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**Fiscal Policy Coordination in Asia:  
East Asian Infrastructure  
Investment Fund**

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**Abstract**

East Asian countries were seriously affected by the 2008 global crisis through a steep fall in exports. This experience exposed the vulnerability of the East Asian growth model and emphasized the importance of generating regional growth by expanding domestic demand and enlarging intra-regional trade. A key factor to achieving higher regional economic growth and enlarging intra-regional trade is the better connectivity of infrastructure such as roads, ports, airports, and rail links. Although some East Asian countries have made large investments in improving their infrastructures, others still lag behind. In response to the global crisis, East Asian countries have allocated a significant proportion of their stimulus packages to infrastructure development. While these investments have improved national facilities, East Asian countries will only be well connected when there are good cross-border infrastructures in place. This requires a large amount of funding, and funds from both within and outside the region could be mobilized to fulfill these huge financing needs. Hence, an East Asian Infrastructure Investment Fund (EAIIIF) is proposed to provide a mechanism to organize this funding and to be a platform for deciding on cross-border infrastructure projects. The EAIIIF would be anchored to the existing Association of Southeast Asian Nations+3 mechanism with the leader's summit being the apex of the decision making process. A four-level mechanism is proposed, consisting of cooperation amongst political leadership; a steering committee and secretariat for executing the decisions of the leaders; fund mobilization; and the implementation and monitoring of projects. Projects chosen could be those with a high rate of commercial returns or those with the highest social benefits. The EAIIIF would invite the private sector to participate by setting a framework for the sharing of risks between the public and private sectors. Likewise, there would also be a sharing of risks between countries.

**JEL Classification: H40, H54, E61, E63, F15, F55**

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## 1. INTRODUCTION

The current global financial crisis has exposed the vulnerability of East Asia's growth model, which is heavily dependent on exports. Faced with the present global economic downturn, East Asian countries have adopted the same approach as the United States (US) and European Union (EU), which is to use the public sector, through fiscal stimulus programs, to expand domestic economic activities and replace losses resulting from fewer exports to the US and EU. In most East Asian countries, fiscal stimulus programs are large to compensate for the decline in domestic production as a result of the steep shortfall in exports. The measures to expand the domestic economy include both direct fiscal expenditure and other indirect measures such as bank credit guarantees.

The fiscal stimulus introduced in response to the global financial crisis by East Asia was unprecedented in terms of size and coverage. The scale of the stimulus package reflects the severity of the crisis and as a result many countries are likely to incur significant fiscal deficits in 2009. Low national public debt and sufficient domestic liquidity have helped in financing these stimulus packages. Some measures are targeted to the most affected groups—the poor and unemployed. Some East Asian countries are also using these measures to strengthen their foundation for long-term economic growth particularly through green and efficient technology. However, quantitatively evaluating the effectiveness of these measures is not easy because the effects are indirect and will only be felt in the long term.

In most East Asian countries, a substantial portion of the fiscal stimulus packages are dedicated to infrastructure projects because of the projects' extensive multiplier effects and ability to meet the countries' developmental needs. The infrastructure investments made were in physical facilities such as roads, bridges, ports, and airports, and in other basic needs such as the provision of water, a more efficient energy supply, and sustainable environmental management.

The fiscal stimulus programs have been geared primarily towards reviving the slumping East Asian economies in the immediate term. However, the crisis has also highlighted the region's need to create long-term sources of growth and to reduce its dependency on the US and EU by increasing its own final demand, strengthening regional production links, and expanding intra-regional trade. Thus, the fiscal stimulus packages also include long-term measures to build capacity such as by building infrastructure and developing efficient and environmentally sustainable technologies. Developing regional infrastructure is essential for this purpose because less developed countries in East Asia can be connected to the more developed ones. In this way, the economically depressed areas of East Asia, most of which have relatively large populations, can also enjoy higher development by being linked to growth centers. The economically depressed areas will in turn provide a future market for the region's goods and services, which will ensure balanced regional growth that is not just concentrated in a few countries or areas. Each East Asian country can invest in its own national infrastructure project that can be then linked to form a regional infrastructure network. Alternatively, national or regional infrastructure projects could fill in missing links to complete existing unfinished networks.

There are already some cross-border regional infrastructure investments, such as those initiated by the Asian Development Bank (ADB) and the Government of Japan. Both of these institutions support the development of the Greater Mekong Sub-region (GMS). The Japanese Official Development Aid (ODA) programs have been an early initiator of national infrastructure in the region especially in the Association of Southeast Asian Nations (ASEAN) countries. More recently, roads have been built to link the southern part of the People's Republic of China (PRC) with the Lao People's Democratic Republic (PDR), Thailand, and Viet Nam.

Cross-border regional investment will call for innovative measures to overcome a variety of challenges because by nature these investments are generally huge and their gestation period is long. Raising the necessary funds is a major challenge for these infrastructure projects. Generally, infrastructure is financed from public funds or by multilateral institutions, but since the amount of financing needed is large, the private sector may have to do their part and support the two traditional sources of financing. The recycling of East Asia's international reserves and savings has also been considered as an additional source of funding. In addition, the funding mechanism is also an important consideration—should new, specialized financial institutions be created, or should the roles of existing arrangements and institutions be expanded?

Since these infrastructure investments involve a number of countries, effective implementation, including regulatory compatibility, is critical. The structure surrounding decision-making and implementation should be efficient, and yet it must allow all parties concerned to be involved, particularly at the local level. The relevant governments should be ready to smooth the implementation process, anticipate and avert conflicts and delays, and generally “grandfather” these complicated projects.

This paper continues in Section 2 by summarizing the impact of the present global crisis. An assessment of the East Asian fiscal response follows in Section 3, and Section 4 examines the sustainability of the fiscal stimulus. Section 5 discusses the benefits of East Asian infrastructure investment, while Section 6 covers the region's infrastructure needs. The challenges of regional infrastructure investment are covered in Section 7. Section 8 discusses the regional infrastructure investment funding mechanism and the conclusion is given in Section 9.

## **2. IMPACT OF THE PRESENT GLOBAL CRISIS ON EAST ASIA**

East Asia was not directly affected by the financial sector meltdown in the US and EU due to its relatively sound and conservative financial sector. The East Asian financial sector was structurally sound because of the measures introduced during the 1998 Asian financial crisis, such as higher capital adequacy ratios, better quality of capital, and more stringent corporate governance. However, it has been badly affected indirectly through the collapse of exports and consequentially a decline in domestic production and rising unemployment.

The impact on East Asia began to be felt from the third quarter of 2008 through the sharp fall in exports. Thus, it was not surprising that the overall 2008 gross domestic product (GDP) growth rate was much lower than had been seen in the early months of 2008. Brunei Darussalam and Japan experienced recession in 2008, while Hong Kong, China; Republic of Korea; Singapore; Thailand; and Taipei, China grew feebly. The full impact of the crisis on the East Asian economies was felt in 2009. As shown in Table 1, eight out of the 15 economies in East Asia contracted, with Singapore recording the worst economic performance (-9.99%) The 2010 GDP projections forecast weak growth.

**Table 1: Gross Domestic Product (Annual Percentage Change)**

Number	Country	2008	2009 (Forecast)	2010 (Forecast)
1	Brunei Darussalam	(1.51)	0.24	0.60
2	Cambodia	6.03	(0.51)	2.99
3	PRC	9.05	6.52	7.51
4	Hong Kong, China	2.48	(4.47)	0.52
5	Indonesia	6.06	2.50	3.50
6	Japan	(0.64)	(6.20)	0.52
7	Republic of Korea	2.22	(4.02)	1.53
8	Lao PDR	7.22	4.38	4.72
9	Malaysia	4.64	(3.50)	1.34
10	Myanmar	4.54	5.02	4.03
11	Philippines	4.64	3.40	0.97
12	Singapore	1.15	(9.99)	(0.11)
13	Thailand	2.58	(2.97)	1.04
14	Taipei,China	0.12	(7.46)	0.01
15	Viet Nam	6.51	3.27	3.97

PRC = People's Republic of China, Lao PDR = Lao People's Democratic Republic.

Source: 2009 World Economic Outlook Database, International Monetary Fund.

As might be expected, the severity of the economic downturn is related to the magnitude of each country's exposure to the global economy. For example, Singapore's trade-to-GDP ratio of 447 (World Trade Organization 2007) caused the very steep fall noted above. The effects of the decline in exports can be seen through the shrinking of industrial production. Table 2 shows that in the fourth quarter of 2008, in the nine countries sampled, industrial production and manufacturing production was less than in the third quarter of 2008. The fall in industrial production was much more pronounced in the first quarter of 2009: Japan, in particular had a very sharp drop.

**Table 2: Industrial/Manufacturing Index (2000=100)**

No.	Country	Q22007	Q32007	Q42007	Q12008	Q22008	Q32008	Q42008	Q12009
1	PRC	118.3	118.1	117.5	—	115.9	113.0	106.4	—
2	Hong Kong, China	81.1	87.8	88.4	71.9	77.7	81.9	79.3	61.9
3	Indonesia	122.7	128.9	124.8	124.3	126.7	130.9	126.6	124.5
4	Japan	105.6	108.8	113.5	110.9	106.6	107.4	97.3	69.2
5	Republic of Korea	154.6	152.0	169.6	163.7	168.4	160.4	150.6	—
6	Malaysia	134.6	139.1	140.5	138.7	138.8	139.5	127.7	123.6
7	Philippines	138.5	144.3	151.8	134.6	149.2	158.9	151.1	—
8	Singapore	141.3	156.6	148.5	151.9	133.3	139.3	132.6	—
9	Thailand	171.9	181.9	191.9	199.3	189.3	195.8	176.4	162.5

PRC = People's Republic of China.

Source: International Financial Statistics, International Monetary Fund.

The quantum of export fall in East Asia was unprecedented. For example, from November 2008 to April 2009, Japanese exports declined by about 40% year-on-year, as shown in Table 3. The sharpest fall was in high- and medium-technology manufacturing, in which East Asia participates strongly in supply-chain networks, for example in the production of motor vehicles, electronic goods, and capital machinery. Drastic falls in the volume of business of East Asia's trading partners between September 2008 and February 2009 reduced exports to 30% of their earlier levels. The magnitude of the current crisis is one-and a-half times the

Asian Crisis and almost three times the information technology sector bust (International Monetary Fund 2009).

**Table 3: Export Performance for Selected East Asian Countries**  
(Percentage Change Year-on-Year)

Country	Dec 2008	Jan 2009	Feb 2009	Mar 2009	Apr 2009	May 2009
PRC	(2.8)	(17.5)	(25.8)	(17.2)	(22.6)	(26.4)
Indonesia	(34.6)	(35.9)	(27.9)	(26.0)	(25.4)	(26.3)
Japan	(20.1)	(40.6)	(46.8)	(37.7)	(36.2)	(36.2)
Republic of Korea	(17.9)	(34.5)	(18.5)	(22.5)	(19.9)	(29.4)
Malaysia <sup>a</sup>	(14.9)	(27.9)	(15.9)	(15.6)	(26.3)	(29.7)
Singapore	(22.0)	(40.2)	(29.1)	(28.2)	(33.0)	(30.8)
Thailand	(12.8)	(26.7)	(12.1)	(25.5)	(23.4)	(20.9)

PRC = People's Republic of China.

a = data includes on cost, insurance and freight

Sources: United Nations' Monthly Bulletin of Statistics Online and Malaysian Ministry of International Trade and Industry.

Sharp falls in exports from East Asia created excess capacity that led in some cases to excess inventories in related manufacturing and construction sectors. The number of (registered) unemployed workers rose by 0.6 million during 2008 (World Bank 2009). The World Bank expects that the labor markets in the region are soon going to experience shifts in employment across sectors combined with declining real wages. There is a strong likelihood that unemployment will further increase causing a rise in poverty. The incidence of poverty in absolute terms is expected to increase in 2009, especially in Cambodia, Malaysia, and Thailand (World Bank 2009).

As noted above, the real economy will bear the brunt of the current crisis, but the capital markets and financial sectors of the region will not remain unscathed. East Asia's financial ties with the US and EU have deepened since the 1998 crisis; cross-border bank flows into the region and corporate borrowing from international bond markets have both increased. Asian banks expanded their reliance on wholesale funding and the proportions of non-Asian equities and securities held by Asian residents have soared. Likewise, a large amount of capital from the US and EU has flowed into Asia for investment in equity markets. Not surprisingly, when business confidence was shaken due to financial troubles in East Asia's developed countries, investors started to withdraw their funds from the region as part of a de-leveraging process. The massive capital outflows in the region were visible in the precipitous falls in stock market values across the region—during the period from January to October 2008, the stock markets of Shanghai, Indonesia, and Thailand fell by 58.7%, 40.7%, and 37.3% respectively.

