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# Issues Affecting the Increased Use of Public-Private Partnerships (PPPs) in Infrastructure Development in Asia

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## Summary

1. The acceleration of infrastructure development is a priority in Asia, and massive investment will be needed. Because government funding is limited, Asian countries need to involve the private sector in infrastructure development as much as possible through increased use of the public-private partnership (PPP) approach. However, infrastructure investment involves various risks, and many challenges must be overcome in order to increase the amount of private sector funding.
2. All ASEAN members aim to expand the use of PPPs and have accelerated the development of related laws, regulations and institutions, especially over the past few years. However, governments and government agencies, such as government-owned companies that carry out infrastructure projects, export credit agencies, and sovereign wealth funds, still play a major role. Another factor is disparity in the level of financial development in each country. For example, while large amounts of project bonds are issued in Malaysia, most project finance in other countries is provided by banks.
3. In November 2015, the Japanese government announced specific measures to speed up its infrastructure development activities in Asia as a follow-up to the “Partnership for Quality Infrastructure” program. This led in January 2016 to the establishment of the Asia Pacific Project Preparation Facility (AP3F) within the Asian Development Bank with contributions from Japan and other countries. This facility will be used to strengthen PPP initiatives.
4. To attract private capital into infrastructure development, it will be necessary to make projects “bankable” (suitable for private funding) by lowering project costs, increasing returns and reducing project risks. To achieve this, laws, regulations and agreements have to be enforced certainly. For that purpose, capacity building regarding PPP investment is essential, and it is also necessary to improve governance of the governments by such measures as establishing PPP centers and strengthening their functions, and so on. Furthermore, various risk mitigation measures, such as debt repayment guarantees, should be used without causing moral hazards. Multilateral development banks (MDBs) also have an extremely important role to play in promoting the PPP approach.
5. To access private sector funding in the countries where infrastructure is located, those countries will also need to improve their domestic financial systems. A particular priority is the expansion of long-term financing mechanisms through bond market development and the cultivation of institutional investors. Efforts in these areas can be expected to lead to the creation of project bond markets. Another effective way to facilitate investment by institutional investors is the expansion of infrastructure funds.
6. Because the scope for using domestic private sector funds is limited at present, the countries concerned need to attract investment from developed countries, including Japan, within and beyond the region. A number of steps can be taken to speed up investment inflows, including information-sharing and educational activities targeting institutional investors, the reduction of investment risk and creation of instruments suitable for investment, and the reduction of barriers to cross-border investment. In addition to providing support for the improvement of PPP-related legal and regulatory systems and institutions in Asian countries, the Japanese government should also provide financial assistance themselves and consider measures to expand investment by Japanese institutional investors.

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## Introduction

Asia needs enormous amounts of investment to meet its need for accelerated infrastructure development. Infrastructure development involves large-scale projects with long construction periods, and cash flows are generated over long periods starting after completion. There are also various risks relating to construction, operation and other aspects. These factors are reflected in the difficulty of infrastructure project financing, and in a global shortage of infrastructure investment capital. Risk levels are especially high with infrastructure projects in developing countries, because of political and economic instability, immature systems and institutions, and other factors.

Because of these difficulties, and because infrastructure is essentially a public good, projects are basically financed using public funds. Projects funded from fiscal resources are not required to be profitable in business terms. However, fiscal resources are limited, and when government funds are used there is also tendency to neglect efficiency, as well as a heightened risk that the resulting infrastructure will be either useless or inefficient from an economic perspective. For example, infrastructure may be oversized or built in non-optimal locations.

For these reasons, there should be as much private sector involvement in infrastructure development as possible, and there has been a trend towards the expansion of public-private partnerships (PPPs) since the 1980s. Areas that are seen as especially suitable for private sector involvement in construction, operation and maintenance include toll roads, power stations and railroads<sup>(1)</sup>.

This article focuses on the promotion of PPP investment as one of the most important means of expanding infrastructure financing. Banks are major lenders of debt capital for PPP projects, but European banks in particular have downsized their business in this area because of their worsening financial positions since the 2008 global financial crisis. As a result, the total amount of project finance has tended to stagnate. In addition, reform measures regarding the international regulation of

banking, and in particular the adoption of Basel III, are expected to constrain the capacity of banks to supply long-term capital. This means that bank lending as a form of infrastructure finance cannot be expected to expand steadily, and that new sources of supply for private sector capital, such as institutional investors and individual investors, will need to be expanded. The purpose of this article is to consider the policies needed, especially for the expansion of PPPs.

This article is structured as follows. Part 1 provides a brief analysis of the significance and current status of infrastructure development in Asia and also touches on the characteristics of infrastructure assets and the infrastructure financing methods used. Part 2 consists of an outline of the ongoing debate regarding the required amount of infrastructure investment in Asia and the world, an analysis of the financing methods used in Asia today, and a description of infrastructure financing in the ASEAN-5 countries (Indonesia, Malaysia, the Philippines, Thailand and Vietnam). Part 3 examines the progress that is being made under Japan's "Partnership for Quality Infrastructure" strategy, and the role of PPP initiatives in that strategy. Part 4 provides an analysis of various characteristics of PPP investment, including its advantages and the players involved, together with a observations regarding trends in the development of related institutions in the ASEAN countries, and a detailed study of the measures being taken to make projects "bankable" (suitable for the provision of capital by the private sector). Part 5 explains why the development of domestic financial systems is vital to expansion of PPP investment and considers various approaches to this task, including the creation of project bond markets and the development of institutional investors. Part 6 looks at the vital role played by capital from developed countries within and outside of the region, as well as expectations toward investment from Japan.

Many obstacles will need to be overcome in Asia. For example, legal frameworks and institutions for PPP investment are still at the development stage, while the high level of risk increases the difficulty of finding investors. In addition, ac-

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cess to domestic capital is limited by the immaturity of domestic financial systems. Given the long-term nature of infrastructure investment, the development of financial systems will need to include the enhancement and expansion of long-term financing tools through the development of institutional investors and bond markets. In addition, the Japanese government will need to strengthen its support for the development of PPP-related legal systems and institutions in Asian countries, and to consider ways to expand the supply not only of official capital, but also capital from Japanese institutional investors.

## **1. Significance and Current Status of Infrastructure Development in Asia**

### **(1) Significance of Infrastructure Development, Current Trends**

In Asia, infrastructure development has not only accelerated and sustained economic growth, but has also helped to make growth more inclusive. Many researchers have observed that infrastructure has been developed to support the creation of production networks, that infrastructure investment has boosted domestic demand, and that the development of roads, electric power systems and other infrastructure has played a major role in poverty reduction.

From a more general perspective, infrastructure development appears to accelerate economic growth through improvements in labor productivity and the reduction of production and transaction costs. Research findings relating to China and the Philippines show that infrastructure development has contributed to economic growth<sup>(2)</sup>. With the fall in China's growth rate in recent years, ASEAN members and other countries urgently need to find new pathways to growth, including productivity improvement and the development of new industries. Infrastructure development is also an

important priority for these reasons. The achievement of inclusive growth through the reduction of income inequality is also an important goal, and there have been calls for continuing infrastructure development in regions affected by infrastructure inadequacies.

With the progress of regional economic integration, there is also growing interest in the role of infrastructure development in the improvement of intra-regional connectivity. This type of infrastructure development yields several benefits. First, the cost of intra-regional trade can be reduced. Second, poverty within Asian countries can be reduced, and development gaps among Asian countries can be narrowed. Third, development promotes more efficient use of local natural resources. Fourth, it becomes possible as a result of these changes to ensure inclusive and environmentally sustainable economic growth. Fifth, infrastructure development contributes to the creation of a single Asian market<sup>(3)</sup>.

Although infrastructure development in Asia has proceeded steadily over the past 20-30 years, there are still major development needs. Infrastructure levels vary from country to country, and while some Asian countries have world-class infrastructure, the average level of infrastructure development in the region is not high (Table 1).

Malaysia, Singapore, Japan and South Korea are among the top 20 countries in terms of overall infrastructure quality, but the other ASEAN countries and India are ranked 70th or lower, indicating that there are still substantial infrastructure development needs. For example, less than 80% of people in Indonesia, the Philippines, Cambodia, Laos, Myanmar and India have access to electricity, and particularly in Cambodia and Myanmar, the ratio is only a little more than 30%. Myanmar has lagged conspicuously in terms of overall infrastructure quality.

**Table 1 Quality of Infrastructure in Asian Countries**

	Overall infrastructure quality	(Rank)	Quality of roads	Quality of railroad infrastructure	Quality of port infrastructure	Quality of airports	Quality of electricity supply	Per capita electricity consumption (kWh, 2011)	% of population with access to electricity (2012)	Mobile telephones per 100 people	Fixed telephones lines per 100 people
Indonesia	3.8	81	3.7	3.6	3.8	4.4	4.1	680	76	126.2	11.7
Malaysia	5.6	16	5.7	5.1	5.6	5.7	5.8	4,246	100	148.8	14.6
Philippines	3.3	106	3.3	2.2	3.2	3.7	4.0	647	70	111.2	3.1
Singapore	6.4	4	6.2	5.7	6.7	6.8	6.7	8,404	100	158.1	35.5
Thailand	4.0	71	4.4	2.4	4.5	5.1	5.2	2,316	99	144.4	8.5
Cambodia	3.4	102	3.3	1.6	3.7	3.7	3.1	164	34	155.1	2.8
Laos	3.9	78	3.6	n.a.	2.2	3.8	4.7	n.a.	78	67.0	13.4
Myanmar	2.4	135	2.3	1.8	2.6	2.6	2.7	110	32	49.5	1.0
Vietnam	3.5	99	3.3	3.2	3.9	4.2	4.1	1,073	96	147.1	6.0
China	4.5	51	4.7	5.0	4.5	4.8	5.3	3,298	100	92.3	17.9
Japan	6.2	7	6.0	6.7	5.4	5.6	6.4	7,848	n.a.	120.2	50.1
South Korea	5.6	20	5.6	5.6	5.2	5.5	5.7	10,162	n.a.	115.5	59.5
India	4.0	74	4.1	4.1	4.2	4.3	3.7	684	75	74.5	2.1

Notes: Infrastructure quality is scored from 1 to 7, a higher figure indicating higher quality. Items with scores below 4 are shaded.  
Source: World Economic Forum, *The Global Competitiveness Report 2015-2016*, UNESCAP[2015], p.13

## (2) Infrastructure Asset Characteristics and Financing Methods

As noted at the start of this article, infrastructure financing is difficult. We will explore this aspect in greater depth by looking at some of the characteristics of infrastructure assets<sup>(4)</sup>.

First, infrastructure assets are very heterogeneous. Moreover, complex legal frameworks are needed to ensure the appropriate apportionment of profits and risks among the various stakeholders. For these reasons, the liquidity of infrastructure assets is low. Second, risk is difficult to monitor and manage because of the enormous amounts of capital required, especially for initial costs, because of the poor liquidity of the assets, and because of the long periods over which they are used. While infrastructure assets do not initially produce revenue, they generate stable cash flows

once the operating stage is reached. However, government involvement is needed to realize the investment value of facilities for which no usage charges are levied. Third, natural monopolies are created with some types of infrastructure, such as expressways and water supply systems, because they have economies of scale. It is difficult to quantify social benefits provided by such infrastructure items, and it may not be easy to decide usage charges. Fourth, infrastructure projects and the PPP model tend to lack transparency because of their diversity. This can lead to uncertainty because investors are unable to obtain the information needed to assess the risks involved. In addition, there are no investment performance benchmarks. All of these factors heighten the risks involved in infrastructure finance.

This information deficit and the long-term nature of investment are both obstacles to private sector participation. If a risk-return profile com-

mensurate with the expectations and liability structures of investors cannot be achieved, government intervention may be the only option. However, this can lead to moral hazards and market distortions. These issues need to be reflected in policies as early as possible. Risk mitigation measures must be designed to achieve a balance between benefits and costs, and they should be provided as a complement to a market-based approach to infrastructure funding.

Sources of infrastructure finance can be broadly categorized between government and private sector capital, and between domestic and external sources. They can also be categorized based on the nature of the money into debt or equity capital (Table 2).

