

I. INTRODUCTION

Infrastructure is fundamental to support economic growth and human well-being. It provides goods and services for direct use as well as supports other socioeconomic activities. Using a sample of advanced economies, the International Monetary Fund estimates that an increase of 1% in investment spending raises gross domestic product (GDP) by approximately 0.4% in the same year and by 1.5% in 4 years after the increase (IMF 2014). Lee et al. (2018) projected that doubling PPP investment from 0.5% of GDP in 2015 to 1% generate additional 0.1 percentage points to GDP growth per capita across Asia and the Pacific. Perhaps the most challenging issue in infrastructure development is the financing of construction or funding the operation and maintenance. Since many infrastructure projects are categorized as noncommercial, it becomes the responsibility of the public sector.

Since public funds are limited, infrastructure development competes with other spending priorities, hence, shortage of its supply. Government partners with the private sector to fill this gap. The public-private partnership (PPP) allows the private sector to utilize its competence and innovative resources; and, at the same time, to gain fair benefits from it. Users receive higher benefits and better quality services resulting from private sectors' professionalism and efficiency.

The challenges to apply PPP in a large scale is that it is a complex system; requires specific and sufficient knowledge of financing structure, risks allocation, contract management, and disputes resolution; and the transaction process usually takes a long time to conclude. Hence, the capacity of the public sector is crucial and it still needs resources and funds from the public side. This paper attempts to provide the landscape of infrastructure development in majority of the Association of Southeast Asian Nations (ASEAN) member states with emphasis on financing mechanism, in which PPP is promoted as strong complement of limited public funds. It also discusses the "infrastructure ecosystem," and the potential to use PPP in social infrastructure and pro-poor development planning.

A. Infrastructure Development in Southeast Asia

Infrastructure development in Southeast Asia is at different stages depending on each country's governing policy on PPP. Singapore has the most developed infrastructure in the region, which is on par or even better than many advanced economies. As a compact and island city-state focusing on the service sector, Singapore has been carefully building facilities to support its specific constraints and demands. In particular, its transportation system is well developed and connected and energy provision is safely secured.

The Global Competitiveness Report 2017–2018 by the World Economic Forum (WEF) has consistently ranked Singapore second in global competitiveness index since 2012. Closely related to effective infrastructure implementation is institutional environment which the WEF defines as influential factors to "investment decisions and the organization of production and plays a key role in the ways in which societies distribute the benefits and bear the costs of development strategies and policies." Further, because PPP requires a supportive business environment that underpins investment decisions, it is also important to consider the macroeconomic conditions of Southeast Asian countries. As expected, both infrastructure and institutions pillars show close scores (Figure 1).

