Challenge 4

Strengthening Indonesia–Japan Cooperation in the Infrastructure Sector for Mutual Benefit

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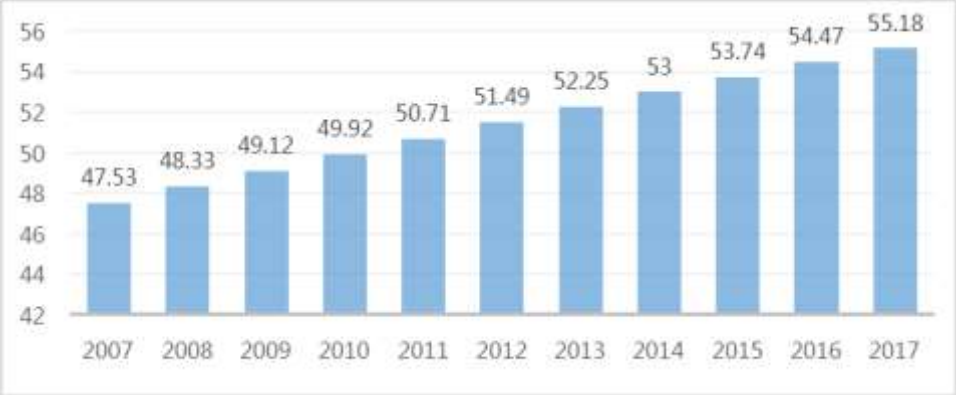
Part 1. Physical Infrastructure Development

Background

As Indonesia is constantly growing, the size of its population and economic activities is also expanding. To support its goals as a developed economy, the country needs a sufficient supply of infrastructure. The demand for infrastructure ranges from basic infrastructure and infrastructure for fulfilling human basic needs, such as electricity, water, sanitation systems, and transportation access; to more advanced facilities, such as integrated transportation systems, Internet facilities, flood control systems, and high-speed trains. Moreover, the rapid urbanisation rate implies a continuously increasing demand for urban infrastructure. As shown in Figure 4-1, the share of people living in urban areas has increased steadily over the last 10 years. Official projections estimate that in 2045, the urban population will reach 72.9% of the total Indonesian population (BPS, 2018).

Figure 4-1. Share of the Urban Population in Indonesia's Total Population, 2007–2017

(%)



Source: World Bank (2018).

As in many emerging economies, Indonesia's spending on infrastructure is constrained by limited resources in terms of fiscal capacity, human resources, and knowledge capability. Government spending on infrastructure competes with other equally important spending programmes, such as those for the social, health, and education sectors. Further, the current state of the financial and capital markets also limits the options for various financing modalities. Public–private partnerships (PPPs) have been promoted to fill the financing gaps left by the public and state-owned enterprise (SOE) capacity. However, the implementation is still limited, and, hence, there is room for improvement.

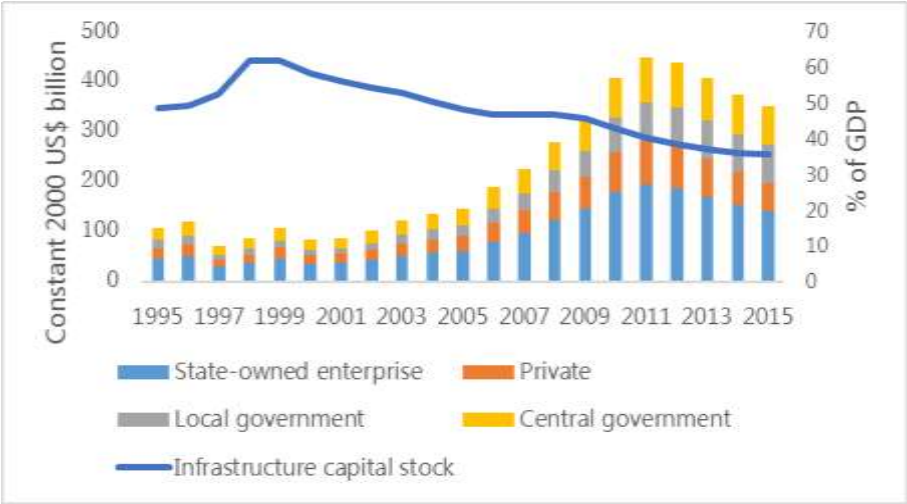
On the other hand, Japan is ahead in its economic development and has extensive experience and a high-innovation culture, especially in its infrastructure sector, which is known for its high quality. As a country characterised by a high risk of natural disaster, Japan has tackled disaster threats with a sophisticated mitigation and response system. Indonesia can also learn from Japan's disaster resilience since it, too, faces high natural disaster risks.

