

# **The Fiscal Policy Coordination in Asia: Asia Investment Infrastructure Fund**

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## **1 Introduction**

The East Asian countries, as they face the present global economic downturn have adopted the same approach as have the US and EU that is to use the public sector. In the case of East Asia the public sector has to replace the economic activities lost as a result of fewer exports to the US and EU. In most cases a lot of fiscal stimulus programs are needed. This is because there has been a big decline in domestic production as a result of the steep shortfall in exports. The measures to expand the domestic economy include direct fiscal expenditure and other indirect measures such as guarantees for credit given by banks.

The governmental capability to undertake these stimulus programs is dependent on their own fiscal resources. If their capability is limited, what are the financial sources available to meet these funding needs to ensure that their economies do not go into a free fall? This question is especially relevant if the crisis is going to be prolonged, and at present there have been no irrefutable signs or harbingers of recovery. The “green shoots” seen by some have not been generally convincing.

The need for such funding prompts the suggestion that East Asian countries should liquidate their international currency reserves to invest in infrastructure, and thereby lay the foundation for sustained long term growth of the region. Rather than holding reserves in US treasuries or US dollar denominated assets with their concomitant risks, would it be better to use them to raise the potential for economic growth. The infrastructure investment to provide physical installations such as roads, bridges, ports and airports to support the region development could be part of the fiscal stimulus program. Infrastructure investment can also be made for provision of water, more efficient energy supply and sustainable environmental management. This is particularly important if the region wants robust growth both in manufacturing and in trade.

Regional infrastructure has both national and cross-border aspects. Some East Asian countries have invested heavily in their own infrastructure while others have invested less. Those with well developed infrastructure have reaped the benefits by attracting larger business investment and thereby a higher rate of economic development. However, many of the emerging East Asian countries have limited resources and are not able on their own to make infrastructure investments of the scale needed.

In order to ensure that the regional growth is balanced, and not just concentrated on a few countries or areas, East Asia has to foster and if possible initiate cross border infrastructure developments. This is especially important if the economically depressed areas in East Asia were also to enjoy growth. Since these infrastructure investments involve a number of countries, regional efforts are required to ensure that the much needed cross-border infrastructure developments are made, The relevant governments

should be ready to smooth implementation, anticipate and avert conflicts and delays and generally “grandfather” these complicated projects.

There are already some cross border regional infrastructure investments, for example by those initiated by the Asian Development Bank and the Japanese Government. The latter supports the Greater Mekong Sub-regional development. The Japanese Overseas Development Aid programs have been an early initiator of national infrastructure in the region especially in ASEAN countries. More recently, roads have been built to link Southern China with Vietnam, Lao PDR and Thailand.

Cross-border regional investment will call for more innovative forms of development finance. East Asian governments have long identified infrastructure as a priority but it has been generally financed from public funds and multilateral institutions. This is because infrastructure projects by their nature are generally huge and their gestation period is long. But the growing fiscal demands on governments as a result of the present crisis are pushing them to look for alternative sources of financing. To meet this need, East Asian countries should create new, specialized financial institutions or funding mechanisms that are focused on infrastructure investment, or alternatively the role of existing arrangements and institutions should be expanded. Private sector participation should be part of this. A regional infrastructure investment fund should be considered to strengthen the region’s infrastructure by recycling East Asia’s international reserves and savings.

The paper begins in section 2 below by summarizing the causes and impact of the present global crisis. That is followed by an assessment of the East Asian response in Section 3. 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 The global financial and economic crisis**

### **2.1 Causes of the current crisis**

The current global crisis began with the collapse in the US sub prime house mortgage sector which then spread to the entire US financial sector and those in other developed countries. The turmoil then quickly spread to financial sectors in other developed countries. Massive financial sector losses then spilled over to the real sector and caused one of the deepest global economic recessions ever. Causes of the crisis can be grouped into three:

- a) **Over expansion of the US monetary policy.** In response to an economic slowdown in 2000, the US reduced its interest rate to 1%. This in practice meant a negative real interest rate, and was maintained at that level for quite some time. Taylor (2008) showed that this rate was below what historical experience would suggest policy should be. The long period of low interest rates expanded credit and led to a financial

bubble, as evidenced by the steep rise in the stock markets and house prices, in the US and elsewhere. The lax monetary policy also supported expansion in US consumption which included a higher demand for imports, and that, unsurprisingly, increased the US trade deficit massively.

