Guarantee Fund (IGF) and Infrastructure Fund, such as IIF and SMI are already established for PPP.

Table 7.6.8 Investment and Regulatory Arrangements for Urban Development (2/2)

Components	Schemes/Major Players
Legislative and Regulatory Arrangements	
7. Special treatment of zoning/architectural regulation and spatial planning	Public sector
8. Provision of tax incentives for urban developers	Public sector (Ministry of Finance) *Currently, according to the Government Regulation No. 52/ 2011, the tax allowance will be provided only for real estate development of tourism zone *Provision of the same tax incentives for developers of economic zones or SEZ may be applied to urban developers.
9. Simplification and acceleration of licensing procedures	Public sector
10. Utilization of land consolidation/readjustment or other related schemes	Public sector *Regulations on land consolidation may be revised if needed.

Source: MPA Study Team

As for industrial estates development, the optimum investment scheme should be selected.

The current major schemes for zone development are general industrial zones/industrial estates, KAPET, FTZ and SEZ. Incentives provided for these zones (import tariff exemption, income tax allowance and so on) are almost the same, although the incentives for SEZ have not been finalized as of April 2012.

The potential investors may enjoy the tax holidays for a period of five to ten years if their sector is classified as a pioneer industry in Indonesia. This is according to the new MOF's Regulation No. 130/ PMK.011/2011.

Also, the Indonesian Government promulgated Government Regulation No.52/2011, which enlarges the number of business sectors/fields entitled to income tax allowance from 101 to 129. However, number of business sectors/fields without regional limitation has been reduced from 67 to 52. Due consideration should be given to new sets of tax allowance especially for SME's investment and simplification of the procedure in applying for tax allowance.