

BUILDING A MEGACITY: JAKARTA IN THE 21ST CENTURY A CASE STUDY OF THE URBAN TRANSPORT SYSTEM IN JAKARTA¹

Siwage Dharma Negara

Economic Research Centre Indonesian Institute of Sciences (LIPI)

Institute of South East Asian Studies (ISEAS)

Abstract

Jakarta is rapidly becoming as one of the world's megacities and this has been boosted by its impressive economic growth over past decades. The city has transformed over the past thirty years into one of the modern financial and services hubs in Southeast Asia. With a population of more than ten million, it is now a thriving centre of entrepreneurship. However, the city is striving to find a balance between growth and sustainable development. Like all other megacities, Jakarta faces serious development challenges, such as a population explosion, traffic congestion, environmental pollution, resource shortages, urban poverty and cultural conflicts. This study focuses on the complex challenge of alleviating worsening traffic congestion in Jakarta. It looks at how various fragmented policies and strategies have failed to solve this problem because of poor planning, lack of community participation, poor urban transport management and unbalanced regional development. In particular, it addresses the key failure to develop a sustainable urban transport system that considers the social, economic, environmental and cultural elements of the city. The essential message of the study is that to control traffic congestion successfully, reforms in the urban transport system should be complemented with more community engagement in planning, governance and monitoring. Social sciences can contribute to the understanding of the problems and reinforce the necessity for wide-ranging social and behavioural reforms in urban society.

Key words: Urbanisation, Traffic congestion, Urban transport, Social sciences

INTRODUCTION

Jakarta is rapidly becoming one of the world's megacities, boosted by its impressive economic growth over the past decades. The registered population of Jakarta has increased from 8.3 million in 2000 to around 10 million in 2014 (see Figure 1).² During the day, the city's

The population of greater Jakarta is estimated to be 30 million (see Table 1), which is larger than Delhi or Shanghai. The greater Jakarta urban population constitutes about 31 per cent of Java's urban population.⁴ A notable characteristic of this urban consolidation is the increasing mix of industrial,

1 This paper was presented at AASSREC biennial conference on 'Megacities of Asia: Social Sciences and Our Urban Future', Taipei, 27–28 April 2015.

2 See <http://jakarta.bps.go.id/index.php?bWVudT0xNSZwYWdlPWdIPWRhdGEmc3ViPSZpZD0xMSZp>

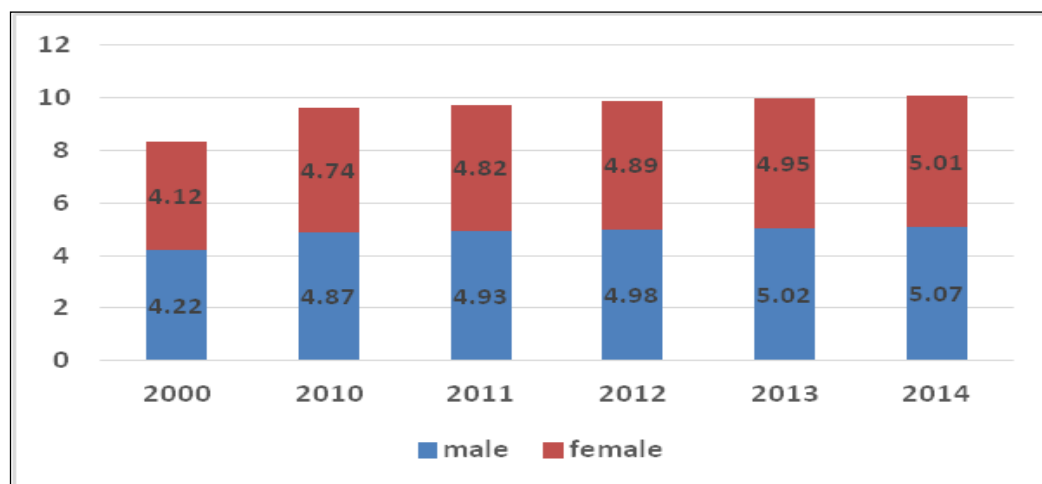
population can increase to almost 13 million from an influx of people from surrounding areas who work in the city.³ In terms of geographical area, Jakarta has been expanding to include neighbouring urban areas, that is, Bogor, Depok, Tangerang and Bekasi, and this integration has brought about the huge metropolis called greater Jakarta (*Jakarta raya*).

services and agricultural activities. As a result, the distinction between ‘urban’ and ‘rural’ in the greater Jakarta area has become blurred physically and socio-economically

ZHdpbD0yMjImdGFiPTI= and <http://www.kemendagri.go.id/pages/profil-daerah/provinsi/detail/31/dki-jakarta>. Accessed 8 April 2015.