Potential Areas for Cooperation

Indonesia and Japan have been cementing their relationship in development for a long time, and the infrastructure sector has been important in this role. The relationship allows

bilateral cooperation to be more intensive and mutually beneficial. However, there are various challenges to infrastructure development in Indonesia (Figure 4-2). The first challenge is the lack of public funds for filling the infrastructure gap. This is a common problem in emerging economies where demand exceeds supply.

Figure 4-2. Infrastructure Stock in Indonesia, 1995–2015



GDP = gross domestic product.

Note: Capital stock estimated using the perpetual inventory method, assuming a 5% depreciation rate.

Source: Australia Indonesia Partnership for Economic Governance (2017).

Second, as a very large archipelagic country with an uneven population distribution, there is a lack of economies of scale in remote areas. This is a current challenge that will lead to inevitable demand as the country grows. To support its growing economy and the redistribution of growth centres, the country needs adequate infrastructure on all islands and connections between eastern Indonesia and other parts of Indonesia and with international hubs.

Third, Indonesia needs a long-term infrastructure development system to reduce inefficiency, accumulate sufficient knowledge, and anticipate future needs. The current system is still not comprehensive. For example, it lacks interdepartmental and cross-government tiers for coherent policy coordination, capacity-building at all levels across divisions (finance, design, operations and management, investment planning, etc.),

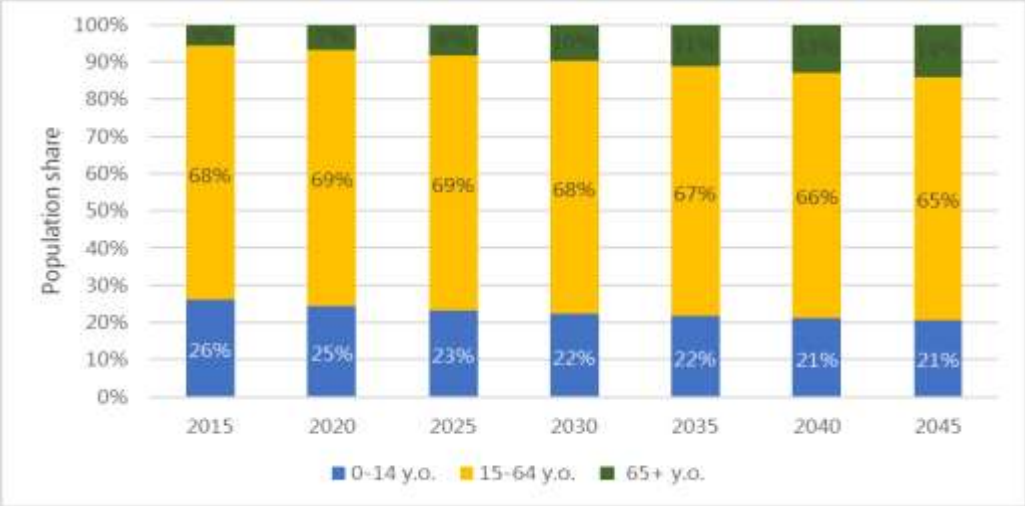
and a long-term investment plan. Urban amenities are an important form of infrastructure for Indonesia. Additionally, the current state of financial and capital markets limits the options for various financing modalities, including private sector financing.