- b) **Lax financial regulations.** The sub-prime mortgage crisis, which was the starting point, happened because regulators failed to impose prudence in advancing credit to consumers who had little capacity to pay at that time. The expectation was that property prices would rise in the future. Similarly, deregulation and globalization had made it possible to create incredibly complex instruments such as collateralized debt obligations and credit default swaps. It was extremely difficult to understand how the market for these would react in unforeseen or extreme circumstances, so the price of risk included in them was extremely inaccurate. They had one common characteristic, namely small capital that could lead to much larger exposure of risk, and this encouraged moral hazard on the part of the original creditors. Credit rating agencies, which gave positive signals and assurance on the credit-worthiness of these instruments, were not liable for inaccurate rating, indeed they were paid for providing ratings satisfactory to the issuers of these securities: this creates another potential moral hazard. Furthermore, financial institutions were allowed to conduct off-balance-sheet activities in the form of ‘special investment vehicles’. Being off balance sheet, they hid the risks generated by complex financial instruments from the general investing public. Bank shares soared in value as their profits apparently rose steeply.
- c) **Global imbalances.** The burden the US dollar as acting as the world’s only reserve currency, unbalanced international foreign exchange holdings, and wide differences in savings and consumption patterns in major economies fostered an unstable environment. Many central banks and monetary authorities chose to hold US dollars and US dollar denominated assets as a major part of their foreign exchange reserves because it is the reserve global currency. In addition, US dollar is also the settlement currency for most international trade transactions. Countries accumulate US dollars through running a trade surplus with the US. These surpluses were then re-invested in US dollar denominated assets because they are most liquid assets and internationally recognized sovereign investment. On the other hand, as a reserve currency, the US was able to import more than it exported by settling the difference with the US dollar or the US treasuries. As a result, the US current account deficit peaked in 2006 at 6% of its gross domestic product (GDP). As a corollary, a high savings rate, too little investment and competitive exchange rate regimes contributed to high current account surpluses in several East Asian countries (Adams and Park, 2009). East Asia countries and also resource rich countries such as oil producers placed their savings and surpluses in US dollar and US dollar denominated assets, thus helping to sustain this imbalance. The fall in demand in the US resulting from the financial and economic crisis decreased the demand for exports from East Asian countries and for natural resources such as oil and other commodities. Consequently, these countries which export to the US have also been affected by the falling demand. Over the years there have been calls to utilize in other ways the East Asian reserves

invested in the US, and now this call is made again, with greater urgency and with obvious justification.

## **2.2 Impact of the present crisis on East Asia**

East Asia was not directly affected by the financial sector meltdown in the developed countries 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 crisis such as higher capital adequacy ratios, better quality of capital and more stringent corporate governance. However it was badly affected indirectly through the collapse of exports and consequentially a decline in domestic production and rising unemployment.

The impact on the East Asia began to be felt from the Third Quarter 2008 through the sharp fall in exports. Thus, it was not surprising that the overall 2008 GDP growth rate was much lower than had been seen in the earlier months of 2008. Brunei and Japan had a recession in 2008, while Hong Kong, South Korea, Singapore, Thailand and Taiwan grew feebly. The full impact of the crisis on the East Asian economies was felt in 2009. As seen in Table 1, eight out of 15 economies in East Asia contracted with Singapore recording the worst result (-9.9%). The 2010 GDP projections are for a weak growth.

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 (WTO, 2007) had caused the very steep fall noted above. The effects of exports decline is seen through the shrinking industrial production. Table 2 shows that in the Fourth Quarter 2008, in the sampled nine countries, industrial production or manufacturing production was less than in the Third Quarter 2008. The fall of industrial production was much more pronounced in the First Quarter 2009: Japan, in particular had a very sharp drop.

The quantum of export fall in East Asia was unprecedented. For example, from November 2008 to April 2009, Japanese exports have 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 participated strongly in supply chain networks, for example in 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 throttled exports down to 30% of earlier levels. The magnitude of the current crises is one and a half times the Asian Crisis and almost three times the information technology (IT) sector bust (IMF, 2009).

Sharp falls in exports from East Asia created excess capacity that led in some cases to excess inventories in related manufacturing and even construction sectors. The number of (registered) unemployed workers rose by 0.6 million during 2008 (World Bank, 2009). The World Bank expects 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 rise further and that will increase 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 sector of the region will not remain unscathed. East Asia's financial ties with 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 risen. Asian banks expanded their reliance on wholesale funding and the proportions of Non-Asian equities and securities held by Asian residents have soared, and vice versa. Not surprisingly, when business confidence was shaken due to financial troubles in the developed countries, investors started to withdraw their funds from the region as a part of 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 Shanghai stock market fell by 58.7%, Indonesia by 40.7% and Thailand by 37.3%.