4 See <http://www.thejakartapost.com/news/2014/12/13/sustainability-java-s-mega-urbanization.html>. Accessed 8 April 2015.

3 See <http://www.merdeka.com/peristiwa/berapa-juta-jumlah-penduduk-jakarta-saat-ini.html>. Accessed 8 April 2015.



Source: Bappeda DKI. <http://bappedajakarta.go.id/wp-content/uploads/2014/10/Penduduk.jpg>

Figure 1. Population trend in Jakarta, 2000, 2010–2014 (millions)

The population of greater Jakarta is estimated to be 30 million (see Table 1), which is larger than Delhi or Shanghai. The greater Jakarta urban population constitutes about 31 per cent of Java's urban population.⁵ A notable characteristic of this urban consolidation is the increasing mix of industrial, services and agricultural activities. As a result, the distinction between 'urban' and 'rural' in the greater Jakarta area has become blurred physically and socio-economically.

The availability of space for residential areas in Jakarta is very limited; people have been moving to Bogor, Depok, Tangerang and Bekasi, the peripheral areas. Table 1 shows that the population growth in Jakarta's peripheral areas; in particular, Bogor, Tangerang and Bekasi, is relatively high. For instance, the population of Bekasi, home to most of the industrial estates in the south of Jakarta, grew by almost 6 per cent every year

from 2000 until 2010. People who live in the urban periphery but work in the business and commercial centres of Jakarta have to commute every day. Consequently, there are huge volumes of daily commuter traffic. For various reasons, these commuters prefer to use private motor vehicles to go to work, which worsens the traffic congestion in the inner city areas.⁶ One estimate is that about 70 per cent of the people in greater Jakarta use private vehicles to go to work.⁷

⁵ See <http://www.thejakartapost.com/news/2014/12/13/sustainability-java-s-mega-urbanization.html>. Accessed 8 April 2015.

⁶ Of the private motor vehicles, by far the most are small capacity motorcycles.

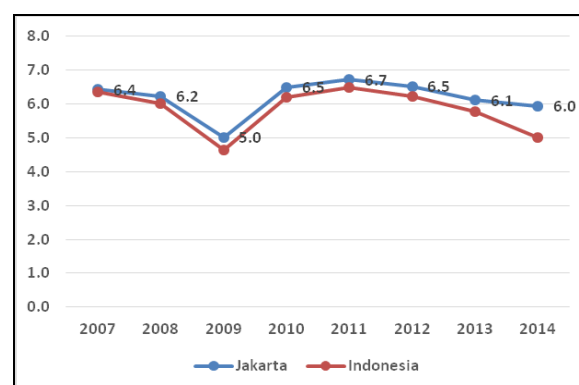
⁷ See <http://www.economist.com/node/15473915>. Accessed 8 April 2015.

Table 1. The population trends of Jakarta and surrounding areas, 2000–2010

	2000	2010	2013	Annual growth rate (2000–2010)	Annual growth rate (2010–2013)
Jakarta	8,389,443	9,607,787	9,988,495	1.45%	1.32%
Bogor	3,508,826	4,771,932	4,966,621	3.60%	1.36%
Kota Bogor	750,819	950,334	1,003,731	2.66%	1.87%
Depok	1,160,791	1,738,570	1,783,113	4.98%	0.85%
Tangerang	2,050,923	2,834,376	3,157,780	3.82%	3.80%
Kota Tangerang	1,498,834	1,798,601	1,952,396	2.00%	2.85%
Kota Tangerang Selatan	875,388	1,290,322	1,443,403	4.74%	3.95%
Bekasi	1,668,494	2,630,401	2,778,798	5.81%	1.88%
Kota Bekasi	1,663,802	2,334,871	2,466,062	4.03%	1.87%
Total Jabodetabek	21,567,320	27,957,194	29,540,399	2.09%	1.89%

Source: <http://jabarprov.go.id/index.php/pages/id/75> and <http://banten.bps.go.id/index.php?hal=tabel&id=131>

Jakarta has become a great magnet for people seeking better living and job opportunities. Supported by its strong economic growth, the city has transformed itself into a modern financial and services hub in Southeast Asia. Jakarta is home to many multinational companies that have established regional headquarters in Jakarta to gain access to Indonesia's vast domestic market. Driven by its highly dynamic trade, services and financial sectors, Jakarta's economic growth has always been higher than the national average (see Figure 2). In addition, Jakarta is famous as a thriving source of entrepreneurship that takes advantage of the burgeoning trade and services sectors. Along with the growth of big multinational companies, the city is also home to more than 8000 small and medium enterprises.⁸



