



# “Infrastructure Financing Strategies for Sustainable Development in South-East Asia”

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## Sub-Regional Study / Paper

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### **Abbreviations**

ABF	Asian Bond Fund
ABMI	Asian Bond Market Initiative
ADB	Asian Development Bank
AIF	Asia Infrastructure Fund
AIIB	Asian Infrastructure Investment Bank
ASEAN	Association of Southeast Asian Nations
BOT	Build- Operate & Transfer
CIF	Climate Investment Fund
CRA	Credit Rating Agency
CTF	Clean Technology Fund
ECA	Export Credit Agency
ERIA	Economic Research Institute for Asean and East Asia
GDP	Gross Domestic Product
ESCAP	Economic and Social Commission for Asia and Pacific
IIGF	Infrastructure Investment Guarantee Fund
IMF	International Monetary Fund
LCY	Local currency
MDB	Multilateral Development Bank
ODA	Official Development Assistance
OECD	The Organisation for Economic Co-operation and Development
OTC	Over-The-Counter
PDF	Project Development Facility
PPP	Public Private Partnership
SEA	South-East Asia
SOE	State - Owned Enterprise
UN	United Nations
UNCTAD	United Nations Conference on Trade and Development
UN-ESCAP	United Nations Economic and Social Commission for Asia and Pacific
VGF	Viability Gap Funding
WB	World Bank
\$	United States Dollar

## **Executive Summary**

South-East Asia (SEA) is considered as one of the fastest growing regions in the world with a cumulative population of 640 million and GDP of about \$2.430 billion, which account for 14.7% of the population and 9.6% of GDP in Asia. However, SEA countries are not a homogenous group as they included both developed and developing economies and have different level of infrastructure development.

Infrastructure is vital for the long-term growth and competitiveness of countries worldwide, and particularly so in SEA economies. Adequate infrastructure is key to economic growth as well as social and environment progress. However, many SEA countries are facing constraints in developing and funding infrastructure projects that may hinder their future prospects.

SEA countries require trillions of dollars in new infrastructure over the next two decades just to keep pace with current urbanization trends and fuel economic growth. ADB estimated that infrastructure needs in SEA sub-region are at around \$150 billion per year (approximately 6 per cent of GDP). This represents more than doubling the current spending. Traditional public funding is unlikely to meet this demand, leaving a gap that will affect not only public welfare, but also economic prosperity.

In that context, SEA countries should carefully design financing strategies in order to fill the existing gaps and meet future demand. These strategies will, however, differ according to the macroeconomic and capital market conditions of each country. Overall, there are five avenues that SEA countries should look at when designing effective infrastructure financing strategies for sustainable development:

First, SEA countries could achieve significant savings by improving public expenditure efficiency in infrastructure thereby freeing resources for other priority investments. This can notably be done by improving project delivery through streamlined permit approvals, facilitated land acquisition, and better public procurement practices.

Second, mobilizing domestic resources for infrastructure development through fiscal management and tax reforms. State budget deficits and relatively high levels of government debt constrain infrastructure investment in some countries. A way to address this issue is to reprioritize public spending to free resources for infrastructure investments but also consider how tax revenues could be increased by rethinking the tax policy mix and improving tax administration and collection.

Third, Official Development Assistance (ODA) has been a major funding source for several lower income SEA countries. Countries should find ways to maximize the impact of these limited resources for instance by using them to leverage private finance.

Fourth, private financing and Public –Private Partnership (PPP) are expected to play a greater role as public resources alone will be insufficient to meet the SEA’s significant infrastructure needs. This will require further strengthening the PPP legal and institutional frameworks in SEA while building a stronger pipeline of bankable projects.

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Fifth, capital markets can potentially provide significant amount of both equity and debt for infrastructure projects. It is broadly estimated that \$10 trillion of funds in SEA could be tapped for infrastructure investment.

While none of these five avenues can address alone the financing challenges of the region, combining them will go a long way towards better infrastructure development in the region and consequently more sustainable development. To implement these strategies, countries in the region should call on the assistance of development partners, such as ESCAP, to build the necessary institutional capacity, learn from other countries' experiences and select the right policies.

## Introduction

Infrastructure is vital for the long-term development and competitiveness of countries worldwide, and particularly so in developing economies. Adequate infrastructure is key to economic growth as well as social and environment progress. However, many South-East Asia (SEA) countries are facing constraints in developing and funding infrastructure projects. This may hinder their development prospects.

In that context, this study evaluates infrastructure finance issues in SEA. It provides an overview of the investment environment, financing needs and availability of finance within the SEA sub-region. The study covers as many of the 11 SEA countries as possible although data limitations mean that some analysis include only part of them.<sup>1</sup>

The report is structured as follows. Section 1 gives an overview on the infrastructure investment environment in the SEA sub-region. Section 2 provides the latest projections of infrastructure financing needs. Section 3 assesses the availability and various sources of funds for infrastructure in the sub-region. Section 4 concludes.

## 1. Infrastructure Investment Environment

### 1.1. Economic Growth Prospects

SEA is considered as one of the fastest growing regions in the world with a cumulative population of 640 million and GDP of about \$2.430 billion, which account for 14.7% of the population and 9.6% of GDP in Asia (Table 1).<sup>2</sup> The ten ASEAN economies are projected to see a slight improvement in growth from 4.8% in 2016 to 4.9% in 2017, and average annual growth of 5.1% over 2017-2021.<sup>3</sup>

SEA is yet a diverse region and there is a wide gap among countries in terms of the size of the economy, GDP per capital and global competitiveness. For instance, growth is expected to be higher than the average in the Philippines and Viet Nam at 6.2% and 6.1% per year respectively over the medium term. Cambodia, Lao PDR and Myanmar will continue their catch-up, with the strongest growth rates among ASEAN countries, exceeding 7% annually over the next five years and reaching 8.5% on average in Myanmar.<sup>4</sup>

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<sup>1</sup> South-East Asia includes 11 countries: Brunei Darussalam, Cambodia, Indonesia, Lao PDR, Malaysia, Myanmar, Philippines, Singapore, Thailand, Timor-Leste and Viet Nam.

<sup>2</sup> Data by 2015

<sup>3</sup> ASEAN includes 10 countries: Brunei Darussalam, Cambodia, Indonesia, Lao PDR, Malaysia, Myanmar, Phillipines, Singapore, Thailand and Viet Nam.

<sup>4</sup> OECD Economic Outlook for Southeast Asia, China and India 2017, Addressing the Energy Challenges.

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**Table 1- South-East Asia at a glance**

Country	Population (million)	2015 GDP (\$ billion)	2015 GDP per capita (\$)	GDP Growth(%)			Global Competitiveness Ranking
				2013	2014	2015	
Brunei Darussalam	0.4	12.9	32,250	-2.1	-2.3	-1.1	58
Cambodia	15.6	18.1	1,159	7.4	7.1	7	89
Indonesia	257.6	861.9	3,346	5.6	5	4.8	41
Lao PDR	6.8	12.4	1,818	7.8	7.5	6.7	93
Malaysia	30.3	296.3	9,768	4.7	6	5	25
Myanmar	62.6	53.9	861	8.4	8.7	7.2	n/a
Philippines	100.7	292.5	2,904	7.1	6.1	5.8	57
Singapore	5.5	292.7	52,889	4.7	3.3	2	2
Thailand	68	395.2	5,815	2.7	0.8	2.8	34
Viet Nam	91.7	193.6	2,111	5.4	6	6.7	60
<b>South-East Asia</b>	<b>639.2</b>	<b>2,429.40</b>	<b>3,801</b>	<b>5</b>	<b>4.5</b>	<b>4.4</b>	

Source: World Bank Data, <http://data.worldbank.org/>; ADB, Asian Development Outlook 2016 Asia's potential growth; World Economic Forum, Global Competitiveness Index Report 2016-2017

## 1.2. Infrastructure Quality and Competitiveness

SEA countries are not a homogenous group as they included both developed and developing economies and have different level of infrastructure development. In particular, there are disparities in the quality and competitiveness of infrastructure among countries in the sub-region. While Singapore is among the top countries in the global infrastructure table (ranked # 2), other countries like Cambodia and Lao PDR are at the bottom half of the table.

**Table 2- Infrastructure Competitiveness Ranking, SEA, 2016**

Indicator	Brunei	Cambodia	Indonesia	Lao PDR	Malaysia	Philippines	Singapore	Thailand	Viet Nam
Quality of roads	41	93	75	91	20	106	2	60	89
Quality of railroad infrastructure	n/a	98	39	n/a	15	89	5	77	52
Quality of port infrastructure	87	76	75	132	17	113	2	65	77
Quality of air transport infra	84	99	62	100	20	116	1	42	86
Quality of electricity supply	52	106	89	77	39	94	2	61	85
Mobile telephone subscriptions	85	35	38	131	27	65	24	55	40
Fixed- telephone lines	85	116	86	73	72	107	29	91	99
<b>Overall</b>	<b>67</b>	<b>95</b>	<b>80</b>	<b>81</b>	<b>19</b>	<b>112</b>	<b>2</b>	<b>72</b>	<b>85</b>

Source: World Economic Forum, Global Competitiveness Index Report, 2016-2017.



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Note: Rankings out of 138 economies. Data of Myanmar and Timor Leste is not available.

The same disparities can be observed in data measuring the level of access to infrastructure services (see for example Table 3 about access to water services).

**Table 3- Access to Improved Water Source in SEA, 2015**

Country	Access to Improved water source (% of population)
Cambodia	75.7
Indonesia	87.4
Lao PDR	75.7
Malaysia	98.2
Myanmar	80.6
Philippines	91.8
Singapore	100
Thailand	97.8
Viet Nam	97.6

Source: World Bank Data, <http://data.worldbank.org/>

### 1.3. Infrastructure Investments

According to the Global Infrastructure Investment Index 2016 report, SEA countries are among the world's most attractive infrastructure investment markets with five countries in the top 30 globally ranked markets.<sup>5</sup> Singapore is the world most attractive market for infrastructure investment and Malaysia sits in fifth place globally and ranks number three in Asia.<sup>6</sup> Indonesia, Thailand and the Philippines's market attractiveness are ranked 21<sup>st</sup>, 25<sup>th</sup> and 28<sup>th</sup> respectively.

**Table 4- Global Infrastructure Investment Index 2016**

Ranking	Country	Ranking	Country	Ranking	Country
1	Singapore	11	Australia	21	Indonesia
2	Qatar	12	Japan	22	South Africa
3	UAE	13	Germany	23	India
4	Canada	14	Austria	24	Spain
5	Malaysia	15	Saudi Arabia	25	Thailand
6	Norway	16	Chile	26	Turkey
7	Sweden	17	China	27	Colombia

<sup>5</sup> The rankings in the report based on 5 broad categories: Economic environment, business environment, risks, infrastructure and financial environment. The most attractive infrastructure markets for investors remain those with the strong growth potential, secure business environments, well-established legislative and regulatory systems and stable political environments.

<sup>6</sup> Behind Qatar and UAE.