The Asian financial crisis in 1997–1998 demonstrated the importance of the exchange rate in creating or ameliorating a crisis. In the current financial crisis, the impact of the exchange rate has been less severe than that experienced in 1997–1998, with the exception of Indonesia and the Republic of Korea. The won and the rupiah depreciated by about 20% and 10% in nominal effective terms between September 2008 and March 2009 (International Monetary Fund 2009). Bucking the trend, the Japanese yen has appreciated by about 25% in nominal terms during the same period, following the unwinding of carry trade positions and narrower interest rate differentials against key countries. Japan's trade balance, which for the past thirty years had been in surplus, reversed because of a stronger yen and lower export earnings. The main currency problem East Asia has had during the global crisis so far has not been exchange rate volatility or sharp depreciation but a shortage of US dollars, especially in late 2008, which led to the difficulties faced by central banks and monetary authorities in meeting the demand for the US dollar.

### 3. EAST ASIAN RESPONSE MEASURES

Falling export revenues, the inability of the private sector to generate growth, and the fears of a prolonged contraction have led East Asian governments to take a leading role in expanding domestic demand by introducing stimulus measures, as shown in Table 4. This strong public sector response is remarkable because of its unusually large size, scope, and number of countries involved. Japan has the largest stimulus package both in terms of total size and as a percentage of its GDP (US\$568 billion), followed by the PRC (US\$585 billion), and the Republic of Korea (US\$84 billion). Malaysia and Singapore also had sizeable stimulus packages, indicating the severity of the economic contraction. Details of the individual stimulus measures are given in Table 5. As a result of the stimulus packages, East Asian government budget surpluses have deteriorated into deficits of between 2% and 8%.

**Table 4: Fiscal Stimulus Packages in East Asian Countries**

Country	Amount in US\$ (billions)	As a Percentage of 2008 GDP
PRC	585.0	13.3
Indonesia	6.1	1.2
Japan	568.0 <sup>a</sup>	11.5
Republic of Korea	84.0	8.9
Malaysia	18.1	8.1
Philippines	6.5	3.9
Singapore	13.8	7.6
Thailand	3.3	1.2
Viet Nam	1.0	1.1

GDP = Gross Domestic Product.

<sup>a</sup>The figure quoted here for Japan's stimulus package takes into account all four stimulus packages, but includes only the US\$51 billion of new spending from the second stimulus package.

Sources: The stimulus package amounts are taken from the Economic & Social Commission for Asia and the Pacific and other official government websites. 2008 GDPs are from the International Monetary Fund country database.

**Japan** announced a series of stimulus packages, which totaled 11.5% of its GDP. However, Japan's announcement of its stimulus package may have been made less effective by the fact that it was injected in several small doses every three to four months. The first package was introduced in August 2008 and amounted to US\$107.5 billion, which was equivalent to 2.2% of Japan's GDP. It was comprised of mainly non-spending measures such as lower road tolls, fuel subsidies, loans to businesses, assistance to farms, and help for part-time workers to find better jobs.

The second stimulus package was announced in October 2008. From a total of US\$275 billion, US\$51 billion was new spending. More than US\$20 billion, or 40% of the total new spending, was a bank rescue plan; the other US\$20 billion (40%) was issued in US\$600 handouts to every household of four. The third package amounted to US\$255 billion, of which 44% (US\$111 billion) was tax breaks, public financing, and corporate tax cuts from 22% to 18% for small and medium enterprises (SMEs). The other 56% (US\$144 billion) went to capital injections. A fourth package amounting to US\$154.5 billion, equivalent to 3.2% of the GDP, was announced on 4 April 2009. The measures were aimed at stimulating the *green economy*, creating four million new jobs, and helping corporate finance. The package also involved strategies to reinforce Japan's competitiveness.

Faced with an aging population and high public debt, Japan may have introduced substantially more non-spending measures in their stimulus packages. However, the government may face difficulties reversing those policy decisions, especially those to lower toll rates, provide fuel subsidies, and introduce corporate tax cuts for SMEs. The Japanese banking system is also one of the few in East Asia to be affected by the global financial

crisis, and part of the second stimulus package included US\$20 billion in capital injection to stabilize the financial system. This raised controversies over the support for *zombie banks* that lend to inefficient sectors; a practice that is unlikely to lead the country out of recession. According to ADB, Japan's fiscal deficit is expected to widen from 1.4% of the GDP in 2008 to 6.8% of the GDP in 2009.

On 22 October 2009, the new Japanese government under control of the Democratic Party of Japan retracted the use of about US\$32 billion from the fourth US\$154.5 billion stimulus package previously announced. It is likely that the money will be redirected toward alternative projects.

**The PRC** announced the largest single fiscal stimulus package in November 2008, which was equivalent to 13.3% of its GDP. The PRC was the East Asian nation to spend the most on infrastructure. Slightly more than 86% of the PRC's stimulus package went to infrastructure spending, out of which 45% was for road, rail, and airport infrastructure (CNY1.8 trillion), 9.5% was for improving electricity, water, and road infrastructure in rural areas (CNY370 billion), 7% was for low income housing (CNY280 billion), and 24.7% was for the reconstruction of towns devastated by the May 12, 2008, earthquake. The remainder of the stimulus package went to healthcare and education (CNY40 billion or 1% of the total package), ecological and environmental protection (CNY350 billion or 8.8%), and technical innovation (CNY160 billion or 4%).

It is not clear exactly how much of the PRC's US\$586 billion stimulus package was actually new spending and not just infrastructure plans that were brought forward in 2009. There is probably less contention on the long-term sustainability of the PRC's fiscal deficit as the type of spending appears to be non-recurring reconstruction and infrastructure expenditure, although a smaller percentage of this may be needed for future maintenance. Despite its large fiscal stimulus, only 1% of the PRC's stimulus package was allocated for irreversible spending on healthcare and education. In January 2009, however, the Government of the People's Republic of China undertook a fiscal expenditure of US\$124.3 billion and significant steps on healthcare reform were taken to provide basic medical security for all citizens, improve the quality of medical services, and make medical services more accessible. Although the PRC's first stimulus package was large, its fiscal deficit remains relatively low within the region, rising from 0.4% in 2008 to 3.2% in 2009.

**The Republic of Korea** announced three stimulus packages in quick succession (December 2008, January 2009, and March 2009). The US\$26 billion stimulus in December 2008 was called the "2009 Budget and Public Fund Operations Plan to Overcome Economic Difficulties" and was focused on infrastructure. It included projects to advance the metropolitan economy and expand the provincial traffic network. The Republic of Korea's second stimulus package was called the "Green New Deal Job Creation Plan" and it involved infrastructure spending on green transportation networks and clean water supplies, carbon reduction and stable supply of water resources, and new industrial and information infrastructure and technology development.

For the third stimulus package, the Government of the Republic of Korea amended tax laws by including incentives for the restructuring of financially distressed companies, establishing a bank recapitalization fund, and providing investment incentives for Korean expatriates.

**Malaysia's** first stimulus package (US\$1.9 billion) was introduced in November 2008, followed by another (US\$16.2 billion) in March 2009. Nearly 43% of the first package was for infrastructure, providing for the upgrade, repair, and maintenance of public amenities (such as schools, hospitals, roads, quarters for police and armed forces, and police stations), the building of more low-cost houses, improvements in public transport, and the implementation of broadband Internet access.

Malaysia's second stimulus package was 8.5 times larger than the first and equivalent to 7.3% of its GDP. Nearly half (48%, RM25 billion) went to assist the private sector as bank

guarantees for SMEs. Another 32% went to infrastructure, but of this sum, a substantial portion went to maintenance rather than new spending on public facilities. Seventeen percent of the spending from the second stimulus was targeted at the vulnerable through food, toll, and fuel subsidies, and support for low-cost housing and for retrenched workers; while the remaining 3% was directed towards reducing unemployment and increasing job and training opportunities. Although a total sum of RM60 billion was announced for this second stimulus, the actual spending in 2009 and 2010 was only RM10 billion. Tax incentives amounted to RM3 billion and RM10 billion was for strategic investment by the national sovereign wealth fund. With the stimulus package relatively large compared to its GDP, Malaysia's fiscal deficit is estimated to be much higher than the other countries in ASEAN, rising from 4.8% in 2008 to 7.6% in 2009.

**Singapore** introduced a US\$13.8 billion stimulus package in January 2009. Twenty-one percent was for spending on public sector infrastructure such as on the Mass Rapid Transit system and road network, basic amenities such as drainage and sewerage, and for education and health infrastructure. The spending is also intended to develop suburban nodes that will de-centralize economic activity and rejuvenate old public housing neighborhoods. US\$1 billion is targeted to be spent over the next five years on support programs for sustainable development initiatives focusing on energy efficiency for industry and households, green transport, clean energy, and the greening of living spaces. US\$4 billion is targeted for healthcare infrastructure.

Twenty-five percent of Singapore's stimulus package was spent on infrastructure, 12.5% on enhancing future capacity, 25% was spent as loan guarantees to SMEs, 12.5% was allocated as tax breaks in the form of corporate tax cuts and grants, and the balance was used to support households through personal income tax rebates and the securing of jobs by subsidizing wages. Actual spending accounted for 62.5% of Singapore's stimulus package. Singapore was able to draw from its S\$300 billion reserves to meet its record S\$20.5 billion (US\$13.7 billion) spending. Even with this financial strength, Singapore will for the first time incur a fiscal deficit of 4.1% of its GDP in 2009.

**Indonesia** introduced a US\$6.3 billion stimulus package in February 2009 amounting to 1.2% of its GDP. From that, 16.6% was for spending on infrastructure. The bulk of this stimulus (58.6%) was tax breaks for individuals and companies. Individual tax was lowered for workers having a monthly income of less than Rp5 million. Waived import duties and taxes comprised 18% of the package (Rp13.3 trillion), and diesel subsidies 3.8%. The stimulus package is expected to increase the fiscal deficit of Indonesia from 0.1% in 2008 to over 2% of its GDP in 2009.

**The Philippines** announced a US\$6.5 billion package in January 2009 (3.9% of its GDP) that focused on infrastructure and social services, job generation, and increased social protection, especially in health and tax cuts for businesses and individuals. With this spending, the fiscal deficit of the Philippines is estimated to rise from 0.9% to 2.3% in 2009.

**Thailand** introduced two stimulus packages, in January and then March 2009. The first US\$3 billion package included infrastructure measures; social safety nets for the unemployed, those working below a certain wage level (B15,000 per month), the elderly, and students; and tax measures to boost SMEs, the real estate sector, and the tourism industry. The second, US\$42 billion stimulus will see 73% of the package spent on infrastructure, 15% on farm irrigation, and 6% on increasing income and quality of life in the southern provinces. The government will source 39.2% from its budget, 17% from domestic borrowing, 27.1% from foreign borrowing, and 16.6% from other income sources. The two stimulus packages are estimated to increase the fiscal deficit from 1.1% in 2008 to over 6% of the GDP in 2009.

**Viet Nam** announced its first stimulus package totaling US\$960 million in December 2008, which included an interest subsidy on loans, a reduction in corporate income tax for SMEs, and exemptions for personal income tax. About 10% of the package was for small-scale

infrastructure programs for 61 of the poorest districts. In March 2009, Viet Nam proposed a second stimulus package totaling US\$17.6 billion, but its relevance was called into question. Viet Nam grew in the first nine months of 2009 and the Government of Viet Nam expects its GDP growth rate to be between 5% and 5.5% in 2009. Discussions indicated that the second stimulus package, if any, would be smaller than the first, and on 30 October 2009, the Government of Viet Nam pledged to continue with a second stimulus package of US\$8 billion, equivalent to about 12% of 2008's GDP. The bulk of this stimulus package will be for infrastructure and development projects while some measures will be in the form of tax breaks for enterprises and individuals as well as welfare spending.