Asian Financial Crisis in 1997-1998 demonstrated the importance of exchange rate in creating or ameliorating a crisis. In the present events, the exchange rate impact has been less severe than experienced in 1997-1998, with the exception of Korea. The Korean won and the Indonesian rupiah depreciated by about 20% and 10% in nominal effective terms between September 2008 and March 2009 (IMF, 2009). Balking the trend of the regional currencies, 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 the much stronger yen and lower export earnings. The main currency problem East Asia has had during the global crisis so far has been not exchange rate volatility or sharp depreciation but a shortage of US dollars, especially in late 2008, which led to difficulties faced by central banks and monetary authorities in meeting demand for US dollar.

### **3 The East Asian Response Measures**

The collapse in demand through falling exports, 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, wide scope and the number of countries involved. Japan has the largest stimulus package both in terms of total size and as a percentage of the GDP (US\$774 billion), followed by China (US\$586 billion) and Korea (US\$86 billion). Malaysia, Singapore and Vietnam also had a sizeable stimulus packages, indicating the severity of the economic contraction. The detailed stimulus measures are given in Table 5.

**Japan** announced a number of stimulus packages which totalled 16% of GDP. However, Japan's announcement of its stimulus package may have been less effective as may have been lessened by the fact that it was announced in smaller doses over every 3 to 4 months. The first package introduced in August 2008 amounting to US\$107.5bn, equivalent to 2.2% of Japan's GDP, comprise mainly non-spending measures such as lower road tolls, fuel subsidies, loans to businesses, assistance to farms, help for part-time workers to find better jobs.

The second stimulus package was announced in October 2008 in which US\$51bn (out of US\$275bn) was new spending. More than US\$20bn or 40% of the total new spending was for a bank rescue plan and another US\$20 billion (40%) in US\$600 handouts to every household of four. The third package amounted to US\$255 billion of which 44% (US\$111 billion) went to tax breaks and public financing, corporate tax cut from 22% to 18% for SME. Another 56% or USD144bn went to capital injections. A fourth package amounting to US\$154.55 billion equivalent to 3.2% of GDP was announced in 4 Apr 2009. The measures were aimed at stimulating the "green economy", create 4 million new jobs in an economy, help corporate finance and involved strategies to reinforce Japan's competitiveness.

**China** announced the single largest fiscal stimulus package which was equivalent to 14% of its GDP in November 2008. The nation that spent the most on infrastructure was China. Slightly more than 86% of China's stimulus package went to infrastructure spending, out of which 45% was for roads, rails and airports (RMB1.8 trillion), 9.3% was for improving electricity, water and roads in rural areas (RMB370 billion), 7% for low income housing (RMB280 billion) and 24.7% to reconstruction of towns devastated by May 12 earthquake. The remainder of the loans went to healthcare and education (RMB40 billion or 1%), ecological and environment protection (RMB350 billion or 8.8%) and technical innovation loans (RMB160 billion or 4%).

**South Korea** announced three stimulus packages in quick succession, (December 2008, January 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 focussed on infrastructure. It included projects to advance the metropolitan economy and provincial traffic network expansion. Korea's second stimulus package was called the "Green New Deal Job Creation Plan" and it also had 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 .

**Malaysia** first stimulus packages (US\$1.9 billion) was introduced in November 2008 and the second one (US\$16.2 billion) in March 2009. Nearly 43% of the first package was for infrastructure for example upgrading, repair and maintenance of public amenities, (including schools, hospitals, roads, quarters for police and armed forces, police stations) and the building of more low-cost houses, more public transport and the implementation of High Speed Broadband. The second package comprised four different parts: assisting

the private sector in facing the crisis (48%), building capacity for the future (31%), easing the burden of the people (17%) and reducing unemployment and increasing employment opportunities (3%).

**Singapore** introduced a US\$13.8 billion stimulus package in January 2009. 21% was for public sector infrastructure, such as Mass Rail Transit and road, 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-centralise economic activity and rejuvenate old public housing neighbourhoods. US\$1 billion is targeted to be spent over the next five years on sustainable development initiatives supporting programmes such as energy efficiency for industry and households, green transport, clean energy and the greening of living spaces and US\$4 billion for healthcare infrastructure.

**Indonesia** introduced a US\$6.3 billion stimulus package in February 2009 amounting to 1.2% of its GDP. From that, 17% is to be spent on infrastructure. The bulk of the stimulus package (58%) will be delivered via tax breaks for individuals and companies.

**Philippines** announced a US\$6.5 billion package in January 2009 which includes infrastructure spending such as repair and rehabilitation of roads, hospitals, bridges and irrigation facilities, school and government buildings.