Official funding can be divided into ① expenditure from government budgets, ② expenditure by government agencies, such as state-owned enterprises involved in infrastructure projects, export credit agencies (ECAs) and sovereign wealth funds (SWFs), and ③ funding from multilateral development banks (MDBs). On the other hand, private sector funding can be categorized into ① bank loans, and ② funds provided by institutional investors through investment in infrastructure funds and project bonds. These types of investors are generally referred to as “financial investors”, while those with a deep involvement in projects, such as infrastructure-related companies, trading companies and engineering companies, are known as “strategic investors.” Strategic investors are not

the primary focus of the analysis in this article.

## 2. Infrastructure Finance in Asia Today

### (1) Infrastructure Investment Needs

#### ① Investment Required for Domestic Infrastructure Development in Asia

In this section we will look at the overall picture of infrastructure finance in Asia. According to estimates in Bhattacharyay [2010], which is based on a survey of 32 developing countries that are members of the Asian Development Bank, investment totaling \$8.22 trillion, or \$747 billion per year, will be needed between 2010 and 2020. New investment accounts for 68% of this total, and replacement investment for 32%. The electric power sector accounts for 49% overall, followed by transportation at 35%, telecommunications at 13%, and water and sanitation at 3% (Table 3)<sup>(5)</sup>. These figures indicate that electric power and transportation are especially important sectors. Moreover, roads account for the majority of investment in the transportation sector.

A regional breakdown shows that East and Southeast Asia account for 66.6% of total investment needs, followed by South Asia at 28.8%,

**Table 2 Infrastructure Financing Options**

	Domestic Funds	Foreign Funds
Debt	Domestic commercial banks	International commercial banks
	Domestic long-term credit institutions	Export Credit Agencies
	Domestic bond markets	International bond markets
	Infrastructure bond market	MDBs and agencies
Equity	Domestic investors	Foreign investors
	Public utilities	Equipment suppliers
	Government funds	Infrastructure funds
	Institutional investors	Other international equity investors

Source: ADB and ADBI [2015], p.151

**Table 3 National Infrastructure Investment Needs by Sub-region and Sector (2010-2020, 2008 dollars)**

(US\$billions, %)

Sector	East/ Southeast Asia	South Asia	Central Asia	Pacific	Total	Ratio
<b>Electric power</b>	3,182.46	653.67	167.16	-	4,003.29	48.7
<b>Transportation</b>	1,593.87	1,196.12	104.48	4.41	2,898.87	35.3
Airports	57.73	5.07	1.41	0.10	64.31	0.8
Ports	215.20	36.08	5.38	-	256.65	3.1
Rail	16.14	12.78	6.03	0.00	34.95	0.4
Roads	1,304.80	1,142.20	91.65	4.31	2,542.97	30.9
<b>Telecommunications</b>	524.75	435.62	78.62	1.11	1,040.10	12.6
Telephones	142.91	6.46	4.45	0.05	153.87	1.9
Mobiles	339.05	415.87	71.97	0.95	827.84	10.1
Broadband	42.78	13.29	2.21	0.11	58.39	0.7
<b>Water and sanitation</b>	171.25	85.09	23.40	0.51	280.24	3.4
Water	58.37	46.12	8.60	0.14	113.22	1.4
Sanitation	112.88	38.97	14.80	0.36	167.02	2.0
<b>Total</b>	5,472.33	2,370.50	373.66	6.02	8,222.50	100.0
Ratio	66.6	28.8	4.5	0.1	100.0	

Source: Bhattacharyay [2010], p.13

Central Asia at 4.5%, and the Pacific at 0.1%. The combined share of East, Southeast and South Asia amounts to 95.4%. Investment needs are also concentrated in certain individual countries. The top three are China, India and Indonesia, which account for 53.1%, 26.4% and 5.5% respectively of the total amount of investment needed (Table 4). We are frequently told that Asian infrastructure investment demand will total around \$8 trillion over the next 11 years. Significantly, if China and India are excluded, this total falls to \$1.68 trillion.

A sector breakdown of each country's infrastructure investment needs shows that electric power has the biggest share in China and overall, but in many other countries transportation accounts for the largest share (Table 5). Telecommunications also attracts a significant share in some countries. There is a strong need for telecommunications infrastructure in some less developed countries, such as the CLMV group, and in some South Asian countries. In the case of Nepal, the telecommunications sector accounts for 60.6% of total infrastructure investment needs. Myanmar stands out for the high concentration of invest-

ment needs in the water/sanitation sector.

Kaga [2013] groups Asian countries in terms of the extent of business opportunities for Japanese companies, with particular emphasis on market size, competing domestic companies, and the level of development of PPP systems. On this basis, Indonesia and Vietnam form the first group, the Philippines, Thailand, Malaysia and India the second, Mongolia, Cambodia, Laos, Myanmar and Bangladesh the third, China, Taiwan, South Korea the fourth, and Hong Kong and Singapore the fifth<sup>(6)</sup>. Indonesia and Vietnam are seen as especially promising markets because their infrastructure needs are strong, rival domestic companies are still at the emergent stage, and PPP systems are being developed.

## ② The Global Infrastructure Finance Situation

According to Bhattacharya and Romani [2013], developing countries will need a total of \$1.8-2.3 trillion of infrastructure investment per year over the next 10 years. However, the actual amount of investment at present is only \$0.8-0.9 trillion,

**Table 4 National Infrastructure Investment Needs by Country (2010-2020, 2008 dollars)**

(US\$billions, %)

Region	Investment needs	Share	% of GDP	Region	Investment needs	Share	% of GDP
<b>East/Southeast Asia</b>	5,472,327	66.6	5.54	<b>Central Asia</b>	373,657	4.5	6.64
China	4,367,642	53.1	5.39	Afghanistan	26,142	0.3	11.92
Indonesia	450,304	5.5	6.18	Armenia	4,179	0.1	3.46
Malaysia	188,084	2.3	6.68	Azerbaijan	28,317	0.3	4.97
Philippines	127,122	1.5	6.04	Georgia	4,901	0.1	3.14
Thailand	172,907	2.1	4.91	Kazakhstan	69,538	0.8	3.77
Cambodia	13,364	0.2	8.71	Kyrgyz	8,789	0.1	13.29
Laos	11,375	0.1	13.61	Pakistan	178,558	2.2	8.27
Myanmar	21,698	0.3	6.04	Tajikstan	11,468	0.1	16.21
Vietnam	109,761	1.3	8.12	Uzbekistan	41,764	0.5	9.82
Mongolia	10,069	0.1	13.45	<b>Pacific</b>	6,023	0.1	3.55
<b>South Asia</b>	2,370,497	28.8	11.00	<b>Total</b>	8,222,503	100.0	6.52
India	2,172,469	26.4	11.12				
Bangladesh	144,903	1.8	11.56				
Bhutan	886	0.0	4.07				
Nepal	14,330	0.2	8.48				
Sri Lanka	37,908	0.5	6.85				

Source: Bhattacharyay [2010], p.12, p.15

**Table 5 Sector Distribution of National Infrastructure Investment Needs**

(%)

	Electric power	Transportation	Tele-communications	Water, sanitation
<b>East/Southeast Asia</b>	58.1	29.1	9.6	3.1
China	63.5	25.8	8.2	2.4
Indonesia	15.9	62.8	15.7	5.7
Malaysia	66.2	29.0	4.0	0.6
Philippines	31.0	38.1	20.2	10.8
Thailand	75.2	11.8	9.2	3.9
Cambodia	10.9	50.9	34.1	4.1
Laos	0.0	78.0	17.6	4.4
Myanmar	0.0	44.7	24.2	31.1
Vietnam	38.4	25.5	29.3	6.7
Mongolia	0.0	89.5	9.0	1.6
<b>South Asia</b>	27.5	50.5	18.4	3.5
India	29.0	51.0	16.8	3.1
Bangladesh	10.7	42.6	36.5	10.3
Bhutan	0.0	69.8	21.4	8.8
Nepal	6.8	19.5	60.6	13.0
Sri Lanka	14.6	61.8	20.3	3.2

Notes: The highest-ratio sector of each country is shaded.

Source: Calculated from the Table on Bhattacharyay [2010], p.15

leaving a gap of around \$1 trillion.

Table 6 provides a breakdown of actual investment at present. If we take the median figure of annual expenditure for each financing source and disregard “other official funds,” annual expenditure consists of 69% from “government budgets,” 6% from “ODA or MDBs,” and 25% from “private sector funds.” Das and James [2013] states, “In general, public financing accounts for nearly 70% of infrastructure financing with just 20% coming from the private sector and the remaining 10% financed through ODA.”

In addition, according to Arezki et al. [2016], there is a world infrastructure investment deficit of \$1.0-1.5 trillion dollars per year<sup>(7)</sup>. As stated earlier, Asia’s investment needs are estimated at \$747 billion per year, and part of that amount is included in this world infrastructure investment gap. According to estimates in Bhattacharya and Romani [2013], investment will need to double or more to fill this gap, while research findings in Arezki et al. [2016] indicate that an increase of almost 60% will be needed.

Table 4 shows the investment needs of Asian countries as percentages of GDP. According to Arezki, et al. [2016], the ratio of investment needs to GDP is about 3% in developed countries, but rises to about 9% in developing countries, and to over 15% in some less developed countries. Furthermore, they say that over 70% of infrastructure investment was traditionally implemented in developed countries, but that 40-50% of investment will take place in developing countries in the future.

## (2) Potential of Various Financing Methods

Asia’s infrastructure investment needs are estimated at \$747 billion per year, but the actual amount of investment that is occurring is unclear. However, given that infrastructure investment in developing countries entails greater risks compared with investment in developed countries, it is likely that the region’s infrastructure investment needs are not being met by a significant margin (several hundred billion dollars). The following analysis considers the potential of various financing methods to contribute to investment growth.

First, as discussed later in this article, the Japanese government plans to increase the amount of infrastructure investment provided in the Asian region by about 30% to \$110 billion over the next five years under the “Partnership for Quality Infrastructure” program. The increase resulting from this initiative will amount to around \$5 billion per year. Second, structural reforms within the Asian Development Bank are expected to make it possible to increase the amount of loans approved each year, including syndicated loans, from \$22 billion in 2014 to \$40 billion in the future. This will result in an increase of \$18 billion per year. Third, the Japan Bank for International Cooperation, the Korean Eximbank, and the Export-Import Bank of China, signed contracts for infrastructure projects worth a total of approximately \$55.9 billion, or \$9.3 billion per year, between 2008 and 2013 in total. If this amount should double, it would result in an increase of \$9.3 billion per year. All these

**Table 6 World Annual Expenditure on Infrastructure Investment**

Source	Annual expenditure	Ratio (estimated, see main text)
Government budgets	\$500-600 bil.	69%
ODA or MDBs	\$40-60 bil.	6%
Other official funds	Less than \$20 bil.	—
Private sector funds	\$150-250 bil.	25%
Total	\$800-900 bil.	100%

Source: Bhattacharya and Romani [2013], p.9



increases are not especially large when compared with the size of the infrastructure investment gap.

The world total of sovereign wealth funds (SWFs) amounts to \$7.1 trillion. Major SWFs in Asia have \$2.6 trillion, or 36.4% of this total (Table 7). If funds with assets of \$2.6 trillion were to allocate another 1% of their assets to infrastructure investment, there would be an increase of \$26 billion. Expectations toward institutional investors will be examined in detail later in this article.

As shown in Table 8, PPP projects account for around 10-20% of the required investment in many ASEAN countries. Further expansion of this contribution is a major priority.

### (3) Overview of Infrastructure Finance in ASEAN Countries

The following is a general overview of the current situation of infrastructure finance in the ASEAN 5 (Indonesia, Malaysia, the Philippines, Thailand and Vietnam)<sup>(8)</sup>. Financial systems in Asian countries are at various levels of development, and

those differences have a major influence on approaches to finance (Table 9). For example, large amounts of project bonds are issued in Malaysia, but banks provide almost all project finance in other countries.