At the same time, Japan has achieved a mature level of infrastructure development, characterised by the application of sophisticated technology and innovation, investment for future needs, and expansion to the worldwide market. The current and future focus of infrastructure centres on quality infrastructure, which, in short, can be represented by four dimensions: cost; the institutional dimension; delivery and utilisation; and the impacts. Quality infrastructure is an attempt to develop sustainable infrastructure through the most efficient forms of funding and procurement and deliver the optimal output for maximising the impact on society's welfare. It is about allocating the resources for efficient spending, building the framework for governing and managing the system, and creating environmentally friendly infrastructure with long-term, human-centred development objectives.

An additional issue related to the potential cooperation between the two countries is the demographic differences in the labour markets, as illustrated in Figure 4-3 and Figure 4-4. Japan faces a labour shortage, especially in non-high-skilled workers, while Indonesia will still have a young demography for the decades ahead. This situation brings several opportunities for cooperation, including capacity-building and knowledge transfer, support for Indonesia's transformation to innovative projects, financing cooperation, and easing of the labour market shortage in Japan.

Japan's labour shortage problem will not disappear soon because of the country's demographic profile and immigration policy. Changing the shape of the population pyramid in Japan will take a long time. Hence, a more relaxed immigration policy may become an effective way to respond to the labour shortage problem. If a long-term, flexible immigration policy is not an option, then Japan can opt for inviting short-term foreign workers through specific programmes. This could be related to Indonesia's technological capacity-building in infrastructure.

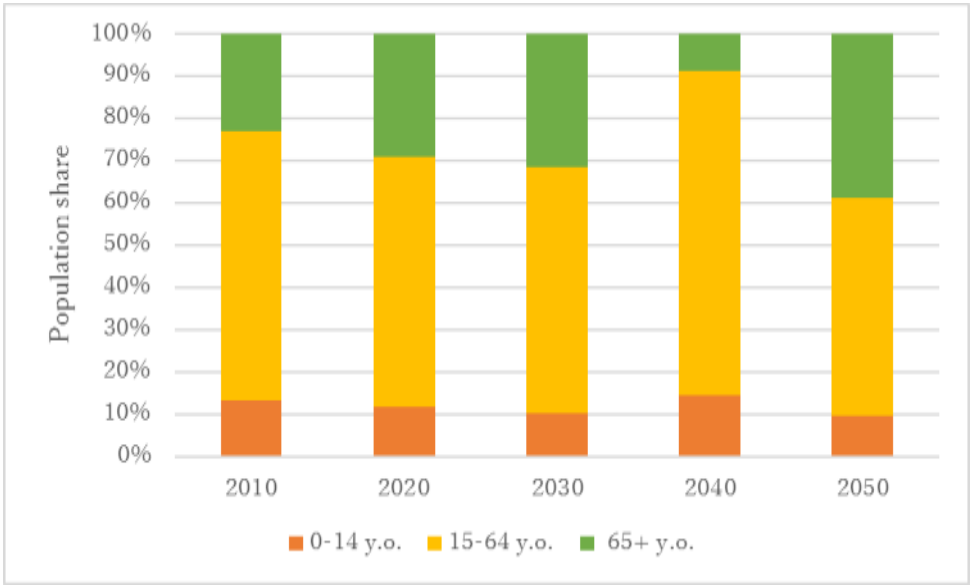
Figure 4-3. Indonesia's Demographic Profile Projection, 2015–2045



y.o. = years old.

Source: National Bureau of Statistics, Republic of Indonesia (2018).

Figure 4-4. Japan's Demographic Profile Projection, 2010–2050



y.o. = years old.

Source: Ministry of Internal Affairs and Communication (2018),

http://www.stat.go.jp/english/data/roudou/results/month/index.html (retrieved 27 July 2018).