**Thailand** has two stimulus packages, in January and March 2009. The first US\$3 billion package included measures for infrastructure, social safety nets for the unemployed, those working below a certain wage level (THB 15,000 per month), the old and students and tax measures to boost the real estate sector, SMEs and the tourism industry. The second US\$42 billion stimulus will spend 80% of the package on infrastructure and 16% for farm irrigation and water supplies to industry. However, financing for the second stimulus package has yet to be finalised. The government needs to borrow THB800 billion outside the normal fiscal process to help finance the three-year package. Half of this amount is to be financed by domestic borrowing, mostly through new issues of government bonds and treasury bills, between now and end-2010. The other THB400 billion will require more time to implement, as it requires a legislative bill to approve domestic borrowing.

**Vietnam** announced its first stimulus package of US\$960 million in December 2008 and it included: interest subsidy on loans, reduction in corporate income tax to SMEs and exemption on personal income tax. About 10% was for small-scale infrastructure programmes for 61 of the poorest districts. Its second stimulus was for US\$17.6 billion and was announced in March 2009 but financing for it has yet to be confirmed. A recent issue of government bonds in dong was not successful because the yield of about 7.5% is nearly the same as bank interest rates, and investors needed 8.0 to -8.2 percent before they would prefer bonds over bank deposits. The Vietnamese law forbids the central bank to print money to finance the State budget deficit. Currently, Vietnam has a large budget deficit (-4%) and its second stimulus package is the equivalent to 21% of GDP making it one of the highest in East Asia in relative terms. It is reported that the Vietnamese Government the budget deficit to reach 8% of GDP in 2009.

### **3.2 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 at the International Monetary Fund 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. South Korea's interest rate cuts were the most frequent and dramatic, having been adjusted downwards seven times from October 2008 and falling by a total of 325 basis points from the peak. In comparison, China's cut was less, dropping by 216 points to 5.3%. This has to be seen, however, in the context of its still relatively robust economy and large fiscal stimulus plan. As at July 2009, virtually all countries 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 is likely to be the more important determinant of demand for loans rather than interest levels. The liquidity trap experience of Japan during the 1990s, provide an example of ineffective interest rate cuts in a situation of low business and consumer confidence.

## **4 Implications of Stimulus Package 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 South Korea (see Table 7). None of these deficits can be considered particularly serious – the highest was Malaysia's 4.8 % of GDP and only four of them were higher than the 2007 deficits. By 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.

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, of course, 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. IMF studies have found that the higher the level of public debt, the lower is 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 are other common indicators of fiscal sustainability. Economies that have internationally tradable currencies are also more likely to be run fiscal deficits than those that do not. East Asian economies have relatively low levels of public debt, with the exception of Japan (Table 8). The governments can raise funds comfortably without facing a stress on public debt.

In short, fiscal deficits must be viewed against an 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. Ones like Japan can regularly incur deficits of over six per cent because of its other inherent financial strength, while those like Indonesia cannot. China can add fiscal stimulus equal to 13% of its GDP and still end up running a deficit of only around 3.5%. Its 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.

The central issue, therefore, is how East Asian economies are able to finance an increasing amount of infrastructure spending, and, consequently, fiscal deficits, in ways that are considered to be wholly prudent and productive. The case of Thailand and Vietnam above is a good illustration of this challenge. If the latter are not seen to be the case, the additional public spending could be seen as undesirable and lead to the disinvestment, capital flight and currency instability that has afflicted many 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 has also a vital role to play.

The recession has an immediate impact on the government fiscal position through automatic stabilizers, other non-discretionary effects such as lower commodity prices and discretionary fiscal stimulus. The weakening economic conditions will affect the automatic stabilizers – computed on the basis of changes in the output gap – and

negatively impact the fiscal position. IMF (2009) estimated that a uniform 1% point of GDP worsening in the G-20 will translate into a 0.3% of GDP increase in the fiscal deficit. In fact, the report also estimated that the emerging countries members of the G-20 will have a deficit of 1.1% of GDP in 2009 as 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 permanent. Most of the discretionary measures responding to the crisis are for infrastructure projects or specific transfers to help the lower income groups, which have no permanent effects of fiscal balance. Only a few countries had introduced measures such as tax cuts that permanently reduced the government revenue capacity. As such, the overall medium and long term impact of the response measures of the present have not adversely affect the East Asia fiscal position.

In the case of Malaysia, there has been a deliberately conservative policy by ensuring that a major part of its financing requirements is 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 tap funding from domestic resources and the experience of Malaysia can produce some guide. In the 1990s, its privatization policy was pursued in earnest and this meant that the government was able to earn revenue from asset sales while transferring much of the responsibility and the development and operating cost 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 along the lines of public private partnerships.