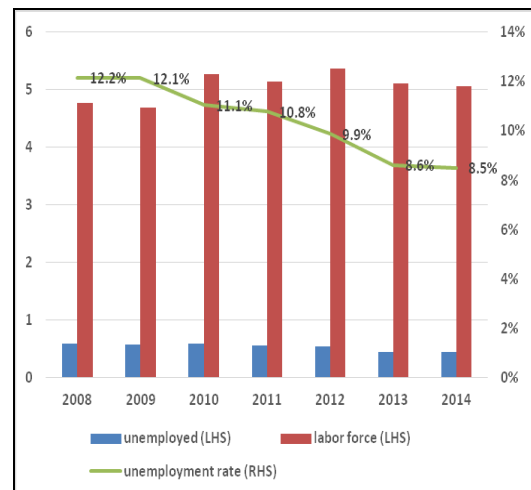
Source: Bappeda DKI. <http://bappedajakarta.go.id/wp-content/uploads/2014/10/Growth.jpg>

Figure 2. Economic growth of Jakarta and Indonesia, 2007–2014

Despite strong economic growth however, Jakarta is still struggling to create enough fairly paid jobs for its people; there is still around 9 per cent of the total labour force without employment (see Figure 3). The unemployment figure would reach 11 per cent if it included the number of people who do not work full time (that is, less than 35 hours per week). As its economy grows, the city is finding it difficult to ensure that its labour force can develop the skills required. Firms complain about the lack of skills of the labour

⁸ See <http://diskumdagdkj.jakarta.go.id/bidang-umkm>. Accessed 8 April 2015.

force (World Bank, 2010).⁹ Even though this is not a Jakarta-specific issue, the city needs to ensure that its labour force has the requisite skills to enable high productivity, to maintain its competitiveness and to sustain long-term growth.

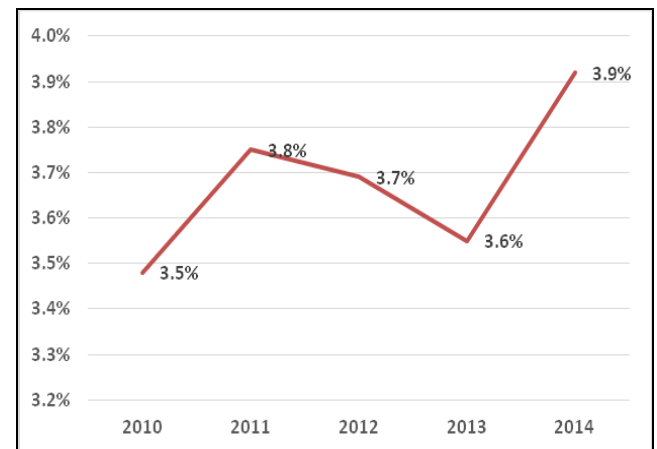


Source: Bappeda DKI. <http://bappedajakarta.go.id/wp-content/uploads/2014/10/Pengangguran.jpg>

Figure 3. Trend of unemployment growth and labour force in Jakarta, 2008–2014

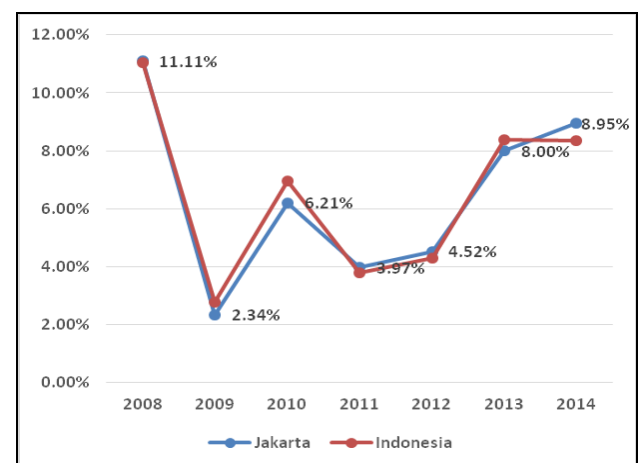
Moreover, despite strong economic growth, Jakarta still faces a significant challenge to eradicate poverty. The number of poor people in Jakarta has increased in recent years (see Figure 4). Part of the problem is that the city is not able to sustain the required growth rate to create sufficient jobs for these people. In addition, the cost of living in Jakarta recently has been increasing significantly (see Figure 5). In 2014, the inflation rate in Jakarta was higher than the national rate. Higher inflation, together with a lack of job opportunities, increases the likelihood of a significant

proportion of the population falling into poverty.