**Table 5: Fiscal Stimulus Packages in East Asia**

Country	Measures Taken	Date Announced
Japan	<u>First package: US\$107.5 billion</u>	29 August 2008
	<ul style="list-style-type: none"> <li>Mainly non-spending measures such as lower road tolls, fuel subsidies, loans to businesses, assistance to farms, and help for part-time workers to find better jobs.</li> </ul>	
	<u>Second package: US\$51 billion out of US\$275 billion as new spending</u>	31 October 2008
	<ul style="list-style-type: none"> <li>More than US\$20 billion (40%) as bank rescue plan.</li> <li>US\$20 billion (40%) in US\$600 handouts to every household of four.</li> </ul>	
	<u>Third package: US\$255 billion</u>	12 December 2008
	<ul style="list-style-type: none"> <li>\$111 billion (44%) in tax breaks and public financing, e.g., corporate tax cut from 22% to 18% for SMEs.</li> <li>\$144 billion (56%) in capital injections.</li> </ul>	
	<u>Fourth package: USD154.55 billion</u>	
	<ul style="list-style-type: none"> <li>Stimulation of green economy</li> <li>Creation of four million new jobs</li> <li>Help for corporate finance</li> <li>Strategies to reinforce Japan's competitiveness</li> </ul>	4 April 2009
People's Republic of China	<u>First package: USD585 billion</u>	9 November 2008
	<ul style="list-style-type: none"> <li>45% for infrastructure including road, railway and airports (CNY1.8 trillion)</li> <li>9.3% for improving electricity, water, and road infrastructure in rural areas (CNY370 billion)</li> <li>7% for low income housing (CNY280 billion)</li> <li>25% for post-earthquake reconstruction (CNY1 trillion)</li> <li>1% for healthcare and education (CNY40 billion)</li> <li>8.8% for ecological and environment protection (CNY350 billion)</li> <li>4% for technical innovation (CNY160 billion)</li> </ul>	
	<u>Expedited US\$87.8 billion investment spending</u>	12 January 2009
	<u>Fiscal expenditure US\$124.3 billion</u>	
	<ul style="list-style-type: none"> <li>Healthcare reform to provide basic medical security for all citizens, improve the quality of medical services, and make medical services more accessible</li> </ul>	21 January 2009

Country	Measures Taken	Date Announced
Republic of Korea	<p data-bbox="467 230 804 259"><u>First package: US\$26 billion</u></p> <ul data-bbox="467 264 1117 689" style="list-style-type: none"> <li>• Create more jobs by providing better job training through the expansion of the internship system, increase job positions for the underprivileged</li> <li>• Increase welfare support to stabilize livelihoods of low income classes and support in reducing childcare costs</li> <li>• Increase social overhead capital investment with focus on investments in construction projects including projects to advance the metropolitan economy and expand the provincial traffic network</li> <li>• Support the stabilization of SMEs and financial markets by increasing SME guarantees</li> <li>• Support regional finances to offset reduced real estate tax</li> </ul>	13 December 2008
	<p data-bbox="467 725 842 754"><u>Second package: US\$37 billion</u></p> <ul data-bbox="467 759 1117 1037" style="list-style-type: none"> <li>• Energy conservation, recycling, and clean energy development to build an energy-saving economy</li> <li>• Green transportation networks and clean water supplies to improve the environment and quality of life</li> <li>• Carbon reduction and stable supply of water resources</li> <li>• Building of industrial and information infrastructure and technology development for greater energy efficiency</li> </ul>	9 January 2009
	<p data-bbox="467 1072 911 1102"><u>Supplementary budget: US\$21 billion</u></p> <ul data-bbox="467 1106 1117 1189" style="list-style-type: none"> <li>• Maintaining job security and revitalizing provincial economies and supporting industries with future growth potential</li> </ul>	23 March 2009
Singapore	<p data-bbox="467 1196 783 1225"><u>Total package US\$13.8bn</u></p> <ul data-bbox="467 1229 1117 1469" style="list-style-type: none"> <li>• Job Credit Scheme—cash transfers for employers to cover part of their wage bills and avoid massive lay-offs</li> <li>• Special Risk Sharing Initiative—government guarantees working capital loans for individual firms to stimulate bank lending</li> <li>• Corporate tax cuts from 18% to 17%</li> <li>• Personal income tax rebates of 20% of taxes due</li> </ul>	22 January 2009

<b>Country</b>	<b>Measures Taken</b>	<b>Date Announced</b>
Malaysia	<u>First package: US\$1.9 billion</u> <ul style="list-style-type: none"> <li>• Upgrade and repair of public amenities, rural roads, and quarters for police and armed forces (RM1.5 million)</li> <li>• Build low- and medium-cost houses (RM1.4 million)</li> <li>• Upgrade and maintain public transport (RM0.5 million)</li> <li>• Implement broadband Internet access (RM0.5 million)</li> <li>• Set up investment funds to attract private investments (RM1.6 million)</li> <li>• Skills training and youth program (RM0.6 million)</li> <li>• Pre-school education &amp; grants to schools (RM0.4 million)</li> </ul>	4 November 2008
	<u>Second package: USD16.2 billion</u> <ul style="list-style-type: none"> <li>• Reduce unemployment and increase employment opportunities (RM2 billion)</li> <li>• Ease the financial burden of vulnerable groups (RM10 billion)</li> <li>• Assist the private sector in facing the crisis (RM29 billion)</li> <li>• Build capacity for the future (RM19 billion)</li> </ul>	10 March 2009
Thailand	<u>Supplementary budget: US\$3.3 billion</u> <ul style="list-style-type: none"> <li>• One-time living-cost allowance of B2,000 for those earning less than B 15,000 per month</li> <li>• Extension of five public service subsidies programs for 6 month</li> <li>• Support given to unemployed workers</li> <li>• Free education for students</li> <li>• Sufficient Economy Fund for Improvement in Quality of Life fund for rural villages</li> <li>• Old-age support payment of B500 per month</li> <li>• Infrastructure projects</li> <li>• Tax measures to boost real estate, SMEs, and the tourism industry</li> </ul>	13 January 2009
	<u>Strong Thailand 2012 scheme: US\$42 billion</u> <ul style="list-style-type: none"> <li>• Seventy-three percent will be spent on infrastructure investments in mass transit, transportation, communication and energy. Fifteen percent to improve farm irrigation and water supply. The remainder is aimed at increasing the income and quality of life in the southern provinces (6.4%), improving education (3.8%), developing new sites, improvement of existing sites and rehabilitation projects for the tourism industry (1.2%), and public health service reform (0.6%).</li> </ul>	24 March 2009
Indonesia	<u>Total package: Rp73.3 trillion</u> <ul style="list-style-type: none"> <li>• Tax breaks for individuals and companies (Rp43 trillion)</li> <li>• Waived import duties and taxes (Rp13.3 trillion)</li> <li>• Infrastructure spending (Rp12.2 trillion)</li> <li>• Diesel subsidy (Rp2.8 trillion)</li> <li>• Rural schemes to generate employment (Rp2 trillion)</li> </ul>	24 February 2009

Country	Measures Taken	Date Announced
Philippines	<u>Total package: US\$6.5 billion</u>	27 January 2009
	<ul style="list-style-type: none"> <li>• Infrastructure spending including repair of government buildings and the hiring of teachers, policemen, soldiers, and doctors (48%)</li> <li>• Job creation program to provide 824,000 temporary jobs in government departments by July 2009 (30%)</li> <li>• Tax reduction in corporate income tax and waiver of personal income tax for minimum wage earners (12%)</li> <li>• Expanding access to health services and waiver of penalties on loans from social security (9%)</li> </ul>	
Viet Nam	<u>First stimulus package: US\$1 billion</u>	15 December 2008
	<ul style="list-style-type: none"> <li>• 4% interest subsidy on loans to SMEs</li> <li>• Reduction in corporate income tax for SMEs</li> <li>• Exemption on personal income tax from January to May 2009</li> </ul>	
	<u>Second stimulus package: US\$8 billion</u>	30 October 2009
	<ul style="list-style-type: none"> <li>• Infrastructure projects</li> <li>• Tax exemption for enterprises and individuals</li> <li>• Welfare spending</li> </ul>	

Source: Economic & Social Commission for Asia and the Pacific and official government websites.

### 3.1 Monetary Policy

The most immediate response to the global financial crisis was for countries to reduce interest rates, lower the reserve and liquidity requirements for the banking sector, and to lend directly to financial institutions. In some cases, quantitative easing or the purchase of investment grade securities by monetary authorities was also carried out. These measures amounted to what was probably the most aggressive monetary easing ever undertaken and were justified by the need to avoid financial collapses, calm jittery credit markets, and avoid the onset of further economic recession. Studies by the International Monetary Fund, such as Rabanal (2004) and IMF World Economic Outlook (2008), suggest that monetary policies are effective and consistent in shortening the duration of recessions. With output growth plunging, there was also little fear of inflation or inflationary expectations building up and this gave rise to the opportunity.

In East Asia, to increase liquidity and support domestic consumption, most countries have sharply cut their central bank or indicative interest rates. The interest rate cuts from their peak were mostly in excess of 200 basis points as shown in Table 6, with the exception of Japan, which had followed a course of very low interest rates for a long time and, therefore, had little room to maneuver. The Bank of Japan cut its key interest rate from 0.3% to 0.1% in December 2008, and it is now among the lowest of any economy. The Republic of Korea's interest rate cuts were the most frequent and dramatic, having been adjusted downwards seven times starting in October 2008 and falling by a total of 325 basis points from the peak. In comparison, the cut by the PRC was less, dropping by 216 points to 5.3%. This has to be seen, however, in the context of the PRC's still relatively robust economy and large fiscal stimulus plan. As of July 2009, virtually all the East Asian countries affected by the crisis are either at or near their historical lows. At these levels, there would appear to be much less scope for effective monetary policy, and no further interest rate cuts have been undertaken.

The effects of these drastic interest rate cuts have yet to be ascertained because disappearing demand, rather than interest levels, is more likely to be the important determinant of demand for loans. The liquidity trap experience of Japan during the 1990s provides an example of ineffective interest rate cuts in a situation of low business and consumer confidence.

**Table 6: Monetary Policy Responses in East Asia, 4Q2008–2Q2009**

<b>Monetary Policy</b>		
<b>Country</b>	<b>Change from Peak (Basis Points)</b>	<b>Current Rate (%)</b>
People's Republic of China	(216)	5.31
Hong Kong, China	(625)	0.50
Indonesia	(225)	7.25
Japan	(40)	0.10
Republic of Korea	(325)	2.00
Malaysia	(150)	2.00
Philippines	(175)	4.25
Singapore	—	—
Taipei, China	(237)	1.25
Thailand	(250)	1.25

Source: Author's compilation using documents from the National Central Banks and Financial Authorities of the respective countries.

#### **4. IMPLICATIONS OF STIMULUS PACKAGES ON PUBLIC SECTOR FISCAL BALANCE**

At the end of 2008, 11 out of 13 reporting East Asian economies had incurred fiscal deficits—the two exceptions being Singapore and the Republic of Korea (see Table 7). None of these deficits can be considered particularly serious—the highest was Malaysia's deficit of 4.8% of its GDP, and only four of the deficits were higher than those in 2007. In comparison, all 13 East Asian economies are expected to post fiscal deficits in 2009. In six of these cases, the projected deficits are 5% or more, and all of these may rise further if aggregate output continues to lag and more public spending is implemented.