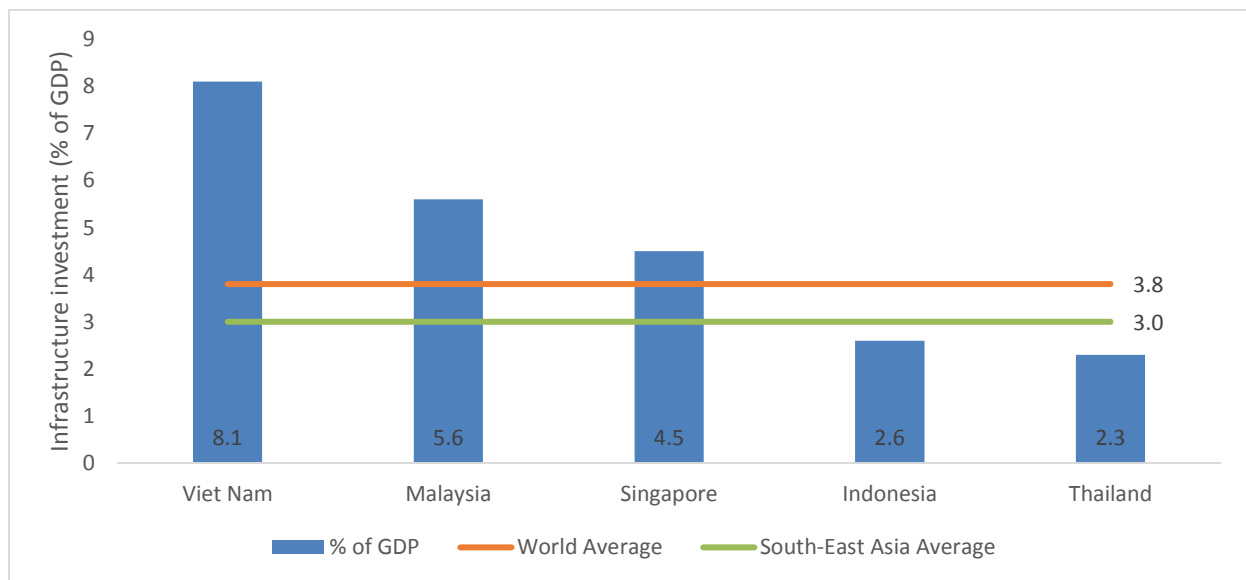
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8	USA	18	Belgium	28	Philippines
9	UK	19	France	29	Poland
10	Netherlands	20	South Korea	30	Mexico

Source: *Global Infrastructure Investment Index 2016 Report (Arcadis)*

Actual infrastructure investment in SEA have, however, been more limited than in other Asian sub-regions. It accounts for about 2.6% of GDP between 2010 to 2014 which was the lowest in comparing with East Asia (6.3%), South Asia (4.8%) and Central Asia (2.9%).<sup>7</sup> Historically infrastructure investment in SEA countries accounted for an average of 3% of GDP annually from 1992-2011, moderately below the global average of 3.8% in the same period. Total infrastructure investment in Viet Nam had accounted for more than 8% of GDP, putting Viet Nam ahead of other countries in the sub-region such as Malaysia, Singapore, Indonesia and Thailand with 5.6%, 4.5%, 2.6% and 2.3% respectively.<sup>8</sup>

**Figure 1- Infrastructure Investment in Selected Countries in SEA (% of GDP), 1992-2011**



Source: *Network Asia Forum (2013), Infrastructure, Power & Utilities + Lifting- the -Barrier report, Mc Kinsey & Company, CIMB Asean Research Institute (CARI).*

<sup>7</sup> ADB (2017), Meeting Asia's Infrastructure Needs and Author's calculation

<sup>8</sup> Network Asia Forum (2013), Infrastructure, Power & Utilities + Lifting- the -Barrier report, Mc Kinsey & Company, CIMB Asean Research Institute (CARI)

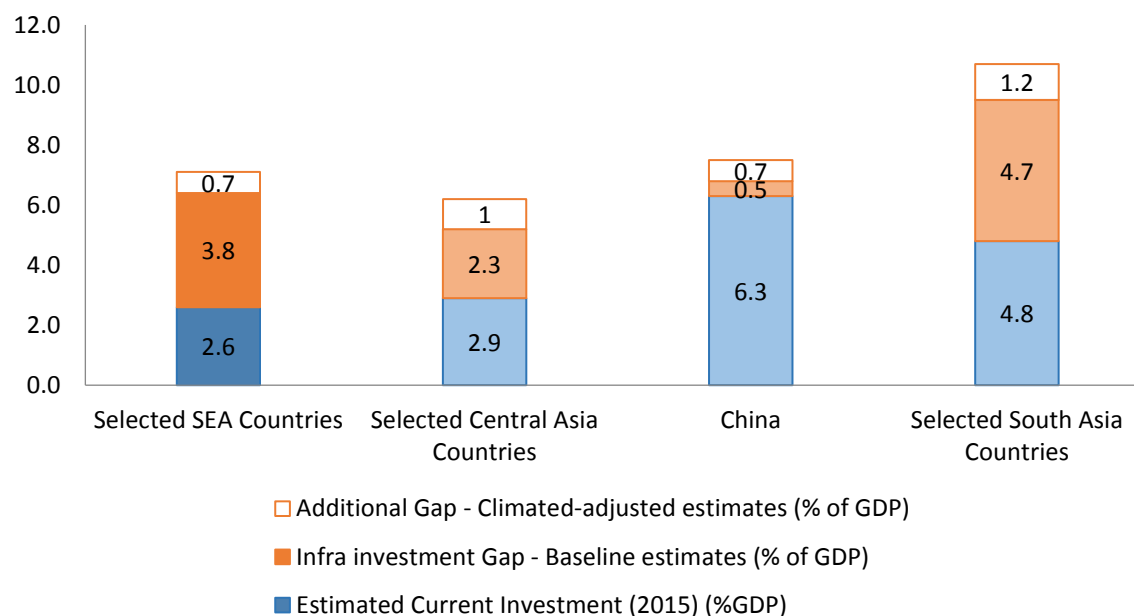
## 2. Infrastructure Financing Needs

Some SEA countries already possess good-quality infrastructure resulting from significant investment made in the past while others suffer from underinvestment and need to do more to ensure the provision of quality infrastructure assets to support economic growth and meet rapidly growing demand.

Overall, the SEA countries have to spend much more than their historical investments in infrastructure (i.e. 3% of GDP between 1992-2011) to accommodate expected GDP growth while maintaining its competitiveness of infrastructure. ADB estimated that infrastructure needs are at around \$150 billion per year (approximately 6 per cent of GDP). This represents more than doubling the current spending.<sup>9</sup>

In general, SEA countries are expected to invest more in the next decades in light of their strong commitments to increase the quality of their infrastructure, the announcement of huge infrastructure investment plans and the growing demand for more infrastructure services. The power sector, ICT and transport infrastructure dominate investment needs. They together will account for the biggest share of the future needs, as they have in the past.

Figure 2- Breakdown of Infrastructure Investment Needs in Asia, 2016-2030



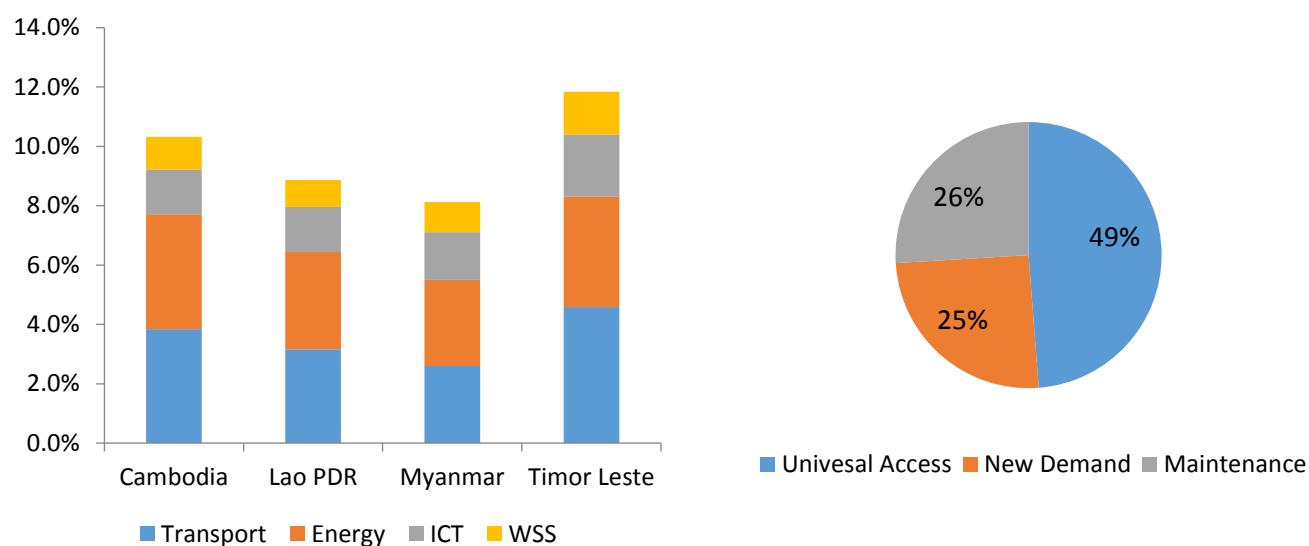
Source: ADB (2017), *Meeting Asia's Infrastructure Needs and Authors' Analysis* (Selected South-East Asian countries include Cambodia, Indonesia, Malaysia, Myanmar, Philippines, Thailand and Viet Nam)

<sup>9</sup> Meeting Asia's Infrastructure Needs, ADB (2017). Authors' notes: The latest ADB's estimates is much higher than those estimated by other agencies ranging from \$100 billion to \$150 billion annually.

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A closer look to the least developing countries in the sub-region shows that infrastructure needs are higher in these countries in comparisons with the more advanced economies in SEA. Specifically, Timor-Leste and Cambodia will need to invest as much as 11.8% and 10.3% of GDP for infrastructure, respectively. While other least developing countries in the sub-region such as Lao PDR and Myanmar have estimated infrastructure investment requirements of more than 8% of GDP.

Figure 3- Yearly Infrastructure Needs in selected SEA countries and breakdown by sector and type of investment



Source: based on ESCAP (2017), *Asia-Pacific Countries with Special Needs Development Report "Investing in infrastructure for an inclusive and sustainable development"*

In addition to domestic infrastructure, countries in SEA have also ambitious plan to develop regional connectivity, which will require additional investments for instance to develop regional railway lines and cross-border power grids. ADB noted that indicative investment needs for Greater Mekong sub-region program is about \$51 billion.<sup>10</sup>

In order to promote greater connectivity, the ASEAN countries adopted the Master Plan on ASEAN Connectivity 2025 (MPAC 2025) at the ASEAN Summits 2016. The MPAC 2025 focuses on five strategic areas: sustainable infrastructure, digital innovation, seamless logistics, regulatory excellence and people mobility. One of its objectives is to add value by complementing and synergizing the ASEAN countries' physical infrastructure and the sub-regional connectivity.

<sup>10</sup> ADB publication on Meeting Asia's Infrastructure Needs (page 41). GMS covers Cambodia, the PRC (Yunnan Province and Guangxi Zhuang Autonomous Region), the Lao People's Democratic Republic, Myanmar, Thailand, and Viet Nam

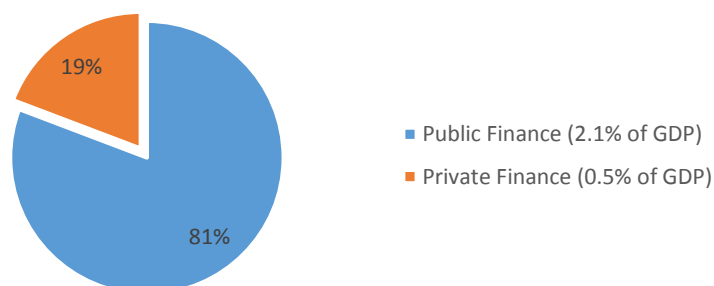
### 3. Infrastructure Financing Strategies

Investing in infrastructure to meet rapid economic growth and provide reliable services to people, businesses and industries has been a challenge for most SEA countries. Investments have mainly been funded by sovereign resources, including State-Owned Enterprises (SOEs), sometimes backed up by user fees, or supplemented by foreign aids. These traditional sources still cannot fulfil the whole demand for infrastructure investment given the existing pressure on the public fiscal space. Different approaches to financing are nevertheless possible.

#### 3.1. Enhancing Public Expenditure Efficiency in Infrastructure

Infrastructure projects have been traditionally funded with fiscal resources in SEA countries. The public sector provides about 81% of the SEA's overall infrastructure investment between 2000 to 2014. This amounts to about 2.1% of GDP annually, far above from the 0.5% of GDP coming from the private sector. Therefore, enhancing the efficiency in public spending should result in significant savings. McKinsey estimates that boosting productivity can reduce infrastructure spending by 40 per cent and this could significantly reduce pressure on government budgets. There are different measures that government can introduce to realize these efficiency gains. The following paragraphs present them in detail.