Source: Bappeda DKI. <http://bappedajakarta.go.id/wp-content/uploads/2014/10/Kemiskinan.jpg>

Figure 4. The poverty rate trend in Jakarta, 2010–2014



Source: Bappeda DKI. <http://bappedajakarta.go.id/wp-content/uploads/2014/10/Kemiskinan.jpg>

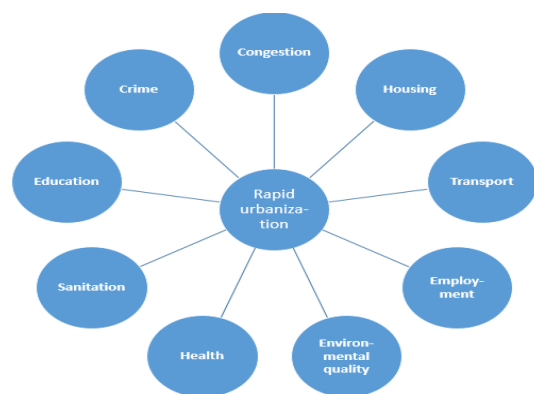
Figure 5. The inflation rate in Jakarta, 2010–2014

Like other megacities, Jakarta has a multitude of challenges to control rapid urbanisation. Every year, more than one million people, mostly from rural areas, come seeking employment opportunities in Jakarta. This migration is difficult to stop: people have the right to look for better living conditions and better job opportunities. The speed of urbanisation in Jakarta has adversely affected

⁹ See World Bank (2010) *Indonesia skills report: trends in skills demand, gaps, and supply in Indonesia*. The report mentions that firms specifically regard the lack of English, creativity, computing and technical skills to be the most critical skills gaps in the current labour force.

the quality of life and its sustainability. Rapid development and growth, devoid of careful urban planning, has led to a crowded, polluted, dirty and unsustainable city.

The city has been making greater attempts to deal with traffic congestion, shrinking green areas, a worsening environment (from pollution and waste), mounting flood risks, and more (see Figure 6). The city's government is under constant pressure to make the city more liveable and healthier for its residents. It strives to provide a reliable and efficient urban transport system, and to provide good public services, such as in education, health and security.



Source: Author

Figure 6. Problems of urbanisation

The list is long of Jakarta's problems that have been caused by several decades of rapid urbanisation. This study does not attempt to discuss all the problems. Instead, it focuses on the multitudinous challenges for Jakarta to control its worsening traffic congestion. It also discusses how Jakarta is persevering to develop an urban transport system before the city reaches total gridlock, a situation that has been predicted by the Japan International Co-operation Agency (2012). The essential message is that to control and reduce traffic congestion successfully, investment in

transport infrastructure should be complemented with measures to change social and behavioural habits. In this case, social sciences can contribute to the understanding of the problems and reinforce the necessity for wide-ranging social and behavioural reforms.

WHY THE CONCERN ABOUT URBAN TRAFFIC CONGESTION?

In Jakarta, on average, people spend two to three hours a day in slow-moving traffic on the way to school or to work. Travel time can take longer when there is heavy rain: motorists will slow down or stop if and where there is flooding. Year after year, traffic congestion has become worse as the number of vehicles increases, which, in turn, results from increasing income per capita or, more simply, from affluence.

Traffic congestion has serious economic, social and environmental implications. It induces significant direct and indirect economic costs because of motor vehicles' inefficient fuel consumption, uneconomic or inefficient use of vehicles, and inefficient use of productive working hours. It also induces significant negative externalities. Traffic congestion increases motor vehicle fuel consumption per unit distance, which, in turn, increases air pollution and carbon dioxide emissions. This, in turn, affects the health of motorists and of people in nearby areas. The number of stressed and frustrated motorists has been increasing. All in all, worsening and uncontrolled traffic congestion has lowered the quality of life in Jakarta.

CURRENT STRATEGIES TO DEAL WITH TRAFFIC CONGESTION

The Jakarta metropolitan government has initiated several measures to control traffic congestion in the city. These include encouraging people to use public transport, limiting the number of private vehicles (including trucks and other commercial and business vehicles) travelling in the city, prohibiting motorcyclists from using specified main roads, increasing the carrying capacity of roads and building new toll roads.¹⁰

To encourage more people to use public transport, the city government since 2004 has been operating the Transjakarta Busway project, a bus rapid transit system or BRT. The design of Jakarta's BRT operation is based on the success of the TransMilenio system in Bogota, Colombia. However, for safety reasons, Jakarta's BRT does not use a contraflow system as does Bogota's system. Currently, the BRT project operates in 12 corridors (of 15 corridors under the plan) with a road length of 208 kilometres. The BRT moves, on average, 350,000 people each day. The city government administers the infrastructure, management, control and planning of the BRT system. The private sector is involved in the operation and shares revenue from the ticketing system with the city government.