Vision of the Infrastructure Sector and Indonesia–Japan Cooperation in 2045

Indonesia has a vision of adequate sustainable infrastructure, especially in the form of modern urban infrastructure and domestic and global physical and digital connections with sufficient and clean energy supplies. Japan is an important partner for achieving this vision, and both countries can commit to strengthening their cooperation based on the principles of mutual respect and benefit.

Opportunities and Challenges

There are several areas with significant opportunities for future cooperation, mainly centring on the issue of establishing a well-functioning infrastructure development system. This is about creating a system that enables effective and efficient resource mobilisation to finance quality infrastructure.

As previously mentioned, some issues on the Indonesian side are the lack of financing capacity, economies of scale outside the main islands, and a comprehensive and smart system to improve the productivity and efficiency of infrastructure. Japan can offer potential opportunities in its bilateral partnership with Indonesia, especially in the following areas:

- Quality infrastructure can be developed that is sustainable, disaster resilient, and efficient, especially for large-scale nationwide hubs and urban infrastructure. Environmental infrastructure is equally important, especially infrastructure that is related with the welfare status and in line with the Sustainable Development Goals (SDGs), specifically in water and sanitation, solid waste management, and clean energy.
- A strategic infrastructure investment system can enable efficient, transparent, and accountable interactions amongst infrastructure market players, particularly governments, investors and financiers, design and build (construction) companies, and advisors.
- A reliable and efficient logistics market can facilitate trade, production networks, and market integration. This is related to prioritising the right infrastructure projects to upgrade productivity. An improved logistics market will also create new

growth centres outside Java Island, which will address the economies of scale problems.

Key Reforms for Quality Infrastructure

1. *Cost*

a. For infrastructure needed for long-term use, the model should be based on a life-cycle cost policy, not a lowest installed cost policy.

b. Consideration of the opportunity cost should be transformed into a pipeline consisting of prioritised projects.

c. Resource mobilisation should be performed in integrated ways with an appropriate approach. At the subnational level and facing limited resources, one way is to use collective investment vehicles, where several small and eligible subnational governments can issue collective securities under a kind of regional development bank. At the macro level, the modernisation of the taxation system, including climate adaptation funding, tax incentives to attract private participation, and the utilisation of sovereign funds, has the potential for elaboration. In some subsystems, such as PPP schemes and SOE finance, applying non-conventional financial instruments (including the 'value capture' approach) and various forms of fiscal support merits consideration.

2. *Delivery and utilisation*

a. Safety and resilience. This relates to developing and choosing the appropriate techniques and specifications to provide safe facilities and resilience from disaster risks.

b. Standards and conformance. Standards can be established for long-term utilisation and expansion. Resources could be saved by applying anticipative specifications ready for upgrading in the future.

c. Output-based measures. These measures guarantee that spending corresponds with the output, not the input. This is a way to improve the efficiency and effectiveness of a project.

d. Sustainability. A sustainable project is a project that can function as designed for the whole life cycle without creating a negative impact on the environment.

e. Service excellence. Not only will service excellence improve user satisfaction and attract more users but it will also reduce the costs of inefficiency, such as time wasted, accidents, complaints, and compensation costs.

3. Impacts

The most important impacts to be assessed are the socio-economic and environmental effects. Assessments should be conducted before the decision to buy a project is made, and they should be regularly evaluated at certain periods.

4. The institutional dimension

a. The development infrastructure market. A complete and functional infrastructure market will serve the players with the lowest transactional costs and accumulative knowledge. Nurturing the market is a long-term effort that should be well planned by the government.

b. Capacity-building and knowledge transfer. Cooperation between Indonesia and Japan is expected to create knowledge transfer in developing the system, technology and innovation, maintenance, and improvement. The programs start from the college level with internships in Japan before employment back in Indonesia.