Figure 4- Breakdown of Public and Private Infrastructure Investment in SEA, 2010-2014



Source: ADB (2017), *Meeting Asia's Infrastructure Needs* and Authors' calculation.

##### 3.1.1 Prioritizing projects

With limited resources and competing priorities, Governments have to prioritize their investments and should have guidelines in place for appraising infrastructure projects. Typically, the prioritization process translated into a national or sub-national infrastructure plan, which assists countries in aligning infrastructure development with national priorities while providing a long-term vision for the country. This process can also help countries in identifying infrastructure gaps, facilitating coordination among the different sectors and highlighting reforms required.

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With regard to the appraisal guidelines, they should ensure that sufficient information on the project is available to make an informed selection. This includes accurate project costs, clearly specified objectives and option analysis. The appraisal should not only take into account financial elements but also environmental and social impacts. The table below illustrates the situation in different SEA countries.

Table 5- Infrastructure Planning in SEA

	Does the country have a National or Sub-National Infrastructure Plan?	Do the National and Sub-National Infrastructure Plans contain a list of specific projects (Pipeline)?	Does the country have guidelines for the appraisal of infrastructure projects?
Indonesia	Yes	Yes	Yes
Malaysia	No	No	No
Philippines	No	Yes	Yes
Singapore	No	No	Yes
Thailand	Yes	Yes	Yes
Viet Nam	No	Yes	Yes

Source: *InfraCompass* accessible from <http://infracompass.github.org/>

The 11th Malaysia Plan, launched on 21 May 2015, is an example of prioritization effort. According to the plan, strengthening infrastructure to support economic expansion is regarded as one of six strategic thrusts that the government has defined to help Malaysia stay ahead of the challenges and opportunities of the fast-changing global and political landscape. The summary of focus areas about “strengthening infrastructure” in the 11<sup>th</sup> Malaysia Plan is as follows:

- Building an integrated need-based transport system.
- Unleashing growth of logistics and enhancing trade facilitation.
- Improving coverage, quality, and affordability of digital infrastructure.
- Continuing the transition to a new water services industry framework.
- Encouraging sustainable energy use to support growth.

Subsequently, Malaysia has announced several major infrastructure projects to boost growth, to be funded by both the private and the public sectors. These projects include additional Mass Rapid Transit (MRT) and Light- Rail Transit (LRT) rail lines.

### 3.1.2 Improving delivery

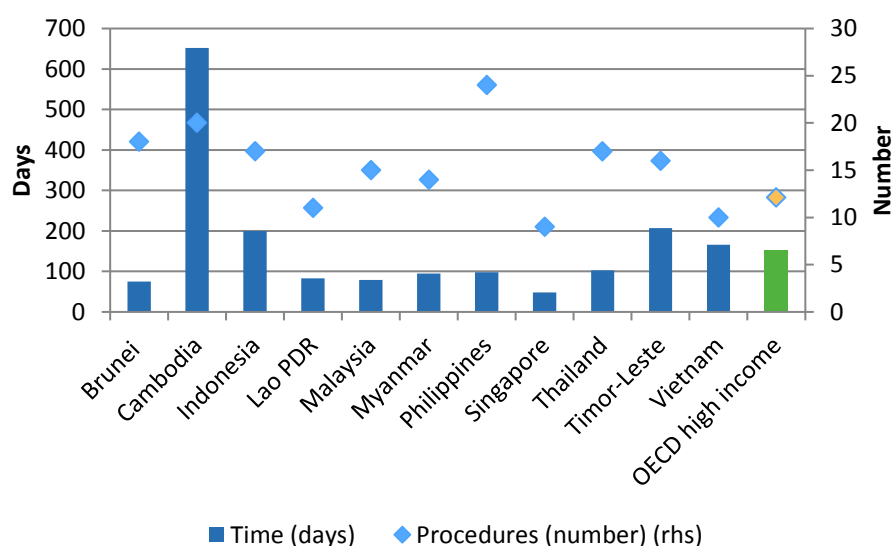
Significant gains can be realized during the delivery of infrastructure projects for instance by streamlining permit approvals, facilitating land acquisition, and improving public procurement practices.

## Streamlining permit approvals

Delays in the permitting process, which can increase costs and uncertainty, are considered as a fundamental barrier to private investment in and speedy delivery of needed infrastructure projects. A better understanding of the cost of delays should create a greater sense of urgency about the need to get projects done more quickly. Therefore, it is important to figure out what is needed to move a project along, defining the terms and timetable for the permitting and review process early in project development, and doing so in a collaborative way on either a project-by-project or, even better, a programmatic basis.

Several SEA countries perform better than the OECD average for dealing with a construction permit with the exceptions of Cambodia (652 days), Timor Lester (207 days), Indonesia (200 days) and Viet Nam (166 days). Singapore, at one extreme, is a good example on the efficiencies of streamlining permit approval. It needs 9 procedures in 48 days to obtain necessary licenses and permits, complete required notifications and inspections, and obtain utility connections. One of the reasons is that Singapore has adopted online applications to fasten the permit approval process.

Figure 5-Construction Permits in SEA



Source: World Bank Doing Business - accessible from <http://www.doingbusiness.org/>

## Facilitation land acquisition

The land acquisition process is critical to the successful development of public infrastructure, which often requires a large amount of land. Many projects have been stumbled on land-acquisition issues such as the Central Java Power Plant project in Indonesia signed in 2011 but for which the construction could only start in 2017. Overall, bottlenecks in the land acquisition phase are an impediment for infrastructure development in the SEA sub-region. This problem is evident in countries like Thailand, Indonesia, the Philippines and Viet Nam where transport infrastructure is a pressing issue and land is urgently required. Even if there are laws in place like the Philippines'

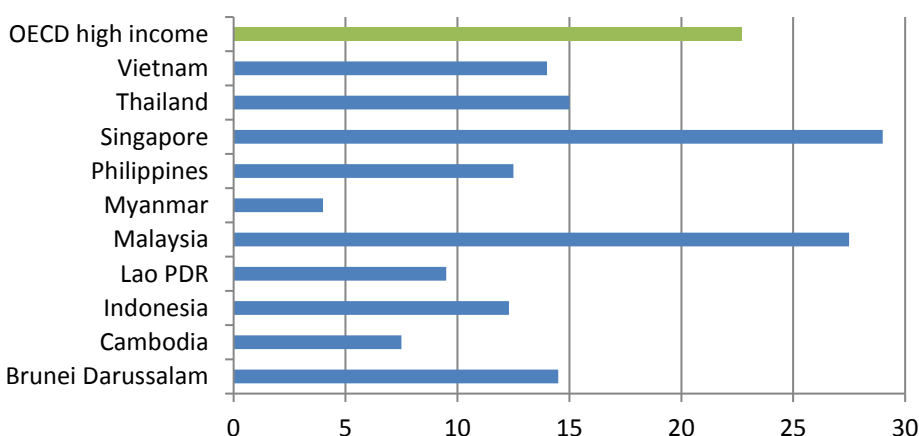
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“Right-of-Way Act”, it boils down to the effectiveness of implementation. The following examples illustrate some measures taken in the region to address this issue:

- Indonesia: On January 14 2012, Law No. 2 of 2012 on Land Procurement for Development in the Public Interest (Law 2/2012) came into effect in Indonesia. Law 2/2012 substantially accelerates the land acquisition process for development in the public interest. It sets a clearer mechanism for the acquisition of civilian land to facilitate the development of new infrastructure projects. Law 2/2012 prescribes that the time to complete the land acquisition procedure is from six months to 3.3 years. Most importantly, landowners are obligated to release their land after receiving compensation or after a binding court decision is delivered, in which case the compensation will be deposited to the District Court. The valuation of the land will be conducted by an appraiser appointed by the Land Agency. Furthermore, Indonesia enacted Presidential Regulation No.30 Year 2015 on 17 March 2015, which covers land procurement for public infrastructure. The Government will take over the responsibility for conducting such procurement.
- Singapore amended its Land Titles Act, effective 15 August 2014, to provide greater clarity, consistency and operational efficiency. For example, the provisions relating to the surrender and reissuance of title to land (whether registered or unregistered, whether subject to mortgage or charge, and whether of the same or different tenure) have been streamlined and simplified to a single process.

The land acquisition process could also be facilitated if land administration was reinforced in the region, notably regarding land registration. World Bank’s land administration index provides information about these issues (Figure 6). The index comprises of five dimensions: reliability of infrastructure (e.g. availability of Geographical Information System), transparency of information (e.g. accessibility of maps), geographic coverage, land dispute resolution, and equal access to property rights.

Figure 6- Quality of the Land Administration Index (0-30)



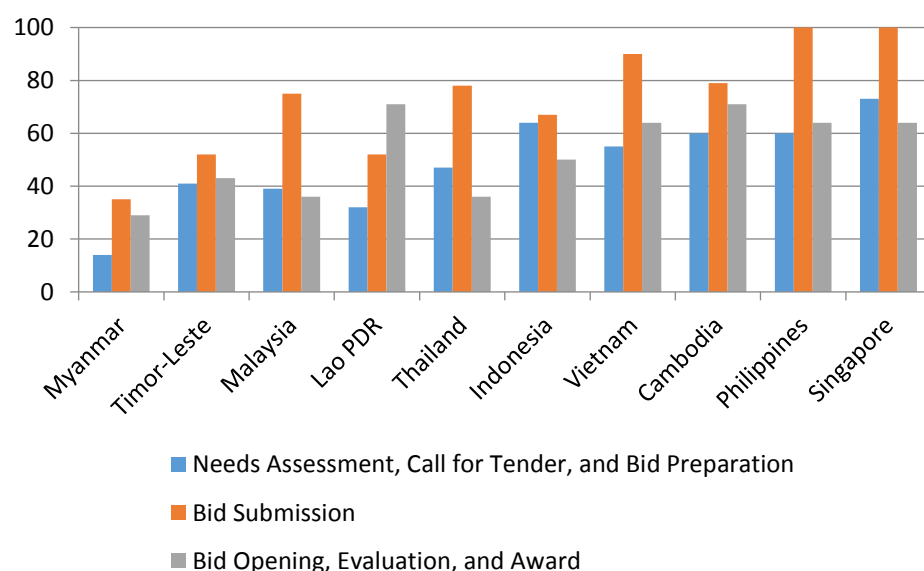
Source: World Bank Doing Business - accessible from <http://www.doingbusiness.org/>



## Improving public procurement and enhancing governance

Significant savings can also be achieved by improving the procurement procedures for instance by increasing the use of e-procurement systems. Figure 7 provides a comparison of countries practices and highlights the potential room for improvement in several of them. For example, to enhance transparency in public infrastructure construction, the Indonesian government has disclosed information online and used e-procurement portals. The information disclosure websites are designed specifically with the citizen in mind, and therefore should provide essential information on infrastructure provision to citizens. The transparency of the Indonesian public infrastructure procurement process has significantly improved with the establishment of Electronic Procurement Service in each ministry.