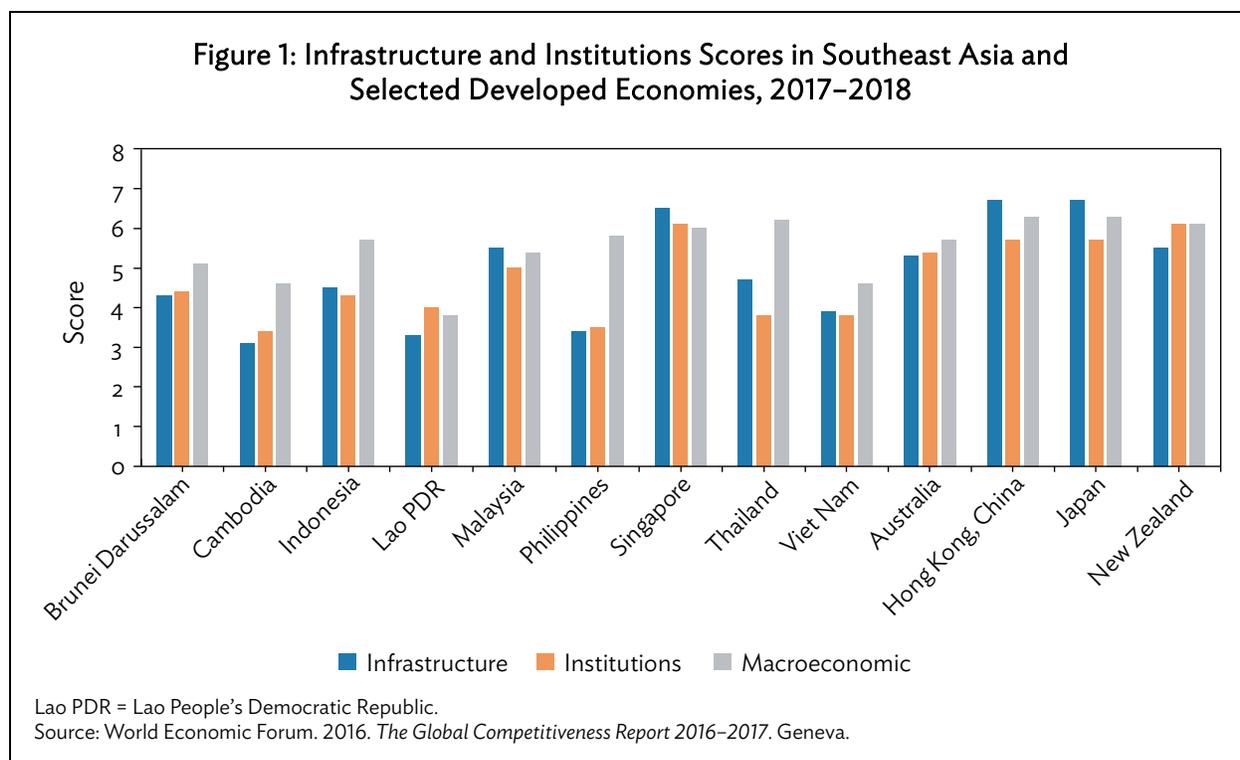


Figure 1 indicates a consistent pattern of close linkages between fundamental macroeconomic and institutional variables, and infrastructure development. Intuitively, infrastructure is needed to foster growth and macroeconomic stability, while good business climate, represented by positive macroeconomic and supportive institutional frameworks, will attract more investments, including in infrastructure.

Infrastructure development in Cambodia, the Lao People's Democratic Republic (Lao PDR), Malaysia, and the Philippines lags far behind the average of selected developed economies. Since PPP is still in the early stage of policy maturity in these countries, large portions of their infrastructure finances come from public funds, including loans, and in smaller portion, from privatization.

Indonesia has invested much in fixed assets (capital formation). Even though not all fixed assets are in the form of infrastructure, the numbers can be used as a proxy for infrastructure investment. According to Indonesia's national development plan, it needs \$409 billion to finance major infrastructure investments for the period 2015–2019. The projects include 15 new airports, 24 seaports, 2,650 kilometers (km) of road, 3,258 km of railway track, and bus rapid transit development in 29 cities. It requires about \$82 billion for infrastructure investment per annum or approximately 9%–10% of its nominal GDP over 5 years. State-owned enterprises (SOEs) and the private sector are expected to fund 59% of infrastructure investment requirements.

PPP has been playing an increasing role in Southeast Asia at different rates. In countries where public funds are abundant or public institutions are very strong, such as Brunei Darussalam and Singapore, PPP plays fewer roles in infrastructure development. Strong calls for PPP have been promoted, especially in Indonesia, Malaysia, the Philippines, Thailand, and Viet Nam. However, public sector commitment for PPP and the realization of planned PPP projects are not always in the same path with the ambitious calls.

Since the call for PPPs during the Indonesia Infrastructure Summit 2005 and the subsequent yearly announcement of the Government of Indonesia of its project pipeline, there has been progress in the country's PPP regulatory framework. However, this progress has not been followed by an increase in the number of realized projects. Until 2015, the first national PPP project under the reformed PPP framework in 2006 was only the independent power producer project in Batang, Central Java. This project's financial closing has been delayed since it was awarded in 2011 because of a land acquisition problem, and it was just concluded at the end of 2016. The other PPP projects that have reached financial closing recently are Palapa Ring backbone network project and Umbulan Bulk Water Supply project in East Java. Other potential projects are still in the bidding or negotiation stage.

The Philippines PPP Center has been more progressive. It has awarded 16 PPP contracts worth approximately \$6.4 billion since 2010. Completed projects include the Ninoy Aquino International Airport Expressway and 12,202 classrooms in six regions, while the Mactan-Cebu International Airport New Passenger Terminal Building and the Bulacan Bulk Water Supply Project are both under construction.