**Table 7: Government Budget Surpluses/Deficits (Percentage of Gross Domestic Product), 1990–2009**

Year	Brunei Darussalam	Cambodia	PRC	Hong Kong, China	Indonesia	Japan	Republic of Korea	Lao PDR	Malaysia	Myanmar	Philippines	Singapore	Thailand	Taipei,China	Viet Nam
1990	(0.3)	(4.5)	(2.8)	0.7	(0.8)	(0.5)	(0.6)	(9.7)	(2.9)	(2.8)	(3.5)	10.8	4.8	1.8	(7.2)
1991	(1.6)	(3.4)	(3.0)	3.3	(0.7)	(0.4)	(1.5)	(6.1)	(2.0)	(3.7)	(2.1)	—	4.3	(2.2)	(0.7)
1992	(3.9)	(3.6)	—	2.7	(1.1)	(2.4)	(0.5)	(5.2)	(0.8)	(2.1)	(1.2)	—	2.6	(5.3)	(0.8)
1993	(0.7)	(4.7)	—	2.1	(0.5)	(3.6)	0.6	(2.7)	0.2	(1.4)	(1.5)	—	1.9	(3.8)	(3.4)
1994	15.5	(5.7)	—	1.0	1.0	(4.3)	0.3	(11.1)	2.3	(2.5)	1.0	—	2.7	(1.7)	(2.2)
1995	15.1	(7.2)	—	(0.3)	2.2	(4.4)	0.3	(12.9)	0.8	(3.3)	0.6	14.5	3.0	(1.1)	(1.3)
1996	0.5	(6.2)	(1.8)	2.1	1.0	(4.0)	0.2	(5.7)	0.7	(2.2)	0.3	—	0.9	(1.4)	(0.9)
1997	1.7	(0.9)	(1.9)	6.4	0.5	(3.5)	(1.4)	(5.2)	2.4	(0.1)	0.1	—	(1.5)	(1.6)	(3.9)
1998	5.4	(2.4)	(2.4)	(1.8)	(1.7)	(10.7)	(3.9)	(6.6)	(1.8)	0.8	(1.9)	—	(2.8)	0.1	(1.6)
1999	(1.4)	(1.2)	(3.0)	0.8	(2.5)	(7.3)	(2.5)	(2.5)	(3.2)	(0.3)	(3.8)	—	(3.3)	(1.2)	(3.3)
2000	10.9	(2.1)	(2.8)	(0.6)	(1.1)	(6.4)	1.1	(4.3)	(5.5)	0.7	(4.0)	10.0	(2.2)	(4.6)	(4.3)
2001	0.4	(3.1)	(2.5)	(4.9)	(2.4)	(6.0)	1.2	(4.2)	(5.2)	—	(4.0)	—	(2.4)	(6.4)	(3.5)
2002	(9.9)	(3.4)	(2.6)	(4.8)	(1.5)	(6.8)	3.3	(3.2)	(5.3)	—	(5.3)	—	(1.4)	(2.9)	(2.3)
2003	(1.7)	(4.0)	(2.2)	(3.2)	(1.7)	(6.6)	1.1	(5.4)	(5.0)	—	(4.6)	3.1	0.4	(2.3)	(2.2)
2004	13.5	(2.0)	(1.3)	1.7	(1.0)	(5.2)	0.7	(2.4)	(4.1)	—	(3.8)	4.1	0.1	(2.5)	0.2
2005	25.2	(0.5)	(1.2)	1.0	(0.5)	(6.1)	0.4	(4.3)	(3.6)	—	(2.7)	6.8	(0.6)	(0.3)	(1.1)
2006	12.8	(0.8)	(0.8)	4.0	(0.9)	(1.1)	0.4	(3.2)	(3.3)	—	(1.1)	6.7	1.1	(0.2)	(1.8)
2007	—	(1.2)	0.7	7.2	(1.2)	—	3.8	(2.7)	(3.2)	—	(0.2)	—	(1.7)	—	(5.4)
2008	—	(2.2)	(0.4)	(0.3)	(0.1)	(1.4)	0.3	(1.8)	(4.8)	—	(0.9)	1.5	(1.1)	(1.3)	(1.6)
2009	—	(4.8)	(3.2)	(4.1)	(2.1)	(6.8)	(6.5)	(5.4)	(7.6)	—	(2.3)	(4.1)	(6.0)	(5.0)	(4.0)
(est.)															

Est. = Estimated, PRC = People's Republic of China, Lao PDR = Lao People's Democratic Republic.

Source: Asian Development Bank Key Indicators 2008 and The Economist's Country Profiles.

Some countries could face difficulties in financing their fiscal stimulus because they had persistent fiscal deficits prior to the crisis. However, the mere existence of fiscal deficits does not necessarily indicate that there is a problem. Fiscal imbalances must be viewed in conjunction with other macroeconomic targets such as output growth, inflation, balance of payments, and currency stability. An economy that has such an imbalance but shows no sign of over-heating or financing difficulties cannot be considered to be troublesome. Whether these deficits are rising or falling is also of great interest, especially for investors who are always on the lookout for falling interest rates and strengthening exchange rates.

Another important factor in assessing the desirability of fiscal deficits is the prevailing level of public debt. International Monetary Fund studies have found that the higher the level of public debt, the lower the effectiveness of fiscal policy and vice versa. This is intuitive given the fact that the *crowding out effect* is more likely to be greater at high rather than low levels of debt. The ability to service external debt and holdings of foreign reserves is another common indicator of fiscal sustainability. Economies that have internationally tradable currencies are also more likely to have fiscal deficits than those that do not.

In short, fiscal deficits must be viewed against the entire backdrop of economic data and not just in isolation. More importantly, it is critical to note that economies do not all have identical capacities to run such deficits. In general, East Asian countries have relatively low public debt (Table 8). Countries like Japan can regularly incur deficits of over 6% because of their other inherent financial strengths such as their strong export revenues and profitable private sectors, while those like Indonesia cannot. The PRC can add fiscal stimulus equal to 13% of its GDP and still end up running a deficit of only around 3.5%. The PRC's ability to finance this is not in question because of its strong exports and accumulated foreign reserves. The same, however, is not true of Cambodia.

**Table 8: Public Debt to Gross Domestic Product Ratio for Select East Asian Countries, 2008 (%)**

Country	Ratio
People's Republic of China	15.70%
Hong Kong, China	14.50%
Indonesia	30.10%
Japan	170.40%
Republic of Korea	32.70%
Malaysia	42.77%
Philippines	56.50%
Singapore	113.70%
Thailand	42.00%
Viet Nam	38.60%

Source: CIA World Factbook.

The central issue, therefore, is how East Asian economies are able to finance an increasing amount of infrastructure spending, and the resulting fiscal deficits, in ways that are considered to be wholly prudent and productive. The case of Thailand and Viet Nam is a good illustration of this challenge. If a country has a high public debt the additional public spending could be seen as undesirable and lead to the disinvestment, capital flight, and currency instability that has afflicted many countries in the developing world in the past. Financing of the fiscal deficit should not be confined to macroeconomic policies. The development of domestic private sector and financial institutions also has a vital role to play.

Recessions have an immediate impact on a government's fiscal position through automatic stabilizers, other non-discretionary effects such as lower commodity prices, and discretionary fiscal stimulus. The weakening economic conditions affect the automatic

stabilizers, which are computed on the basis of changes in the output gap, and negatively impact the fiscal position. The International Monetary Fund (2009) estimated that a uniform 1% point of GDP worsening in the Group of Twenty economies translates into a 0.3% GDP increase in the fiscal deficit. In fact, the report also estimated that the emerging countries of the Group of Twenty will have a deficit of 1.1% of their GDP in 2009, compared to 0.1% surplus in 2008. The non-discretionary effects will come through lower tax revenues as private sector profits decline. The discretionary responses to the crisis can have either a temporary or a permanent effect. Most of the discretionary measures responding to the crisis are for infrastructure projects or specific transfers to help the lower income groups, and they have no permanent effects on the fiscal balance. Only a few countries have introduced measures such as tax cuts that permanently reduce the government revenue capacity. As such, the overall medium- and long-term impact of the present response measures has not adversely affected the fiscal position of East Asia.

In the case of Malaysia, policy has been deliberately made conservative by ensuring that a major part of the financing requirements comes from internally-generated funds and that there is not a high reliance on external borrowings. Debt service ratios have therefore tended to be modest, and the government has further actively managed external debt by using opportunities of currency strength to prepay or retire foreign loans. Malaysia has also worked to ensure that there is no excessive build-up of short-term debt, which is risky, and that there are strong efforts to attract foreign direct investment.

One way to finance these fiscal stimuli is to utilize funding from domestic resources, and the experience of Malaysia is worthy of note. In the 1990s, Malaysia's privatization policy was pursued in earnest meaning that the government was able to earn revenue from asset sales, while transferring much of the responsibility and the development and operating costs to the private sector. Initially, privatization agreements had to be made appealing in order to ensure adequate private sector participation. Subsequent to this, and with a more developed private sector, the government has been able to pursue private finance initiatives, which are more stringent performance-based arrangements and more along the lines of public-private partnerships.

The capital market is another important source from which to raise funds. The development of Malaysia's capital market over the past 25 years has been an integral component of its ability to finance public infrastructure. As in most developing economies, the market for long-term funding was originally dominated by government securities, with equity issues playing only a small role. As the economy became more sophisticated and with more privatized infrastructure projects in the pipeline, the market for equities and private debt securities emerged and grew rapidly. This has enabled fiscal policy to be pursued more efficiently than would otherwise have been the case.

Given that not all economies have the same ability to sustain and finance fiscal deficits, any regional infrastructure financing arrangement would seem to need to provide access to a source of internationally traded currencies on both competitive and concessionary terms. During the Asian Financial Crisis of 1998, for example, Japan's "New Miyazawa Initiative" provided useful and timely funding for the affected countries. A total of US\$30 billion was made available—US\$15 billion for medium- to long-term financial needs for economic recovery, while the other US\$15 billion was for short-term capital needs during the process of implementing economic reforms. Likewise, the Japan International Cooperation Agency's assistance of over JPY120 billion given to Indonesia in 2008–2009 has provided important economic growth stimulus at a critical time.

Countries that have the ability, however, should be able to draw on financing sources on a more flexible and efficient basis. It would be particularly helpful if the financing arrangement could be tailored to meet two particular needs of infrastructure. The first of these is duration mismatch or the difference between the period of investment (which in the case of infrastructure is typically long) and the period when financing is available. The second is the

need to hedge currency risks or the potential losses between the home currency and the currency in which the financing is denominated. Financing arrangements that are able to assist in resolving these two problems would greatly enhance the viability and sustainability of infrastructure projects and would help in financing the higher fiscal deficits that will be incurred.

## **5. WHY DOES EAST ASIA NEED TO INVEST IN INFRASTRUCTURE?**

### **5.1 Basis for future high growth**

Despite the strong economic development achieved by Asia in the last decade, there are many people still living in poverty. Infrastructure spending has the intention of creating an economic spin-off, thus helping countries grow out of the crisis. According to a projection of infrastructure needs, low-income countries should increase infrastructure stocks by 2.3% each year until 2010, while middle-income countries and high-income countries should increase infrastructure stocks by 3.5% and 1.4%, respectively (Fay and Yepes 2003).

World Bank studies have concluded that if Africa had matched the infrastructure growth rates of East Asia in the 1980s and 1990s, then it could have had 1.3% higher annual economic growth. According to Richards (2008), Latin America witnessed 1% to 3% lower long-term growth because it invested less in infrastructure. At the 2007 World Economic Forum's Indian Economic Summit held in New Delhi, infrastructure analysts estimated that the lack of infrastructure is holding back India's economic growth by 1.5% to 2% a year (World Economic Forum 2007). Infrastructure in many studies is used as an input that will raise productivity and output and deliver economic growth (Gramlich 1994; Neill 1996). The recent growth of East Asia is generally attributed to a successful export model, but it has also relied on effective infrastructure, particularly logistics and distribution.

Export activities in East Asia are a good transportation system. Developing logistics infrastructure in Asia will further increase intra-regional trade. This is because, based on freight costs and service levels, a number of developing countries in Asia are actually closer to developed countries in terms of economic distance than to their regional neighbors. Regional infrastructure will lower the costs of East Asian intra-regional trade. The case for investment in logistics infrastructure is further supported by a multi-country study showing that a 20% reduction in logistics costs would increase the trade-to-GDP ratio by more than 10% in Cambodia, PRC, and Lao PDR; by more than 15% in Mongolia; and by more than 20% in Papua New Guinea.

Investment in logistics infrastructure fosters economic growth, as long as parallel improvements in the information and communication technologies (ICT) infrastructure are made. Colecchia and Schreyer (2001) confirmed that ICT contributes to economic growth in both developing and developed countries. It does this by raising productivity and improving the efficiency of individuals, firms, sectors, and the economy as a whole. In particular, the adoption of ICT creates unprecedented opportunities for businesses in developing countries to overcome the constraints of limited access to resources and markets. SMEs can get better access to trade finance and e-finance through improved credit and e-credit information. ICT also lowers transaction costs and facilitates trade, thus opening up new international business opportunities and increasing the participation of developing countries in the information economy. Alongside greater levels of trade, outsourcing and foreign investment coming into Asia from developed countries—and increasingly from developing countries as well—also increases. Developing better ICT literacy and infrastructure can help countries improve competitiveness and attract more offshoring activities that add value to the region.

## 5.2 Recycling Asian international reserves and domestic savings

The export-led growth model pursued by Asia has led to the accumulation of large international reserves, as shown in Table 9. These reserves grew strongly after the Asian financial crisis of 1997–1998 as insurance against further currency attacks and financial crises (Aizenman 2007). The accumulation of large foreign exchange reserves is due to the trade surpluses the region sustained, although there are claims that the East Asian countries had not allowed their currencies to appreciate in order to keep exports competitive. The extent of the accumulation of foreign exchange reserves by countries in the region is more than merely adequate. At the end of 2006, the reserves of PRC; Hong Kong, China; India; Republic of Korea; Malaysia; Singapore; and Taipei, China were many times more than needed to cover their external debt (Park 2007). However, not all reserves can be spent. Examples are the reserves from central banks or those arising from borrowing overseas, which are not for disposal, despite their accumulation, because they have counterpart liabilities.