Figure 7-Benchmarking Public Procurement in SEA

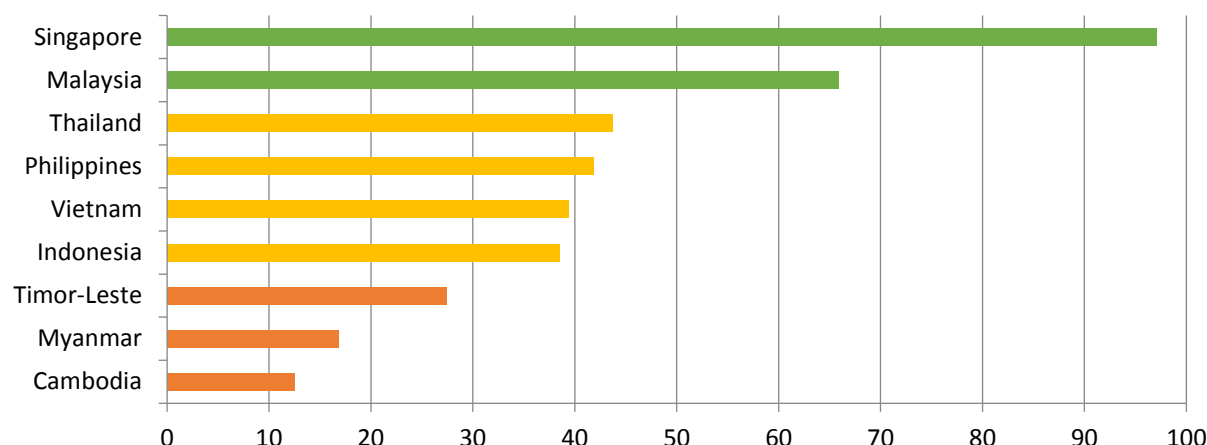


Source: World Bank (<http://bpp.worldbank.org/data/exploreindicators/procurement-life-cycle>)

Corruption is also a significant issue in the area of infrastructure development, which has been estimated globally at between 5 to 20 per cent of construction costs.<sup>11</sup> The Vietnamese government has undertaken a number of steps recently to bolster its anti-corruption regime and enforcement efforts. On the legislative front, the government introduced the New Penal Code which went into effect on 1 July 2016. The New Penal Code extends the application of certain corruption-related offences to those working in the private sector and criminalizes the giving of a bribe to foreign officials and officials of public international organizations. According to official figures released by the Viet Nam's Central Anti-Corruption Steering Committee (CACSC) at the end of 2015, investigation agencies brought criminal proceedings against 460 people as a result of 216 corruption cases from 1 December 2014 to 30 November 2015.

<sup>11</sup> Source: Kenny, C. (2006). WB Working Paper 4099

Figure 8-Perceived Control of Corruption in SEA (Percentile Rank – 2015)



Source: World Bank - Control of Corruption captures perceptions of the extent to which public power is exercised for private gain, including both petty and grand forms of corruption, as well as "capture" of the state by elites and private interests. Percentile rank indicates the country's rank among all countries covered by the aggregate indicator, with 0 corresponding to lowest rank, and 100 to highest rank. The 2015 dataset covers 208 countries.

### 3.1.3 Maximizing the use of existing assets

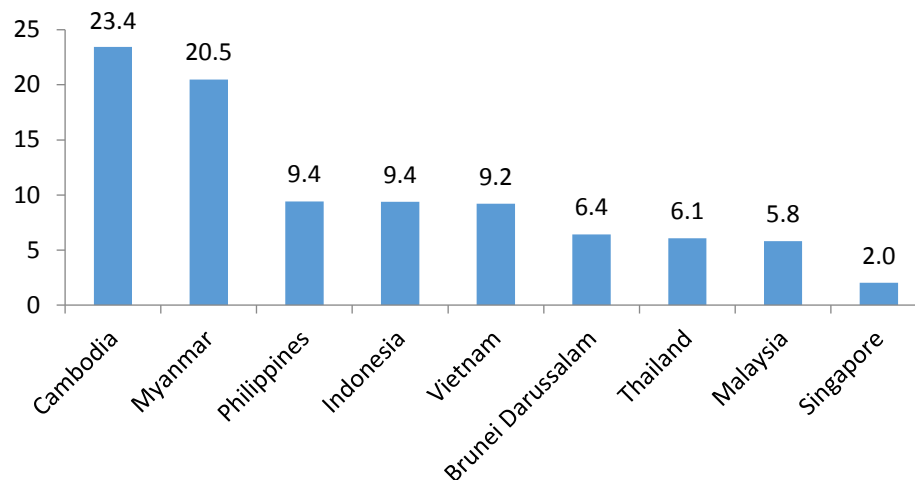
The SEA sub-region is facing an infrastructure investment gap and while private investment has helped meet the shortfall, government continues to plan, finance and operate most public infrastructure. Faced with the constraints of a low revenue base, high levels of national debt, and tight fiscal position, opportunities exist for many SEA governments to make wider use of existing infrastructure.

For instance, countries in SEA should also consider demand management techniques to reduce the need for additional infrastructure by smoothing the demand and shifting load off-peak. This could be done by introducing congestion charges, raising energy efficiency standards and providing water education programmes to limit consumption. Modern technologies such intelligent transport systems could also been used to maximize asset utilization. In addition, extra revenue streams from existing infrastructure assets should be identified. For example, some airports realize more than 50% of their revenues from retails, hotels and other non-aeronautical activities. This could be expended in other sectors such as ancillary infrastructure in highway.

Governments in the sub-region may also increase the efficiency of existing assets by tackling deficiencies in utilities network. For instance, by addressing losses in the power network, countries could boost their power supply without adding new capacity. This would be a much cheaper and faster option (it is estimated to cost less than 3% of what would be required for new production capacity). Likewise, in the water sector, a significant issue is non-revenue water (NRW) (i.e. water pumped and then lost or not accounted for). A study from ADB estimated in SEA countries that NRW was about 35%, which represents a loss of around \$1.5 billion per year.<sup>12</sup>

<sup>12</sup> <https://www.adb.org/sites/default/files/publication/27473/reducing-nonrevenue-water.pdf>

Figure 9-Electric power transmission and distribution losses (% of output - 2014)



Source: World Bank (<http://databank.worldbank.org/>)

Ensuring adequate maintenance is also critical to preserve the value of the infrastructure assets built. For instance, every dollar spent on regular road maintenance can save more than \$5 on refurbishing and rebuilding of road. The issue is that maintenance budgets are often the ones first cut as there is no immediate and visible consequences although it is inefficient in the long run. To address this issue, road maintenance funds have been established in some countries to isolate maintenance budgets from annual appropriation discussions.

For years, the road maintenance in Viet Nam was under-funded which led to the increasing transport and safety costs. In order to tackle this issue, Government of Viet Nam has issued a Decree 18/2012/NĐ-CP which was effective from June 2012 to consolidate the road maintenance fund and revise the fee structure. Per the Decree, the Road Maintenance Fund will be managed at both central and local levels, with 65% of automobile fees paid to the central coffer while the remainder will go to the local budget. As for the motorcycle fee collection, each locality will manage the fund on its own. The central fund will be spent on national highway maintenance while local funds will be used for upgrading roads in localities.

### 3.1.4 Reforming State-Owned-Enterprises (SOEs)

SOEs play a critical role in the delivery of infrastructure services in the sub-region and most infrastructure projects are being implemented directly by SOEs, which do not always have the management capacity and funding for the tasks they are allocated. Inefficiencies and poor performance of SOEs have been observed in many SEA countries although reforms have been implemented. For example, Indonesia has introduced many regulatory reforms to create a more conducive environment for private sector participation in infrastructure and at the same time, it has made efforts to hold SOEs accountable for delivering high quality project management.

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The table below illustrates the importance of SOEs, which represents around one third of the largest companies in the sub-region. To support improvement in SOEs, an OECD-Asia Network on Corporate Governance of State-Owned Enterprises has been operating for several years. Given their role in energy, transport and water, better governance in SOEs is key for infrastructure development in the sub-region.

Asian state-invested enterprises among the world's largest companies

	At least 10% State Ownership	Private
<b>Singapore</b>	6	14
<b>Indonesia</b>	5	2
<b>Thailand</b>	4	12
<b>Malaysia</b>	4	12
<b>Viet Nam</b>	3	0
<b>Philippines</b>	0	8
<b>Total</b>	<b>22</b>	<b>48</b>

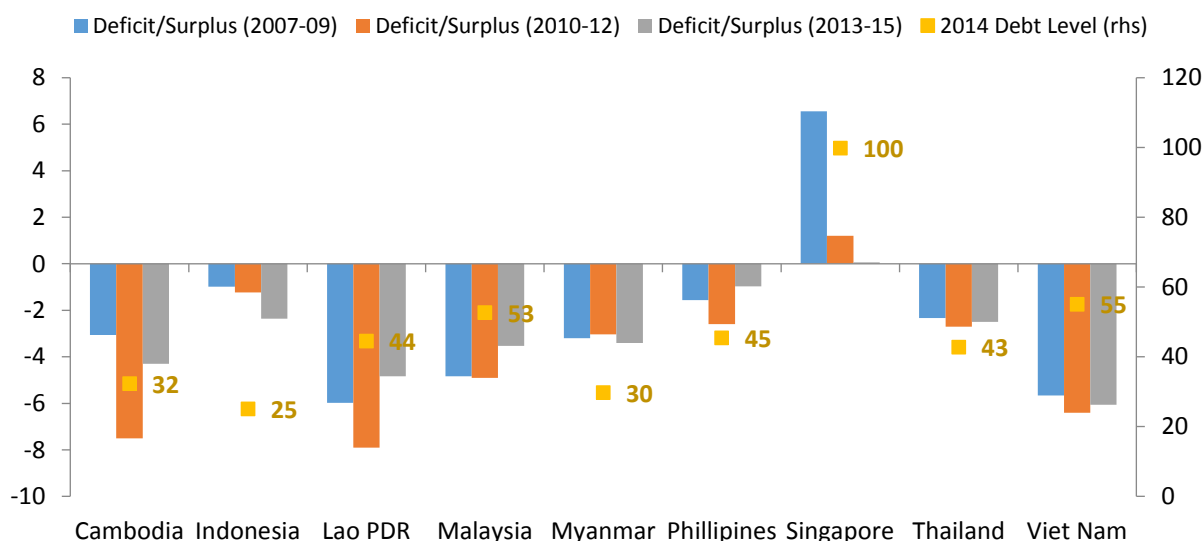
Source: <http://www.oecd.org/daf/ca/SOEs-Asia-Performance-Evaluation-Management.pdf>

### 3.2. Mobilizing Domestic Resources

Governments in the sub-region run budget deficits for years (except Singapore). Most of these deficits are structural as they persist across the business cycle. In this environment, there are difficult choices that need to be made between longer term infrastructure investments and other immediate priorities including education, health care and other welfare support, which are a priority concern, particularly for the lower income groups. In addition, there is a normal tendency to reduce public investments with rising deficits as highlighted by different studies.<sup>13</sup> In that context, sustaining infrastructure spending is bound to be challenging.

Also, the existing deficits impact the future borrowing capacity of countries in the sub-region as well as the level of public debt. The latter remains, however, relatively moderate across the region and some countries have managed to significantly reduce their indebtedness such as Myanmar and Lao PDR, and to a lesser extent Indonesia and the Philippines. On the contrary, countries such as Viet Nam and Malaysia have experienced a substantial increase.

Figure 10- Government Budget Balance and Debt in selected SEA countries, 2007-2015 (% of GDP)



Source: Trading Economics, <http://www.tradingeconomics.com>

State budget deficits and relatively high level of government debts constrain infrastructure investment in some countries. For example, Viet Nam, with its budget deficits and growing debt, has more limited room to finance its ambitious infrastructure plan solely via public resources under the current circumstances.