There are several disadvantages to the BRT operation. It uses special, dedicated road lanes for the exclusive use of its express buses. This means that along the busway routes there is one less traffic lane for use by other motor vehicles; in other words, the road is narrower

and therefore traffic slower. Currently, many of the BRT lanes are not used efficiently; they can be empty while the other lanes are packed. Other public transport vehicles; metromini, mikrolet and kopaja, are not allowed to use the BRT lanes.

Despite continuous improvement of the BRT service, many people are reluctant to use it and to leave their car or motorcycle at home. The BRT is considered to be not as convenient or as efficient as private vehicles. In addition, during rush hours, the number of BRT buses is hardly enough to accommodate the number of passengers and as a result, there are long queues. On many occasions, when there is traffic congestion, the BRT lane is used by many other motor vehicles, which are not supposed to take the busway or express lane. When the express lane is blocked by other motor vehicles, a BRT trip is badly delayed. In addition, the operations of the BRT system have not been supported by sufficient feeder buses. And there are no extensive 'park and ride' facilities to allow commuters to park their cars close to the BRT stations.

Besides the BRT, the greater Jakarta area is also served by electric commuter trains (KRL Jabodetabek). KRL Jabodetabek is a railway rapid mass transit system for commuters from in and around the greater Jakarta area. The train has a long history; it began in 1925 during the Dutch colonial period. However, because of the rapid growth of the automotive industry, trains have become less attractive for the growing middle class. People prefer to have their own vehicles and drive or ride them to work rather than use the train. As a result, the railway system has been neglected and underinvested. Modernisation of the commuter railway system was started in 2011 by

¹⁰ See <http://www.thejakartapost.com/news/2015/01/07/more-streets-be-restricted-motorcyclists.html>. Accessed 8 April 2015.

reducing the number of lines from 37 to the current six integrated lines and providing air-conditioned carriages. In July 2013, the KRL operator introduced a commuter electronic ticketing system, which replaced the previous paper ticket system and changed the fare structure to a 'progressive fare' system. As well, all 80 railway stations were modernised. In 2014, KRL Jabodetabek carried more than 700,000 passengers per day. It is predicted to serve 1.2 million passengers per day by 2019.

Currently, KRL is the most affordable means of public transport for commuters around greater Jakarta. The government has been subsidising KRL to make it affordable by the less-well-off. The subsidy is based on the total number of passengers using the service. However, because of poor management and lack of financial support from the government, the state-owned railway company has not been able to reach its potential for meeting the demand from commuters. The operation of KRL is also subject to frequent technical problems because of poor maintenance and there are frequent disruptions caused by power black outs, landslides and floods.

Besides BRT and KRL, many commuters travel by the traditional economy-class buses, called *kopaja* and *metromini*, which serve numerous routes across the city. Alas, they are not efficiently managed. Their poor service and the aggressive driving style of the drivers are well known. Public bus drivers are known to show little respect for other road users; they frequently cut in at junctions, block the road and cause congestion. *Kopaja* and *metromini* buses stop at road junctions and at other places convenient for them to pick up and drop off passengers. When this happens, other road users are delayed and inconvenienced. Their

inconsiderate driving behaviour often causes congestion and accidents. The undisciplined and unruly conduct of *kopaja* and *metromini* drivers is aggravated by lack of traffic law enforcement.

To control the volume of traffic in the city, the city government has designated several main roads as special zones, called 'three-in-one zones'. To use these special zones, at least three people have to be in one car during the rush hours. However, because of poor implementation and weak law enforcement, the regulation is not effective in reducing the traffic. Even worse, it creates a new problem: 'traffic jockeys', people who offer themselves (for payment) as passengers in cars whose owners want to pass through a restricted zone during rush hours.

After more than a decade of implementation, the three-in-one zones have not been effective in addressing traffic congestion. The city government is considering replacing the three-in-one zoning system with an electronic road pricing (ERP) system. ERP has been used in Singapore, London and some cities in North America to limit the number of vehicles entering the inner part of a congested city. However, ERP has not yet been implemented in Jakarta because of various legal and technological issues, and the lack of decent public transport to support the system's implementation.

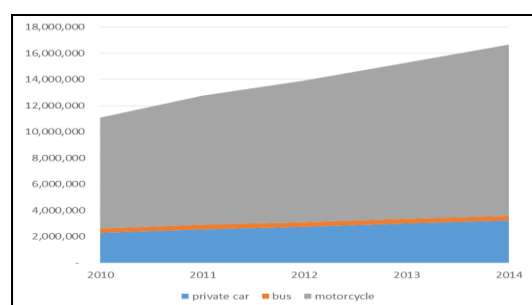
ADDRESSING THE PROBLEMS

All the above measures show that the city government has been trying to deal with traffic congestion in Jakarta. Despite many strategies and much effort, traffic congestion in Jakarta does not seem to have lessened. Clearly, there are some disconnects between the problems

and the solution strategies implemented by the city government.