First, infrastructure development in Indonesia has been held back by a prolonged investment deficit. The Indonesian government has implemented numerous initiatives, including the establishment of the Indonesia Infrastructure Guarantee Facility (IIGF) in 2009 as a state-owned enterprise specializing in the provision of guarantees against political risks. However, these efforts have not been as effective as hoped. Project finance is provided mainly by banks, but because domestic banks lack the necessary specialized expertise, most of that finance comes from foreign banks. Use of the bond market for project finance is limited, and only two infrastructure-related companies are among the top 30 issuers of corporate bonds.

Second, various government-owned companies are involved in infrastructure development in Malaysia. These government-owned companies have various roles, including participation in project financing and involvement as operators. Major private sector companies linked to corporate groups

**Table 7 Sovereign Wealth Funds in Asia**

(US\$billions)			
	Name	Assets	Established
China	SAFE Investment Company	474	1997
	China Investment Corporation	747	2007
	National Social Security Fund	236	2000
	China-Africa Development Fund	5	2007
Hong Kong	Hong Kong Monetary Authority Investment Portfolio	442	1993
South Korea	Korea Investment Corporation	92	2005
Indonesia	Government Investment Unit	1	2006
Malaysia	Khazanah Nasional	42	1993
Singapore	Government of Singapore Investment Corporation	344	1981
	Temasek Holdings	194	1974
Vietnam	State Capital Investment Corporation	1	2006
Total		2,578	
World total:		7,088	

Notes: Updated in February 2016.  
Source: Sovereign Wealth Fund Institute

**Table 8 National Infrastructure Investment Needs (2010-2020, 2008 dollars) and PPP Investment by Country**

(US\$million, %)

Region	Investment needs/year (A)	PPP investment (B)	PPP investment(C)	B/A	C/A
<b>East/Southeast Asia</b>					
China	397,058	5,253	4,246	1.3	1.1
Indonesia	40,937	2,697	3,931	6.6	9.6
Malaysia	17,099	2,513	1,770	14.7	10.4
Philippines	11,557	2,519	2,478	21.8	21.4
Thailand	15,719	2,072	3,024	13.2	19.2
Cambodia	1,215	159	378	13.1	31.1
Laos	1,034	435	1,367	42.1	132.2
Myanmar	1,973	120	334	6.1	16.9
Vietnam	9,978	536	1,221	5.4	12.2
<b>South Asia</b>					
India	197,497	13,520	34,847	6.8	17.6
Bangladesh	13,173	490	1,059	3.7	8.0
Sri Lanka	3,446	245	502	7.1	14.6

Notes: (B): Yearly average for 1990-2014, (C): Yearly average for 2010-2014.

Source: Bhattacharyay [2010], p.12, p.15, World Bank, Private Participation in Infrastructure Database

**Table 9 Financial Assets as % of GDP**

(%)

	Bank assets	Government bond balance	Corporate bond balance	Stock market aggregate	Total
Indonesia	54.6	16.9	5.9	49.6	127.0
Malaysia	160.0	62.4	51.2	154.3	427.9
Philippines	88.3	43.1	9.7	112.8	253.9
Singapore	271.8	49.8	50.1	255.7	627.4
Thailand	142.0	57.5	23.1	114.1	336.7
Brunei	95.4	3.4	n.a.	n.a.	98.8
Cambodia	82.9	n.a.	n.a.	1.0	83.9
Laos	80.2	n.a.	n.a.	11.7	91.9
Myanmar	41.1	4.9	n.a.	4.3	50.3
Vietnam	163.7	22.4	1.1	28.5	215.7

Notes: Cambodia and Laos as of end of 2013, others in principle as of end of 2014.

Source: ADB [2015b]

are also involved in projects, and the main source of finance for both private sector and government-owned companies is bond issues. The funds are provided by institutional investors, such as the Employees Provident Fund. Over one-third of the top corporate bond issuers are infrastructure-related companies, and there are substantial issues of project bonds.

Third, the Philippines is suffering from an infrastructure gap resulting from an investment deficit spanning many years. Under the Philippine Development Plan (2011–2016), the government aims to increase investment by focusing on PPPs and other approaches. Infrastructure finance has historically been provided by domestic banks, which have high levels of liquidity. Infrastructure

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development is handled mainly by major corporations linked to conglomerates, such as San Miguel and Ayala, which can readily access finance from domestic banks. Infrastructure finance can easily be obtained from banks because of relaxed bank soundness rules for the purpose of its promotion. Although project bonds play an extremely small role, infrastructure-related companies account for around 20% of corporate bond issues. Large amounts of both government and corporate bonds are issued in foreign currencies in overseas markets. Some of these issues relate to infrastructure investment.

Fourth, Thailand has announced an infrastructure development plan calling for the investment of 24 trillion baht (equivalent to about 20% of GDP) over an eight-year period (2015-2022). The government's budget will provide 20% of the required investment, with loans from SOEs contributing 45%, PPP initiatives 20%, SOE income 10%, and infrastructure funds 5%. At present infrastructure investment is basically funded from the government's budget, while almost all private sector investment is provided by a consortium of banks. Since the amount of investment planned will exceed the government's budget, private sector investment will be needed. In 2013, the government passed a PPP law. The bond market plays only a limited role in infrastructure, and there are only two infrastructure-related companies among the top 30 issuers of corporate bonds.

Fifth, in Vietnam, the infrastructure projects are funded mostly from the government's budget. However, this source of funding provides at most one-half of the required investment, and private sector funding is also needed. Unfortunately there are serious obstacles, including the lack of a proper legal framework for PPP investment, as well as complex and time-consuming approval processes. These problems are reflected in the slow growth of PPP activity. There are no project bond issues, in part because of the immaturity of Vietnam's corporate bond market. However, there have been corporate bond issues by some state-owned infrastructure-related companies, such as Electricity Viet Nam.

### **3. Initiatives by the Japanese Government, Positioning of Public-Private Partnerships**

This section looks at the growing importance of the PPP approach in the Japanese government's infrastructure development initiatives in Asia.

The New Growth Strategy announced by the Japanese government in June 2010 includes a policy designed to encourage the involvement of Japanese private companies in infrastructure package exporting. Other government measures since then include the reinforcement of top-level sales activities, and the functional enhancement of government agencies. In the area of infrastructure finance, the government has enhanced systems relating to the activities of the Japan Bank for International Cooperation (JBIC), Nippon Export and Investment Insurance (NEXI), and the Japan International Cooperation Agency (JICA). In recent years, the Development Bank of Japan has also expanded its international activities, while the Japan External Trade Organization (JETRO) has stepped up its infrastructure-related project discovery and business matching efforts. In addition, the Japanese government is promoting comprehensive infrastructure development programs to Asian countries, using plans formulated primarily by the Economic Research Institute for ASEAN and East Asia (ERIA), established in 2007 as an international organization.

In March 2013, the Council on Economic Cooperation and Infrastructure Strategies was established within the Cabinet Secretary. Its role is to promote overseas expansion by Japanese companies through activities that include collaborative strategic initiatives by the government and private sector, and the reinforcement of JICA's support tools in areas linked directly to infrastructure exporting, such as the introduction of foreign loans and investment denominated in local currencies, and the creation of three new types of official yen loans to facilitate PPP initiatives.

In May 2015, the government announced a basic strategy known as the "Partnership for Quality Infrastructure: Investment for Asia's Future."

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The four core components of this strategy are ① the expansion and acceleration of support through the total mobilization of all of Japan's economic cooperation tools, ② collaboration between Japan and the ADB, ③ measures to double the supply of risk money, including the reinforcement of JBIC's capabilities, and ④ the establishment of high-quality infrastructure investment as the international standard. Over the next five years, Japan will work with the ADB to increase the amount of Japanese infrastructure investment provided in Asia by around 30% over the previous level to about \$110 billion (¥13 trillion). Through these measures, Japan aims to bring about a substantial improvement in infrastructure investment, both quantitatively and qualitatively, by also mobilizing private sector funds and expertise.

In November 2015, the Japanese government announced a follow-up package for the Partnership for Quality Infrastructure. This includes specific measures to drive measures relating to the four key components of the strategy, which were announced in May.

First, assistance through JICA will be expanded and accelerated. Acceleration measures include a decision to reduce the time required for the government to process ODA loans. It will be reduced from around three years to a maximum of about 18 months for particularly important projects, and a maximum of about two years for other projects.

Second, collaboration with the ADB will include investment and loans for high-quality private sector infrastructure projects, including PPP projects, using a trust fund established in the ADB with funds provided by JICA. In January 2016, the Asia Pacific Project Preparation Facility (AP3F) was established<sup>(9)</sup>. This Facility will have funding equivalent to \$73 million, of which Japan will contribute \$40 million, Canada \$16 million, Australia \$7 million, and the ADB \$10 million. Its purpose is to help the governments of countries receiving support to prepare and form PPP projects by accessing funds, technology and expertise from international markets. The activities supported include project preparation and formation, government capacity-building and policy reform in recipient countries (e.g., changes to legal sys-

tems, the establishment of agencies responsible for PPP investment), and the monitoring and restructuring of existing projects. These AP3F activities are expected to accelerate the implementation of PPP projects, while also building public sector capacity and creating business opportunities for the private sector, including investors, operators, financial institutions and consultants.

Third, the supply of risk money through JBIC and other organizations will be expanded. For example, JBIC will be allowed to obtain long-term loans from local financial institutions so that it can expand its local-currency lending activities. In addition, the methods used by JBIC to support overseas infrastructure projects will be diversified to include the acquisition of project bonds and the use of Islamic finance.

Fourth, Japan will work to extend the Partnership for Quality Infrastructure globally and establish it as the global standard. Efforts to achieve this will include the international sharing and introduction of advanced Japanese technology, and advocacy for the importance of the Partnership for Quality Infrastructure in international forums, including the United Nations, G20, G7, APEC and ASEAN.

The aim of these policies is to promote the Partnership for Quality Infrastructure and expand the participation of Japanese companies, by providing Japanese government sector funds, and by collaborating with the ADB to support PPP projects.

In December 2015, China's Ministry of Finance formally announced the establishment of the Asian Infrastructure Investment Bank (AIIB), which plans to approve its first loan by mid-2016. AIIB lending during the first year is expected to amount to \$1.2 billion, including stand-alone and syndicated loans. While basically giving priority to the reinforcement of its collaborative relationship with the ADB, the Japanese government will also need to explore opportunities for collaboration with the AIIB to ensure that initiatives move in directions that are positive for economic development in Asia.

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## 4. Priorities for the Facilitation of Public-Private Partnership (PPP) Initiatives

### (1) Advantages to Encourage Private Sector Participation, Parties Involved in Projects Implementation

As described in the previous sections, infrastructure development requires massive amounts of funds. Because of the limited fiscal resources available to governments, the role of the private sector is expanding, leading to increased use of the public-private partnership (PPP) model. The PPP approach allows the private sector to participate actively in public sector infrastructure projects under agreements between government agencies and private sector entities, such as business corporations. Private sector participants play major roles in project planning and financing, and in the design, construction, operation and maintenance of facilities. Some of the risks involved in these areas are transferred to the private sector under the terms of each contract.

The main advantages of the PPP approach can be summed up as follows<sup>(10)</sup>. First, it becomes possible to access to private sector capital. This reduces pressure on the government's budget and frees up money to be used for other purposes. The PPP model also allows the implementation of massive projects that would not be feasible for the government sector alone. However, it is important to ensure that the profits gained by the private sector participants will be fair. Second, risk allocation can be improved because risks can be apportioned according to the comparative advantages of each player. For example, the public sector might handle regulatory risks, while private sector participants take responsibility for construction and operational risks. In this way, it should be possible to minimize costs without compromising the public interest. Third, efficiency gains can be achieved. Because PPP contracts focus on outputs, such as the services that will be provided, they give private sector participants the flexibility to provide

their services in the most efficient way.

These advantages allow efficient and high-quality infrastructure to be provided quickly. As a result, the benefits of that infrastructure become available sooner, thereby accelerating improvement in the quality of life.