Urban Infrastructure and the Logistics Market

In rapidly urbanised areas, city planning should be farsighted. The lessons have been seen all over the world where a city has been late in responding to increasing demand for urban infrastructure. Jakarta is one such example, where an integrated mass transportation system was supposed to be built decades ago before the current problems of mobility surged. Other critical urban infrastructure is water and sewerage systems, solid waste management, clean energy, flood control, disaster resilience, and urban amenities, such as parks and green belts, pedestrian walks, and river bank management. Indonesia and Japan's cooperation in environmental infrastructure, such as for river conservation and the

reduction of flood risks, has been running since the 1970s, and we expect it to continue to scale up.

The logistics market deals with interactions between the economic infrastructure and the institutional setup to run an efficient and effective supply chain system. It consists of interconnected subsystems, including identification systems, order systems, transport systems, inventory systems, cost control and distribution, tracking and tracing, and billing systems. Typically, these subsystems are regulated under their respective sectoral laws and are, hence, complex. At the same time, digitalisation in the logistics market has been growing widely and is replacing the traditional paper-based system. It cuts costs and time and improves reliability. This is an opportunity to integrate all subsystems into an intelligent logistics system. Nonetheless, as other disruptive technologies, digital logistics will create both positive effects on welfare and uncertain effects for replaceable workers and technology developers. Policymakers are required to be agile and visionary to deal with disruptive technology.

Japan has revised and enacted relevant regulations regarding the freight forwarding business to accommodate structural shifts in the logistics market (from heavy industry to soft industry) and to utilise multimodal transportation. The World Bank's 2018 Logistics Performance Index (LPI) report puts Japan (ranked fifth) and Singapore (ranked seventh) as the only two Asian economies amongst the top 10 LPI economies. The other eight countries are from Europe. Indonesia can learn from Japan's experience through its investment, capacity-building, and business-to-business cooperation in the logistics market.

The logistics system is closely influenced by connectivity with the hinterland. Indonesia is still struggling with creating sustainable domestic maritime connectivity because of the uneven distribution of economic centres amongst its islands. In a globalised economy, trade means international shipping. The trend in the world shipping market is for having bigger fleets and fewer players. In Southeast Asia, only Malaysia and Singapore have a strong liner shipping connectivity bilateral index with East Asian economies (China, Hong Kong, India, Japan, and the Republic of Korea), several European Union member states, the United Arab Emirates, the United Kingdom, and the US. Other ports in Indonesia, the Philippines, and Thailand have weaker connectivity with the world, except for Singapore.

This shows that Singapore plays an important role as a regional hub.

The East Asia region needs a more intensive and larger regional shipping market that can utilise mid-size fleets to distribute and feed the big vessels in certain ports in the region. Currently, Singapore port, Port Kelang, and Tanjung Pelepas in Malaysia serve as the main players. There is also an opportunity for a few other ports, such as Port Kuala Tanjung (North Sumatra). Other smaller ports in the Philippines and eastern Indonesia can become the second hubs. India and the subregions of Southeast Asia can enhance the maritime trade route by connecting the ports in Bengal Bay with the Port of Sabang (western Indonesia). The shipping route can be extended to ports in Java Island, central and eastern Indonesia, the Philippines, and to the north, especially to Japan and the Republic of Korea. Since the principle of international law and sea is 'freedom of the seas', the route from Port of Sabang can pass through the Indian Ocean at the Sumatra west coast instead of through the Malacca Strait, which is already very crowded and not so safe.

Trade relations between Indonesia and Japan are expected to increase over time, increasing the possibility of having direct shipping connections between the two countries to facilitate timeliness and save on time and costs, as well as induce more trade. Japan can become an important partner for Indonesia, particularly through the following actions: (i) developing new shipping route from India to Indonesia and Japan (partnerships with India and perhaps the Philippines), (ii) investing in the development of Indonesia's ports, especially in eastern hubs, (iii) engaging as a special investment and trading partner in fisheries and other sea products (seaweed, pearls, etc.), and (iv) ensuring regional maritime security cooperation.