The capital market is another important source 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 played only a small role. As the economy became more sophisticated and with more privatized infrastructure projects in the pipeline, however, 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 will 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 affect countries. a total 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, Japan International Cooperation Agency's assistance of over ¥120 billion to Indonesia in 2008-09 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 the investment (which in the case of infrastructure is typically long) and that for which financing is available. The second is the need to hedge currency risks or the potential losses between the home currency and that in which the financing is denominated in. Financing arrangements that are able to assist in resolving these two problems would greatly enhance the viability and sustainability of infrastructure projects and in the financing of the higher fiscal deficits that will be incurred.

## **5 Why do 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 do so 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 – 90s, 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 less investment in infrastructure. According to P. Chidambaram, Finance Minister of India, the lack of infrastructure is holding back India's economic growth by 1.5% to 2% a year. Infrastructure in many studies is used as an input that will raise productivity and output and deliver economic growth (Gramlich, 1994; Neill, 1996). The growth of East Asia recently is generally attributed to a successful export model, but it also relied on effective infrastructure, particularly logistics / 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 the 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<sup>3</sup>. Regional infrastructure will lower the costs of East Asian intra-regional trade. The case for investment in logistic infrastructure is further supported by a multi-country study shows that a 20 % reduction in logistics costs would increase the trade to GDP ratio

by more than 10% in Cambodia, China, and Lao PDR; by more than 15% in Mongolia; and by more than 20% in Papua New Guinea<sup>1</sup>.

Investment in logistics infrastructure will foster economic growth, and in parallel good ICT infrastructure is necessary. Research findings<sup>2</sup> confirm that ICT contributes to economic growth in developing and developed countries. It does this by raising productivity and improving 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 constraint 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 increased participation of developing countries in the information economy. Alongside greater levels of trade, there is more outsourcing and foreign investment from developed countries - and increasingly from developing countries as well - to Asia. Developing better ICT literacy and infrastructure can help countries improve competitiveness and attract more off-shoring activities that yield high value added to the region.

## **5.2. Recycle Asia international reserves and domestic savings**

The export-led growth model pursued by Asia has led to their accumulation of large international reserves, as shown in Table 9. These grew strongly after the Asian Financial Crisis 1997-1998 as insurance against further currency attacks and financial crises (Aizenman, 2006). Accumulation of large foreign exchange reserves is due to the region sustained trade surpluses although there is claims that East Asian countries had not allowed their currencies to appreciate in order to keep exports competitive. The extent of foreign exchange accumulation by countries in the region is more than merely adequate. At the end of 2006, reserves of China, Korea, Taiwan, India, Singapore, Hong Kong, and Malaysia are many times more than needed to cover their external debt (Park 2007). Not all reserves can be spent. As example reserves by central bank or arising from borrowing overseas are not for disposal despite its accumulation since 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 dollars denominated assets. As at May 2009, East Asian countries hold 15.7% of the total SDR 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 will be used to support further economic growth in the region, which can also bring higher returns.

## **5.3. Narrow the developmental gap between countries in the region**

Investment in infrastructure also has the benefit of helping to close income gap and reducing poverty because low income countries or areas will have a better chance of generating higher economic activities when infrastructure is available. Infrastructure development can connect agricultural and poorer areas to urban and economic growth hubs, which will enable the former to market their products and to receive their economic needs at reasonable prices. Transportation and energy projects are an effective way for development to reach poor regions of East Asia. 60% of the region's population lives in the countryside and poverty tends to be concentrated there. In rural areas, 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, more income from agriculture, increased access to employment, education health and social participation, and even better emergency relief in the event of natural disaster (Cook, Duncan, Jitsuchon, Sharma & Guobao, 2004).

Investment in energy infrastructure can increase access to electricity to support rising future population. Increasing electrification in the rural area will help to reduce poverty and move closer to achieving the Millennium Development Goals (Cook, Duncan, Jitsuchon, Sharma & Guobao, 2004; Estache, 2004). Rural populations can benefit from the reduced energy cost, increased farming activity, better quality of education and health services, increased flow of information and security that 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 world emission from energy use (ADB, 2009). Therefore the infrastructure investment strategy can address the balance between higher level of development and environmental protection.

Increasing Asian urbanization will also call for infrastructure investment. As at 2006, developing countries such as Indonesia, Malaysia, Philippines and Thailand have already reached more than 30% urban population. With increasing migration to cities, the incidence of urban poverty will rise, as will stress on water supply and sanitation, and traffic congestion. 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 in 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 during 1991 to 2005. For example, in 2005, out of the top 10 countries with the highest ranked infrastructure 8 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 investments 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 requires US\$3,042 billion of infrastructure for the period 2006 to 2015. ASEAN countries alone need about US\$583.1 billion of infrastructure investments 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.