Many parties are involved in PPP projects. First, there are the sponsors, which establish special-purpose companies (SPCs) to implement projects. Because of the large amounts of capital required for infrastructure projects, multiple companies often form joint ventures. Second, there are the lenders, which provide credits mainly by project finance. Third, there are EPC contractors, such as construction and engineering firms, which handle all aspects of engineering, procurement, and construction. Subcontractors, such as equipment manufacturers and civil engineering firms, work under the EPC contractors. Fourth, there are the operators, who are responsible for the operation and maintenance of projects. These tasks are sometimes shared among multiple companies. Fifth, there are raw material and fuel suppliers and utilities companies, which supply the raw materials, fuel and public services required for the implementation of the project. Sixth, there are the off-takers, which buy the public services provided by the project company. In the case of an electric power project in developing countries, the off-taker will be a state-owned electric power company. In the case of water supply or transportation project, the off-takers might be general users or a local government. Seventh, there are central and local governments and government agencies in the host country. These are responsible for providing project approvals and permits, but often they also handle some the roles listed above. For this reason, it is extremely important to obtain the support of the host country. In many cases, the parties listed above handle multiple roles, leading to a complex interweaving of interests that must be coordinated carefully. For this reason, it is essential to stipulate all conditions clearly in contracts.

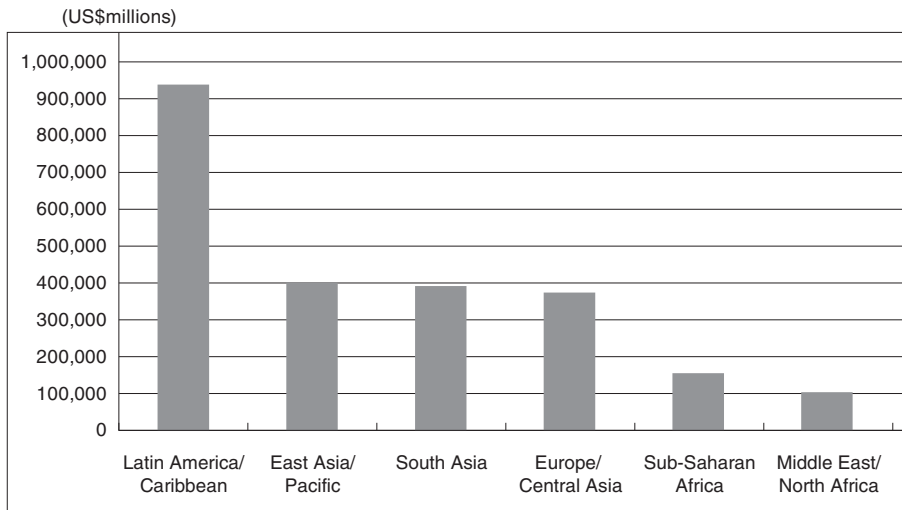
## (2) Development of PPP Systems and Institutions in ASEAN Members

An analysis of regional totals for PPP investment between 1990 and 2014 reveals that investment has been concentrated in Latin America and the Caribbean (Fig. 1). A sector breakdown shows that telecommunications and electric power have the biggest shares (Fig. 2). PPP investment in East Asian countries peaked in 1997 and declined after the currency crisis. In recent years it has remained

flat (Fig. 3). PPP investment in India began to surge in 2006 and reached a peak in 2010 before shifting to a steep downward trend. Investment is expected to grow in both regions.

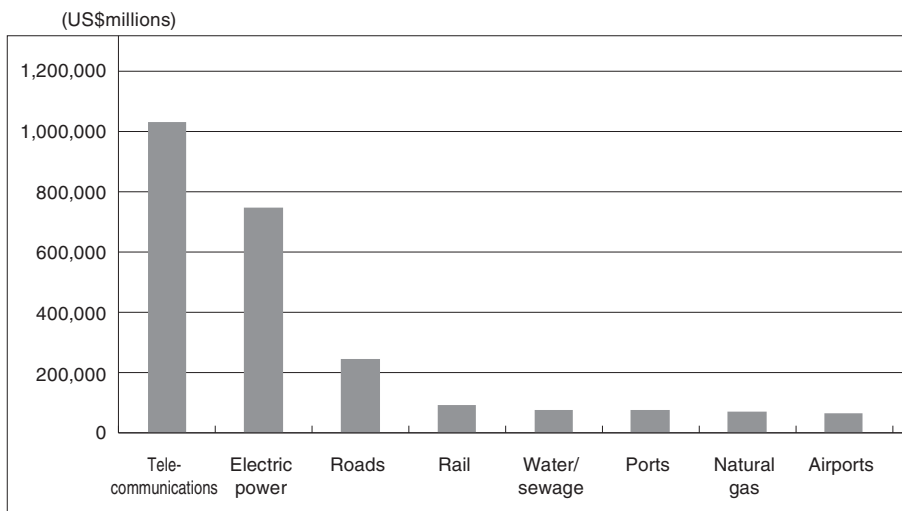
PPP implementation environments in different countries are assessed from various perspectives in Economist Intelligence Unit [2015] (Table 10). In the 2014 survey, most of the countries covered had higher overall scores compared with the previous survey, with Japan, the Philippines, Bangladesh and Mongolia making particularly large gains. If we focus just on Japan and the Philip-

**Fig. 1 PPP Investment by Region in 1990-2014**



Source: World Bank, Private Participation in Infrastructure Database

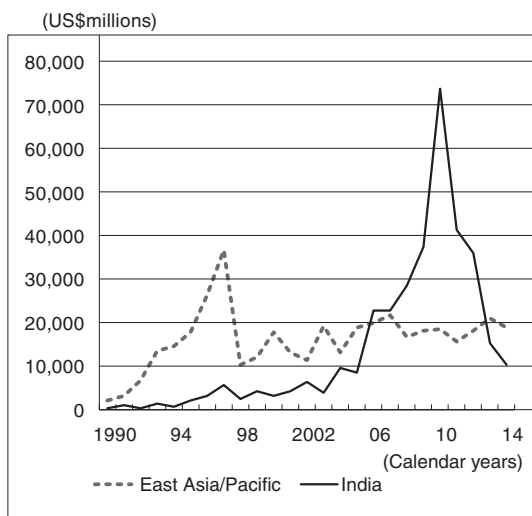
**Fig. 2 PPP Investment by Sector in 1990-2014**



Source: World Bank, Private Participation in Infrastructure Database

pines, we find that Japan has achieved significant improvements in its legal and regulatory framework and investment climate, while the Philippines has made major improvements to its legal and regulatory framework, institutional framework and investment climate.

**Fig. 3 Historical PPP Investment**



Source: World Bank, Private Participation in Infrastructure Database

An analysis of recent trends in PPP activities based on these data shows infrastructure-related lending in Asia stagnated between 2011 and 2014 but began to recover in 2015. There are signs of growth in the amount of capital provided, especially by regional financial institutions and funds, including sovereign wealth funds, and in the amount of capital raised from bond markets. The number of PPP programs implemented in Asia rose from 1,243 in 2011 to 1,739 in 2014. All Asian countries have strengthened their political commitment to the expansion of PPP activities. This trend is especially conspicuous in Japan, Bangladesh and the Philippines.

We will look next at PPP initiatives in individual countries. First, in Indonesia the government has been working on multi-sector PPP promotions since 2005. In 2009, the National Development Planning Agency (BAPPENAS) began to publish the annual *PPP Book*, in which it lists potential projects and includes other information. However, the reality is that almost no projects have reached the financial close stage since 2011. Problems include weak leadership, a protective stance toward

**Table 10 PPP Implementation Environment Scores**

	Overall score			Legal framework		Institutional framework		Operational maturity		Investment environment		Financing method	
	2014	2011	Rise	2014	2011	2014	2011	2014	2011	2014	2011	2014	2011
Australia	91.8	92.3	▲ 0.5	100.0	100.0	100.0	100.0	60.2	66.5	90.5	87.4	94.4	94.4
U.K.	88.1	89.7	▲ 1.6	96.9	96.9	100.0	100.0	64.0	76.7	84.0	82.3	94.4	94.4
South Korea	78.8	71.3	7.5	90.6	78.1	83.3	75.0	74.5	68.8	66.3	54.2	88.9	88.9
Japan	75.8	63.7	12.1	65.6	50.0	66.7	66.7	64.7	61.4	86.5	57.5	88.9	83.3
India	70.3	64.8	5.5	65.6	59.4	66.7	66.7	87.5	70.0	60.8	52.3	72.2	72.2
Philippines	64.6	47.1	17.5	68.8	43.8	66.7	41.7	54.5	44.8	75.3	46.3	63.9	61.1
China	55.9	49.8	6.1	34.4	31.3	33.3	25.0	75.8	78.1	78.3	51.6	66.7	66.7
Indonesia	53.5	46.1	7.4	46.9	40.6	58.3	41.7	51.6	47.9	57.6	50.3	58.3	52.8
Thailand	50.4	45.3	5.1	34.4	28.1	50.0	50.0	58.1	50.9	59.3	48.6	61.1	55.6
Bangladesh	49.3	39.2	10.1	43.8	40.6	50.0	33.3	51.5	41.0	73.8	47.3	47.2	44.4
Pakistan	41.0	38.8	2.2	43.8	34.4	33.3	33.3	42.5	41.8	49.3	43.0	30.6	38.9
Mongolia	39.7	23.3	16.4	43.8	25.0	50.0	25.0	18.8	3.1	59.3	46.9	30.6	13.9
Vietnam	33.1	26.3	6.8	25.0	18.8	25.0	16.7	39.8	25.5	55.6	46.4	33.3	33.3

Notes: Thirteen of the 21 countries/regions covered by the survey have been selected here. The countries with remarkable improvement of overall score are shaded.

Source: Economist Intelligence Unit [2015], [2012]

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state-owned enterprises, and an uncertain and unpredictable investment environment. Multiple organizations specializing in PPP projects have been created, and responsibility is shared among them. However, the establishment of a PPP Unit by the Ministry of Finance in 2014 is expected to ensure the bankability of projects. Other changes include the formulation of project implementation guidelines, and the amendment of the law concerning land acquisition. Given the urgent need for infrastructure development, it is to be hoped that these initiatives will be accelerated and brought to fruition.

Second, PPP projects have been implemented in the Philippines since the 1980s, and improvements to the legal framework have been in progress since 2010. The National Economic Development Authority (NEDA) has established a PPP center, which is responsible for the promotion and monitoring of PPP activities. The allocation of roles among the National Economic Development Authority, the Department of Finance, the Environmental Management Bureau, the PPP Center and other agencies has been clarified, and progress is being made toward the development of an institutional framework. The government has also created the Project Development and Monitoring Facility, a fund used to provide money needed for project preparations. As of December 2014, there were around 50 potential projects. In addition, rules are being formulated concerning the allocation of risk, bidding processes and other aspects. While the dispute resolution mechanism is seen as fair and transparent, the time required is still an issue. Project finance using domestic capital is expected to increase in the future.

Third, many PPP projects have been implemented in Thailand since 1990s, in such areas as electric power, roads, mass-transit system, and port facilities. Until 2013, responsibility for PPP projects was shared among several government agencies, but the legal framework was improved with the passage of the Private Investment in State Undertakings Act (PISU Act) in that year. The State Enterprise Policy Office of the Ministry of Finance is now the main organization responsible for the coordination of PPP activities. The PISU

Act requires contracts to be based on either competitive bidding or direct negotiations, but there is still uncertainty concerning the circumstances in which direct negotiations can be used. A feature of the Thai system that is not found in other countries is the fact that arbitration is not allowed. All disputes must be settled in court, with the result that legal processes tend to be prolonged.

Fourth, although the infrastructure sector in Vietnam is dominated by state-owned enterprises, there have been efforts to introduce private sector capital in recent years. Legal mechanisms are gradually being created, following the establishment of a basic legal framework for PPP projects with the passage of a new investment law in 2006, ahead of Vietnam's admission to WTO membership. The core organization is the Ministry of Planning and Investment (MPI), within which a PPP Unit has been established. The MPI selects pipeline projects, and the government is also expected to provide financial support for PPP projects. Government funding still plays an important role in Vietnam because of the immature financial system. Despite the passage of a public procurement law in 2013, there have been almost no successful bids by foreign contractors, and PPP projects are basically implemented by Vietnamese state-owned enterprises. Also, there is still a lack of transparency in mechanisms relating to the enforcement of commercial contracts and dispute resolution. However, Vietnam is basically making progress toward the improvement of its PPP investment environment.