In Thailand, there are 44 PPP projects run by 16 agencies based on the State Enterprise Policy Office report. They cover transportation and logistics, utilities, telecommunication, and property development. The State Enterprise Policy Office also released the PPP Master Plan 2015-2019 to determine the direction for sectors and types of commercial and social investments with private participation.

In general, the role of PPP financing in Southeast Asia is still minor. A significant portion of its infrastructure finance comes from public funds. In five main countries promoting PPP (Indonesia, Malaysia, the Philippines, Thailand, and Viet Nam), PPP typically contributes only less than 1% of GDP, while public finance greatly varies from about 2%-10% of a country's GDP (Table 1).

Table 1: Public-Private Partnership and General Government Gross Fixed Capital Formation in Five Southeast Asian Countries, 2005-2015 (% of GDP)

Year	Indonesia		Malaysia		Philippines		Thailand		Viet Nam	
	PPP	GFCF	PPP	GFCF	PPP	GFCF	PPP	GFCF	PPP	GFCF
2005	0.08	3.05	1.48	9.40	0.32	1.82	0.43	6.24	0.56	5.59
2006	0.11	3.91	1.11	9.56	0.17	1.69	0.31	6.15	0.48	5.30
2007	0.15	3.42	0.98	9.54	0.14	2.07	0.27	6.30	0.19	6.03
2008	0.22	2.99	0.59	9.64	0.12	2.42	0.28	5.82	0.17	5.99
2009	0.18	2.80	0.37	10.08	0.47	2.88	0.30	6.11	0.22	8.51
2010	0.19	2.50	0.14	9.81	0.61	2.87	0.18	5.55	0.33	8.09
2011	0.15	2.85	0.07	9.53	0.61	1.84	0.22	5.00	0.61	6.76
2012	0.20	3.16	0.19	10.50	0.64	2.84	0.29	5.08	0.56	7.60
2013	0.19	3.54	0.26	10.21	0.65	2.58	0.26	5.05	0.49	7.72
2014	0.22	2.96	0.24	9.16	0.40	2.63	0.42	4.58	0.58	6.56
2015	0.19	3.36	0.21	8.81	0.50	3.08	0.31	5.78	0.48	6.38

GDP = gross domestic product, PPP = public-private partnership.

Source: IMF, Investment and Capital Stock Dataset. 2017. The Accompanying 2017 Update of the Manual "Estimating Public, Private, and PPP Capital Stocks." <http://www.imf.org/external/np/fad/publicinvestment/data/info122216.pdf> and <http://www.imf.org/external/pp/longres.aspx?id=4959> (accessed 30 September 2017).

Malaysia, Viet Nam, and Thailand have been consistently spending a great amount of their state budgets on infrastructure development. Indonesia has recently been investing a large amount of its budget on infrastructure but, in terms of GDP percentage, it is still considerably low. Moreover, its demand for infrastructure varies with the existing stock, growth, and geographical challenges. As the largest archipelagic country, Indonesia faces challenges in interisland connectivity and the concentration of the population in Java Island, which makes places outside Java and Sumatra with less economies of scale.

Comparing the figures in Table 1 should be done cautiously as there are different terms used to represent PPP spending or infrastructure spending by governments. Different nomenclatures are normal; some are influenced by different structures of government systems. For example, government spending may or may not represent both national and subnational expenditures of governments. Another source of difference is how the country defines PPP. Malaysia, for instance, includes privatization in its definition of PPP, while in other countries it is excluded.

B. Institutionalizing Public–Private Partnership

PPPs are handled in various ways in Southeast Asia. Some countries define PPP terms, and set up dedicated units to deal with its implementation. Others institute PPP as part of a larger investment or public institution. Malaysia established Unit Kerjasama Awam Swasta (UKAS) as part of its transformation from its privatization program in the early 1980s. The Philippines set up the PPP Center that acts as a one-stop service to handle PPP processes. Thailand set up the PPP Unit. Viet Nam established the PPP Office under the Ministry of Planning and Investment as a one-stop shop division in charge of national coordination of PPP projects.

Indonesia has more than one institution responsible for its PPP programs, consisting of the National Development Planning Agency (Badan Perencanaan Pembangunan Nasional - BAPPENAS), the Ministry of Finance, and line ministries. They are coordinated by the Coordinating Minister for Economic Affairs. To speed up the implementation of prioritized infrastructure projects, President Joko Widodo established the Policy Committee for the Acceleration of Infrastructure Provision (Komite Kebijakan Percepatan Penyediaan Infrastruktur - KPPIP) in 2014 to set the national priority project list and coordinate its implementation.