Actual infrastructure development in East Asia is unlikely to match the above needs. Estimates by ADB (Nangia, 2008) on private sector investments for 8 ASEAN countries from 1990 to 2006 showed an amount invested 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 Vietnam, Cambodia, Lao PDR and Myanmar was much smaller. To bridge the gap, the most important sources of financing for the governments are borrowing from existing multilateral institutions (such as ADB, and World Bank) and bilateral government official assistance or loan agencies (such as JBIC). However, total funding received by developing countries for infrastructure investment from ADB, World Bank and JBIC was only US\$7 billion annual average in the period 2000-2003 (UNESCAP, 2006). This represented less than 5% of the gap.

Besides national projects, East Asia also needs to invest in cross-border infrastructure, which involves more than one country. Sometimes, national infrastructure projects are meaningless if they not connected with 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 then be shipped. Cross-border infrastructure allows more efficient movement of goods by complementing and linking the various infrastructure nodes located in the countries involved and this is particularly beneficial for economically backward locations. East Asia has economies at very different levels of development and this is a good opportunity: cross border projects will help the transfer of trade, people and skills in both directions and both participating nations have the potential for economic and human capital advantage.

## **6.2. Existing regional or cross border infrastructure projects**

East Asia has a limited number of cross-border infrastructure projects. Their relatively low number points to their increased difficulty: availability of funds, regulatory compatibility, implementation capacity, sharing of costs and benefit and political willingness. Important cross-border infrastructure projects are;

- The Greater Mekong Sub-region (GMS) - The GMS comprises Cambodia, two provinces of China, Lao PDR, Myanmar, Thailand and Vietnam. One of the main focuses of the GMS Program is to improve connectivity in the sub-region through strengthening linkages in transport, energy and telecommunication. The key activities include 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, established in 1992 by the United Nations Economic and Social Commission for Asia and the Pacific (UNESCAP). 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 power utilities/authorities of the ASEAN countries. There are 14 interconnections, of which two have been completed and are currently operating. These are the Peninsular Malaysia-Thailand and Peninsular Malaysia-Singapore.
- Trans-ASEAN Gas Pipeline has the aims of: reliable gas supply for ASEAN members, use of environment-friendly fuel and increased investment in gas exploration. It has eight gas interconnections involving Indonesia, Malaysia, Thailand, Singapore, Brunei, Philippines and Vietnam.
- 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 Singapore, Malaysia, Thailand, Cambodia, Vietnam, Lao PDR, Myanmar and China.

### **6.3. Mechanism for funding cross-border infrastructure projects**

The major vehicles for funding cross-border infrastructure are multilateral agencies (primarily the ADB), bilateral development aid programs and government-owned financial agencies (e.g. Japan Bank for International Cooperation). The 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 important, it can coordinate and work with the various Asian governments and regulators to ensure smooth execution. UNESCAP 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 for funding cross-border infrastructure investment. The Japanese government through its Overseas Development Assistance (ODA) and the Japanese Bank of International Cooperation (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” It proposes to develop the Mekong sub-region 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 mechanism to facilitate public-private partnership. It plans to develop the “Mekong-India Economic Corridor” and link the present Thailand 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 thorough public-private partnership based on the Thailand Eastern Seaboard Development model will be proposed. The Economic Research Institute for ASEAN and East Asia, ADB and ASEAN Secretariat are expected to work together to design the master plan of this proposal.

For this purpose, the Japanese government has increased its ODA budget to up 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 any cross-border infrastructure project but 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 ones 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, sometime more urgent demands for the use of government's resources. Multilateral institutions usually would fill in this funding gap but their funding capacity is also finite because: they depend on limited contributions by members, there is a higher cost of funds if raised through the market and there are competing allocations to the various projects. Efforts to promote private sector participation will require measures to provide assurance that their 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 recover fully 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 the projects carry higher risk than normal projects and as such may not be too attractive to investors. In view of the above imponderables, the private sector will find it very difficult to lead such projects, but may work 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 both sides, perhaps in the form of a joint and several commitments will be a necessary (but not sufficient) contribution to cross border infrastructure projects.