### **(3) Issues Relating to Legal, Regulatory and Institutional Frameworks**

#### **① Approaches to the Expansion of PPP Activity**

There are five key issues affecting PPP investment in the Asia-Pacific region<sup>(11)</sup>. First, legal and regulatory frameworks are fragile. Improvements are needed in a number of areas, including PPP-related laws, regulatory agencies for each sector, and a regulatory environment that allows progress monitoring of projects. Second, a lack of maturity



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in many aspects of project formation will need to be remedied through the introduction of contract models that support robust risk apportionment frameworks and effective dispute resolution mechanisms, as well as full disclosure of bidding criteria, and the adoption of international best practice to ensure transparency and accountability in bidding processes. Third, there is a lack of PPP project implementation capacity in both the public and private sectors. Fourth, financing environments (domestic financial systems) are not sufficiently developed. Fifth, to alleviate these issues and provide support for PPP projects in the region, regional cooperation systems need to be strengthened in such areas as information sharing, the development of financing environments, and capacity building. One effective approach might be the establishment of a regional PPP Unit to carry out PPP-related initiatives.

Based on these perspectives, the key requirements for the expansion of PPP investment are likely to include ① the development of laws and regulations, ② the establishment of project-related rules, ③ human resource development, ④ the improvement of financial systems, and ⑤ the creation of organizations responsible for PPP activities. We will next examine the significance of each of these steps in detail.

## ② Project Costs, Returns and Risks

Governments appear to be targeting the expansion of PPP investment primarily as a way of carrying out infrastructure development more efficiently and effectively by utilizing private sector capital and capacity.

Private sector capital can only be provided if a project is bankable (or investable). There are three main factors that need to be taken into account from this perspective. First, judging from project costs and returns, the project must be capable of continuing to generate reliable cash flows that are sufficient to repay loans. In other words, the credit risk must be low. Second, none of the various other risk factors must exceed the tolerance levels of investors. Third, the project must offer advantages, from the perspectives of banks and institutional investors, that would not be available with

other types of investments. The advantages that are generally associated with infrastructure investment are reliable returns that are not influenced by economic trends, which means that there is little correlation with returns on other types of assets, and the fact that returns are commonly linked to inflation. However, individual projects obviously need to be judged on their own merits.

What are project costs, returns and risks? First, costs include such items as labor costs required for construction and operation, facility construction costs and depreciation, operating expenses, including electricity, gas and water charges, and interest and dividends on the finance raised for the project. Returns consist primarily of charges levied on the use of infrastructure facilities, but other items include government transfers. Examples of risks involved in infrastructure investment are listed in Table 11. The risk factors are listed in order of the scope of effects, from global risks to project-specific risks. We will examine risk factors in detail later in this article.

## ③ Requirements for Bankable Projects

Based on the preceding analysis, a project's bankability can be enhanced by reducing costs, raising returns and mitigating risks<sup>(12)</sup>. The first priority for the expansion of PPP investment is likely to be the creation of structures that will ensure cost reduction and reasonable returns, thereby allowing efficiency to be improved. The main way to reduce costs is to implement a competitive bidding process with a high standard of fairness and transparency. Factors that can contribute to the reduction of construction costs include innovation, project design, and transparency, while methods available for reducing operating costs include monitoring and the creation of incentives for efficiency improvements. To secure returns, usage charges must be set at reasonable market-based levels and levied reliably. It is important to avoid situations in which charges are set below market levels for political reasons. Governments can also subsidize usage charges in various ways, including tax concessions and revenue subsidies.

The second priority is risk mitigation. This can lead to cost savings because of the resulting re-

**Table 11 Infrastructure Investment Risks**

Types of Risks	Description
<b>1. External market volatility risks</b>	
Financial market crises	Possibility of financial crises spreading from other countries
<b>2. Political risks</b>	
Capital expropriation, etc.	Nationalization of assets, etc., limits on recovery of capital
Regulations	Changes to regulations/laws, inability to purchase land
Break of contract	Failure of governments to fulfill contract requirements
Political violence	War, terrorism
<b>3. Natural disasters</b>	
<b>4. Macroeconomic Risks</b>	
Interest rates	Impact of interest rate fluctuation on access to/cost of money
Inflation	Impact on value of payments from governments due to higher-than -expected inflation rates
Exchange rates	Impact of exchange rate fluctuations on the cost of imported materials required for construction and operations, effects of using different currencies for project revenues and financing
<b>5. Sector-specific risks</b>	
Demand for services	Inadequate returns from infrastructure due to lower-than-expected demand for services
Technology	Problems with the introduction of technology, erosion of existing asset value due to new technology
<b>6. Project-specific risks</b>	
Financing	Unsuccessful issues of project bonds/shares
Design	Inability to produce the required services at the projected cost due to project design failures
Construction	Cost overruns due to project completion delays
Completion	Failure to complete projects on schedule
Operations	Inability to operate project as required due to various factors
Maintenance	Higher-than-projected maintenance costs, failure to carry out maintenance
Environment, society	Environmental/social losses resulting from construction/operations
<b>7. Risks specific to PPP agreements</b>	
Residual value	Asset value too low at completion of PPP agreement
Sponsors	Failure of private sector entities to provide services, bankruptcy
Defaults, etc.	Asset losses due to early termination leases or contract violations

Source: Schwartz, Ruiz-Nunez and Chelsky [2014] pp.143-144 with some additions

duction of the risk premium included in financing costs. To reduce risks, it is necessary to convert political, economic, regulatory and other risks into monetary amounts that can be reflected in the infrastructure usage charges and related taxes levied.

In addition to risk mitigation, risks can also be diversified or shared. Risk sharing involves the appropriate apportionment of risks among public and private sector participants. Methods for dealing with risks will be examined in detail in the

following section. Risk management, diversification and sharing are extremely important because of the diverse nature of infrastructure projects.

Third, decisions taken on the above priorities must be implemented reliably. Because so many players may be involved in a single project, it is important to ensure that effective contracts are concluded, and that the project is carried out properly. This is a major consideration and a prerequisite for the two priorities described above.

There are two aspects to reliable project imple-

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mentation. First, there is the question of capacity. Can the players effectively carry out the various project processes, including planning, feasibility studies, contract design, and demand estimation?

The other aspect is governance. Effective governance functions are extremely important for projects that involve many players. Poor governance can create a variety of obstacles to the efficient implementation of PPP projects, including conflicts of interest among participants, arbitrary or populist government intervention, uncertainty about the roles and obligations of government, impediments to the independence of courts, and failure to create robust legal frameworks defining the rights and obligations of private sector investors.

Effective legal and regulatory systems and contracts are essential to the functioning of the PPP approach, and governance issues are closely linked to deficiencies in these areas. Even when there are effective legal systems and contracts, there can be situations in which contract enforcement is not possible. The confidence of private sector investors may be significantly damaged if there are uncertainties about enforcement of policies, laws, regulations and contracts as stipulated on paper, or if there is a lack of consistency, including a tendency to make sudden changes. These governance issues can paralyze projects and result in cost increases and heightened risks that are not reflected in the figures.

#### ④ **PPP Legal Framework**

We will now take a slightly more detailed look at the legal framework for PPP projects<sup>(13)</sup>. The legal framework encompasses all laws and regulations relating to the methods used to implement PPP projects. Governments intending to implement PPP projects need to clarify the legal rights and processes that will be used to make those projects possible. PPP-specific processes and responsibilities may be introduced. In some cases these goals are achieved by amending existing laws, and in other cases by creating new legislation.

The legal framework will vary depending on whether it is based on civil law or common law. Frameworks based on civil law define require-

ments in detail, while those based on common law allow most of the provisions to be stipulated in contracts, which tend to be longer as a result.

Under a civil law framework, PPP contracts are based on general laws governing the functions and decision-making processes of government agencies. The legal rights of both public and private sector parties are defined by these laws. For example, the law concerned may determine the circumstances under which the government can modify or cancel a contract. The laws also define processes and organizational roles for PPP projects, such as those relating to procurement and dispute resolution regarding contracts.

Under both civil and common law, there are laws that apply specifically to PPP processes. First, there is procurement law. PPP transaction processes must comply with the laws and regulations governing public procurement. Second, there is public financial management law. Organizational responsibilities, processes and rules defined in this type of law form part of the PPP framework. For example, these may include project approval criteria, fiscal limits, budgeting processes, and reporting requirements. Third, there are frameworks based on sector laws and regulations. The government's ability to contract with private sector entities or set rules for that purpose may be limited in sectors in which these frameworks already exist. Fourth, there are other laws concerning the activities of private business corporations. These include environmental laws and regulations, laws concerning land acquisition and ownership, licensing requirements especially for international companies, tax laws, and employment laws.

These laws together form the legal framework for the implementation of PPP projects. This means that PPP-specific laws may not always be necessary. However, PPP-specific laws may be enacted under certain circumstances, such as when there are issues concerning clarity or comprehensiveness, or if the government's capacity to implement PPP projects is limited. Such laws can also be effective in demonstrating a political commitment to PPP programs. Provisions include basic principles for promotion of PPP programs, processes and institutional responsibilities (such

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as about procurement and dispute resolution), and public financial management rules.

PPP-specific laws are mostly enacted in countries with civil law systems. For example, most Latin American countries establish PPP laws. PPP-specific laws may also be enacted in countries with common law systems.

### ⑤ Rethinking Specific Approaches

According to the explanations above, it can be said that the tools for expanding PPPs that were already mentioned, namely, ① the development of laws and regulations, ② the development of project-related rules, ③ human resource development, ④ financial system development, and ⑤ the creation of an organization responsible for PPP projects, are the methods to make projects bankable. We will examine approaches to financial system development in the following sections.

Project costs, returns and risks are all influenced by laws, regulations and contracts. Capacity issues and governance issues both affect a country's ability to create the necessary rules. For example, there are many cases in which the land required for projects cannot be acquired. In addition to the government's inability to create the necessary regulations, these problems also result from governance-related issues, such as political intention. Also, even if approval rules are set down in legal systems, there can also be practical problems resulting from complex formalities. In general, when problems relating to the enforcement of contract obligations arise, it becomes necessary to implement reforms to strengthen court systems.

The creation of an organization responsible for PPP projects (Item ⑤ above) offers many benefits as a problem-solving approach. While this type of organization was referred to above in the sense of a regional organization, the creation of organizations within individual countries is also likely to provide significant benefits.

First, such an organization can be used to strengthen the capacity to implement PPP projects. By establishing a specialist organization, the government can also demonstrate its commitment to the reinforcement of PPP activities. Furthermore, the centralization of initiatives un-

der a single organizational structure increases the possibility that consistency and continuity will be achieved and stopgap measures eliminated. Another likely benefit is the facilitation and acceleration of progress toward the development of an effective infrastructure development strategy and the implementation of projects.

Second, the creation of a specialist organization is likely to lead to the accumulation and disclosure of project-related expertise and information about the costs and benefits of infrastructure development and the risk factors involved. The resulting improvement in project transparency facilitates access to funding, improves predictability, and reduces many risks. The resulting benefits are likely to include improved PPP project skills and an increase in the number of projects. It will also be possible to avoid situations in which risks are understated and inappropriately apportioned to economic entities.

Regional PPP centers have similar attributes. They can also contribute to information sharing among multiple countries and capacity improvement across entire regions.

Monitoring is an important aspect of efforts to build capacity and improve governance. In some cases a central government or PPP center may be a contract party, making it difficult to determine how monitoring should function. As discussed later in this article, multilateral development banks (MDBs) have an important role to play in this context. Monitoring systems can also be enhanced by accumulating data about past projects.

### (4) Risk Countermeasures<sup>(14)</sup>

As stated earlier, to make a project bankable, risk must be brought down to a tolerable level. Among the investors who provide capital for infrastructure projects, institutional investors are especially conservative because their fund management activities are subject to stringent regulations as organizations entrusted with other people's assets. They will never invest in a project that involves even one unacceptable risk factor. To at-

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tract capital from institutional investors, every risk must be dealt with in some way.