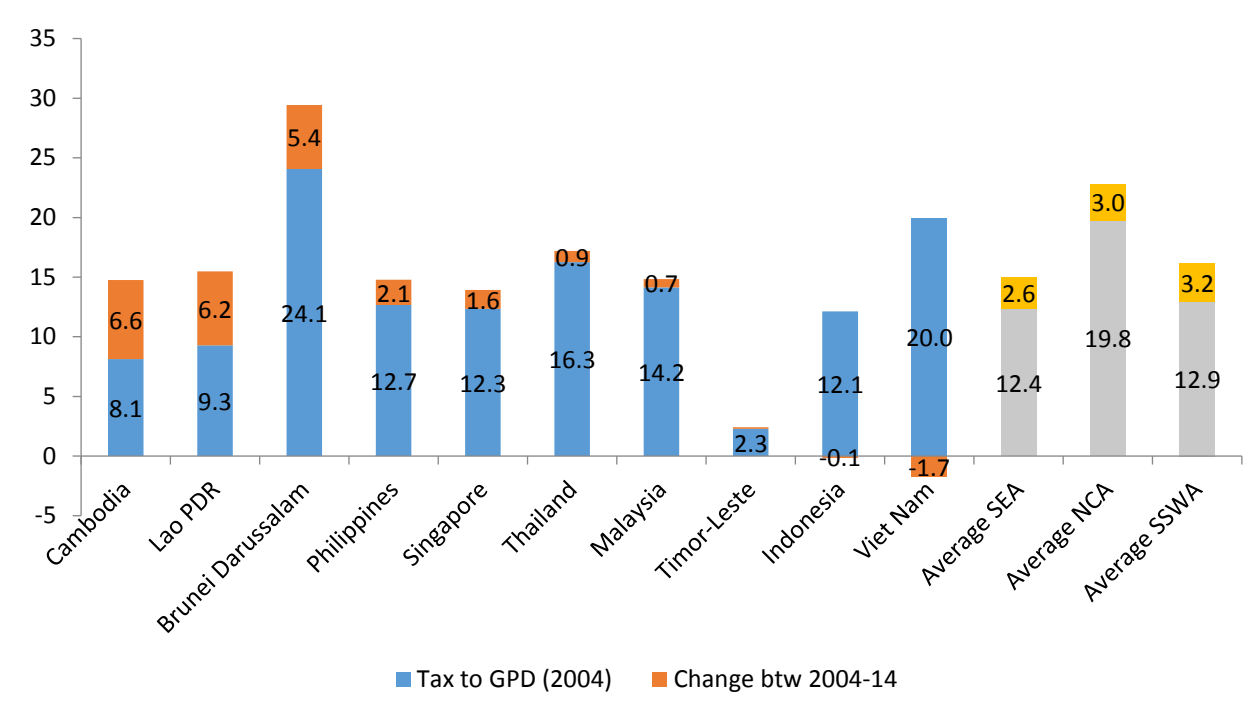
<sup>13</sup> Calderón and Servén (2004), The Effects of Infrastructure Development on Growth and Income Distribution. Fitch Database; World Development Indicators, McKinsey Global Institute analysis. Between 1980 and 2003, annual public investment in infrastructure fell by 0.2 per cent of GDP across EU nations, and by 0.8 percent of GDP in Latin America, in line with increasing fiscal deficits.

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A way to address this issue is to reprioritize public spending to free resources for infrastructure investments. For instance, many countries in the sub-region may try to gradually remove huge subsidies that are consuming a large of the government budget (e.g. petrol and electricity subsidies take up around 20 per cent of the government budget in Indonesia) and reallocate these resources to infrastructure investments.

Another option is to consider how tax revenue could be increased in the sub-region as these additional resources could be used to finance infrastructure development. This could be done by rethinking the tax policy mix as well as by improving tax administration and collection. In general, tax collection to GDP in SEA sub-region is lower in comparison with other parts of Asia although most SEA countries have managed to raise their tax to GDP ratio over last decade (Figure 11).

Figure 11- Tax to GDP ratio across SEA countries



Remark: NCA = North and Central Asia and SSWA = South and South West Asia (as per ESCAP sub-region definition)  
 / Source: IMF's World Revenue Longitudinal Dataset (WoRLD)

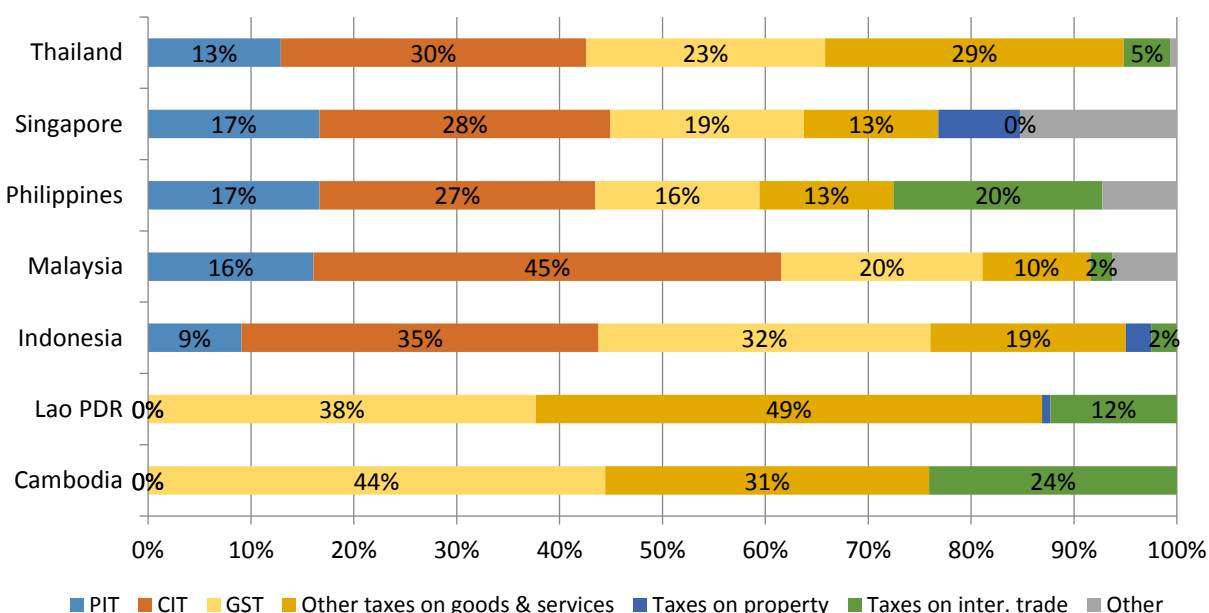
With regard to tax policies, there has been a growing trend in more advanced SEA countries to rely progressively more on direct taxes such as Personal Income Tax (PIT) and Corporate Income Tax (CIT) than indirect taxes such as Good and Services Tax (GST). Other less developed countries as the likes of Cambodia and Lao PDR rely heavily on indirect taxes.

Broadening the tax base can also boost tax to GDP ratio. For example, Cambodia, who had a low tax to GDP ratio in the past has made great efforts to increase its tax collection at a same level

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similar to other countries in the sub-region. Cambodia traditionally operated a two-tier tax structure. On the one hand, there were the ‘real regime’ taxpayers: registered companies, state-owned companies and other businesses with some system of formal accounting. On the other hand, there were the ‘estimated regime’ taxpayers: companies or small ventures with no formal accounting – essentially without a paper-trail of profits – and taxable amounts for these were estimated based on discussions between taxpayers and tax officials. It was reported that 60% of the country’s state tax collectors worked with ‘estimated regime’ payers, which brought in less than 1% of the total tax revenue. The government of Cambodia has set about scrapping the ‘estimated regime’ to bring all enterprises under the ‘real’ tax regime. In December 2015, the government issued a prakas – an official edict – to end the ‘estimated regime’, creating a stricter system for small and medium enterprises.

Figure 12- Tax mix in selected SEA countries

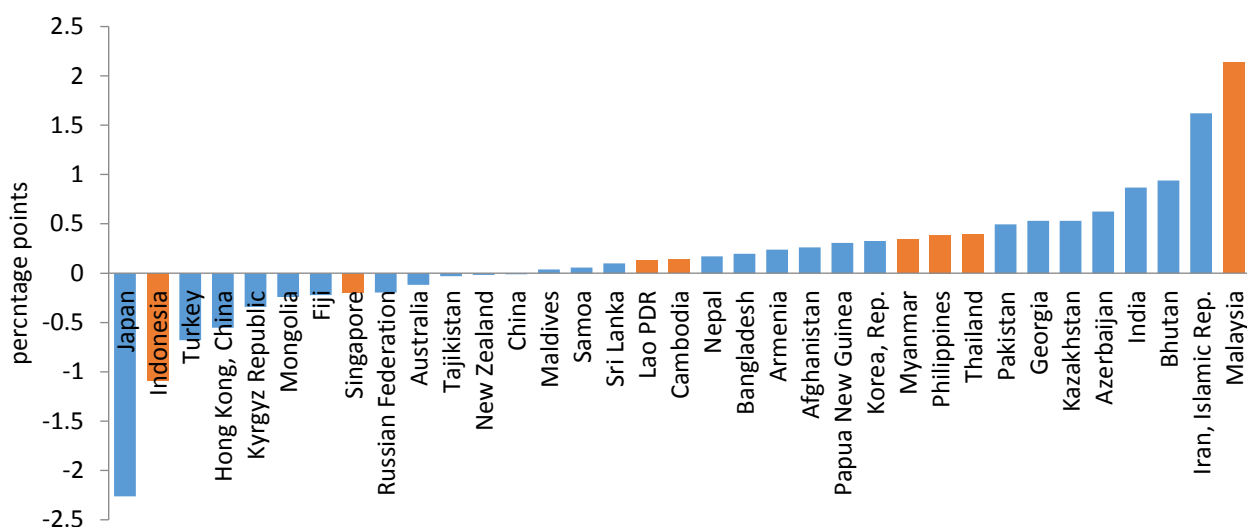


Source: Authors’ calculation based on IMF’s World Revenue Longitudinal Dataset (WoRLD) – PIT, CIT and GST stand respectively for Personal Income Tax, Corporate Income Tax and General taxes on goods and services

Myanmar is another interesting example. The country’s tax-to-GDP stood at below 7 percent in 2012, one of the lowest in the world. However, with the support of IMF, the country has made significant progress thanks to strengthened capacity in tax administration. Since 2012, revenues from major taxes have increased on average by more than 20 per cent on yearly basis. The compliance by large tax payers in the areas of registration, on-time filing and payment is close to international standards. Tax policy reforms have been initiated to broaden the base of indirect taxes and the tax department is in a better position to review the direct-taxes base.<sup>14</sup>

<sup>14</sup> IMF Annual Report 2016 - Finding Solutions Together

Figure 13- Direct to indirect tax ration, change since 1990s



Source: ESCAP's calculation based on IMF's World Revenue Longitudinal Dataset (WoRLD)

Regarding tax administration and collection, these reforms have often involved changes in the organizational structure of tax authority, including the creation of taxpayer offices. More intensive use of ICT, such as electronic filing systems is another common reform. For example, electronic tax filing system in Viet Nam has been implemented since 2014, the result so far is very positive with 99.6% of enterprises registered on the system and reduce transaction time for tax payers.

Rationalizing tax incentives can also be a means to increase revenue generation. Typically, countries in the region have provided tax incentives to encourage investment including in infrastructure projects. Cost-benefit analysis are needed to evaluate whether these incentives are bringing value-for-money.

#### Box 1- Tax Incentives in selected SEA countries

- Indonesia issued Government Regulation Number 18 Year 2015 (effective since 6 May 2015) to improve tax incentives for investments made in certain business fields or regions. It offers more types of incentives with more relaxed conditions and broader eligibility criteria for business fields and regions.
- Malaysia announced four new incentives in the 2015 budget for investments made in less developed areas, industrial estates, and projects that increase automation in labor-intensive industries, and establishment of principal hubs.
- Thailand's "Seven-Year Investment Strategy" (2015-2021), approved in November 2014, offers fiscal incentives on the basis of the importance of the activities and the merit of the investment (such as whether it enhances competitiveness, promotes decentralization, or encourages industrial area development).

Source: ASEAN Investment Report 2015, Infrastructure and Connectivity.



### 3.3. Leveraging ODA and other concessional resources

Official Development Assistance (ODA) has been a major funding source for many less developed countries in SEA sub-region. In general, the infrastructure sector has been accounted for 70% of total ODA funding but infrastructure projects are also competing for donor's funds with social sectors and projects with more direct poverty alleviation impact.

Among SEA countries, Viet Nam is the largest ODA recipient with US\$ 3,7 billion on average per year or 8.4% of total ODA in Asia during period 2010-2015.<sup>15</sup> Other countries depending heavily on ODA are Cambodia, Lao PDR and Myanmar. The latter has benefited from a significant increase since 2009 while ODA flows to the Philippines declined over the same period (Table 6). In general, ODA are bound to decrease with countries development, in particular for the ones achieving the medium income status such as Viet Nam.

Therefore, countries need to find ways to maximize the impact of limited ODA resources for instance by using them to de-risk infrastructure projects and leverage private finance. One example of leveraging ODA and attracting private investment in infrastructure projects is the Philippine Water Revolving Fund (PWRF) which was set up in 2008 to provide loans to local water and wastewater projects. The PWRF blends ODA initially from Japan and the US and domestic public funds with commercial financing to lower borrowing rates, and to market water and sanitation projects to private finance institutions (PFIs). Blending through the revolving fund has resulted in lower borrowing costs for water service providers and longer tenors. The different credit enhancements offered with PWRF lowered investment risk. The multi-layered approach of PWRF has mobilized approximately PhP10.5 billion (\$234 million) of loans for water supply and sanitation projects, of which 60 percent came from private banks and developers, which will provide up to 6 million people with new or improved access to piped water.