A significant part of the accumulated foreign exchange reserves under central bank management is invested in the US dollar. Figure 1 shows that 61% of the emerging and developing economies' reserves were US dollar denominated assets. As of 31 May 2009, East Asian countries hold 15.7% of the total Special Drawing Rights available, at an interest rate of 0.35%. There have been calls for East Asia to recycle its huge foreign exchange reserves for investment in the region, including in infrastructure, so that they can be used to support further economic growth in the region and bring in higher returns.

**Table 9: Gross International Reserves**

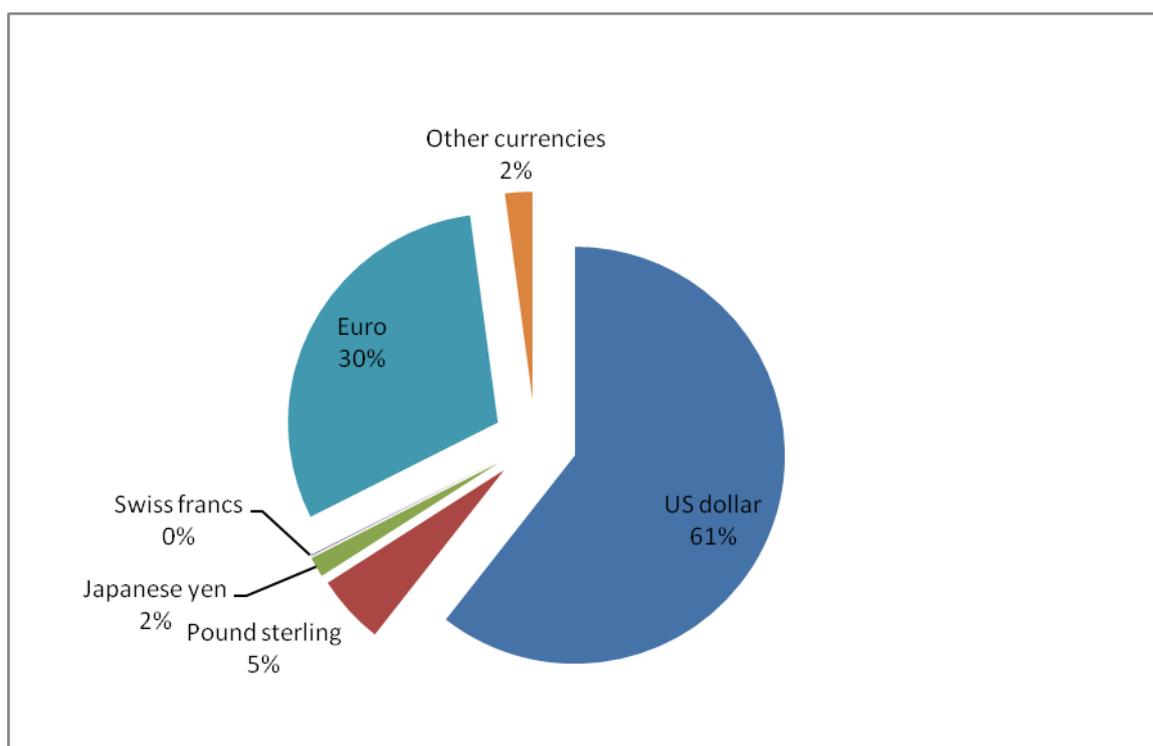
(US\$ billions)

Country	2004	2005	2006	2007	2008
Brunei Darussalam	0.51	0.49	0.52	0.61	0.65
Cambodia	0.81	0.92	1.10	1.61	2.29
PRC	614.50	821.51	1,068.49	1,540.00	1,980.00
Hong Kong, China	123.57	124.28	133.20	152.69	182.54
Indonesia	36.32	34.72	42.59	56.92	51.64
Republic of Korea	199.07	210.39	238.96	262.22	201.22
Lao PDR	0.22	0.23	0.33	0.54	0.62
Malaysia	66.24	70.18	82.24	101.52	89.76
Myanmar	0.87	1,026.00	2.50	3.64	—
Philippines	16.23	18.49	22.97	33.75	37.55
Singapore	112.58	116.17	136.26	162.96	174.20
Taipei, China	241.74	253.29	266.15	270.31	291.71
Thailand	49.83	52.07	66.99	87.46	111.00
Viet Nam	6.31	8.56	11.48	21.00	23.00

PRC = People's Republic of China, Lao PDR = Lao People's Democratic Republic.

Source: Statistical Appendix, Asian Development Outlook 2009, Asian Development Bank.

**Figure 1: Composition of Foreign Exchange Reserves for Emerging and Developing Economies (as at 31 May 2009)**



Source: Currency Composition of Official Foreign Exchange Reserves Database, International Monetary Fund.

### 5.3 Narrowing the developmental gap between countries in the region

Investment in infrastructure has the additional benefits of helping to close the income gap and reducing poverty because low-income countries and areas will have a better chance of generating higher economic activities when infrastructure is available. Infrastructure development can connect the agricultural and poorer areas to urban and economic growth hubs, which will enable the former to market their products and receive their economic needs at reasonable prices. Transportation and energy projects are an effective way for development to reach the poorer regions of East Asia. Sixty percent of the region's population lives in the countryside, which is where poverty tends to be concentrated. In rural areas, an inadequate and unstable power supply, inefficient transport systems, poor-quality roads, weak and aged railroad systems, badly equipped and congested ports and airports, and unreliable communications systems raise transaction costs, curtail productivity, and often render investments unviable. Transport and energy supply improvements have been shown to reduce poverty in rural areas. Improvements in rural transport are associated with falling costs; increased income from agriculture; increased access to employment, education health, and social participation; and even better emergency relief in the event of natural disaster (Cook et al. 2004).

Investment in energy infrastructure can increase access to electricity to support the increasing population. Increased electrification of rural areas helps to reduce poverty and helps the area move closer to achieving the Millennium Development Goals (Cook et al. 2004; Estache 2004). Rural populations benefit from the reduced energy costs, increased farming activity, better quality of education and health services, increased flow of information, and improved security that all come from rural electrification. However, there are climate change and environment considerations. If the developing Asian countries generate and use energy at the current level, by 2030 they will be responsible for 17 billion tons of energy-

related carbon dioxide emissions, or 43% of the world's emissions from energy use (Asian Development Bank 2009). Therefore, it is essential that infrastructure investment strategies address the balance between a higher level of development and environmental protection.

Increasing Asian urbanization will also call for infrastructure investment. In 2006, developing countries such as Indonesia, Malaysia, Philippines, and Thailand had already reached more than 30% urban population. With increasing migration to cities, the incidence of urban poverty will rise, as will stress on the water supply, sanitation system, and transport network. Infrastructure spending in these areas will continue to be needed.

## 6. INFRASTRUCTURE IN ASIA

### 6.1 Asian infrastructure needs

East Asia has made great progress with its infrastructure, especially in its more developed countries—Kumar and De (2008) show that the level and rank of East Asia infrastructure is comparable to the US between 1991 and 2005. For example, in 2005, out of the top 10 countries with the highest ranked infrastructure, eight were from East Asia. However, there is still a huge unfulfilled need for basic infrastructure in the emerging East Asian countries, and also for advanced types of infrastructure to support higher level economic activities. Yepes (2004) estimated that East Asia needed US\$107.1 billion of investment for new infrastructure and US\$57.9 billion for maintenance as shown in Table 10. This is likely to be an underestimation because ADB estimated that the region actually requires US\$3,042 billion of infrastructure for the period 2006–2015. In its latest estimate, ADB projected that East Asia and the Pacific needs a total of US\$4,670 billion for their infrastructures between 2010 and 2020 (Asian Development Bank Institute 2009). ASEAN countries alone need about US\$583.1 billion of infrastructure investment in power plants, transportation, water and sanitation, and telecommunication for the same period consisting of US\$382.6 billion (66%) for building new capacity and US\$200.5 billion (34%) for maintenance (Table 11). A disturbing trend is that although in general ASEAN countries have improved their infrastructure, the gaps between countries are growing.

**Table 10: Infrastructure Investment and Maintenance Needs in East Asia, 2006–2010 (US\$ millions)**

Type	Investment	Maintenance	Total
Electricity	63,466	25,744	<b>89,190</b>
Telecom	13,800	10,371	<b>24,171</b>
Road	23,175	10,926	<b>34,102</b>
Rail	1,170	1,598	<b>2,768</b>
Water	2,571	5,228	<b>7,799</b>
Sanitation	2,887	4,131	<b>7,107</b>
<b>Total</b>	<b>107,049</b>	<b>57,998</b>	<b>165,047</b>

Source: Yepes 2004.

**Table 11: Projected Infrastructure Requirements in ASEAN 2006–2015 Base Case (US\$ billions)**

	<b>New Capacity</b>	<b>Maintenance</b>	<b>Total</b>
Power	170.3	46.0	<b>216.3</b>
Transport	95.6	61.2	<b>156.8</b>
Water & Sanitation	98.8	60.6	<b>146.4</b>
Telecom	30.9	32.7	<b>63.6</b>
<b>Total</b>	<b>382.6</b>	<b>200.5</b>	<b>583.1</b>

ASEAN = Association of Southeast Asian Nations.

Source: Nangia 2008.

Actual infrastructure development in East Asia is unlikely to match the needs outlined above. Estimates by ADB (Nangia 2008) on private sector investments for eight ASEAN countries from 1990 to 2006 showed a total invested amount of only US\$163.6 billion, which implied a substantial under-investment (Table 12). The level of investment was very much linked to the state of these countries' development: the largest private investment was in Malaysia (US\$49.1 billion), followed by Philippines (US\$38.1 billion), Indonesia (US\$37.2 billion), and Thailand (US\$30.7 billion). Investment in Cambodia, Lao PDR, Myanmar, and Viet Nam was much smaller. To bridge the gap, the most important sources of financing for governments are borrowing from existing multilateral institutions (such as ADB and World Bank) and bilateral government assistance or loan agencies (such as the Japan Bank for International Cooperation [JBIC]). However, the annual average total funding received by developing countries in the period 2000–2003 for infrastructure investment from ADB, World Bank, and JBIC was only US\$7 billion (United Nations Economic and Social Commission for East Asia and the Pacific 2006). This represented less than 5% of the gap.

**Table 12: Private Sector Investments in ASEAN 1990–2006 (US\$ millions)**

	<b>Energy</b>	<b>Transport</b>	<b>Water &amp; Sanitation</b>	<b>Telecom</b>	<b>Total</b>
Cambodia	231	445	—	331	<b>1,007</b>
Indonesia	13,160	4,634	992	18,455	<b>37,241</b>
Lao PDR	2,586	—	—	198	<b>2,784</b>
Malaysia	14,313	16,113	10,144	8,577	<b>49,147</b>
Myanmar	719	50	—	—	<b>769</b>
Philippines	15,818	2,625	8,071	11,545	<b>38,059</b>
Thailand	12,244	3,576	596	14,254	<b>30,669</b>
Viet Nam	2,715	115	213	946	<b>3,989</b>
<b>Total</b>	<b>61,786</b>	<b>27,558</b>	<b>20,016</b>	<b>54,306</b>	<b>163,669</b>

ASEAN = Association of Southeast Asian Nations, Lao PDR = Lao People's Democratic Republic.

Source: Nangia 2008.

Besides national projects, East Asia also needs to invest in cross-border infrastructure, which involves more than one country. There is no estimate of East Asia's cross-border infrastructure needs, but it is likely to be a smaller share of the latest ADB estimate of US\$4,670 billion, which covers all of East Asia and the Pacific's infrastructure requirements (most of them are national projects). Sometimes, national infrastructure projects are meaningless if they are not connected with the appropriate infrastructure that may be located in other countries. For example, transporting goods from a land-locked country needs cross-border road links via other countries to reach the port where the goods can be shipped. Cross-border infrastructure allows the efficient movement of goods by complementing and linking the various infrastructure nodes located in the countries involved, and this is particularly beneficial for economically disadvantaged locations. East Asia has economies at

very different levels of development and cross border projects will help the transfer of trade, people, and skills in both directions and participating nations will create the potential for economic and human capital advantage.

## 6.2 Existing regional and cross border infrastructure projects

Regional and cross-border infrastructure projects are defined as projects that involve physical construction work and/or coordinated policies and procedures spanning two or more neighboring countries, or national infrastructure projects that have a significant cross-border impact (Asian Development Bank Institute 2009).