One of the key issues that has not been effectively addressed is how to control the number of private vehicles. Chart 1 shows that the growth of motor vehicles in Jakarta is about 10 to 12 per cent per annum.¹¹ In 2014, the number of registered vehicles in Jakarta had increased to 17.5 million units, comprising 13.1 million motorcycles, 3.2 million cars, 362,000 buses and 674,000 trucks. It is projected that these figures will keep increasing as the number of middle-class motor vehicle owners increases and, concurrently, the demand for more and more cars and motorcycles.

Chart 1. Number of registered vehicles in Jakarta, 2010–2014



Source: Jakarta Metropolitan Police Department

Clearly, there is a big imbalance between road capacity and the growth of vehicles in the city. Jakarta has limited road capacity: Jakarta's streets account for only 6.2 per cent of the city's land mass, compared with 15 to 20 per cent in New York, Tokyo or Singapore. Worse still, because of limited space and lack of investment, its road capacity increases by 0.01 per cent only per annum. Given this fact, efforts to increase the capacity of roads,

including building new inner city toll roads, will never be able to keep up with the rapid increase in the number of private vehicles (Nainggolan, 2012).

Without controlling the number of private vehicles in the city, any effort to reduce traffic congestion will not be effective. One obvious way to inhibit the rapid proliferation of motor vehicles in Jakarta would be to impose heavy taxes on car use and fuel consumption, as have been imposed in Singapore. In Singapore and some other developed cities, driving a car comes with a high cost that deters people from using private cars. At the same time, these cities build comfortable, affordable and reliable public transport systems. Unfortunately, in Indonesia there are uncoordinated policies with regard to controlling the number of vehicles on city streets. The policy of the central government to provide fiscal incentives for car manufacturers to produce more cheap cars will adversely affect the efforts by the city government to control the number of vehicles in Jakarta.

Controlling the number of vehicles in the city should be complemented with measures to provide better, affordable and reliable urban transport. In Jakarta, the poor quality of urban transport system is a reflection of a collective failure of urban planning and lack of investment. Currently, the city has no efficient, integrated public transport system. The development of urban transport infrastructure in the city lags behind the growth of commuter traffic. Jakarta has long been designing a mass rapid transit (MRT) system. However, it took the city two decades of debate to finally come up with a decision and to implement it. The construction of the MRT project only kicked off in late 2013 and is expected to finish in

¹¹ See <http://www.jakarta.go.id/web/news/2012/06/banjir-kemacetan-lalu-lintas>. Accessed 8 April 2015.

2017. At the moment, the ongoing construction work for the project causes heavy congestion. Even though rather late, this recent development brings new hope for reducing traffic congestion in the city. When completed, the MRT will be able to accommodate 173,000 passengers per day. Under the current plans, a 16 kilometre line will transport 412,000 passengers a day by 2021.

In addition to regulating the number of vehicles and providing good urban transport, the government should also improve road and traffic management. The limited road capacity in Jakarta has been aggravated by poor management of roads and streets. The city government and the public have contributed to this problem. Roads are also used for purposes other than carrying traffic—car parking, petty retailing, food and drink kiosks and so on—all of which significantly reduce traffic volumes. Another instance of poor management of roads is the low standard of road design and construction, which causes road surfaces break up easily, reducing carrying capacity. The roads are also poorly maintained, so that small problems are allowed to become large before they are dealt with. Clearly, better roads management will be a crucial factor for smoothing traffic flow and reducing traffic congestion.

In addition, poor policies and inadequate law enforcement are worsening traffic congestion in Jakarta. Many traffic violations are without strong penalties, which in turn damages the credibility of law enforcement and results in more and more traffic violators breaching the law. For instance, there is no strong legal sanction for the many motorcyclists and public metromini drivers who drive against the flow of traffic (that is, on

the wrong side of the road). Many road users often drive recklessly, cutting off other cars, and not rarely causing accidents but no serious legal action is taken by the traffic authorities. To improve traffic flow, law enforcement should be the first thing that the authority addresses. Traffic violators should get more serious punishment when they repeat the same offence. With firm traffic law enforcement, road users will be more disciplined and responsible in driving.