Part 2. Financing Infrastructure Development

Closing the infrastructure gap will help improve the productivity of the Indonesian economy, and, most importantly, it will also help promote economic growth to be more inclusive. The lack of infrastructure investment since the Asian crises – amid a large chunk of government spending being allocated to unproductive fuel subsidies that are biased toward Java and Jakarta – has created a big infrastructure gap that has constrained economic growth and limited the pace of poverty reduction. Indonesia's annual rate of growth in its public capital

stock per capita – a proxy for infrastructure stock – averaged only 2.8% during 2005–2015, well behind its peers, such as Viet Nam (10.3%) and China (6.7%), according to the World Bank (2018). Productivity gains can be achieved with higher and suitable infrastructure investments, which may bring down the logistics costs, especially with the vast archipelagic nature of the landscape.

Furthermore, better infrastructure that provides basic social services, such as sanitation and clean water, and health and education, will help poorer households access a wider range of economic opportunities to improve their well-being.

The Indonesia Vision 2045 foresees Indonesia to have a relatively high economic growth scenario, with equitable and inclusive development that will trigger urbanisation and the growth of small and middle-sized cities. In 2035, almost 90% of the population in Java will live in the cities, concentrated in Jakarta–Bandung, which may create a mega-urban area, and this will require a different kind of infrastructure and, thus, also financing.

A shallow financial sector with banking sector dominance in Indonesia has put a rather hard constraint on efforts to close the large infrastructure gap. Despite the recently increasing role of capital market financing for infrastructure, the combined local banking and capital markets in Indonesia are still too small to fully finance the infrastructure needs, according to the World Bank's (2018) assessment. The fact that the banking sector only issues short tenor (less than five years) has limited its ability to finance long-term assets. Despite making some progress on the financial market front, i.e. raising the shares of equity market capitalisation and bond market outstanding values as a percentage of GDP, Indonesia still lags its emerging market peers in financial market depth.

On the other hand, *the domestic institutional investors, such as pension funds, insurance companies, and mutual funds, are relatively too small (in asset volume) to play a significant financing role for infrastructure in the longer run.* The penetration of insurance and mutual funds in Indonesia is significantly lower than in other peer countries. In order to enlarge the pool of long-term savings mobilised by institutional investors, reforms are necessary. The practice of early withdrawal of the Workers Social Security Agency (BPJS Ketenagakerjaan) employment benefits (Jaminan Hari Tua) and the short-term behaviour of domestic institutional investors of putting money in just short-term bank deposits need to be

changed, an issue which was addressed by Otoritas Jasa Keuangan (Indonesia's financial services authority) in 2016. Furthermore, the retirement system should be reformed to ensure the compatibility of the pension and social security systems (World Bank, 2018).

The limitation of government sources of funds for taking full control of financing infrastructure development and the inadequate domestic financial sector (characterised by banking sector domination and the lack of long-term institutional investors) have lead us to search for alternative (and innovative) financing for supporting infrastructure development, especially through private sector financing in the current environment and also towards the year 2045, when infrastructure needs and the type of financing may have changed.

There are three approaches to attracting private infrastructure financing in the current environment (and most likely up to the 2030s as well). These are (i) risk reduction; (ii) returns enhancement and new types of alternative financing beyond the usual PPP schemes or government and official development financing; and (iii) improvement in the market infrastructure, which can be viewed as a process to deepen the financial sector, the results of which may also overlap with risk reduction.

The government has carried out several reforms to reduce the risks, including for the private sector, and help speed up the implementation of infrastructure development. The three pillars of reforms that have been taken by the government include: (i) fiscal reforms and fiscal incentives, such as (but not limited to) providing viability gap funding to improve infrastructure project financial feasibility and setting up land revolving funds; (ii) establishing six main institutions to coordinate and speed up infrastructure development, including the KPPIP (the Committee for Acceleration of Priority Infrastructure Delivery), PT Sarana Multi Infrastruktur (providing funding for infrastructure projects), and Indonesia Infrastructure Guarantee Funds (providing guarantees to well-structured PPPs and ring-fence government contingent liabilities and, thus, protecting the state budget PPP unit and helping the government contracting agency to prepare PPP projects and the State Asset Management Authority to provide land funds for National Strategic Projects); (iii) regulatory reforms that help speed up infrastructure project implementation, e.g. the Law and Government Regulations concerning the land acquisition and compensation payments for affected people.