Besides financing issues, the low rate of participation of the private sector 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 a public good, infrastructure projects cannot reflect and charge the public on a full cost recovery but instead the government or the public sector have 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 capacity 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 generation distribution project, the cost is highest at the point of generating the electricity namely building the dam and generation plant. However, because it is situated at a point that is determined by geographic 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, which 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 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 of the projects. It is not uncommon for countries that provide funding for the infrastructure projects through soft loans, to make it a condition of the loan that the construction work is undertaken by their companies. 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 these cross-border projects involve regulations and legal procedures of many countries, a serious challenge is how to establish a set of rules and protocols that are acceptable to all countries participating in the project. When more than one set of regulations and protocols has to be considered, the level of complexity rises, probably exponentially. In addition there is little precedent to follow, so the means of implementing and controlling each project has to be 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 there is none. Equally important is to agree on a dispute settlement mechanism to deal with implementation matters as well as 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 level and sub-national levels fail. Harmonization of technical standards is also important to ensure the success of the project. A technical group established for this purpose is critical to agree on the common standards acceptable by all countries. Agreement on technical standards is perhaps easier to achieve than that on regulations 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 can be compounded if the project is part of a wider “dialogue” between the participating countries, then it 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 also involve borrowing in one currency, erecting the structure or structures using another currency and possibly, generating funds from the operation of the structures in yet another one or more currencies. 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 interest rates of each of those currencies. The changes cannot be predicted and covered in the project financial plan, and the magnitude of the changes also cannot be foreseen. Interest rates can be fixed for the 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 will accordingly need a higher rate of return on investment, to compensate for that higher risk.

- **Environment and social impact**

Cross-border projects are normally on greenfield sites and will run the risk of altering in unpredictable ways the physical and social environment in 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 its 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 pressure or incentive for people to cross borders either to work in the new projects or to escape the adverse effect of construction or 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 Asian infrastructure investment fund**

East Asian governments have long identified cross-border infrastructure as a priority but progress has been slow. The demand for cross-border regional investments necessitates greater innovation in the way the region carries out and finances its ambitious development plans. Normally financing comes from the public sector but the growing fiscal stress in during these times is forcing governments to look for alternative sources of financing. East Asia can draw on its vast pool of domestic savings and foreign exchange reserves to be deployed for infrastructure financing. To bridge the gap, East Asian countries need to create new, a specialized financial institution, namely an Asian Infrastructure Investment Fund to mobilize infrastructure investment or expand the role of existing ones.

There are a number of broadly similar proposals but they have not been implemented. They include:

- **ASEAN Infrastructure Bond Fund (AIBF)**

This regional collaborative effort by ASEAN Finance Ministers aims to recycle the surplus savings into ASEAN infrastructure development by establishing a regional infrastructure financing mechanism to address under-investments in ASEAN infrastructure projects. The concept of AIBF 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 blended credit risks and guarantees of ASEAN governments would substantially reduce risk premiums and lower costs of funding infrastructure projects.

- **ASEAN Infrastructure Development Fund**

On May 2005, the Malaysian Prime Minister Dato Seri 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 amount to US\$2.5 trillion. There is no further development of this proposal.

- **Northeast Asia Development Bank**

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

- **Asia Pacific Economic Cooperation Infrastructure Initiative**

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 (PECC) 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, leaders of APEC directed their Ministers to accelerate the progress in implementing the e-APEC strategy which will facilitate an environment for infrastructure investment and technology development.

## 8.1 The establishment of an Asian Infrastructure Investment Fund

Due to the funding gap mentioned earlier in Section 6, governments must provide direct or indirect financial support, even when cross-border infrastructure projects are lined up for privatization. Given the high degree of risk involved in such long term projects and across countries, risks should be shared between regional governments as well as between the government and the private sector. Governments also need to provide supportive policy regimes to facilitate these cross-border infrastructure projects. East Asian governments could set aside a special fund, Asian Infrastructure Investment Fund (the Fund), to partially fund regional cross-border infrastructure projects because many regional countries have substantial domestic savings and the international reserves to do so. A cooperative mechanism has to be worked out that is agreeable to all parties concerned. Before this can be done, the objectives must be clearly defined and the lending criteria can be designed to match the intended objectives.

The proposal has three elements: Setting up of fund; Criteria for project selection; and Decision-making structure.

### (a) Setting up the Fund

The overriding objective of the Fund is to support economic growth and integration of the East Asia region. For this purpose the Fund will require mostly public or multilateral support in finance projects like water and sewerage which attract the least private sector participation but has the highest social benefit. Based on Yepes' (2004) forecast, East Asia needs at least US\$160 billion for five years for new infrastructure investment. These forecasts are considered conservative given that more recent unpublished studies show much higher funding needs. The breakdown of the funding sources is as follows:

Source	Share (%)	US\$ billion
Government	50	80
Private sector	25	40
ADB, World Bank and other multilateral agencies	25	40
Total	100	160

As East Asia comprises nations that are both rich and poor, not all can be expected to contribute to the Fund. It is proposed that the size of contribution from each country be set according to its economic weight as shown in Table 13. Based on their size of GDP and GDP per capita, governments from six of the ASEAN+3 countries would lead in the participation of debt instruments, soft loans and grants for cross-border infrastructural development as shown in Table 12.