We will now consider the risk factors listed in Table 11. The 2008 global financial crisis is an example of situation in which the first type of risk, external market volatility, became a reality. That crisis led to an exodus of private sector capital from the PPP market. This type of international risk factor also includes energy crises and monetary policy changes in developed countries. No individual country can deal with risks of this type, and regional or multilateral action is required.

Second and fourth in the list are political risks and macroeconomic risks, both of which are country-specific risks that can reduce earning performance by impacting on the operating profits and asset values of companies that do business in the countries concerned. The results of an investor survey conducted in 2013 by the World Bank's Multilateral Investment Guarantee Agency and the Economist Intelligence Unit show that investors regard macroeconomic instability and political risks (especially regulatory problems and contract infringement by governments) as the main constraints on investment in developing countries. Political risk is closely linked to governance problems. If governance is dysfunctional, it will not be possible to encourage private sector investment in infrastructure projects. Factors such as political and economic stability and government sector governance are generally referred to as the "investment climate." Improvement of the investment climate is extremely important in terms of encouraging participation in foreign direct investments and PPP projects. Countries need to create more stable and predictable political and economic environments.

Items 5 through 7 in Table 11 refer to risks that are specific to individual sectors or projects. It should be possible to reduce these risks by carefully formulating overall infrastructure development strategies that include the prioritization of sectors and projects. Also important is the improvement of feasibility studies and other project preparations, and the reinforcement of the PPP frameworks described above.

However, the total elimination of risks is im-

possible, in part because unforeseen contingencies can arise. The remaining risks need to be apportioned appropriately between public and private sector participants. Governments have a greater capacity to bear risks, but a situation in which all risks were borne by the government would reduce the benefits of the PPP approach while increasing the difficulty of maintaining efficiency and project quality.

Private sector entities will not accept risks that they cannot control themselves. In such cases, the risk will be transferred from project financiers to creditworthy third parties (guarantors and insurers). The tools used to transfer such risks are called "risk mitigation instruments." Only when these tools are used effectively will it be possible to obtain private sector finance.

However, risk mitigation instruments must also be designed to avoid moral hazards. Those responsible for policies should give priority to instruments that not only make projects bankable, but also allow private sector investors to assess investments accurately and maintain project efficiency.

Risk mitigation instruments can be categorized as shown in Table 12. The first category consists of guarantees and insurance provided by the public sector, such as governments and multilateral development banks. First, a minimum revenue guarantee (MRG) is used in cases where uncertainty about future revenues is an obstacle to project financing. Another method is the subsidization of usage charges, but this requires private sector investors to carry risks resulting from uncertainty about demand. Second, partial or full guarantees can be provided for financing transactions (bank loans or bond issues). Such guarantees are enforced in the event of a default or a failure to refinance. Guarantees are also used for export credit.

Because guarantees reduce uncertainty about cash flows, they not only attract more investors to a project, but also make it possible to obtain finance over longer periods or issue project bonds. If ratings can be improved, the cost of finance can also be reduced.

The second category consists of guarantees and insurance provided by the private sector. For example, banks issue letters of credit as a form of

**Table 12 Risk Mitigation Measures for Infrastructure Finance**

Type	Specific Method
1. Guarantees provided by governments, government agencies, or development banks	1. Minimum payment 2. Guarantees against defaults 3. Guarantees for refinancing 4. Exchange rate guarantees
2. Insurance (private sector)	Wrap insurance, technology guarantees, commercial and political risk insurance
3. Hedging (private sector)	Derivatives, such as swaps, forwards, options
4. Contract design (paid by government)	1. Availability payments 2. Offtake contracts
5. Provision of capital by government, government agency or development bank	1. Subordinated debt 2. Debt at market interest rates/at lower interest rates 3. Equity under market conditions/under conditions more favorable to the investee
6. Grants/tax incentives provided by government	1. Capital grants 2. Revenue subsidies (regular fixed amounts to mitigate demand risks/subsidies that leave risk with the private player) 3. Premium on interest paid 4. Favorable taxation schemes for SPVs 5. Favorable taxation schemes for equity investors

Source: Compiled by JRI using OECD [2015], p.51

credit enhancement for bond issues. With private sector guarantees, the credit rating of the bonds for which a guarantee is provided will fall if the guarantor's credit rating is reduced. Insurance is used for risks that are difficult to incorporate into financing costs, such as political and regulatory risks.

Third, there is hedging based on derivatives. Examples include the use of interest rate swaps to turn variable-interest loans into fixed-interest loans, and the use of interest rate options to fix upper and lower limits for interest rates. Currency-related derivatives can be used to mitigate currency mismatching. By using credit default swaps, it is possible to hedge against credit risk relating to project participants. While these methods are highly effective, caution must be needed regarding counterparty risks on over-the-counter derivatives, as well as the fact that hedges basically involve costs.

Fourth, income uncertainty can be mitigated through contract design. First, with availability payments, the contracting party on the government side pays for the provision of services that meet the required standard of quality in cases in which the infrastructure is provided without usage charges (for free). In such cases, physical risks, such as construction risks relating to the develop-

ment of the infrastructure, are borne by the private sector participants, while the public sector takes responsibility for demand risk. (The apportionment of risk can also be modified in other ways.) Second, offtake contracts provide for the supply of electricity or water at an agreed price. This method will enhance the project's income certainty and improve its rating.

Fifth, governments or MDBs can mitigate project risk by providing part of the finance. Public sector involvement encourages participation by private sector investors and also helps to reduce political risk. In some cases finance is provided at interest rates below market levels. In essence this is a kind of subsidy and must be justified from an economic or social perspective, and care must be taken not to crowd out private sector investment. Regarding this point, the act of incurring debt and accepting a repayment liability also has the effect of improving project performance and efficiency through the debtor discipline.

Sixth, grants or tax incentives can be provided. Grants are provided in various forms, including the right to use public land without charge. Various types of tax incentives can also be used to enhance the attractiveness of infrastructure investment. However, if grants or tax incentives exceed a certain level, the benefits of transferring risk to

private sector investors may be negated.

Guarantees provided by an international institution, such as the ADB or MIGA, are likely to be seen as more reliable than guarantees provided by a national government or government agency from a guarantee capacity perspective. For this reason, consideration should be given, for example, to the reinforcement of support for infrastructure-related bond issues in the region through the expansion of the Credit Guarantee and Investment Facility

(CGIF), which was created within the Asian Bond Markets Initiative (ABMI), and which has functioned to some extent as a guarantee institution for bonds issued within the region.

Between April 2013 and March 2016, the CGIF has guaranteed a total of 11 bond issues (Table 13). On March 8, 2016, the CGIF and the ADB jointly provided a partial guarantee for a 10.7 billion peso (equivalent to \$224 million) 10-year private-placement project bond issued by AP

**Table 13 Bond Guarantees Provided by CGIF (as of March 2016)**

Issue date	Issuer	Location	Amount	Term	Rating	Features, etc.
2013/4/26	Noble Group Limited (Hong Kong, trading company)	Thailand	2.85 bil. baht	3 years	AAA (Fitch, Thailand)	First guarantee provided by CGIF, issued cross-border to meet the financing diversification needs of the issuer, 80% of investors within Thailand
2013/12/4	PT BCA Finance (Indonesia, automobile purchase financing)	Indonesia	300 bil. Rupiah	3 years	None	Issuer seeking to attract overseas investment to diversify financing methods and raise presence (purchased by Dai-ichi Life Insurance)
2014/3/18			120 bil. rupiah	3 years	None	Issuer seeking to attract overseas investment to diversify financing methods and raise presence (purchased by foreign investors)
2014/8/21	Kolao Holdings (Laos, automobile, motorcycle sales)	Singapore	S\$60 mil.	3 years	AA (S&P)	Issuer's business expanding, but unable to issue bonds in CLMV region—cross-border issue in Singapore which is at a significantly different level of economic development than Laos
2014/11/27	PT Profesional Telekomunikasi Indonesia (Indonesia, building leasing)	Singapore	S\$180 mil.	10 years	AA (S&P)	Issuer seeking long-term finance to match assets (lease revenues, etc.), few 10-year bond issues in Singapore
2014/12/5	Masan Consumer Holdings Company Limited (Vietnam, processing/sales of food and beverages)	Vietnam	2.1 trillion dong	10 years	None	First 10-year bond issue in Vietnam
2014/12/18	PT Astra Sedaya Finance (Indonesia, consumer finance, factoring, automobile/motorcycle leasing)	Singapore	S\$100 mil.	3 years	None	Implemented to meet the financing diversification needs of issuers and the interest of regional investors in investment in Indonesia
2015/10/7	IVL Singapore Pte. Ltd. (subsidiary of Indorama Ventures Public Company Limited, Thailand, production of polyester, etc.)	Singapore	S\$195 mil.	10 years	AA (S&P)	First overseas bond issue by the company, first guarantee provided for a Thai company
2016/2/18	Vingroup Joint Stock Company (Vietnam, real estate development)	Vietnam	3 trillion dong	5 years, 10 years	None	First guarantee for a real estate developer, real estate demand in Vietnam expanding due to urbanization
2016/3/8	AP Renewables, Inc. (Philippines, geothermal power subsidiary of AboitizPower)	Philippines	10.7 bil. Peso	10 years	None	First guarantee for project bonds, provided jointly with Asian Development Bank, maximum exposure of 4.7 billion pesos for CGIF
2016/3/11	PT Mitra Pinasthika Mustika Finance (Indonesia, automobile/motorcycle finance)	Indonesia	140 bil. Rupiah	3 years	None	First guarantee for a bond issue by this company, which is 40% owned by JACCS, Sompo Japan Nipponkoa Insurance Inc. participating as an investor

Source: CGIF website

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Renewables, Inc., which is a geothermal power subsidiary of AboitizPower in the Philippines. This was the first guarantee provided for a project bond issue. The CGIF is expected to strengthen its support for the development of a project bond market for ASEAN countries<sup>(15)</sup>. In addition to this type of initiative, there is also an obvious need to strengthen the guarantee capacity of existing guarantee institutions in the region.

## **(5) The Role of Multilateral Development Banks**

As stated earlier in this article, multilateral development banks (MDBs) are expected to play a key role in the monitoring of PPP investment. Infrastructure finance can come from a variety of sources, but there are many cases in which private sector investors alone cannot provide the capital needed. Public sector involvement is essential on various levels, including not only the provision of capital but also the development of legal systems and institutions.

As the most independent public sector players, MDBs have extremely important roles to play in the promotion of PPP investment. First, MDBs can encourage private sector participation through their pump-priming role, including the provision of capital in the form of sovereign loans, and the provision of guarantees. This role includes continuous monitoring to ensure that financed or guaranteed projects proceed smoothly. Second, MDBs can work directly to increase the number of projects by providing technical support for feasibility studies and project formation. Third, MDBs can contribute indirectly to the improvement of the environment, including the development of policies and regulatory systems, support for the creation of procurement processes for materials and equipment, disseminating technology, and the improvement of business and governance practices in developing countries. Fourth, MDBs can facilitate regional integration by working as honest brokers to reconcile the interests of all parties. Through these roles, MDBs can help to attract more capital

by raising investor confidence.

MDBs help to improve project bankability through their direct and indirect involvement in project progress, formation and expansion. They also provide a variety of coordinating and reconciliation functions. In addition, they make important contributions to cross-border infrastructure projects, including project formation, the development of securitization instruments and other financial products to facilitate financing, technical support, financial and capital market development, and the facilitation of financial integration. Another approach that has already been used within the ABMI is support for national bond market development through bond issues by MDBs.

## **5. Domestic Financial System Development a Priority**

### **(1) Bond Market Development**

In Part 4 we looked at ways to promote the expansion of PPP investment by enhancing project bankability. However, participation by private sector investors will obviously be impossible without a domestic financial system. The immaturity of domestic financial systems in Cambodia, Laos and Myanmar means that most capital for infrastructure development is provided by the government and overseas investors (mostly foreign governments). Clearly the development of domestic financial systems is essential to the expansion of PPP investment.