East Asia has a limited number of cross-border infrastructure projects. The relatively low number of projects points to the difficulties in their implementation: availability of funds, regulatory compatibility, implementation capacity, the sharing of costs and benefit, and political willingness. The following are important cross-border infrastructure projects:

- The Greater Mekong Sub-region—The GMS comprises Cambodia, two provinces of the PRC, Lao PDR, Myanmar, Thailand, and Viet Nam. One of the main focuses of the GMS program is to improve connectivity in the sub-region through the strengthening of linkages in transport, energy, and telecommunication. Key activities include the development of economic corridors: roads to improve access, institutional and policy support for trade facilitation, and transit policy harmonization to reduce logistics costs across the sub-region. Five economic corridors (two north–south, one east–west, and two southern) were identified, and several road investments have begun. Trade and transit harmonization is a key element, bringing to the GMS program both the hardware and software components of infrastructure development.
- The Asian Highway and the Trans-Asian Railway network—These networks are part of the existing pan-Asian infrastructure initiative called the Asian Land Transport Infrastructure Development Project, which was established in 1992 by the United Nations Economic and Social Commission for Asia and the Pacific. The main goal of this initiative is to improve economic links among Asian countries through better and increased connectivity. Its other pillar is the facilitation of land transport projects through intermodal transport terminals. One of the biggest challenges is to integrate the various modes of transportation including highway, railway, and air transport.
- ASEAN Power Grid Project—This project to develop interconnection of the power grid is implemented through cooperative agreement between the power utilities/authorities of the ASEAN countries. There are 14 interconnections, of which two have been completed and are currently operating. They are known as the Peninsular Malaysia–Thailand Interconnection and the Peninsular Malaysia–Singapore Interconnection.
- Trans-ASEAN Gas Pipeline—This project has the aims of providing ASEAN members with a reliable gas supply, the use of environmentally friendly fuel, and increased investment in gas exploration. It has eight gas interconnections involving Brunei Darussalam, Indonesia, Malaysia, Philippines, Singapore, Thailand, and Viet Nam.
- Singapore–Kunming Rail Link project—This 7,000 km railway line, implemented under the ASEAN–Mekong Basin Development Cooperation Initiative, is expected to connect major cities in eight countries, namely, Cambodia, PRC, Lao PDR, Malaysia, Myanmar, Singapore, Thailand, and Viet Nam.

### 6.3 Mechanisms for funding cross-border infrastructure projects

The major vehicles for funding cross-border infrastructure are multilateral agencies (primarily ADB), bilateral development aid programs, and government-owned financial agencies (e.g., JBIC). ADB has taken a leading role in promoting cross-border infrastructure because of its mission as a regional development finance institution. Besides its funding capability, ADB also has the technical capacity to plan, design, implement, and monitor the progress of projects. Most importantly, it can coordinate and work with the various Asian governments and regulators to ensure the project's smooth execution. The United Nations Economic and Social Commission for Asia and the Pacific and the World Bank are the other multilateral agencies active in promoting region-wide infrastructure development. However, their funding mandate for infrastructure is limited because they have other projects to finance. Moreover, because of the generally high cost of cross-border projects, these agencies cannot afford to finance many of them.

Bilateral assistance programs are another source of funding for cross-border infrastructure investment. The Government of Japan, through its ODA programs and the JBIC, has been particularly active and has been part of the GMS. Recently, the Japanese government proposed the "Growth Initiative towards Doubling the Size of Asia's Economy." The initiative proposes to develop the GMS as Asia's growth pole, to link East Asia and Southeast Asia to India and strengthen the existing GMS development. The core of the proposal is the promotion of sub-regional development, in particular, cross-border infrastructure with a larger participation by the private sector.

This proposal set out strategies to link sub-regional infrastructure with industrial development and mechanisms to facilitate public-private partnerships. It plans to develop the Mekong-India Economic Corridor and link Thailand's present Eastern Seaboard Development and the proposed Southern Seaboard Development to this new corridor. The existing GMS corridors will also be linked. A new mechanism to encourage private sector participation through a public-private partnership based on the Eastern Seaboard Development model will be proposed. The Economic Research Institute for ASEAN and East Asia, ADB, and the ASEAN Secretariat are expected to work together to design the master plan of this proposal.

For this purpose, the Government of Japan has increased its ODA budget to US\$20 billion and another US\$20 billion is allocated for a new line of trade insurance for infrastructure development.

## 7. CHALLENGES TO INFRASTRUCTURE INVESTMENT

The large shortfall between the demand for infrastructure projects and those that are successfully implemented shows that there are many challenges facing such projects. So often they fail or at least have limited success in meeting their goals. Many attempts are made to assign reasons for the failure with a view to avoiding future pitfalls, but these exercises are not always successful—so many factors and players are involved that any post-project evaluation findings are generally equivocal if not outright disputed.

Against that background, if the project is also to span more than one country and to have a strong government interest, there are sure to be many new dimensions with a negative potential. The issues noted below are those thought to be more prominent in cross-border infrastructure projects, but they are also encountered to some degree in large national infrastructure development programs.

- **Funding of infrastructure projects**

Governments may be able to finance their national infrastructure projects, but public sector funds are insufficient to finance cross-border projects because of their immense size and high cost. Even for national infrastructure projects, there are limitations to the

traditional funding sources because there are many, and sometimes more urgent demands for the use of a government's resources. Multilateral institutions would usually fill in this funding gap, but their funding capacity is also finite because they depend on limited contributions from members, there is a higher cost of funds if raised through the market, and there are competing allocations to other various projects. Efforts to promote private sector participation require measures to provide assurance that the private sector's participation will produce an acceptable rate of return. The private sector often requests government financial guarantees of minimum returns or a subsidy to lower the cost of funds. This situation is harder for cross-border projects because of the difficulty to apportion the burden of guarantees among governments. Without guarantees or soft loans to the private sector, the cost of the projects may be too high and the government may not be able to fully recover the costs from the users of the infrastructure. In such cases, the government may have to absorb part of the costs, which will depend on its fiscal position. The option for cost recovery by divestment of government equity holdings through public offerings also has its limitations. The medium- and long-term nature of projects carries higher risks than usually associated with normal projects and as such may not be too attractive to investors. In view of the points above, the private sector will find it very difficult to lead such projects, but may become involved as a sub-contractor. In that case, a valuable (maybe irreplaceable) management contribution will not be available to the project, thereby reducing its chance of success. Government guarantees from all sides, perhaps in the form of a joint commitment (if two countries are involved) or several commitments (if more than two countries are involved) will be a necessary (but not sufficient) contribution to cross-border infrastructure projects.

Besides financing issues, the low rate of private sector participation is due to a lack of bankable projects, which limits the choice of projects that can be undertaken by the private sector based on the usual business criteria. Therefore, due to their nature as public goods, infrastructure projects cannot charge the public on a full cost recovery, but instead the government or the public sector has to include an element of subsidy for the project to be viable.

- **Distribution of gains and costs**

Countries in East Asia are at different levels of development and have differing infrastructure needs. The costs and benefits to countries participating in cross-border infrastructure projects may differ widely. Countries have varying financial capacities to fund and participate in cross-border infrastructure projects and this situation becomes more complicated when the distribution of the gains does not match their share of the project costs. For example, in a hydroelectric power generation and distribution project, the cost is highest at the point of generating the electricity, namely, building the dam and generation plant. However, because the dam is situated in a location that is determined by geographical features, the dam may be far from the area that is the putative user of the power. That area may lie over the border in another country. The overall project design needs to balance the needs of each participant country. Each has to see an advantage that plays to its existing economic strength. This is important so that the project can be explained in the domestic political forum as providing a local benefit. In short, the project's concept has to be *Win-Win*. Such projects are not easy to develop, especially if adjacent countries are at very different levels of economic development.

Another aspect of this sharing of costs and benefits has to do with the spillover effects of the construction work for the projects. It is not uncommon for countries that provide funding for infrastructure projects through soft loans to make it a condition of the loan that the construction work be undertaken by companies from their own country. There are concerns that the contract terms, especially the costs, favor the contractors. Often, much of the material for the job is imported from the county funding the project, even if

there are comparable materials available locally. Local companies may not get the full benefit because their role in the construction work and in supplying material is supplanted in many cases by imports.

- **Regulatory and legal risks**

Since cross-border projects can involve regulations and legal procedures from different countries, a serious challenge is how to establish a set of rules and protocols that are acceptable to all. When more than one set of regulations and protocols has to be considered, the level of complexity rises. In addition, there is little precedent to follow, so the means of implementing and controlling each project has to be decided on a case-by-case basis. The project organization or institute tasked with drafting the project documentation or arbitrating the competing demands cannot follow an agreed custom and practice if one does not exist. Equally important is the need to agree on a dispute settlement mechanism to deal with implementation matters and issues that may arise after the completion of the project.

In Asia, institutions set up under regional infrastructure cooperation have been *ad hoc*. Very often, projects fail or are held up, raising costs significantly, because negotiations between governments at the regional and sub-national levels have failed. The harmonization of technical standards is also important to ensure the success of the project. A technical group established for this purpose is critical in reaching an agreement on the common standards acceptable by all countries. Agreement on technical standards is perhaps easier to achieve than that on regulatory and legal matters.

- **Political risk**

Since infrastructure projects span a long period of time, changes in governments or policies may alter the projects' terms and conditions. This is particularly relevant for projects involving sensitive issues such as toll collections and land use by external parties because for these, the government has to win popular support. Hence, a new ruling government may want to alter the terms and conditions agreed by the previous government if they are found to be unsuitable. While the regulatory and legal risks are capable of resolution by rational means, and commercial disagreement referred to an appointed arbitrator, a project may fall victim to a political issue that is quite unrelated to the project itself. For cross-border projects, the risk may be compounded if the project is part of a wider dialogue between the participating countries meaning that the project may no longer be assessed on its own merits. Politicians may employ the project as part of a wider multifaceted accommodation, so that otherwise viable projects become impossible to succeed, or are outright cancelled. As mentioned earlier, most projects are challenging enough that they need the full support of all governments, agencies, and quasi-government agencies if they are to succeed. Since there is no supranational body in East Asia to which politically based issues can be referred for solution, the project may drag on for a long time with the project builder incurring high costs.

- **Currency and interest rate risk**

Most projects will involve borrowing and most will involve borrowing in one currency, erecting the structure or structures using another currency, and possibly, generating funds from the operation of the structures in another currency. By their nature, most infrastructure projects take a long time to complete and during that time the currency exchange rates will change to some degree, as will the interest rates of each of those currencies. The changes cannot be predicted and covered in a project's financial plan, and the magnitude of the changes also cannot be foreseen. Interest rates can be fixed for loans in some cases, but if the amounts are massive, as they generally are, no

commercial entity will be willing or able to assume the risk. Therefore, the long gestation period for construction and recovery of investment brings more uncertainty. The private sector accordingly needs a higher rate of return on investments, to compensate for that higher risk.

- **Environmental and social impact**

Cross-border projects are normally on greenfield sites and run the risk of altering in unpredictable ways the physical and social environment of the project area. Environmental degradation has been the common criticism of infrastructure development because forests may be cleared or water flows may be diverted from their natural path. The impact on society can be equally damaging as communities may have to be relocated, which can permanently destroy their traditional way of life and cultural practices. There may be greater pressures and incentives for people to cross borders either to work for the new projects or to escape the adverse effects of construction and development. Objections to infrastructure projects on environmental and social grounds can block or delay matters indefinitely, particularly if the objections come from or are supported by international non-government organizations.

## **8. EAST ASIAN INFRASTRUCTURE INVESTMENT FUND**

East Asian governments have long considered cross-border infrastructure a priority but progress has been slow. The demand for, and the difficulties of implementing cross-border regional infrastructure investments necessitate greater innovation in the way the region carries out and finances its ambitious development plans. Governments usually finance the bulk of their national infrastructure needs but cross-border needs require a pooling of financial resources from the public sector, multilateral development agencies, and the private sector due to the projects' massive financial requirement. Some of the national infrastructure investments made by governments in their response to the current financial crisis may be part of the cross-border infrastructure network. In addition to this possibility, East Asia should earnestly pool its financial resources to invest in the much-needed cross-border infrastructure and lay the foundation of the region's future sustained high growth. For this purpose, the East Asian Infrastructure Investment Fund has been proposed which would create a financial mechanism that can mobilize infrastructure investment and expand the role of existing institutions.