In addition to building a better urban transport infrastructure, there is a need to rebalance growth between Jakarta and other smaller cities. The main reason people commute to Jakarta is because there are so many economic opportunities not available in other smaller cities or areas. Economic activity is too concentrated in Java, especially around greater Jakarta. So, promoting the growth of smaller cities, creating and distributing more economic opportunity to areas outside Jakarta, will reduce the pressure on Jakarta of urbanisation.

With regard to reducing pressure on Jakarta, there is a long-advocated idea to shift some of Jakarta's many functions to other areas. Jakarta serves as the national capital and the centre of business, finance, services and industry. The city is overloaded: if it can relocate at least one of its function, it can reduce the pressure. During the New Order regime, there was a plan to shift the centre for central government administration to a different location, similar to Putrajaya in Malaysia. There was a plan too to create an entirely new capital city, similar to Canberra. These plans are quite logical given the worsening congestion in Jakarta, which has definitely slowed down economic activity.

Another measure is to adjust working hours. Logically, the city can also reduce commuter traffic by encouraging people to work flexible hours or even work from home. In this Internet age, some work can be done as, or more, effectively without being physically in the office every day. Telecommunication technology can substitute for commuting to Jakarta. This idea is quite practical; by shifting the place of work to a place more convenient, people can minimise the need to commute to Jakarta's business district.

BUILDING SUSTAINABLE URBAN TRANSPORT SYSTEM

Jakarta needs an efficient integrated public transport system. Because the city is predicted to keep expanding in terms of population and number of motor vehicles, it needs to seek its own approach to develop a sustainable urban transport system. To build an efficient and sustainable system, the government needs to address several challenges; physical challenges, institutional challenges, financing challenges, and behavioural challenges.

With regard to the physical challenges, urban and transport planners in Jakarta must find suitable ways to build an efficient and sustainable transport system that takes into account the vulnerability of the city to flooding and land subsidence. The construction of transport infrastructure such as roads, railway, and monorail must take into account Jakarta's geological structure (a low-lying coastal area). For this, specialised technology will be needed to build good quality roads and railways.

In addition, building transport infrastructure will require sufficient land and space, which is often difficult to acquire and very costly. Procuring land will take a long time because of

the complicated process for land acquisition. In view of this, the central government must find effective means to expedite land acquisition so that the city government can quickly build its urban transport infrastructure. The construction of six new elevated toll roads in the city and the completion of the Jakarta Outer Ring Road have been delayed because of land acquisition problems.¹² Not to mention the construction of the MRT project, these projects will need quick and smooth land acquisition.

To support and expedite infrastructure investment, there is a need for institutions that perform professionally and with integrity to produce the desired results. Institutional weaknesses have deterred investors from participating in the infrastructure projects in the city. The frequent delays in tendering infrastructure projects relates in part to poor bureaucratic performance in terms of preparing the required legal documentation. Paper work challenges, weak implementation capacity and poor inter-agency coordination have been constantly complained about by many business people struggling to operate in Indonesia. In this case, there is a need for serious institutional reforms to improve bureaucratic performance in term of policies, regulations and management. Especially, the city government needs to improve its institutional capacity, including human resources, in terms of planning, managing and supervising the infrastructure investment and the operation of the urban transport systems, such as MRT, BRT, KRL and other public transport services. To better enforce traffic laws, institutions

¹² See <http://www.thejakartapost.com/news/2014/11/11/jokowi-sets-out-infrastructure-stall-court-investors.html>. Accessed 8 April 2015.

managing traffic regulations and law enforcement must necessarily be reformed.

Funding is another challenging issue. The Jakarta city government is not fiscally independent and has limited fiscal means to accommodate necessary investments in big infrastructure projects. One interesting case that shows the complexity of financing is the MRT project. The plan for developing the MRT system has been delayed for many years, partly because of financing issues. Despite having a feasibility study completed in the 1990s, the project has only recently got under way. There was heated debate between the city governor and the central government regarding the cost-sharing formula.¹³ Fortunately, the Jakarta administration agreed to cover 51 per cent of the loan payments, the remaining amount will be covered by the central government. After reaching agreement, the construction of the first phase of the MRT project will be funded by a JPY125 billion (USD1.2 billion) soft loan from the Japan International Co-operation Agency (JICA) and another USD143 million from the city budget.

Another financing source for infrastructure investment is through public–private partnerships (PPP). Even though the principle of PPP is promising, implementation of key infrastructure projects under this financing scheme, however, has been unsuccessful, disappointing even. The public and private sectors have been waiting for a clear legal framework for PPP implementation. One of the challenges with regard to PPP is that there is no one particular design that would fit all types of infrastructure project, which adds

complexity to the preparation of PPP bids. In addition, PPP schemes are also constrained by poor project preparation and inadequate regulatory and risk–reward structures. In general, PPPs will only work if the inherent conflict between public and private sector interests, most notably in price setting, could be negotiated effectively. In addition, for successful PPPs, there should be no ambiguity about what is to be achieved, how this is to be done and how quickly. To expedite the process, many of the technical and non-technical (for example, legal) components of a given project should be dealt with in parallel.