Infrastructure projects present many difficulties from a financing perspective, including the large scale of projects, long construction periods, the existence of various risks relating construction and operation, and the long period over which income is generated following completion. For these reasons, it is essential not only to raise the overall level of financial systems, but also to expand the range of tools available for long-term financing. These goals will require bond market develop-



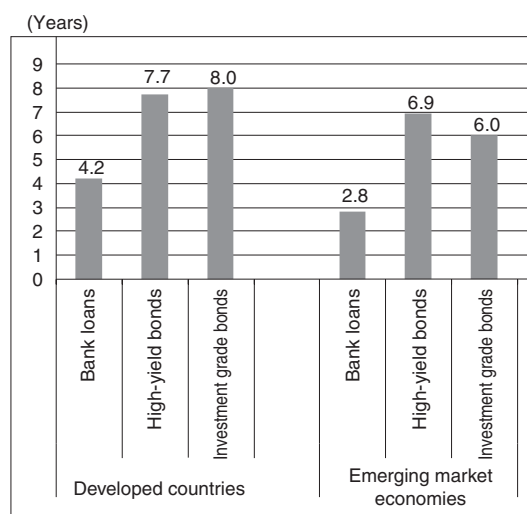
ment, as well as the nurturing of institutional investors.

While European banks are retreating from project finance, banks from major Asian nations, including Japanese banks, and banks within the region are expanding their project financing business in Asia. This trend will heighten the importance of the risk management capacity of banks in Asian countries. The environment in Asia sometimes favors the selection of bank loans for infrastructure financing for a number of reasons, including close relationships between infrastructure-related companies and banks in the same corporate groups, which enables the use of short-term loan roll-overs for infrastructure finance, and the easing of single-borrower limits specifically for infrastructure finance. Agencies responsible for banking supervision will need to achieve a balance between the facilitation of infrastructure finance and the maintenance of financial stability. This situation is expected to encourage the use of bond issues.

From a general perspective, financial system development can make a vital contribution to economic development in Asia, and the efficient supply of capital and the provision of long-term financing instruments are essential to investment growth and the improvement of productivity. However, there are also many issues that will need to be overcome in this context. In Indonesia, for example, the central bank has identified high financing costs and limited access to long-term finance as key problems in the financial system. Reasons for this situation include the weakness of legal frameworks in such areas as creditor rights and corporate governance, and a lack of confidence in the financial system.

According to an analysis by the Group of Thirty, a high-level international consultative group on international issues, the average bank loan term in developing countries is 2.8 years, while the average issue term for investment grade bonds is 6.0 years (Fig. 4). Efforts are being made in Asia to expand the range of long-term financing methods by developing bond markets and institutional investors. However, bond issuers are generally limited to infrastructure-related companies and finan-

**Fig. 4 Average Terms of Financial Instruments**



Source :Group of Thirty [2013] "Long-term Finance and Economic Growth," p.31

cial institutions, and there has been no fundamental change in the bank-centered financial structure that is a characteristic of Asia.

Rising income levels in Asia are reflected in the expansion of the middle class and demographic aging. There is a need for the development of institutional investors, such as pension funds, insurance companies and mutual funds, with the ability to provide asset management services that react to these changes. To avoid the "middle-income trap," Asian countries need to improve productivity through technological innovation and infrastructure development. The creation of long-term financing tools for these purposes is an urgent priority. The ABMI is leading bond market development efforts. One approach to this task would be to encourage issues of infrastructure-related bonds within this initiative.

## (2) Building a Project Bond Market

Bond market development is seen as a way of expanding project bond issues. This is because improvements in the scale and liquidity of the bond market leads to participation by various types of institutional investors. Market stability also improves, and issues accelerate.

Market establishment is the first requirement for the expansion of project bond issues. Several factors must be in place before this can occur. First, an infrastructure development strategy must be established in order to increase the number of projects. If projects in which private sector players can invest are brought to the market regularly, infrastructure projects will be seen as another asset class and considered seriously by institutional investors. Second, the accumulation of transparent data about these projects is essential in order to encourage conservative institutional investors to invest in areas in which they lack experience. Third, the most realistic approach is to issue bonds for brown-field projects, which have relatively low risk levels. One possible scheme would be to use bank loans at the construction stage, when the risk level is high, and then to switch to project bond financing at the stable operation stage. Fourth, infrastructure projects are unlikely to achieve investment grade ratings if rated within the same framework as corporate finance, since the only source of funds for repayment is future cash flows. For this reason, a rating framework designed specifically for project bonds is needed to allow project bonds to be rated according to the certainty of future cash flows. If domestic rating agencies lack the specialized expertise needed to rate infrastructure projects, some measures will need to be employed.

The project bond market is still immature. At this stage, the most effective approaches are ① to expand information sharing and educational activities for market participants, and ② to implement pilot issues as catalysts. If governments pursue these approaches actively, such as by providing guarantees, they are likely to result in market expansion.

The second requirement for the expansion of project bond issues is the reduction of projects risks and the improvement of credit ratings in order to meet the criteria for investment by institutional investors. Specific approaches include the improvement of PPP frameworks, and the provision of guarantees.

The third requirement is to encourage the formation of infrastructure-related bond funds, which

facilitate investment from the viewpoint of diversifying risk. There are funds that invest in the shares of infrastructure-related companies, but as yet there are few funds that target infrastructure-related bonds.

Because guarantees increase the costs for issuers, another approach is to raise the risk tolerance of the bond market. Possible methods include the development of high-yield bond markets, and securitization. However, the level of securitization transactions remains low in Asia, and the expansion of this type of activity will be a long-term priority.

### (3) Fostering Institutional Investors

The main types of investors in project bonds are likely to be institutional investors and individuals. Measures to nurture and strengthen these investors will therefore play an important role.

A small number of large funds that manage public money, including sovereign wealth funds and national pension funds, have a very strong presence in Asia (Table 14)<sup>(16)</sup>. Financial systems in Asian countries are at various stages of develop-

**Table 14 Assets of Institutional Investors as Percentages of GDP**

	Pension funds	Insurance companies	Investment trusts	Total (%)
China	10.2	14.3	5.1	29.6
Japan	50.5	98.8	30.5	179.8
South Korea	51.7	58.1	18.2	128.0
Indonesia	5.1	7.0	6.1	18.2
Malaysia	65.9	23.0	58.9	147.8
Philippines	10.7	8.1	6.5	25.3
Singapore	68.6	41.7	488.2	598.5
Thailand	12.2	22.5	32.9	67.6
Brunei	n.a.	6.9	n.a.	6.9
Vietnam	7.4	3.7	2.5	13.6

Notes: As of 12/31/2014 in most cases. Data not available for Cambodia, Laos and Myanmar.  
Source: ADB [2015b]

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ment, and there is also variation in the scale of institutional investors as percentages of GDP. Institutional investors are relatively large in economies with advanced financial systems, such as Hong Kong, Singapore, South Korea and Malaysia. In addition, sovereign wealth funds are actively engaged in asset management in some countries, especially China and Singapore. Sovereign wealth funds consist mainly of surplus foreign currency, and little of this money is invested domestically.

While some institutional investors are expanding, those in most Asian countries are still in the initial stages of development, and their assets are generally increasing slowly as percentages of GDP. This situation indicates that there is still considerable scope for future growth and development.

Measures designed to develop institutional investors include ① the creation of an institutional investor development vision by the government, ② efforts to encourage the development of financial instruments that can be supplied by institutional investors, ③ the diversification of sales channels for these financial instruments, and the improvement of investor education for buyers of these instruments, ④ the promotion of competition among institutional investors, ⑤ the easing of regulations governing the asset management activities of institutional investors, and ⑥ the achievement of financial stability through the development of a regulatory framework for institutional investors.

Given the high risk level of infrastructure investment, it is especially important to strengthen institutional investors and heighten their risk tolerance, so that they can ease their investment criteria and expand their infrastructure investment. One way for institutional investors to acquire specialized knowledge of infrastructure investment is through partnership with foreign institutional investors that already have such expertise<sup>(17)</sup>. As noted previously in this article, it is also extremely important to educate investors about infrastructure investment, and to undertake promotional activities.

#### **(4) Expanding Investment in Infrastructure Funds**

Most infrastructure investors invest through infrastructure funds, rather than directly in individual projects<sup>(18)</sup>. Infrastructure funds are used mainly to provide equity and mezzanine finance. Fund managers aim to earn profits from business and are often actively involved in business management. There are listed funds and privately subscribed funds (such as limited partnerships). There are also many funds, known as “funds of funds,” that provide capital for other funds. Other types include primary funds, which participate until the completion and initial operation of projects and then sell out, and secondary funds, which participate from the operating stage.

Infrastructure funds have been used extensively since the 1980s to mobilize private sector capital in the United Kingdom and Australia, which had substantial fiscal deficits. According to ADB [2013], the assets of funds involved in infrastructure investment in Asia amount to \$22 billion. The majority of investors are from the United States, but South Korean and Indian investors also play a significant role. There are many tax incentives for investment in infrastructure funds. These appear to be an important method for encouraging infrastructure investment.

### **6. Utilizing Foreign Capital**

#### **(1) Attracting Investment Capital from Developed Countries and from Countries within the Region**

Asia still has few large-scale investors, and most of them are still at the developing stage. For this reason, the region will continue to need capital brought in from other countries in the foreseeable future.

Assets managed by the world’s institutional in-

vestors amount to about \$100 trillion<sup>(19)</sup> (Fig. 5). According to an estimate by *CityUK*, assets managed by pension funds, insurance companies and mutual funds amounted to \$33.9 trillion, \$26.5 trillion, and \$26.1 trillion respectively at the end of 2012. Assets held by sovereign wealth funds and central banks are thought to total around \$15 trillion. The enormous size of these assets becomes apparent when they are compared with America's nominal GDP of around \$18 trillion.

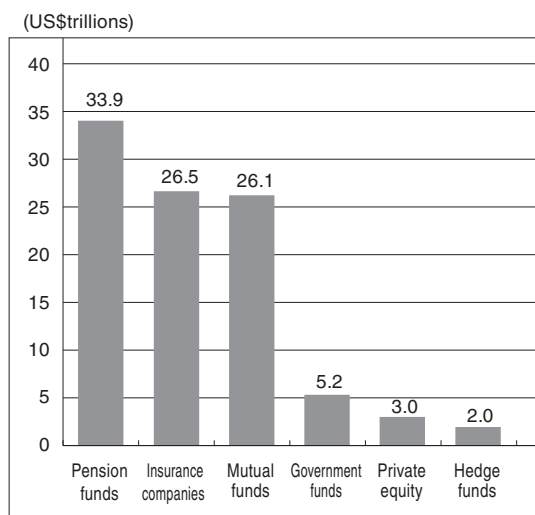
Of the \$85 trillion held by all pension funds, insurance companies and mutual funds, about \$32 trillion, or 38%, is invested in publicly traded equity, with the remainder being invested in fixed-income securities. However, the targets for infrastructure investment as a percentage of the assets managed by each type of investor are tending to rise. Current targets are around 2.5% for insurance companies, around 8.0% for superannuation schemes, and 4.5-6.0% for other types of investors. While the liquidity of infrastructure investment is low, yields are high, and in recent years this type of investment has matched a preference for high-yield assets on the part of investors. Moreover, securities that have traditionally offered high liquidity have frequently become less liquid as a result of shifts in the international financial environment. This has enhanced the relative value

of infrastructure investment, which has always been characterized by low liquidity.

Even a small percentage of \$85 trillion invested in infrastructure would have a major impact. That is why it is so important to encourage infrastructure investment by institutional investors. From this perspective, it seems obvious that foreign investment should be used to develop infrastructure in Asia. The fact that the percentage of assets held by foreign investors in Asian government bond markets has risen substantially since the 2008 global financial crisis is clear evidence of growing interest in Asia (Fig. 6). This interest needs to be directed toward infrastructure investment.