### **8.1 Existing mechanisms and proposals**

A number of broadly similar proposals have been made but they have not been fully implemented. These proposals include the following:

- **ASEAN Infrastructure Bond Fund**

To address under-investment in ASEAN infrastructure projects, the ASEAN Finance Ministers established a regional infrastructure financing mechanism that aims to recycle surplus savings into ASEAN infrastructure development. The concept of the ASEAN Infrastructure Bond Fund is to have ASEAN governments (or central banks) invest in a junior tranche while the private sector invests in a senior tranche of the fund. The combined credit risks and guarantees from ASEAN governments would substantially reduce risk premiums and lower the costs of funding infrastructure projects.

- **ASEAN Infrastructure Development Fund**

In May 2005, the then Malaysian Prime Minister Tun Abdullah Ahmad Badawi proposed that each ASEAN country set aside 0.1% of its foreign exchange reserves for this fund. The fund has tremendous potential as ASEAN's combined foreign exchange reserves

amounted to US\$471 million in 2007. There has been no further development of this proposal.

- **ASEAN Infrastructure Financing Mechanism (AIFM)**

Very few private investors have participated in cross-border projects in Asia compared to other regions (Kohli 2008). To address this shortfall, the ASEAN countries plan to facilitate more private sector investment in infrastructure projects through the creation of the AIFM, which was agreed in 2006. The AIFM aims to (i) accelerate infrastructure development to promote regional economic growth and prosperity, (ii) recycle ASEAN savings to strengthen ASEAN's financial resilience, (iii) increase the supply of marketable assets from financing infrastructure that can generate more demand for intermediate financial services and help deepen the region's capital, (iv) support the branding of ASEAN as a distinct financial asset class, and (v) strengthen intra-regional trade and investment, with a view to accelerating the realization of the ASEAN Economic Community 2015 vision (Goh 2008). The AIFM Task Force has been set up and comprises senior delegates from the ASEAN Ministries. The focus areas of the Task Force include the promotion of best practices, revision of facilitation measures, and development of private sector capacity.

- **Northeast Asia Development Bank**

The formation of a sub-regional bank was proposed during the Northeast Asia Economic Forum in October 1999. The forum had agreed to create an ad hoc committee for the establishment of the Northeast Asia Development Bank but the proposal has not been pursued further.

- **Asian Infrastructure Financing Initiative**

The objective of the Asian Infrastructure Financing Initiative is to mobilize more resources for regional infrastructure development. There are two parts to the initiative. The first involves coordinated co-financing by governments and institutions such as national development banks to mobilize greater resources for a medium-term time period (for example 3–5 years) for specific regional infrastructure projects. The second part involves the establishment of funds managed by ADB or third parties that are targeted at pension funds and sovereign wealth funds; or by governments to co-finance sovereign and non-sovereign projects.

The initiative has had a good start with the Government of the Republic of Korea, the Korea Export–Import Bank, and the Korea Development Bank pledging US\$3.5 billion and the Islamic Development Bank pledging US\$1.15 billion in 2008. ADB and the Islamic Development Bank are discussing the establishment of a private equity fund to invest in infrastructure projects in selected developing ADB member countries, namely, Afghanistan, Azerbaijan, Bangladesh, Indonesia, Kazakhstan, Kyrgyz Republic, Maldives, Pakistan, Tajikistan, Turkmenistan, and Uzbekistan. In late 2008, a proposal was made to set up an Islamic Asia Infrastructure Fund, whereby the Islamic Development Bank and ADB invest US\$150 million and US\$100 million, respectively, which would be managed by a private joint venture for this purpose.

- **Asia Pacific Economic Cooperation Infrastructure Initiative (APEC)**

APEC was directed by its Ministers in 1997 to work with the private sector in developing infrastructure initiatives for promoting integration and diversification of rural economies. In 1999, APEC and its private sector counterpart Pacific Economic Cooperation Council launched RISE—Regional Integration for Sustainable Economies—a public–private initiative designed to improve the economic viability of rural regions of APEC member economies through infrastructure investment. In line with efforts to build knowledge

economies, the APEC leaders directed their Ministers to accelerate the progress in implementing the e-APEC strategy, which will create an environment for infrastructure investment and technology development.

- **Asian Development Bank**

ADB is presently a key initiator for regional infrastructure projects such as the Greater Mekong Sub-regional Development, and it has extensive experience and expertise in undertaking such projects. These projects have been aimed at both economic growth and social development. However, ADB's ability to meet the large demand for regional infrastructure is constrained by its limited funds and wide membership, which covers all Asian countries.

- **Overseas Development Aids**

The development of regional infrastructure has also been assisted by aids from donor countries such as Japan through loans at preferential rates. Many of these infrastructure projects are for countries at early stages of development and have been focused mainly on transportation infrastructure, education, and health facilities.

## **8.2 Establishment of an East Asian Infrastructure Investment Fund**

Presently, there is no formal mechanism in which East Asian countries can decide on which cross-border infrastructures are needed or to address the missing links in regional infrastructure networks (Mahani 2008). An East Asian Infrastructure Investment Fund (EAIIF) is proposed to fill this gap. Through the EAIIF, regional countries could agree on new cross-border infrastructure projects that would benefit East Asia. The issue of missing links would also be solved through investment initiated by a regional mechanism, if the relevant countries do not have sufficient funds to finance them. Besides a collective regional investment action, cross-border infrastructure could also be created by coordinating national projects so that they form a compatible network. The EAIIF could be a platform for countries to coordinate their national infrastructure developments that could ultimately be linked to form regional networks. In this way, governments would still have the responsibility and oversight of their national infrastructure projects while meeting the larger regional goals.

East Asian governments should take a more proactive and strategic role in ensuring that more cross-border infrastructure projects are successfully implemented. The many challenges confronting cross-border infrastructure projects can only be overcome by political commitments and a concerted drive to build the foundation for long-term regional growth. East Asia should establish a structure for this process. At the apex would be the political decision-making by East Asian leaders. This would be supported by a high-level committee or secretariat to execute the leaders' decision, a funding institution, an implementation agency, and a monitoring unit.

Political commitment is needed so that the risks and benefits can be shared among nations and between the public and private sectors. Mechanisms to identify the magnitude and distribution of the benefits and costs of cooperation should be established so that a fair system of distribution can be introduced, particularly if the benefits and costs vary dramatically.

The private sector's confidence to participate in these projects will be boosted when governments create credible policy regimes and regulatory environments that assist project implementation. The level of comfort will be increased if appropriate mitigation plans and adequate financial and technical resources are available to deal with trans-border externalities.

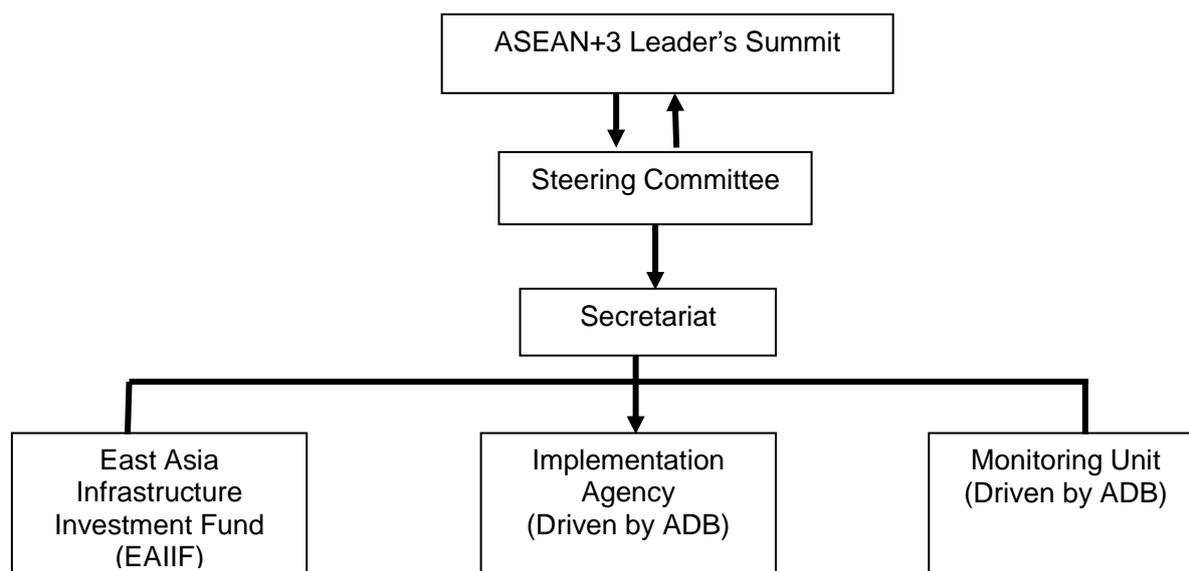
The political decision-making process is important to ensure that infrastructure projects meet the objectives set, have wider externalities that benefit not only the participating countries but also the other countries in the region, and a balance is achieved between costs and benefits among the participating countries and funding parties. Another important role of the political process is to provide supportive policy regimes and regulations that are critical in facilitating these projects. Before this can be done, the objectives must be clearly defined and the lending criteria can then be designed to match the intended objectives. The EAIIF would be able to accelerate the implementation of decisions made by East Asian leaders. However, its creation alone will not ensure success because other supporting institutions will also need to be established to execute the decisions made by the leaders, implement the projects, and monitor progress.

Cross-border infrastructure projects would be able to be carried out in three ways: through ADB, ODA, or EAIIF. The EAIIF would be to supplement the financing provided by ADB and ODA. There are many demands for ADB funds for infrastructure development from its members, and since its funding contributors include those from outside East Asia, it may not be able to focus fully on infrastructure development in East Asia. ODA is very helpful for the least developed countries. However, middle-income recipient countries no longer qualify for such assistance due to their higher income levels. Since infrastructure projects are needed by countries at various stages of development and require large amounts of funding and involve high risks, the establishment of the EAIIF that could pool together funds from the public and private sectors and national and multilateral development agencies, would allow the building of a cross-border project and could supplement the funds contributed by ADB and ODA.

The proposal to pool East Asian financial resources does not preempt the existing bilateral efforts to fund regional infrastructure projects such as the Japanese ODA or the US\$10 billion China–ASEAN Investment Cooperation Fund. Infrastructure projects financed by development aids are still necessary because they provide financing at very reasonable costs to the least developed countries. Although they may wish to continue and expand their development aids and use their national aid institutions for implementation, these countries may wish to inform other regional countries, through the EAIIF, of these initiatives for better coordination and to avoid overlapping or even conflicting projects. Even with their own ODA, donor countries may wish to participate in the EAIIF for burden sharing due to the large funding requirements and for the coordination of policy, regulations, and standards.

There are six elements in the proposal as shown in Figure 2: the ASEAN+3 Leader's Summit, Executive Directorate Committee, Secretariat, EAIIF, Implementation Agency, and Monitoring Unit.

**Figure 2: Mechanism for Cross-border Infrastructure Investment in East Asia**



Source: Author's illustration.

### 8.2.1 ASEAN+3 Leaders Summit

The ASEAN+3 regional integration process has a record of 10 years of established cooperation and its annual Leaders Summit is the most suitable platform to get all the governments in the region participating in decision-making on regional infrastructure. Decisions on the projects to be undertaken are made through this mechanism and the decisions receive commitments from the governments in the region. This cooperative platform also deals with inter-country, regulatory, and governance risks.

The Leaders Summit would set a target for annual infrastructure investment and decide on the projects to be undertaken based on proposals submitted by the Executive Directorate Committee.

### 8.2.2 Steering Committee

This would comprise finance/economic ministers from the ASEAN+3 countries and heads of selected national and multilateral development agencies. It deals with regulatory framework, policy direction, and investment proposals. The steering committee would be briefed regularly by the secretariat on the status of current and proposed projects, and it will agree on proposals and recommendations to be forwarded annually to the Summit. Between Summits, the Steering Committee would also act within specific guidelines given to it from time to time by the Leaders Summit. This committee would also invite countries implementing ODA to share information on existing and planned projects in order to have a better overall view of the development of the region's infrastructure. Countries implementing ODA would be able to suggest joint projects that could be undertaken with the EAIIIF.

This body would be particularly useful in quickly implementing the decisions made by the leaders, for making the necessary changes in regulations, and for soliciting top-level backing for budget commitments to ensure the continuity of projects. In evaluating infrastructure project proposals, the participation of ADB and other relevant development agencies would provide invaluable advice and lessons from their experience in other projects.

### 8.2.3 Secretariat

This body would coordinate the vital functions of the investment mechanism—raising funds (EAIIIF), implementing projects, and monitoring outcomes. The funds raised by the EAIIIF would be coordinated by the implementation agency to be channeled into the agency for

execution. The Secretariat would receive and evaluate the performance of these projects based on the reports submitted by the Monitoring Unit. The Secretariat would also be responsible for civil society participation and information disclosure.