Table 6 - Net ODAs to SEA countries, 2000-2015

	2000-2009 Annual averages (\$ million)	2010-2015 Annual averages (\$ million)	Annual change from 2000-09 to 2010-14	Net ODA (% of GNI) 2014
Cambodia	669	771	92%	5.1%
Indonesia	1,624	314	-68%	0%
Lao PDR	402	434	80%	4.3%
Myanmar	226	1,282	845%	2.2%
Philippines	594	345	-3%	0.2%
Viet Nam	2,367	3,632	156%	2.4%

Source: OECD, *Development aid at a glance, Asia, 2017 edition* and Authors' calculation

For infrastructure development, multilateral development banks (MDBs) such as the World Bank and the Asian Development Bank (ADB) have also played an important financing role. In addition,

<sup>15</sup> <http://www.oecd.org/dac/stats/documentupload/Asia-Development-Aid-at-a-Glance.pdf>

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MDBs and ODAs can support countries in leveraging greater private participation by backing up government commitments towards private investors and providing investors with risk guarantees, as well as by assisting governments to improve their planning and implementation capacity.

**Table 7- ADB- Cumulative Infrastructure Lending, Grant, and Technical Assistance (\$ million) to selected SEA countries**

Country	Energy	Transport	Water and other Urban infrastructure and Services	Total
Cambodia	182	530	264	976
Indonesia	5,865	3,702	2,358	11,925
Lao PDR	507	522	350	1,379
Myanmar	220	332	196	748
Philippines	3,432	1,560	1,260	6,252
Thailand	2,623	1,300	606	4,529
Viet Nam	2,705	5,495	1,615	9,815

Source: <https://www.adb.org> and Authors' calculation. Data updated by end of 2016.

**Table 8- World Bank- Cumulative Grant, Credit and Concessional Loan Commitment (\$ million) to selected SEA countries**

Country	Energy & Mining	Transport	Water & Sanitation	Total
Cambodia	144	413	249	806
Indonesia	9,575	13,007	8,700	31,282
Lao PDR	385	431	153	969
Philippines	2,405	4,726	2,915	10,046
Viet Nam	5,729	7,284	6,294	19,307

Source: <https://www.projects.worldbank.org> and Authors' calculation. Data updated by March 2017.

Dedicated instruments have also been created for the sub-region. In particular, the ASEAN Infrastructure Fund (AIF) was created as a part of ADB to finance infrastructure projects. The fund was established with contribution from ASEAN member countries and the Asian Development Bank (ADB) in 2011 and became fully operational in 2013. The AIF is administered by the ADB. The initial fund size is about \$500 million (with ADB contributing \$150 million), and it is expected that the total lending from the Fund will amount to \$4 billion by 2020. Coupled with ADB co-financing, the scheme could generate funding of up to \$13 billion.

Recently established development banks such as the Asian Infrastructure Investment Bank (AIIB) are also expected to significantly increase the financial supply for infrastructure investment in the sub-region. The AIIB resulted from China's initiative in 2013 and started operation since January 2016 with estimated capital of \$100 billion.

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Another emerging source of infrastructure financing is climate finance, which has grown rapidly in recent years and further increases are anticipated. For example, global climate finance increased by 18% from \$342 billion in 2013 to \$392 billion in 2014. East Asia and the Pacific excluding China accounted for 9% of the total or \$35 billion.<sup>16</sup> Renewable energy, energy efficiency investment and low-carbon transport have captured the majority of climate finance flows over the last four years. Entities such as the Climate Investment Funds (CIFs) have been important vehicles for delivering concessional climate finance. The Climate Investment Funds (CIFs) which operated alongside the MDBs has a mandate to finance low- carbon resilient infrastructure<sup>17</sup>. The funding contributions to the CIFs are divided between two trust funds—the Clean Technology Fund (CTF), \$5.5 billion at present; and the Strategic Climate Fund (SCF), \$2.5 billion. Example projects in SEA sub-region received CTF funding:

- The Central Thailand Solar Power Project (57 MW) with Solarco. The project’s cost is \$159 million, of which \$35 million is from CTF, \$52 million from ADB, and \$72 million from local Thai commercial banks.
- The provincial solar power project with Bangchak Solar energy (32 MW) of solar power generation. The project’s cost is \$63 million, of which \$12.6 million is from CTF, \$25.2 million from ADB, and \$25.2 million from local Thai commercial banks.

With more than \$10 billion mobilized, the Green Climate Fund (GCF) is another key instrument to support developing countries to respond to the challenge of climate change. Through GCF, countries can access finance for climate mitigation and adaption projects. In the sub-region, Viet Nam has benefited from \$29.5 million of grants from GCF for its project entitled: “Improving the resilience of vulnerable coastal communities to climate change related impacts in Viet Nam”, which will incorporate storm and flood resilient design features in new houses benefiting 20,000 poor and highly disaster-exposed people.

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<sup>16</sup> <http://www.climatefinancelandscape.org/>

East Asia and the Pacific remained the largest destination for climate finance, accounting for 30% of the total or \$118 billion, up 24% on 2013. China alone accounted for 21% of total finance.

<sup>17</sup> Low-carbon resilient infrastructure is a subset of overall infrastructure and comprises “core” infrastructure needs—power, transport, and water/sewage as well as investments in energy efficiency.

### 3.4. Private Financing and Public-Private Partnership (PPP)

#### 3.4.1 Track record

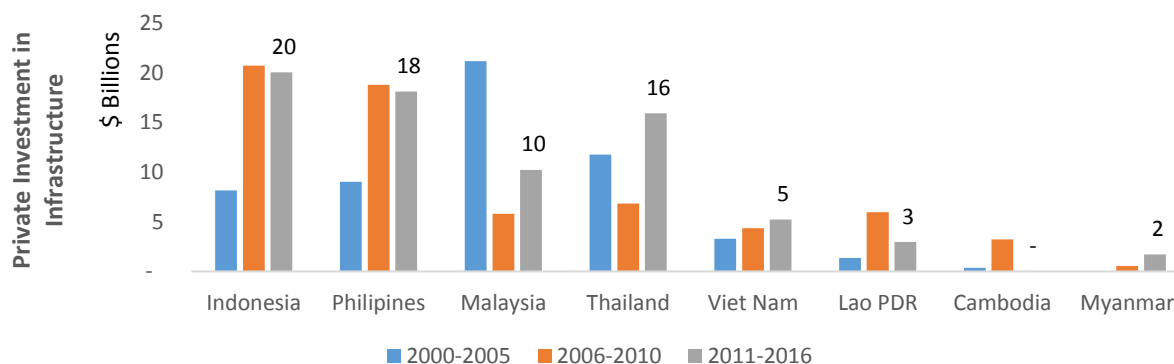
Between 2000 and 2016, SEA countries have attracted about \$195.5 billion from private investment in 401 infrastructure projects across various sectors.<sup>18</sup> Private investment in infrastructure in SEA rose from 125 projects financed with \$55.1 billion between 2000-2005 to 139 projects with \$66.2 billion and 137 projects with \$74.2 billion between 2006-2010 and 2011-2016, respectively.

Table 9- Private Infrastructure Investment in SEA, 2000-2016

Country	2000-2005		2006-2010		2011-2016		2000-2016	
	Private investment	No of Projects	Private investment	No of Projects	Private investment	No of Projects	Private investment	No of Projects
Indonesia	8,168	16	20,712	20	20,039	19	48,919	55
Philippines	9,018	22	18,791	33	18,120	30	45,929	85
Malaysia	21,180	29	5,807	12	10,225	7	37,212	48
Thailand	11,759	25	6,829	10	15,917	49	34,505	84
Vietnam	3,275	13	4,364	41	5,209	22	12,848	76
Lao PDR	1,339	3	5,954	7	2,957	6	10,250	16
Cambodia	344	17	3,230	14			3,574	31
Myanmar			556	2	1,710	4	2,266	6
<b>South-East Asia</b>	<b>55,083</b>	<b>125</b>	<b>66,243</b>	<b>139</b>	<b>74,177</b>	<b>137</b>	<b>195,503</b>	<b>401</b>

Source: World Bank, PPI Database - Note: (Private investment in \$ million). Data of Lao PDR and Cambodia updated to 2014 while Malaysia updated to 2015.

Figure 14- Private Infrastructure Investment in SEA, 2000-2016



Source: World Bank, PPI Database

Note: Data of Lao PDR and Cambodia updated to 2014 while Malaysia updated to 2015

<sup>18</sup> World Bank, PPI Database.

Excluding Brunei Darussalam, Singapore and Timor-Leste

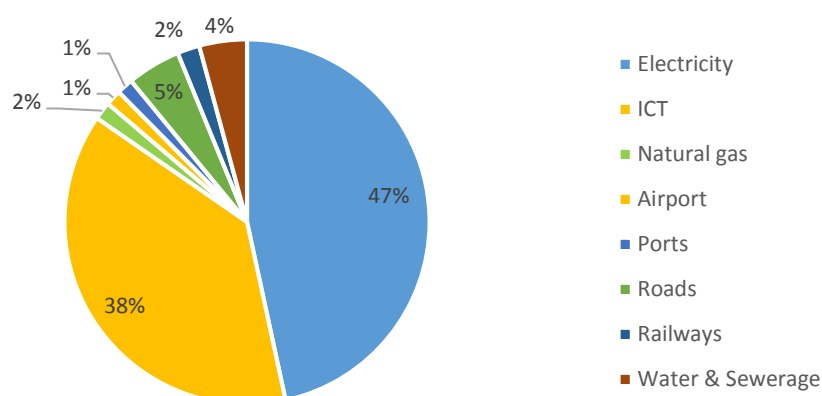
Data of Malaysia updated to 2015

Data of Cambodia & Lao PDR updated to 2014

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Private investment in infrastructure in SEA has mainly been in the electricity sector with 47% of total private investment and followed by ICT with 38%. The transport sector including air transport, road, port and railways accounted for about 9% and water & sewerage sector attributed to the remaining 4%.

Figure 15- Private Infrastructure Investment by Sector in SEA, 2000-2016



Source: World Bank, PPI Database

Note: Data of Lao PDR and Cambodia updated to 2014 while Malaysia updated to 2015

### 3.4.2 PPP Enabling Environment

PPPs have had a relatively limited role in SEA infrastructure development to date. But as countries realize that infrastructure investment needs cannot be financed with public funds alone, more attention is given to establishing credible regulatory and enabling environments and sound PPP project pipeline to attract more private infrastructure investments in these countries.

Based on international experience, the said enabling environment can be characterised by:

- a clear **policy** orientation creating a stable and long-term vision while offering perspective as regards the flow of projects to be developed under a PPP mechanism;
- a **legal** and **regulatory framework** providing clarity for government actions and assurance for the private sector that its legitimate right will be adequately protected;
- a supportive **institutional arrangement** whereby internal capacity is built and responsibilities are assigned for promoting, implementing and managing PPP projects;
- a body of **financial support** measures that will make projects sufficiently profitable and safe for attracting private interests while preserving fiscal stability.<sup>19</sup>

Regarding the PPP policy, legal and regulatory framework, SEA countries have devoted significant effort to develop dedicated guidelines and laws as highlighted in the table below.

<sup>19</sup> Source: ESCAP (2014). PPP Units and Programmes in Asia and Pacific.