In addition to institutional reform, there is also a need for behavioural changes in society to support government programs. People need to reduce the use of their personal vehicle and use public transport instead. Road users need to improve their driving habits and be responsible drivers. Significant behavioural changes are crucial to control traffic congestion. There is an urgent need for effective measures to change social or behavioural aspects. In this case, social sciences can help understand people's behaviour and to engineer changes in social behaviour, especially in very stratified societies like Jakarta. Social sciences can give direction on how to encourage and publicise the use of public transport and to reduce the use of personal vehicles. Of course, these efforts need to be accompanied by the provision of better public transport. People are rational and would choose to leave their cars or motor cycles at home if there were decent public transport arrangements. Therefore, to encourage these behavioural changes, the government should provide reliable, safe,

¹³ See <http://www.thejakartapost.com/news/2013/01/16/jokowi-agrees-new-financing-scheme-mrt-project.html>. Accessed 8 April 2015.

efficient, affordable and convenient public transport.

THE WAY FORWARD

Traffic congestion in Jakarta is a complex problem. Currently, traffic congestion has worsened the quality of life in the city. Jakarta can learn from other countries on how to control the traffic congestion but it is important to note that there are no quick solutions. Jakarta needs to find its own way to reduce the traffic congestion and to build a sustainable urban transport system. The government and the public have to work together to create a better traffic condition for the city.

To control traffic congestion, there is a need for a comprehensive approach with good coordination between various ministries, regional governments, municipalities, railway companies, traffic police, etc. It certainly needs behavioural changes in society to increase the use of public transport and to improve driving habits. Currently, there are many laws covering traffic issues; however, because of poor law enforcement, people tend to disregard them. So if law enforcement is strengthened, the city will see some significant improvement in traffic conditions.

Finally, there is a need for a systematic and holistic approach to provide better infrastructure (supply side), to improve traffic management measures (demand side) and, most important, to improve community driving behaviour. All these will need a harmonised inter-agency action plan. For this, the Jakarta city government has to coordinate effectively coordination with the central government and with the regional government in the surrounding areas for better planning and

managing of its urban transport system. In the long term, there is a need to rebalance the growth of other areas outside Jakarta to reduce the pressure of urbanisation.

REFERENCES

- Economist. (2010). 'Traffic in Indonesia's capital: jam Jakarta: the race to beat total gridlock'. 4 February 2010.
(<http://www.economist.com/node/15473915>, accessed 21 November 2012.)
- Japan International Co-operation Agency. (2012). JABODETABEK Metropolitan Priority Area (MPA). Presentation to 3rd steering committee meeting, October 2012.
(http://www.jica.go.jp/english/news/press/2012/c8h0vm0000144eih-att/121009_01.pdf, accessed January 21st, 2013.)
- Nainggolan, Azas Tigor. (2012). 'Jalan tol dan kemacetan' [Toll roads and congestion], *Kompas*, 27 December 2012.
(<http://megapolitan.kompas.com/read/2012/12/27/02195552/Jalan.Tol.dan.Kemacetan>, accessed on 27 December 2012.)
- Negara, Siwage D. (2012). 'Urban transport challenges in megacity: case study of Jakarta'. Paper presented at the regional conference on Asian transport and megacities, Makati City, The Philippines, 14 December 2012.
- Nishizawa, Toshiro. (2011). 'Changes in development finance in Asia: trends, challenges, and policy implications'. *Asian economic policy review*, 6(2): 225–244.
- Rukmana, Deden. (2010). 'Jakarta needs Metro to avoid traffic gridlock'. *Jakarta post*, 24 October 2010.
(<http://www.thejakartapost.com/news/2010/10/24/jakarta-needs-metro-avoid-traffic-gridlock.html>, accessed on 20 November 2012.)
- Thomson, Ian and Alberto Bull. (2002). 'Urban traffic congestion: its economic and social causes and consequences'. *Cepal review*, 76: 105–116.

United Nations. (2012). *Shanghai manual: a guide for sustainable urban development in the 21st century*. New York: UN Department of Economic and Social Affairs.

United Nations. (2014). *World urbanization prospects: the 2014 revision: highlights*. New York: UN Department of Economic and Social Affairs.

Zou, Cornelia. (2015). 'Mega challenges'. *China daily, Asia weekly*, 3–9 April 2015.