Having several agencies responsible for PPP potentially leads to an overlap of authority and a prolonged process. To add more complexities, the country embraces decentralization at the second level of subnational government. This adds more stakeholders, permits, and license requirements, and results in longer processes for negotiations and fulfilling the requirements.

In brief, PPP policy in Southeast Asia has different stages and rates of implementation. It is difficult to make a straightforward comparison because of the difference in terms and definitions, expenditure classifications, and country government systems. However, common success factors and obstacles may be attributed to specific features of the system. Among the major factors supporting PPP implementation, the following features are critical: coherent policy, public officers with sufficient PPP knowledge, public sector willingness to have mutual relationships with private partners, and leadership.

The PPP policy framework also differs from one country to another, influenced largely by internal variables such as governance system, fiscal capacity, institutional framework, judicial system, and financial market. But there is no evidence that a particular system is superior to another. It does not matter whether a country has a special PPP law or it is embedded in other laws, as long as it enables a PPP environment. The critical point is having coherent policies for investment in general and for PPP, and inefficiencies in time and budget are avoided and eliminated. Incoherent policy will confuse investors, create additional burdens, and prolong the process. In the end, it will reduce investors' confidence and government's credibility. Changing regulations or discriminative regulations, as well as redundant processes for licenses demanded by various public agencies, are among major complaints from investors.

Public sector capacity is another vital requirement that should be in place considering that PPP is more complex and demands specific knowledge. The WEF's survey finds public sector capacity among the top challenges for doing business in many emerging countries. The components of PPP need to be understood comprehensively by the public sector before it can apply some innovations and introduce some adjustments and flexibilities without jeopardizing the economy. In many cases, the government treats PPP similarly as traditional procurement systems, resulting in incompatible restrictions and eliminating the advantages of PPP. This typically leads to risk-averse behavior in public agencies that would likely shift all risks to private partners. In Indonesia, because of the inability to handle the complexity, several intended PPP projects have been diverted into traditional public procurements or assigned to SOEs.

The willingness to have mutual relationships with private partners and leadership from relevant government agencies is a necessary condition to have a workable PPP development program. The relationship must have the capacity to offer the same level of understanding and bargaining during the process of risk and support negotiations. In parallel, leadership should provide relevant agencies with sufficient power to authorize, lead the process, and decide on timely solutions in critical situations. The lead agency should be the champion of PPP. The authority given to this agency should be at a sufficient level to be obeyed by stakeholders. The PPP Center in the Philippines has full support from the country's President and can effectively approach crosscutting sectors.

In addition, major surveys on transparency index in emerging Southeast Asian economies usually put corruption as one of the most problematic challenges in doing business. When corruption practices are rampant, they will affect the whole PPP process in many ways, including reducing efficiency and driving out good investors from the playing field. Hence, it is very important for governments to improve fundamental factors underpinning good investment climate.

II. REGULATORY FRAMEWORK AND INSTITUTIONS IN SELECTED SOUTHEAST ASIAN ECONOMIES

The institutional and legal frameworks for PPPs are heavily influenced by the fact that governments lead these partnerships. Legal frameworks define the rules for and the role of public sector and private entities participating in PPPs. The government agencies responsible for the process of implementing PPPs determine the efficiency and effectiveness of these rules. A poor performance will not only affect the direct costs for private entities participating in a PPP but also indirect and intangible costs, such as investor confidence and risk perceptions.

Research by Ismail and Haris (2014) on the possible constraints that hinder the implementation of PPP in Malaysia shows that the obstacles are lengthy delays in negotiation, lack of government

guidelines and procedures on PPP, higher charges to direct users, lengthy delays because of political debate, and confusion over government objectives and evaluation criteria. In addition, unsolicited proposals are not regulated within the PPP framework. Meanwhile, the most critical area of PPP in Malaysia is value for money (VFM) (Ismail 2012).

Indonesia has been reforming its PPP-related legal aspects to speed up the process. During the last 5 years, there have been revised regulations on the scope of PPP, land acquisition, and government support (i.e., guarantee and availability payment). Some improvements were made, including the progress of three projects that reached financial closing in late 2016, and another four projects (all toll roads) that are currently on the stages of bidding and negotiation. However, the progress of implementation is slow, usually because of inconsistent actions by public agencies.