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Table 10- PPP Regulatory Framework in SEA countries

#	Country	Regulatory Framework	Remark	Date
1	Brunei Darussalam	PPP guidelines		2015
2	Cambodia	Concession Law		2007
3	Indonesia	PPP Law	BAPPENAS Regulation No. 4 of 2015 set out procedural guidelines for PPPs	2015
4	Lao PDR	No PPP Law / Guidelines	PPP Decree under development	N/A
5	Malaysia	PPP guidelines		2009
6	Myanmar	No PPP Law / Guidelines		N/A
7	The Philippines	PPP Law	BOT Law	1994
8	Singapore	PPP guidelines	PPP Handbook sets policies and guidelines	2012
9	Thailand	PPP Law		2013
10	Vietnam	PPP Decree		2015
11	Timor-Leste	PPP Law	PPP Decree	2012

These laws and guidelines are important to define the vision and strategy regarding PPP in a country while clarifying the PPP project approval and implementation process. The development of policy, legal and regulatory frameworks is also critical to secure high-level political support, which is critical to the success of a PPP programme. To assess the quality of PPP systems in place against good practices, the World Bank has recently conducted a benchmarking of PPP procurement across 100+ countries. The table below highlights that the level of PPP readiness varies considerably in the sub-region. Also, among the SEA countries covered, only four of them have a mechanism to regulate unsolicited proposals.<sup>20</sup>

Table 11- PPP Benchmarking in SEA

Country	Preparation (score)	Procurement (score)	Management
Cambodia	8	20	69
Indonesia	50	70	61
Malaysia	46	43	24
Myanmar	2	40	25
The Philippines	96	85	84
Singapore	58	75	64
Thailand	54	63	57
Vietnam	75	85	58
Timor-Leste	33	70	43

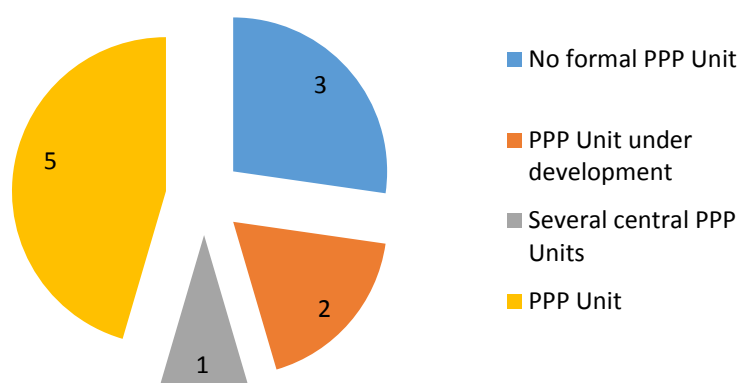
Source: Authors based on benchmarking PPP Procurement 2017

<sup>20</sup> An unsolicited proposal (USP) is a proposal made by a private party to undertake a public-private partnership (PPP) project, submitted at the initiative of the private firm, rather than in response to a request from the government. Governments may be presented with unsolicited proposals for infrastructure projects by private sector entities. How to respond to unsolicited bids so as to protect transparency in the procurement process and recognize the initiative of the proponent, is typically difficult.

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To build internal capacity for preparing, procuring and managing PPP projects, many countries have decided to establish dedicated PPP units, including five countries in this sub-region. In addition, two countries are in the process of formalizing their unit (i.e. Cambodia and Lao PDR) and one country has more than one PPP unit (Indonesia). Most of these countries have decided to locate their units in the Ministry of Finance or Planning and Investment.

Figure 16- PPP Units in SEA countries



Governments have also set-up financial support mechanisms to facilitate the implementation of PPP projects. These mechanisms include Project Development Facilities to finance feasibility studies and transaction advisors (often funded by multilateral development banks), support mechanisms to make project financially attractive and guarantees to cover risks that the private sector is not ready to support. The table below outlines the existing mechanisms in selected SEA countries.

Table 12- Financial Support Mechanisms

	Project preparation/ development facility	Support fund (e.g. viability gap funding mechanisms)	Government guarantees for private creditors
<b>Brunei Darussalam</b>			
<b>Cambodia</b>	Yes		
<b>Indonesia</b>	Yes	Yes	Yes
<b>Lao PDR</b>			
<b>Malaysia</b>		Yes	
<b>Philippines</b>	Yes	Yes	
<b>Thailand</b>	Yes		
<b>Vietnam</b>	Yes	Yes	Yes

Overall, the crucial issues in PPP implementation are very much related with the host country's regulatory framework and the capacity of the government to manage and lead the project execution. ERIA's studies in ASEAN implementation of PPP have confirmed the following key points:

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- Sufficient and coherent regulatory to provide investors with adequate confidence level and proper access to respond accordingly. Low risk perception will bring lower costs offered by private entities, thus will benefit the host country.
- A strong and capable public sector, to lead the whole process and ensure fair risks sharing and competition.
- A sufficient mechanism to provide inexpensive ways to channel the funds, access to financial sources, dispute settlements, and refinance the project. If the country's capital market is not mature enough to provide the above financial functions, the access to regional/foreign capital markets and good mechanism to utilize relevant products will also work. An efficient and inexpensive dispute settlement is equally important.

### Box 2- PPP Experiences in SEA

- **Indonesia:** Unequal infrastructure development across regions, recent progress on regulatory development, good practices on managing contingent liabilities (fiscal discipline), multi-tier government in handling PPP.
- **Philippines:** progressive implementation of PPP in both hard and social infrastructure, championship of inter-departmental coordination, strong support from the President, multi-tier government in handling PPP, quite substantial use of external support.
- **Malaysia:** clear objectives of national development, still unclear framework of infrastructure financing, utilizing bonds to finance infrastructure development.
- **Thailand:** lessons from over estimated revenue of PPP projects, managing risk allocation, new PPP law: hope for better framework, list of project, and PPP committee.
- **Singapore:** dual roles of public sector both as regulator and operator have weakened interests in PPP, efficient public sector, no project list for PPP, no champion for PPP outside MOF, PPP as part of procurements under Best Outsourcing framework.
- **Brunei:** small population, abundant oil and gas revenue in the long term has reduced the needs of strong private sector, applying limited PPP.
- **Cambodia:** lacking fiscal resources, low capacity, lacking regulatory framework, and challenging fiscal sustainability, increasing role of private participation, good progress in managing debt, improving credibility before international donors.
- **Lao PDR:** lacking fiscal resources, low capacity, lacking regulatory framework, and challenging fiscal sustainability, problem with managing debt, no credit rating, undiversified sector of private sector participation (focus on hydropower), inappropriate financing mechanism has led to macroeconomic instability.
- **Viet Nam:** Macroeconomic instability, high inflation, price volatility lead to higher risks for projects of infrastructure, high debt makes difficult to increase borrowing even on concessional terms, new PPP Decree was introduced to promote private investment in infrastructure but the results seem to be limited(\*).
- **Myanmar:** lacking fiscal resources, low capacity, lacking regulatory framework, and challenging fiscal sustainability, no credit rating, heavily dependent on ODA. As new emerging economy with quite large population and area, Myanmar has the potential to attract investment and support from international community.

Source: ERIA, *Financing Asean Connectivity Report*, 2014.

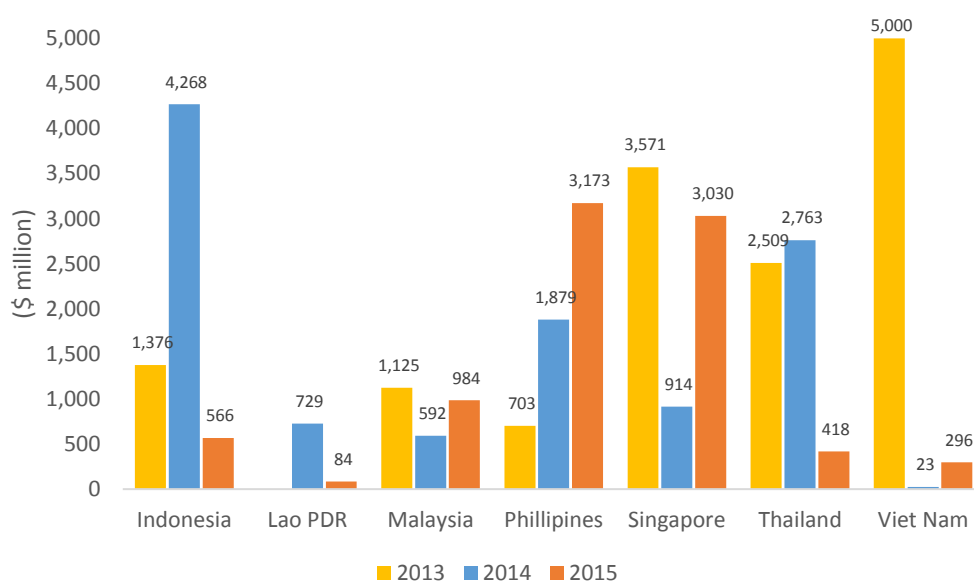
(\*) Noted by Author



### 3.4.3 Project Financing

To contribute to infrastructure development, the private sector has to access financing. However, domestic markets provide limited opportunities to source project finance in some SEA countries. Malaysia, Indonesia, Singapore and Thailand meet the criteria of mature financial markets but originate only minor levels of infrastructure finance loans. The rest of SEA countries (Brunei, Cambodia, Lao PDR, Myanmar, Viet Nam) have capital markets in transition and rely mostly on foreign-sourced debts. This group of countries will require more time to develop the depth and diversity of financial services needed for infrastructure finance.

Figure 17- Project Finance Loans - SEA, 2013-2015



Source: PFI League Table, [www.Reuters.com](http://www.Reuters.com)

### 3.5. Tapping Capital Markets

Capital markets in the region are different level of development. Broadly, the individual markets fall into four “categories”:

- **Financial Hub (Singapore):** With a freely convertible currency, favorable taxation regime, and established legal and financial infrastructure, Singapore is a capital markets hub within SEA as well as Asia. The domestic market features a wide range of products and participants, and the off-shore market has the critical scale in terms of participants, infrastructure and assets under management.
- **Established domestic markets (Malaysia, Thailand):** The domestic markets of Malaysia and Thailand maintain a broad base of local issuers and investors, with domestic institutions achieving scale. Malaysia maintains regional leadership in Sharia-compliant products and a robust fixed income market. However, both countries lack significant OTC derivative activity. Foreign investors have considerable access the markets although restrictions remain with listed company ownership quotas (both countries) and capital controls (Thailand).
- **Emerging domestic markets (Indonesia, Philippines):** Indonesia and the Philippines share fast growth across listed equity and fixed income markets. However, concentrated domestic issuer and investor bases lead to lower levels of participation and capitalization than the “established” SEA markets. Domestic institutional investors are emerging, and minimal capital controls create a positive environment for foreign investors. At this developmental stage, product demand remains concentrated in “basic” equity and bond products, with limited derivatives activity.
- **Nascent markets (Brunei, Cambodia, Laos, Myanmar, and Viet Nam):** The remaining markets of SEA feature capital markets at the early stages of development. Infrastructure regulatory frameworks are currently being established, and domestic investment institutions are of small scale. Brunei aside, capital controls limit the role of foreign investors in these markets.

Among SEA’s LCY infrastructure bond issuers, the most active are in Malaysia, with an amount of bonds outstanding of \$22.6 billion for key issuers (Appendix 1). The issuer base comes mostly from the transport and utilities sectors. Thailand’s issuers are a distant second, with outstanding bonds at around \$7 billion, concentrated in the energy and utilities sector.

The global stock of capital managed by pension funds, sovereign wealth funds, insurance companies and other institutional investors is \$50 trillion out of which only 0.8% is allocated to infrastructure.<sup>21</sup> In SEA, it is estimated that \$10 trillion of funds could be tapped for infrastructure investment (Table 13). SEA has huge savings surpluses which are generally owned by private individuals and businesses, whose investment decisions are based on risk and return. Moreover, much of the savings are invested in real estate or the stock market. To channel these savings into ‘bankable’ infrastructure investments and attract private investment, there is a need to develop the

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<sup>21</sup> “The trillion- dollar gap”, The Economist (22 March 2014)

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domestic financial markets, in particularly a strong bond market, along with appropriate financial instruments.