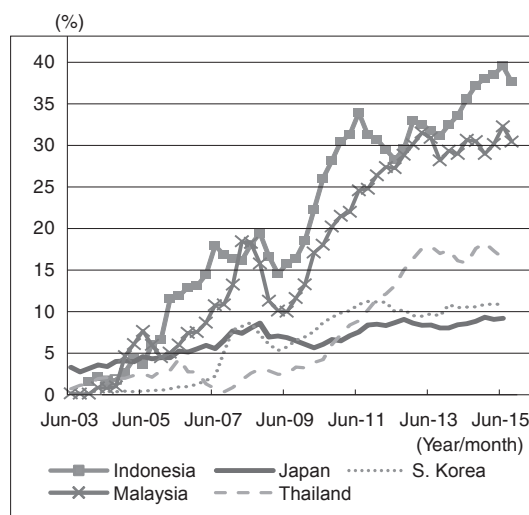
The diversity of financial development levels in Asia is apparent from the high level of project bond issues in Malaysia, and the lack of well-developed financial systems to supply private sector capital in Cambodia, Laos and Myanmar. Because of this situation, it is important to use private sector capital from within the region as well as from developed countries. Potential providers of capital include banks and institutional investors in Japan, China, South Korea, Singapore and Malaysia. Infrastructure investment should also be facilitated through accelerated progress toward regional financial integration. It is becoming increasingly important to expand transfers of capital from

**Fig. 5 Assets under Management of Institutional Investors (World Totals, End of 2012)**



Source: Arezki et al. [2016], p.42

**Fig. 6 Foreign Ownership of Government Bonds Denominated in Local Currencies**



Source: Asian Bonds Online

countries with capital surpluses, such as Japan, China and South Korea, to countries with capital deficits, including Indonesia and the Philippines.

ASEAN financial integration and other forms of regional financial integration have been the focus of initiatives in various forums. One example is the ASEAN Infrastructure Fund (AIF)<sup>(20)</sup>, which was established in 2012. Although the AIF is limited to initiatives using official capital, it is a mechanism that will promote regional financial integration in relation to infrastructure investment.

Information sharing among organizations and forums involved in infrastructure investment initiatives, such as the ADB, ERIA, ASEAN+3, ASEAN and APEC, is also likely to be effective. Another possible approach would be to expand geographical scope of ASEAN's integration efforts. For example, consideration could be given to measures to encourage Japan, China, South Korea and India to participate in the AIF.

## (2) Lowering Barriers to Cross-Border Investment

One of the steps needed to accelerate investment from overseas is the liberalization of rules that hinder investment. Because of the strategic importance of the infrastructure sector, many countries restrict direct investment or equity investment. Improvements are also needed in relation to problems that affect domestic investors, such as political risk, restrictions on land acquisition, and inadequate contract enforcement mechanisms, since these issues also hinder foreign investment.

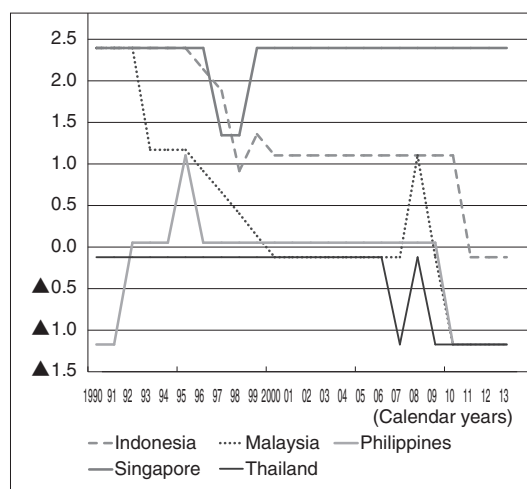
Ananchotikul et al. [2015] identifies several factors that help to accelerate cross-border capital transactions and are also likely to benefit infrastructure investment. First, there should be no regulations that directly restrict capital transactions, and there should be progress toward openness. For example, increased penetration by foreign banks is seen as a factor that drives growth in cross-border transactions. Second, information asymmetry should be small. Infrastructure investment

also benefits when as much information as possible is disclosed. Third, the quality of financial sector regulation and institutions should be similar. While it is not possible to achieve the same level of quality in all countries, a commitment to harmonization is likely to have a positive effect. Fourth, financial systems should be highly developed. Improvements in domestic financial systems bring progress toward financial integration.

Investment is also impeded by factors relating to bond markets, such as low market liquidity, small market size, withholding tax systems, and the immaturity or instability of the currency swap market. Priority should be given to the alleviation of these problems, including the abolition of withholding taxes, and the improvement and stabilization of the currency swap market.

Most capital transaction regulations in ASEAN members limit the external use of domestic currencies, external lending in local currencies, and foreign exchange risk hedging by investors (Fig. 7). Another factor is the "real demand principle" applied to domestic foreign exchange markets, which prevents foreign exchange transactions that are not backed by trading or financial transactions<sup>(21)</sup>. There are also legal system issues

**Fig. 7 Capital Transaction Regulations (Chinn-Ito Index)**



Notes :The above index figures are calculated from IMF's Annual Report on Exchange Arrangements and Exchange Restrictions. The bigger figure means fewer restrictions.

Source : [http://web.pdx.edu/~ito/Chinn-Ito\\_website.htm](http://web.pdx.edu/~ito/Chinn-Ito_website.htm)

that prevent the expansion of transactions in derivatives and repos, such as ways in which counterparty bankruptcies are handled.

These factors are hindering the development of onshore foreign exchange markets and reducing the willingness of foreign investors to establish foreign exchange hedging in onshore markets. Most investors use non-deliverable forwards (NDFs) in offshore markets for foreign exchange hedging. Foreign exchange transactions should be facilitated through the integration of onshore and offshore markets. Lessons learned during the 1997 financial crisis led authorities to isolate onshore markets in order to curb speculative transactions. Obviously this aspect needs to be taken into account, but there should be a phased revision of the real demand principle and restriction on capital transactions. Other essential step is the revitalization of foreign exchange transactions through improvements to the relevant aspects of domestic laws and regulations, and to the liquidity of domestic bond markets.

### (3) Expectations toward Investment from Japan

Since the 2008 global financial crisis, Japanese institutional investors have responded to a low-interest-rate, weak-yen environment by increasing their investment in Asian government bonds (Table 15). Some have even established units specializing in investment in developing countries. However, there is still a tendency to avoid foreign exchange risks and prefer securities denominated in major currencies over those denominated in local currencies. In some countries, restrictions on transactions or the imposition of withholding taxes have become obstacles to investment in securities denominated in local currencies. In addition, interest in investment in Asia has tended to wane in recent years because of the increasing volatility of the international financial situation.

As of March 31, 2015, the total assets of Japanese investors were estimated to be worth ¥1,901 trillion, consisting of ¥1,584 trillion in household assets, and ¥317 trillion in pension funds<sup>(22)</sup>. This is an extremely large amount when viewed from an Asian perspective. Asia is vital to Japan's own growth, and there has been a dramatic increase in

**Table 15 Balance of Japanese Investment in Foreign Long-Term Bonds**

	(US\$millions)											(Times)
	2002	2004	2006	2007	2008	2009	2010	2011	2012	2013	2014	2014/2009
Hong Kong	1,137	547	701	849	992	1,390	1,443	1,892	3,509	2,896	4,226	3.0
China	578	529	414	458	496	521	494	516	574	1,157	847	1.6
Indonesia	49	74	435	604	837	1,792	2,646	2,623	4,131	3,487	3,738	2.1
South Korea	5,348	5,234	5,752	8,117	11,129	8,440	11,650	17,056	18,756	20,195	15,340	1.8
Malaysia	1,823	1,140	1,038	2,031	2,171	2,509	2,773	2,731	3,816	3,550	5,421	2.2
Philippines	1,389	1,237	1,493	1,635	1,388	1,477	2,908	2,563	2,619	2,086	1,901	1.3
Singapore	680	1,320	3,136	3,872	2,854	3,595	4,664	5,389	8,782	8,666	10,609	3.0
Thailand	550	693	111	289	452	684	851	841	1,308	2,741	3,982	5.8
Vietnam	32	41	37	64	22	33	38	35	44	34	40	1.2
Asia total(a)	11,586	10,815	13,117	17,919	20,341	20,441	27,467	33,646	43,539	44,812	46,104	2.3
World (b)	1,135,519	1,610,016	1,811,986	1,924,829	1,952,628	2,224,756	2,636,112	2,683,676	2,811,498	2,674,971	2,162,270	1.0
(a)/(b) (%)	1.0	0.7	0.7	0.9	1.0	0.9	1.0	1.3	1.5	1.7	2.1	

Source: IMF, *Coordinated Portfolio Investment Survey*

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information flows relating to Asia. This situation has become a stimulus for investment in Asia by institutional investors. Support for infrastructure development in Asia has become an increasingly important policy priority, and there are hopes that infrastructure development will benefit from the expansion of overseas leading and securities investment by Japanese banks and institutional investors.

Japanese banks and institutional investors face an increasing need to diversify their asset investment activities. This is reflected in an upward trend in their holdings of foreign securities and other overseas assets. While banks and institutional investors need to consider the increased burden of risk management and administrative management resulting from this trend, there is a significant possibility that Asian infrastructure-related financial instruments will be improved and expanded, creating a mechanism that will encourage Japanese investors to expand their holdings.

In this article we have focused on the need to inform and educate institutional investors about infrastructure investment, to reduce investment risks, to create investable instruments, and to lower barriers to cross-border investment. These factors also apply to Japanese investors.

## Conclusions

This article has examined approaches to the expansion of private sector capital to fund infrastructure investment in Asia. Access to private sector capital is obviously an important priority because of the enormous amounts of funds needed for infrastructure development. There are many barriers to investment, however. Legal frameworks and institutions for PPP investment are still at the development stage in Asia, and risk levels are high, with the result that it is not easy to find investors. Access to domestic capital is also difficult because of the immaturity of domestic financial systems.

These obstacles need to be overcome through the various initiatives described in this article. Given the long-term nature of infrastructure in-

vestment, efforts to improve domestic financial systems must include the nurturing of institutional investors and the development of the bond market, for the purpose of expanding long-term financing methods.

The expansion of long-term financing methods has been the focus of efforts spanning many years in the ABMI and other forums. While there has been significant progress, many problems still remain. For this reason, it will not be easy to expand PPP investment using domestic capital. Economic development provides impetus for financial system development, and vice versa. Countries at relatively low stages of development, such as Cambodia, Laos and Myanmar, must inevitably rely on foreign capital.

Given this situation, it is essential that the Japanese government should help Asian countries to improve their PPP-related laws, regulations and institutions. In addition to official financial assistance, the Japanese government also needs to consider ways to expand investment by Japanese banks and institutional investors.

In the past, there has been little participation by Japanese companies in infrastructure projects supported by the ADB. As Japan expands its support for PPP projects as part of the reinforcement of its infrastructure export strategy, many Japanese companies are expected to become involved in infrastructure investment.

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## End Notes

1. UNESCAP [2015], p.23.
2. UNESCAP [2015], p.24.
3. ADB and ADBI [2009], p.22.
4. OECD [2015], p.8.
5. Infrastructure is not limited to these four sectors, but this survey emphasizes connectedness, and any infrastructure that does not contribute directly to that has basically been excluded.
6. See Kaga [2013], p.138.
7. See Arezki et al. [2016], p.7.
8. Case studies for each country are based on ADB[2015b].
9. The following description is based on material distributed at a PPP seminar hosted by the ADB in Tokyo in March 2016.
10. UNESCAP [2015], p.30.
11. This analysis is based on Argawal [2014] (P.20) and Ray [2015].
12. The improvements needed to make projects bankable are known as the “viability gap.”
13. See World Bank et al. [2014], pp.78-82.
14. This analysis is based mainly on Schwartz et al. [2014].
15. This is based on an interview with CGIF staff.
16. This analysis is based on Horie [2012].
17. In developed countries, institutional investors (especially pension funds) are increasingly collaborating to allocate funds for infrastructure investment. Such initiatives are likely to expand in the future, since this approach not only increases the scale of asset management activities, but also allows relatively small investors to offset their lack of knowledge about infrastructure investment.
18. The following description is based on Kaga [2010], pp.353-355.
19. The following comments are based on Arezki et al. [2016], p.5.
20. The AIF was established in Malaysia with contributions of \$335 million from ASEAN members and \$150 million from the ADB.
21. The following analysis is based on ADB [2015a].
22. Based on Nomura Research Institute [2015].



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