Thailand, in the early 1990s, initially used a PPP approach to eliminate corruption practices in project procurement and protect public interests. In 2013, it enacted the Private Investment in State Undertaking Act, with additional provisions to promote PPP investment. The standards have been set through institutionalizing the PPP Master Plan, PPP Committee, and PPP Unit; and through a set of guidelines for VFM, small projects, and the PPP database. It also facilitates streamlined procedure and determined timeline, and provides project development funds.

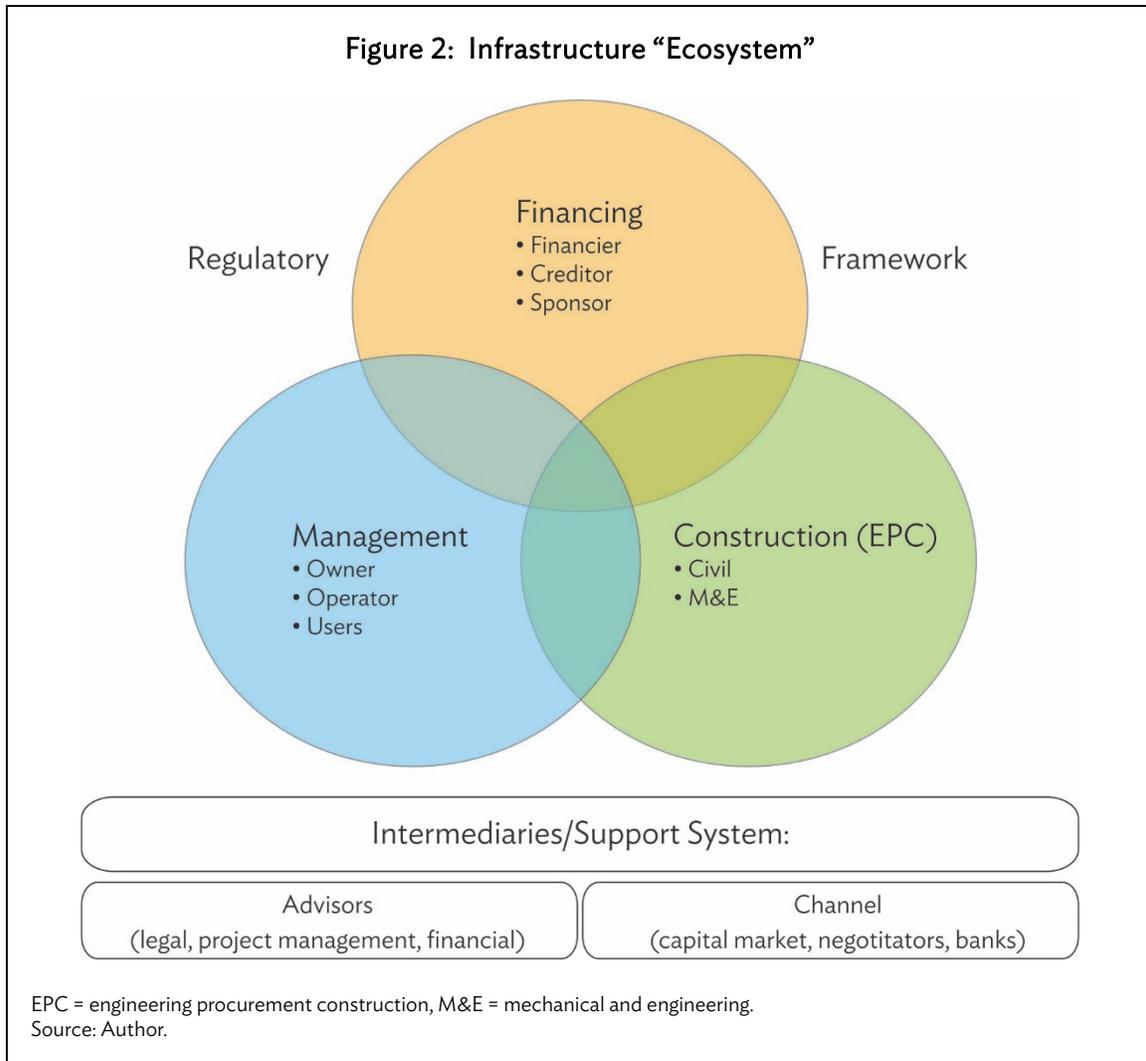
The Philippines has several strong points in its PPP programs, especially in leadership of PPP; clear guidelines on cost-benefit analysis (CBA), risk assessment, and comparative modality; and clear references to structure the schemes. Progressive PPP development in the Philippines cannot be detached from the strong commitment and massive PPP education of relevant officials (especially local governments) and the public in general. Familiarity to the concept is important to gain public support, eliminate unnecessary public disputes, and promote transparency.