The Secretariat would be staffed by professional administrators and technical experts who are able to deal specific implementation issues. Their role would be to prepare for, and support Steering Committee meetings, and to deploy any decision made by the Steering Committee to the fund raising, implementation, and monitoring groups noted below. The Secretariat would also ensure that the work of those three groups is well understood by the Steering Committee, and if necessary make coordination actions.

#### 8.2.4 East Asian Infrastructure Investment Fund

East Asian governments could establish a special fund, the EAIIF. It would be an independent legal entity that is a non-profit making institution. It would raise and lend funds for cross-border infrastructure projects and would be owned by East Asian countries, multilateral institutions, and the private sector. Besides its capital, it would raise additional funds from the public sector, development agencies, and the private sector.

The purpose of this fund would be to fill the gap between projects that receive cheap funding (through development aids) and those that have to pay the full costs (entirely financed by the private sector at commercial rates). Undertaking cross-border projects on purely commercial funding is difficult because of the high cost as discussed earlier. At the same time, subsidized funding given by ODA and regional and multilateral agencies is limited and insufficient. The EAIIF funds would combine these two elements where a portion of the fund comes from governments and regional and multilateral agencies, while the balance is sourced from the private sector. The funding costs would be lower than commercial rates because of the subsidy element from governments' contributions and backing and lower regulatory and policy risks. Since it would be backed by regional governments, the EAIIF would have a larger funding capacity because of its ability to raise funds from the private sector.

It is proposed that the share structure of the EAIIF be as follows:

<b>Source</b>	<b>Share (%)</b>
Government	50
Private sector	25
Regional and multilateral development agencies	25
<b>Total</b>	<b>100</b>

The seed funds could come from capital contributions by the ASEAN+3 countries according to the size of their GDP, per capita income, or an alternative mutually agreeable formula. For instance, countries like Brunei Darussalam, PRC, Japan, Republic of Korea, Malaysia, and Singapore could be major contributors to these seed funds if equal weightage is used according to each country's share of the total East Asian GDP or GDP per capita (see Table 13).

**Table 13: Capacity of East Asian Countries to Contribute using Equal Weightage on Gross Domestic Product and Gross Domestic Product Per Capita**

	Share of Total GDP of NEAT member countries	Weightage	Share of Total GDP/Capita of NEAT member countries	Weightage	Capacity to Contribute
Brunei					
Darussalam	0%	50%	23%	50%	11.70%
Cambodia	0%	50%	0%	50%	0.20%
PRC	33%	50%	2%	50%	17.40%
Indonesia	4%	50%	1%	50%	2.80%
Japan	44%	50%	25%	50%	34.70%
Republic of Korea	10%	50%	14%	50%	12.10%
Lao PDR	0%	50%	0%	50%	0.30%
Malaysia	2%	50%	5%	50%	3.40%
Myanmar	0%	50%	0%	50%	0.20%
Philippines	1%	50%	1%	50%	1.30%
Singapore	2%	50%	24%	50%	12.80%
Thailand	2%	50%	2%	50%	2.50%
Viet Nam	1%	50%	1%	50%	0.70%
<b>Total</b>	<b>100%</b>		<b>100%</b>		<b>100.00%</b>

PRC = People's Republic of China, Lao PDR = Lao People's Democratic Republic, GDP = Gross Domestic Product, NEAT = Network of East Asian Think Tanks.

Source: Author's estimation.

Funds from the public sector/government would take various forms—government-backed bonds that tap public savings from countries with high savings, part of the aid or soft loans from the economically advanced regional countries, investment by sovereign wealth funds, or utilization of instruments related to government foreign exchange reserves. Multilateral development agencies such as ADB could allocate a portion of their fund for infrastructure investment into the EAIIF.

The private sector could either invest directly into the EAIIF or the funding could be raised through the Asian Bond Fund (ABF). The two phases of the Asian Bond Fund, with a total of US\$3 billion, is hardly able to meet 1% of the estimated regional infrastructure financing needs. ABF I with a size of US\$1 billion, involved the governments of 11 countries in the region voluntarily contributing about 1% of their reserves to a fund dedicated to purchasing regional sovereign and semi-sovereign bonds denominated in US dollars. ABF II, with US\$2 billion, was launched in May 2005 and invested in local currency and the sovereign and quasi-sovereign bonds of various Asian countries. The main drawback of the ABF is the size of the fund and the high transaction fees incurred because of the lack of secondary market liquidity (United Nations Economic and Social Commission for Asia and the Pacific 2006). However, the ABF could be a viable option if its size is increased.

Another possible source of funding is the Asian Bond Markets Initiative (ABMI), which was endorsed by the finance ministers of ASEAN+3. The objective of the ABMI is to develop an efficient and liquid local currency bond market. A wider variety of issuers need to be involved and market infrastructure enhanced to foster this market before the ABMI can become a dependable source.

Funds raised by the EAIIF should then be handled by the ADB for implementation because of the latter's experience and capability. Setting up a new project implementation mechanism will require large additional resources, both financial and human, and may duplicate existing ones. This fund will increase ADB's financial capacity to meet its objective to promote East

Asia's socio-economic growth and development. This differs from ADB's normal operations because it has an East Asian focus since the largest share of funding comes from East Asia and the projects to be undertaken are determined collectively by regional governments. ADB can contribute to the types and locations of the projects to be undertaken based on their knowledge, experience, and expertise, and it will ensure effective implementation.

### **8.2.5 Implementation Agency**

Work carried out by this agency would be driven by ADB and supported by civil servants and project implementation experts. Technical evaluation, project management, selection of contractors, and project coordination in the countries involved would be the focus of this agency's work. It would also harmonize regulations, procedures, technical standards, and the legal reforms needed to attract private financing to supplement public resources, reduce risks, and lower transaction costs.

### **8.2.6 Monitoring Unit**

Some form of accountability has to be established so that the lender and project coordinator can be answerable to the ASEAN+3 leaders and stakeholders involved. Performance indicators and measurements of success should be agreed by the stakeholders and attached to the projects. For instance, in the case of self-funding projects, the measurements of success could include the following:

- Speed of implementation
- Quality of final project
- Increase in trade and economic activity in the nations involved
- Increase in employment/reduced unemployment
- Improvement in income or reduction in poverty
- The ability of the project to self-fund its own maintenance
- Minimal leakages
- Cost saved

It is proposed that ADB undertakes this task because it already has the capability based on its past experience.

## **8.3 Project criteria**

The success of cross-border infrastructure investment depends a great deal on the criteria set for the projects. In the case of the EU, for instance, a Cohesion Fund was set up with specific objectives to assist in the integration of the European countries and the narrowing of the income differences between the different regions (Bhattacharyay 2008). This fund has been successful because the objectives are clear and the cooperative funding mechanism is clearly set out and agreed to by all participating nations. The Cohesion Fund finances projects in environment and transport infrastructure such as roads, ports, airports, water supply, and waste water treatment. EU members eligible for these funds are those with a gross national product per capita less than 90% of the EU average. According to the European Commission, a €16 billion Cohesion Fund was made available between 2004 and 2006 and more than half of the funding was reserved for new member states.

In the case of East Asia, the objectives are likely to be similar to those of the ASEAN Infrastructure Financing Mechanism (Section 8.2). The criteria could be split into two groups. The first would be to support nearly self-funding projects, where after an initial grant or soft

loan, the project is able to internally fund its servicing and maintenance costs. In this case, projects would be chosen based on the highest return on investment to attract private sector participation and to ensure the success of the debt instrument issued. Projects popular with the private sector, such as telecoms or energy, would be given priority. Initial successes are important to kick-start the marketability of the assets.

The second criteria would be to select projects with the highest social benefit in order to meet the objective of East Asian integration. A certain amount of funds could be earmarked for this purpose. This would help to increase regional investments in infrastructure projects such as water and sewerage that will bring high social benefits but have generally been shunned by the private sector.

## 9. CONCLUSION

In this present financial crisis, East Asia faces two major challenges to fiscal policy if it wishes to produce a sustained higher economic growth for the region. The first challenge is in financing and sustaining stimulus packages. The 1998 Asian financial crisis underscored the important role that fiscal stimulus played in reviving crisis-hit economies when the private sector was distressed. In the current crisis, East Asian countries face a similar challenge with the collapse in demand for exports. Many economies face the problem of insufficient financial resources to carry out programs to expand domestic demand. The second challenge is how to make the stimulus programs effective and productive. Policy makers are confronted with a choice of stimulus programs to ensure that they have high multiplier effects and that they will not impair the government's fiscal position in the medium or long term.

Most East Asian countries do not face serious problems in financing their stimulus package. During the critical period of this crisis, although the recovery is primarily based on fiscal stimulus, there is no scheme to assist countries facing funding shortages. The only proposal so far is from Japan, which offered a facility to fill in such a gap. Fiscal policy support is essential because funds have to be disbursed quickly in order to arrest rapid economic decline. Seeking assistance from multilateral agencies may take time. After the 1998 crisis, ASEAN+3 countries established the Chiang Mai Initiative that formed swap arrangements in case of attacks on regional currencies. No such mechanism, however, is available for short-term financing for fiscal stimulus. It is timely for the region to consider setting up a fiscal assistance coordination scheme to help countries facing short-term funding shortages in future economic crises.

This assistance coordination should not be equated with fiscal policy coordination. The EU experience shows the difficulties in adhering to common fiscal policy targets—developing countries may require larger deficits to boost their economies and build capacity and fiscal caps can seriously hamper their policy flexibility. The two crises that have hit East Asia—the 1998 and 2008 crises—have demonstrated the importance of immediately available financial support to mitigate the impact of massive externally-induced pressures. Coordination among key countries to provide emergency financial assistance that can enable countries to quickly implement fiscal stimulus projects is important.

This paper has shown that East Asian countries have spent most of their stimulus packages on national infrastructure projects. These infrastructure projects have many spillover benefits as they provided a foundation for future growth. This current crisis is a good opportunity to redouble efforts to build cross-border infrastructure facilities because they supplement national infrastructure projects, and the combination of these projects can produce sustained high growth for East Asia. This paper has discussed the justification, benefits, and challenges of such projects. It also proposes the establishment of an investment mechanism and the setting up of a fund to carry out this cross-border infrastructure investment.

Proposals to invest in cross-border infrastructure are not new. Yet, these previous proposals have not been implemented and the analysis of challenges shows that for such ventures, political commitment is a very important factor. Whilst the benefits are obvious, the obstacles are many and the most critical is that countries are reluctant to contribute to a fund for investment. The developed countries in the region have sufficient financial resources either through their high domestic saving or large accumulation of international reserves, to start an infrastructure investment fund. Japan has mooted the idea of developing and co-financing the India–Mekong economic corridors while the PRC has started a US\$10 billion infrastructure fund. Hopefully, the Chinese and Japanese initiatives can kick-start the regional cross-border infrastructure investment efforts.

The EU and Latin America have made much more progress in cross-border infrastructure by establishing a regional mechanism that draws in regional development institutions and the private sector. The European Investment Bank is a non-profit and policy driven bank that offers long-term loans for investment projects. The involvement of the European Investment Bank in a project often provides a strong guarantee to commercial banks to finance private sector participation in projects. The Latin American experience shows that the most critical factor in promoting cross-border infrastructure investment is the ability to build regional initiatives that are based on a shared strategic vision (Kohli 2008). The Initiative for the Integration of Regional Infrastructure in South America, launched in 2000, has an investment target of US\$68.3 billion, comprising 508 projects. International development agencies are heavily involved in helping to mobilize the financing as well as giving expert advice.

The proposal contained in this paper recognizes the importance of establishing a cooperation mechanism at the highest political level to spearhead this initiative. A four-level mechanism is proposed—political leaders, senior officials, executives, and technical experts. Political coordination and endorsement is important and this can be done through the ASEAN+3 Leaders meetings. Governments must play a larger multifaceted role in setting up a framework for the sharing of risks between nations and between the private–public partnerships, the creation of credible policy regimes to ensure private sector confidence, and the provision of direct and indirect financial support, even if projects are private sector driven. Institutional capacity is also needed to implement political decisions.

To reduce any risk of conflict between nations and to lower transaction costs, there should be either formal or informal institutional arrangements in the absence of a single pervasive sovereign jurisdiction. This process cannot be driven by the public sector alone, and thus participation of the private sector is important. For this the private sector needs clear and consistent political signals and direction. Only with these elements in place will cross-border infrastructure investments be successful.

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