**Table 13 - Stock of Capital in SEA**

Type of resources	Year	Amount (\$ billion)	Source
ASEAN Bond Markets	2015	1,081	Asian Development Bank Bond Monitoring. Based on second-quarter 2015 bond markets data of Indonesia (\$125 billion), Malaysia (\$285 billion), Philippines (\$103 billion), Singapore (\$241 billion), Thailand (\$284 billion) and Viet Nam (\$43 billion).
ASEAN Stock Exchanges	2015	2,002	World Federation of Exchanges. Based on stock exchange market capitalization in August 2015 of Indonesia (\$334 billion), Malaysia (\$363 billion), Philippines (\$243 billion), Singapore (\$639 billion), Thailand (\$373 billion) and Viet Nam (\$50 billion).
ASEAN Infrastructure Companies (Total assets)	2014	1,567	Orbis. Covers construction, real estate, utilities and telecommunication companies. Based on 3,319 infrastructure companies with reported financial data; of which 3,030 domestic infrastructure companies with combined total assets of \$1.45 trillion and 289 foreign construction companies operating in ASEAN with \$117 billion. Information for some companies was based on 2012 data (latest year for which data are available).
ASEAN Banks (Total assets)	2014	4,619	Orbis. - Based on 477 banks with reported \$4,619 billion total assets, with operations in ASEAN, of which 338 are domestic and 139 foreign owned. Domestic banks collectively held \$4 trillion, and foreign bank subsidiaries owned \$619 billion in total assets. Information for some companies was based on 2012 data (latest year for which data are available).
ASEAN Insurance Companies (Total assets)	2014	504	Orbis. Based on data for 278 domestically owned insurance companies and 118 foreign-owned companies operating in ASEAN. Total assets of domestic insurance companies were \$340 billion, and foreign-owned subsidiaries held \$164 billion. Information for some companies was based on 2012 data (latest year for which data are available).
ASEAN Pension Funds (Total assets)	2014	38	Orbis. Based on data for 222 pension fund companies with reported financial data, of which 176 domestic companies held total assets of \$31 billion and 36 foreign ones operating in ASEAN held \$7 billion. Information for some companies was based on 2012 data (latest year for which data are available).
Gross domestic saving	2014	820	World Bank. Exclude data on Myanmar.
Foreign-exchange reserves	2014/2015	750	IMF: Data for Indonesia, Malaysia, Philippines, Singapore and Thailand reported in August 2015. World Bank: Data for Brunei Darussalam, Cambodia, Lao PDR, Myanmar and Viet Nam based on 2014 data and for Myanmar on 2012 data.
Sovereign wealth fund	2014	620	Sovereign Wealth Fund Institute: Based on December 2014 data for Brunei Investment Agency (Brunei Darussalam), Government Investment Unit (Indonesia), Khazanah Nasional (Malaysia), GIC Private Limited (Singapore), Temasek (Singapore) and Vietnam's State Capital Investment Corporation (Viet Nam).

Source: Asean Investment Report 2015, Infrastructure Investment and Connectivity.

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Developing capital markets has been progressed in SEA to channel capital flow for infrastructure investment. Some good examples from SEA countries are:

- Regulatory initiatives for the development of local capital markets: Indonesia, Malaysia, and Thailand issue periodic Capital Markets Master Plans (CMMP) to build consensus around policy and legal reforms against a fixed timeline, while Singapore has an explicit target of developing an international financial center.
- Institutional investor regulation: Indonesia, the Philippines and Thailand are enhancing national healthcare and pension schemes, creating sizable domestic asset management institutions with the potential to act as “cornerstone” investors in local markets. Furthermore, as domestic insurers across ASEAN slowly liberalize asset allocation guidelines it is expected these institutions to play larger roles in domestic equity and corporate debt markets across the region.
- Solutions to incentivize the private sector for investing long-term in the SEA countries will be important. This includes mechanisms such as infrastructure guarantee funds (similar to that which Indonesia has established), transparency on foreign investors operating in a country, and domestic bond market development (e.g., Malaysia has enabled project companies to raise bonds for their infrastructure projects).

## **4. Conclusion**

The SEA sub-region’s infrastructure investment requirements are huge and public resources limited. In that context, countries have to carefully design financing strategies in order to fill the existing gaps and meet future demand. These strategies will, however, differ according to the macroeconomic and capital market conditions of each country.

Less developed economies such as Cambodia, Laos and Myanmar are likely to rely on multilateral development banks and ODA. Similarly, in the Philippines and Viet Nam, government financing and multilateral agencies may lead the way although the private sector is likely to play a growing role. Malaysia and Thailand have been increasingly tapping capital markets and they are expected to employ various methods of government financing as well as commercial bank loans and capital market options.

To address the infrastructure financing challenges in the region, all the different strategies presented will though be necessary and governments should call on development partners to assist them in taking forward this agenda.

## Appendix

### Appendix 1: Bond Issuance by Infrastructure Companies in SEA

Country	Issuers	LCY Bonds (\$ billion)	SOE	Listed	Industry
Singapore	Land Transport Authority	2.5	Yes	No	Transportation
	Neptune Orient Lines	0.9	No	Yes	Transportation
	Singapore Airlines	0.7	No	Yes	Transportation
	SMRT Capital	0.6	No	No	Transportation
	<b>Sub-total</b>	<b>4.7</b>			
Malaysia	Prasarana	5	Yes	No	Transport, Storage, and Communications
	Pengurusan Air	3.3	Yes	No	Energy, Gas, and Water
	Sarawak	2.3	Yes	No	Energy, Gas, and Water
	Jimah East Power	2.2	Yes	No	Energy, Gas, and Water
	Sarawak Hidro	1.6	Yes	No	Energy, Gas, and Water
	Turus Pesawat	1.3	Yes	No	Transport, Storage, and Communications
	BGSM Management	1.2	No	No	Transport, Storage, and Communications
	Manjung Island Energy	1.2	No	No	Energy, Gas, and Water
	YTL Power International	1.2	No	Yes	Energy, Gas, and Water
	Jambatan Kedua	1.1	Yes	No	Transport, Storage, and Communications
	Celcom Networks	1.1	No	No	Transport, Storage, and Communications
	Malakoff Power	1.1	No	No	Energy, Gas, and Water
	<b>Sub-total</b>	<b>22.6</b>			
Thailand	Thai Airways International	1.6	Yes	Yes	Transportation and Logistics
	True Corp	1.1	No	Yes	Communications
	True Move H Universal Communication	1	No	No	Energy and Utilities
	PTT Exploration and Production Company	0.9	Yes	Yes	Communications
	Advanced Wireless	0.9	No	Yes	Energy and Utilities
	Thai Oil	0.8	Yes	Yes	Energy and Utilities
	Glow Energy	0.7	No	Yes	Energy and Utilities
	<b>Sub-total</b>	<b>7</b>			
Indonesia	Indosat	1.11	No	Yes	Telecommunications
	PLN	0.9	Yes	No	Energy
	Telekomunikasi Indonesia	0.69	Yes	Yes	Telecommunications
	Medco-Energi International	0.36	No	Yes	Petroleum and Natural Gas
	Jasa Marga	0.35	Yes	Yes	Toll Roads, Airports, and Harbors
	<b>Sub-total</b>	<b>3.41</b>			
Philippines	Meralco	0.5	No	Yes	Electricity, Energy, and Power
	South Luzon Tollway	0.4	No	No	Transport
	Globe Telecom	0.4	No	Yes	Telecommunications
	Maynilad Water Services	0.3	No	No	Water and Wastewater Services

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Country	Issuers	LCY Bonds (\$ billion)	SOE	Listed	Industry
	Philippine Long Distance Telephone Company	0.3	No	Yes	Telecommunications
	SMC Global Power	0.3	No	No	Electricity, Energy, and Power
	Manila North Tollways	0.2	No	No	Transport
	MTD Manila Expressway	0.2	No	No	Transport
	Energy Development Corporation	0.2	No	Yes	Electricity, Energy, and Power
	Aboitiz Power	0.2	No	Yes	Electricity, Energy, and Power
	<b>Sub-total</b>	<b>3</b>			
Viet Nam	Ho Chi Minh City Infrastructure	0.09	No	Yes	Infrastructure
	<b>Sub-total</b>	<b>0.09</b>			
<b>TOTAL</b>		<b>40.8</b>			

Source: AsianBondsOnline, Data as December of 2016 and Author's Research and Analysis.

## Appendix 2: Summary of PPP Framework/Experience in SEA countries

Country	Policy Framework	Legal Framework	PPP Government Agency	Guidelines	Government Financial Support	Land Acquisition	Implemented Projects	Pipeline New Projects
<b>Brunei</b>	Limited PPP specific policies	No specific PPP laws	No specific PPP agency	Guidelines for Government Procurement	No developed regime beyond subsidiaries	Limited government support	Several ICT and airport projects	Limited
<b>Cambodia</b>	Limited PPP specific policies	No specific PPP laws	No specific PPP agency	Procurement manual ( but not specific PPP)	No developed regime	Limited government support	Mainly in the power sector and airport concessions	Limited
<b>Indonesia</b>	Set out in Economic Master Plan and PPP book	Several specific PPP laws and regulations	Bappenas and some other bodies play each role	PPP Investor's Guide and PPP Book (published annually)	Guarantees (through IIGF and VGF)	A various forms of Land Funds or related laws	Several water and power projects currently in procurement	27 projects set out in 2013 PPP Book, mainly in the transport, water, waste and power sectors
<b>Lao PDR</b>	Limited PPP specific policies	No specific PPP laws (foreign investment laws provide a basic framework)	No specific PPP agency	General investment guidebook from Ministry of Planning and Investment	No developed regime beyond general tax incentives	Limited government support	Mainly in the hydropower sector	Limited (proposed national road, 13 PPP, social infrastructure projects)
<b>Malaysia</b>	Mainly set out in Privatization Policy and 2009 PPP Guideline	No specific PPP laws	3PU (UKAS)	PPP Guideline (2009)	Limited government support (Facilitation Fund in place for purely private initiatives)	Federal State Authority can acquire private land	Several road projects in early 2000s (using BOT structure)	Some projects in procurement. 52 projects proposed in 10 <sup>th</sup> Malaysia Plan (2010)
<b>Myanmar</b>	Limited PPP specific policies. Some infrastructure policies in National Comprehensive Development Plan	No specific PPP laws (new foreign investment laws provide a basic framework)	No specific PPP agency	No published PPP Guidelines	No developed regime	Limited government support	Several airport and power projects in procurement	Limited (several airport PPPs are in procurement (Hanthawaddy, Mandalay, Yangon))
<b>Philippines</b>	Philippines Development Plan by National Economic and Development Authority	Republic Acts developed from BOT framework and their Implementing Rules and Regulations	PPP Center	PPP Manual and Sector Guidelines published by PPP Center	Project Development and Monitoring Facility, PPP Strategic Fund	Strategic Fund was established to support Right- of- Way (ROW) acquisition	Airport, Expressway, school infrastructure	37 projects of Airport, railway, social infrastructure projects are ongoing (As of 10 July 2014)
<b>Singapore</b>	Limited overall framework for PPP. Some policies set out in . PPP Handbook	No specific PPP laws	MOF has overall responsibility (but not specific to PPP)	PPP Handbook published by MOF	Limited government support, Refinancing guarantee provided on Sports Hub PPP (2010)	Compulsory acquisition is possible	Several in water and social infrastructure projects from mid-2000s to present	Limited (water and waste projects currently in procurement)
<b>Thailand</b>	General policies to increase	PPP law- Private Investment in	PPP Committee in the key	No published	No developed regime	Government has the responsibility	Some transport projects	Being developed, but likely to

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	spending on infrastructure and develop PPP regime	State Undertaking Act 2013	agency for PPP supported by State Enterprise Policy Office	PPP Guidelines		for land acquisition	structured as BOT concessions	focus on transport 9esp. road and rail)
<b>Viet Nam</b>	Policies to develop pilot PPP projects and establishment of Project Development Facility (PDF)	PPP Decree	PPP Steering Committee and PPP office in Ministry of Planning and Investment	No published PPP Guidelines	Government guarantees have been provided on BOT power projects	Limited government support	Several BOT projects in power sector	108 PPP projects with national and provincial priorities

Source: ERIA, ASEAN Public Private Partnership Guidelines (As of July 2014).

Note: Viet Nam updated by the Author.



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