A. Infrastructure Industry in Southeast Asia

“Infrastructure ecosystem” is a system which links the three components namely management, construction, and financing with one another (Figure 2). Infrastructure is a unique industry. Its demand is typically generated by the public sector, making the government a key actor in this industry. On the management part, the owner is usually the public sector, while the users may be the public at large or specific users; for example, industrial zones.

Building of infrastructure projects is done by construction companies that typically consist of two large groups: project developer and contractor, and mechanical and electrical systems. In many developing economies, they can be both private companies and SOEs.

Financing infrastructure is typically considered the most challenging part in emerging economies. Apart from fully privatized projects, PPP requires contributions from both the public and private sectors. Public finance can offer several mechanisms and schemes to support PPP projects such as Viability Gap Funding (VGF), land provision, tax allowance, revenue guarantee, and loan guarantee. To avoid breaching good governance principles, they are determined by regulations and are typically benchmarked to international standards. On the other hand, the private fund has a straight rule that is financial profit.



The size and completeness of the infrastructure industry influence the level of competitiveness, attractiveness, and potential growth. They can also be used as proxy for efficiency and institutional excellence. Fewer players in the industry means limited choices, limited access, higher hiring costs, and perhaps few bankable projects.

For PPP projects that are financially feasible, the government in general reduces fiscal support and focuses on nonfiscal aspects to push the project. For instance, it will eliminate the regulatory burden, streamline the process, or set up optimal risks allocation. Meanwhile, if the project is not financially feasible but economically viable, the private party will demand larger support from public agencies in order to make the project sustainable and produce fair returns.

Apart from exploring possible schemes and financial engineering, PPP offers advantages of fostering healthy competition, innovation, and improving public sector efficiency. While it may be difficult to expect great innovation in technology or financial engineering occurring in emerging economies given the short history of PPP in infrastructure, schemes such as design, renovate, and maintain can offer opportunities to enhance efficiency and embrace innovation in public services