The emergence of 'new and innovative' types of infrastructure financing through capital markets in the last two to three years despite, once again, the dominance of bank financing has sped up the implementation of infrastructure projects in Indonesia. The efforts for deepening financial markets to create alternative infrastructure financing instruments have been tremendous. Banks working together with investment banking and securities company arms and other financial institutions are creating new innovative capital market instruments for infrastructure financing and protection against currency risks (hedging instruments). These types of financing instruments are very relevant today and may still be relevant and feasible in the next two decades. An example is the financial market instruments issued by SOEs, which are mandated and responsible for building the infrastructure. These include asset-backed securitisation (KIK EBA), limited mutual funds (RDPT), real estate investment funds (DIRE), infrastructure investment funds (DINFRA), Komodo bonds, call spread options, and domestic non-deliverable forwards (DNDF). The last two instruments are for hedging protection. Some others, such as perpetual bonds, municipal bonds, and asset recycling schemes, are still in the pipeline or being prepared.

The issuance of many new financial instruments, being steps closer towards deeper financial markets, was made possible by extra efforts by the government and authorities to carry out reforms, especially tax reforms to avoid double taxation on collective investment contracts. However, the tax policy on bonds and equity investment has still not changed, and no incentive has been extended. One precautionary note with respect to the issuance of Komodo bonds is that they can possibly bring higher risks to the currency as the foreign ownership of liquid local financial instruments is becoming higher.

Despite the fact that Indonesia's financial sectors are still shallow, *many indicators of financial deepening have been improved*, except the ones with regard to the ratio of foreign-to-local ownership in bonds and equity. The lack of a more comprehensive and independent Credit Bureau, besides the one which has previously been established by Bank Indonesia, hinders risk identification. Indonesia has for some time made preparations to establish the first private sector-led, independent credit bureau, which may be launched next year.

Private sector participation, as a source of funding and also as the implementing agency, can help deliver infrastructure projects faster, with better value for money than traditional

government procurement and with improved operational efficiency and a higher quality of service to end-users (World Bank, 2018). Constraints hindering private investments include the complex legal landscape for PPPs, the lack of a standardised process for project identification and preparation, difficulty in accessing local currency financing, a lack of commercial viability, and insufficient government funding to fill the viability gap.

Therefore, more recently, the government has given SOEs more significant roles in infrastructure by assigning projects to them, often with capital injections or government guarantees. The World Bank also sees that SOEs could deliver on infrastructure priorities more quickly, display a higher tolerance to regulatory and financial risks, and be more willing and able to take on commercially non-viable projects as their developmental mandates; although, some of them are still less-professionally run and lack good corporate governance practices. Thus, there is an urgent need to enhance governance practices in order to improve the performance, transparency, and accountability of SOEs and to strengthen their ability to develop projects jointly with the private sector. Very recently, on 9 October 2018, an open investment forum in Bali attracted the interests of many private investors to take part in several infrastructure projects to be jointly run with SOEs.

There is one other thing outside the scope of, but still very relevant to, the infrastructure financing mentioned by Garemo et al. (2015). This is that there are three ways to boost infrastructure productivity: (i) improve project selection by creating a rigorous, transparent, and fact-based process to decide what needs to be done and in what order, (ii) strengthen delivery, and (iii) make the most of existing investment (less underutilisation). By doing so correctly, global infrastructure productivity could be boosted by around US$1 trillion a year. Countries that take the time to get the planning right are able to eliminate non-economic projects and reduce project overruns in the projects they do launch.