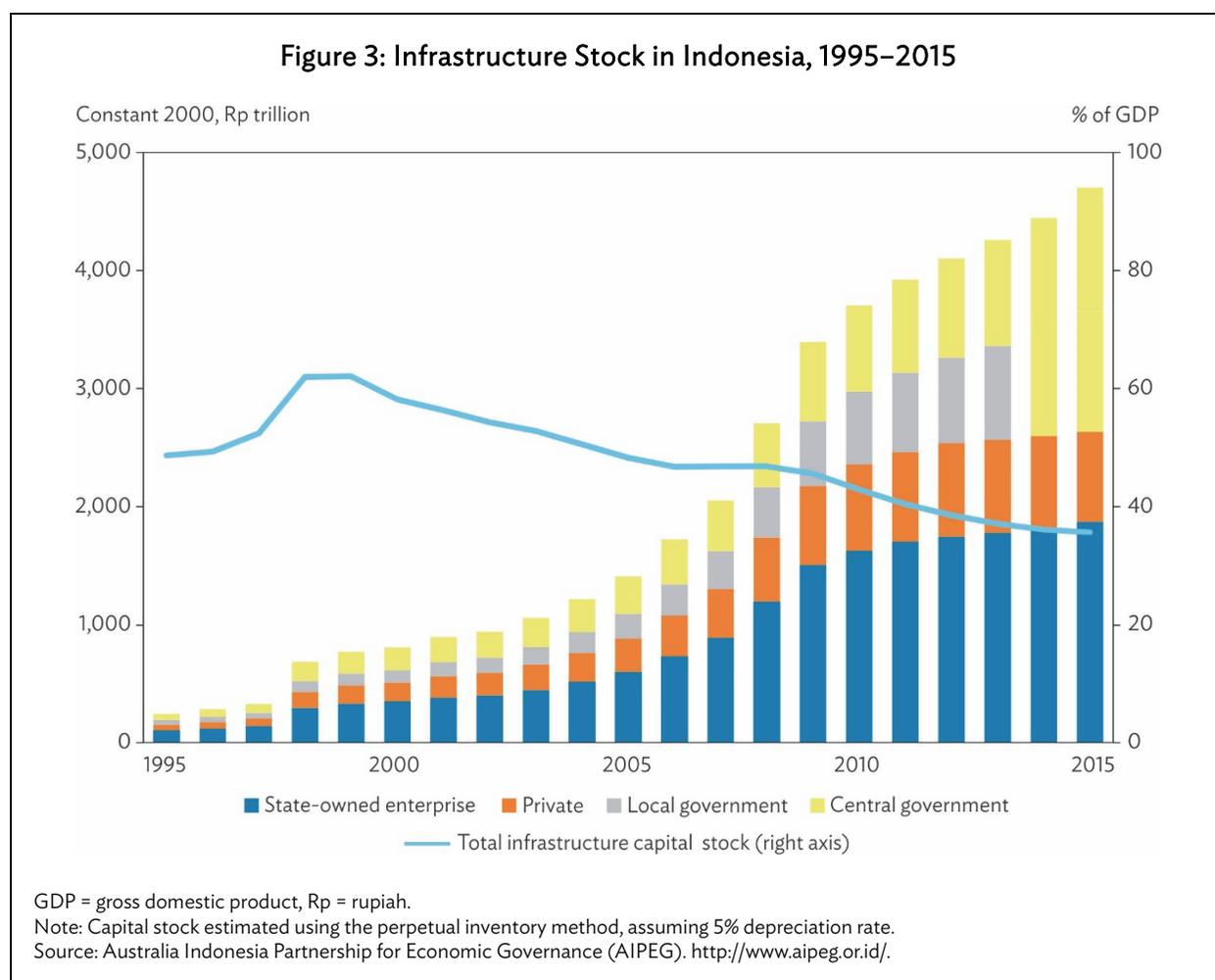
delivery by utilizing private sector competencies. Expecting greater innovation from the private sector consequently requires higher capacity of the public sector to deal with flexibilities and maintain the substances at the same time.

B. Closing Southeast Asia's Infrastructure Gap

Countries across Southeast Asia are increasing their efforts to narrow their infrastructure gaps. This section looks at the recent infrastructure programs of four countries: Indonesia, Malaysia, the Philippines, and Thailand.

1. Indonesia

Since the Asian financial crisis in 1997, Indonesia's spending on infrastructure has been lower than its precrisis spending, leading to stagnant and decreasing stock per GDP (Figure 3). A small infrastructure budget means insignificant spending for building new projects, and even lower allocation for maintaining the existing infrastructure. This situation, combined with ineffective prioritization policy, has hampered Indonesia's growth opportunity. For a decade, Indonesia's infrastructure supply had been short of its demand, resulting in road congestions in urban areas, high logistic costs, almost no new infrastructure built outside Java Island, electricity blackout, and many more.



President Joko Widodo, who took the position in October 2014, has a different economic policy from his predecessor. He believes that infrastructure plays a significant role in economic development and he has committed to develop outside Java. During his first years of presidency, he lifted energy subsidy but allocated significant funds for universal health care, education, and infrastructure. BAPPENAS estimated three scenarios for infrastructure development (Table 2) and expected that approximately 60% of the funds come from SOEs and PPPs.

Table 2: Infrastructure Priority and Financing Needs
(Rp billion)

2015–2019 Infrastructure Plan	Infrastructure Financing Needs 2015–2019	Scenario 1 (full scenario)	Scenario 2 (partial scenario)	Baseline Scenario
New roads - 2,650 km	Roads	1,274	851	637
Highway - 1,000 km	Rail system	278	222	140
Road maintenance - 46,770 km	Urban transportation	155	115	75
Bus corridors - 2	Sea transportation	563	424	282
New seaports - 24	Ferry and other water transportation	91	80	60
Seaport development - 59	Air transportation	182	165	100
Pioneer cargo ships - 26	Electricity	1,080	762	714
New airports - 15	Energy and gas	535	420	268
Airport infrastructure development	Water resources	1,091	845	645
Airplanes - 20	Water and sanitation	666	450	330
Rail lines - 2,159 km	Public housing	384	247	180
Intracity rail lines - 1,099 km	Information and communication technology	242	200	130
	Total	6,541	4,781	3,561

km = kilometer, Rp = rupiah.

Note: State-owned enterprises and public-private partnership are expected to fill the funding gap since central government can only fulfil about 20% of the needs.

Sources: Ministry of Finance, Republic of Indonesia. 2016. "State Budget FY 2016" (in Bahasa Indonesia) and National Development Agency. 2014. "2015-2019 National Development Agenda" (in Bahasa Indonesia).

As infrastructure development was an important part of President Widodo's campaign, he instructed the acceleration of infrastructure projects. While PPP requires longer time due to its complexities, several projects that were initially declared as PPPs were assigned to SOEs. Recently, several abandoned backbone projects have been completed or nearly completed in the islands of Kalimantan, Sulawesi, Sumatra, and Papua. There is additional fund in the form of special transfer to subnational governments to support local infrastructure development. On the other hand, sovereign debt increased, but it is still manageable at below 27% of GDP.

2. Philippines

Under President Rodrigo Duterte's administration, the Philippines launched a 10-Point Socioeconomic Agenda that includes accelerated infrastructure spending, of which PPP plays a key role. The focus of the programs is on transportation, new master plans of cities, and digital infrastructure (internet speed and coverage). Among the key policies are:

- (i) Increased public infrastructure to 7% of GDP:
 - (a) Luzon 2045 infrastructure amounted to PHP8.1 trillion;
 - (b) Visayas 2045 infrastructure amounted to PHP 4.4 trillion;

- (c) Mindanao 2045 infrastructure amounted to PHP6 trillion; and
- (d) PPP pipeline amounted to PHP5.9 trillion.
- (ii) Ease in approvals of project proposals:
 - (a) fight against red tape;
 - (b) PHP5 billion below – no need for Investment Coordination Committee and National Economic and Development Authority approval;
 - (c) social discount rate lowered from 15% to 10%; and
 - (d) increase capacity of regional development councils and local government units with funds on feasibility study and detailed engineering preparation.

The current administration focuses on building infrastructures at a massive rate, creating millions of jobs, and lowering prices of commodities. The National Economic and Development Agency, the Department of Transportation, the Department of Public Works and Highways, and the Bases Conversion and Development Authority are responsible for implementing the Duterte Infrastructure Plan. The Philippines expects an increase of infrastructure spending during 2017 (Investor Relations Office 2017).

3. Malaysia

Malaysia's infrastructure development program is part of its 5-year medium-term national development plan, the 10th Malaysia Plan. This plan started in 2011 until 2015 and was succeeded by the 11th Malaysia Plan for 2016–2020 (Government of Malaysia, Prime Minister's Department 2015).

The 11th Malaysia Plan 2016–2020: Anchoring Growth on People was prepared by the Economic Planning Unit of the Prime Minister's Department in 2016. The plan has five strategic thrusts, namely:

- (i) enhancing inclusiveness toward an equitable society,
- (ii) improving well-being for all,
- (iii) accelerating human capital development for an advanced nation,
- (iv) pursuing green growth for sustainability and resilience, and
- (v) reengineering economic growth for greater prosperity.

The five strategic thrusts focus on strengthening infrastructure to support economic expansion, which consists of:

- (i) building an integrated need-based transport system;
- (ii) unleashing growth of logistics and enhancing trade facilitation;
- (iii) improving coverage, quality, and affordability of digital infrastructure;
- (iv) continuing the transition to a new water services industry framework; and
- (v) encouraging sustainable energy use to support growth.

The government expects that Malaysia's planned mega infrastructure projects will move the country's economy into RM2 trillion (\$505 billion) by around 2025. The projects include the KL-Singapore High Speed Rail link, the Pan Borneo Highway, East Coast Rail Link¹, Bandar Malaysia², and

¹ The East Coast Rail Link will connect Port Klang and Kuala Lumpur (in west coast) to Pahang, Trengganu, and Kelantan in the central and east coast of Peninsular Malaysia.

² Bandar Malaysia is an urban redevelopment project, located near the airport in Sungai Besi and will incorporate Kuala Lumpur–Singapore high-speed rail.