Ideas for Cooperation with Japan

1. Spillover-effect-led fiscal incentives can enhance the returns for private investors (Yoshino, 2018). The basic idea is the government giving back part of the increased tax revenue generated by the positive economic development spillover effects of an infrastructure project in the region so that it can enhance the project return for investors. With this enhanced return, on top of the usual

user charges (for highways, railways, and water supply), investors become more attracted to invest in the infrastructure project. Efforts to increase the positive spillover effects on the local economy can be achieved with an accompanying programme to support small businesses in the local area, such as Home Investment Trust Funds, which are basically crowdfunding for small businesses in the area or near to the infrastructure project. There are two key components in this programme to enhance the returns to private investors: (i) the way the expected spillover effects on raising tax revenues are measured, and (ii) the method of part of the increased tax revenue to be given back to the infrastructure project. The latter component will be harder to implement in Indonesia without changing the existing law.

2. Can a model like that of Japan's postal savings system (Japan Post Bank) mobilise domestic funds to help finance future infrastructure projects despite the fact that Indonesia many years ago also had a savings programme through its post offices?
3. With the more open access of international and domestic private investors to partner with or jointly carry out infrastructure projects with Indonesia's infrastructure SOEs, and with the ongoing existence of Japan's Fiscal Investment and Loan Program (FILP), there is a possibility and the opportunity for Japanese overseas infrastructure companies to get financing through the FILP. Bilateral cooperation between Indonesia and Japan can push for greater involvement of those Japanese overseas infrastructure companies to access the FILP.
4. Municipal bonds can be developed for selected regions (Jakarta, West Java, and East Java). Japan ranks number two in the world (after the US) in the issuance of municipal bonds, and, thus, Indonesia can learn from Japan in developing its municipal bonds, especially in upgrading the quality of its local government capabilities.
5. The Indonesian government could make an agreement with the Japan Bank for International Cooperation, as in February 2009, to underwrite or support the issuance of the financial instruments (project bonds/Samurai bonds) issued by Indonesia's infrastructure companies in order to improve the instrument

ratings so that the financial instruments (project bonds) would be more attractive and could be accessed by the pool of Japanese investors.

6. Developing 'blended finance', defined as the strategic use of development finance and philanthropic funds to mobilise private capital flows to emerging and frontier economies, resulting in positive results for both investors and communities. Blended finance offers the possibility to scale-up commercial financing for developing countries and to channel such financing toward investments with development impacts within the context of the SDGs. The focus is on attracting Japanese philanthropists and the private sector together with Japanese development agencies to provide funds for Indonesia to achieve the SDGs, especially those related to infrastructure development. Indonesia's Ministry of Finance recently established SDG Indonesia One with PT Sarana Multi Infrastruktur (SMI) as the intermediary, partner, co-financier, fund manager, and implementing agency for infrastructure financing through blended finance. Thus far, PT SMI has been working together with JICA on local hospital projects.
7. The role of local governments should be explored for developing smart cities: developing the concept of sister cities with local governments in Japan, with an emphasis of developing environmentally friendly infrastructure in the cities and on using renewable energy as well.
8. Looking forward to 2045, we can expect a role for blockchain-based technology and other new fintech developments in financing infrastructure projects, especially considering the rapid increase in the use of digital technology in the financial sector. Japan, which is already at a more advanced stage of development, and particularly one related to the digital economy, may be a good source or partner in developing digital financing for infrastructure in the future (2045). Setting up a closed group of blockchains amongst the Indonesian and Japanese financial institutions, investors, and contractors of infrastructure projects would be a step towards the possible financing of infrastructure projects that is needed. Crowdfunding, which right now is relatively small in size, may become much larger in the future and, thus, may be sufficient for financing longer-term investments, such as infrastructure. The

benefit for investors in Japan would be the higher and safer returns of investment, especially when some kind of government guarantee is involved.

As we have shown, there are various opportunities for financing infrastructure projects and creating a business environment for attracting investment in infrastructure through cooperation between Indonesia and Japan.

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