It is unrealistic to expect the Fund to collect US\$160 billion. A smaller percentage of this total sum, say 50%, would be more achievable. China has taken a lead by announcing, in April 2009, that it will set up a \$10 billion China-ASEAN investment cooperation fund to support infrastructure projects in the region. However, the US\$40 billion mentioned above from multilateral institutions and government-owned financial agencies may be possible because the total funding received by the developing countries for infrastructure investment from ADB, World Bank and JBIC amounted to US\$7 billion per year for the period 2000-2003 (UNESCAP, 2006). However, under current circumstances, that possibility is quite remote.

**(b) Project criteria**

The Fund should set clear criteria for the projects in which it will invest. In the case of EU, for instance, a Cohesion Fund is set up with specific objectives to assist in the integration of European countries and narrowing income differences between different regions (Bhattacharyay, 2008). This fund has been successful because objectives are clearly set and the cooperative funding mechanism clearly defined and agreed upon by all participating nations. In the period 2000-2006, the Cohesion Fund supported about 75% of the total financing needs of 770 environmental projects and 279 transport projects, totaling €44 billion. According to the European Commission (2007), the financial resources of the Cohesion Fund will rise to about €70 billion, and €59 billion will benefit 12 new member states and 900 projects.

In the case of East Asia, the objectives are likely to match major ones stated by ASEAN in the ASEAN Infrastructure Financing Mechanism. The major objectives which will dictate the criteria for selection of cross-border infrastructure projects are: (a) to increase the supply of marketable assets from financing infrastructure, generate more demand for intermediation services and help deepen markets; (b) to recycle ASEAN savings; and (c) to promote cross-border flows in intra-regional investment and trade and accelerate integration in line with ASEAN Economic Community 2015 vision.

For East Asian integration there should be two types of criteria for selecting projects. The first is to support nearly “self-funding projects”, where after an initial grant or soft loan, the project is able to internally fund its servicing or maintenance. In this case, projects are chosen based on the highest return on investment to attract private sector participation and to ensure success of the debt instrument issued. Popular projects with the private sector can be given priority such as telecoms and energy. Initial successes are important to kick-start the marketability of the assets. The overriding objective of the project is to develop and deepen the capital market and to attract the sovereign wealth funds to participate

**(c) Decision making structure**

For decision-making structures, East Asia can adopt the model used in South America which essentially involves three levels of decision (Kohli, 2008). Setting up these institutional frameworks is crucial to facilitate monitoring and enhance implementation capacity.

The four levels are as follows:

- i. East Asian Leader or finance ministers meeting  
The East Asian Leaders or finance ministers will meet to agree on policy and key principles for cross-border infra investment. This can be an annual meeting that provided the decision and guidelines for implementation by the subordinate levels.
- ii. Executive Directorate Committee  
This comprises high level government officials from member countries to deal with regulatory framework, policy and proposal formulation. This is particularly useful for making speedier decisions, the necessary changes in regulation, and soliciting top-level backing for budget commitments to ensure continuity of projects. This could be similar to the present ASEAN Infrastructure Financing Mechanism (AIFM) Task Force comprising senior delegates from the Ministry of Finance of the 10 ASEAN countries and the Malaysian Securities Commission.
- iii. Technical Coordination Committee  
In Latin America, this comprises development banks. In the case of East Asia, it would be necessary to set up an independent legal entity or institution to focus on regional infrastructure financing and development. This could be called the Asian Investment Bank (AIB) that will disburse the Fund for investment. It should be modelled along the lines of European Investment Bank (EIB) which is a non-profit making lending institution owned by European countries and multilateral institutions.  
  
The capital contributed by each country can be related to the size of its economy as proposed above and the statutory lending ceiling can be set at a certain level that may not necessarily be linked to the subscribed capital. In the case of EIB, it is set at 250% of subscribed capital. Lending restrictions can be put in place, for instance, AIB cannot lend more than 50% of total cost of any individual project and lending activities are limited to only long term loans for infrastructure investment projects.
- iv. Technical Executive Group  
This comprises civil servants and experts responsible for negotiating a “fair” distribution of benefits at regional level. This committee will also harmonize regulatory, procedural, technical standards and legal reforms needed to attract private financing to supplement public resources, reduce risks and lower transaction costs.

## **8.2 Private sector participation in infrastructure investment**

It is important for the private sector to participate in regional cross-border infrastructure investment to supplement the funds provided by governments and multilateral agencies. In addition, the private sector participation will bring market discipline to the project implementation.

- **Asian Bond Fund and Asian Bond Market Initiatives**

The development of the regional bond market as an alternative source of long term financing for infrastructure remains in its infancy. There are two types of bond funds, namely the Asian Bond Fund (ABF) and the Asian Bond Market Initiative (ABMI). There are two phases to the ABF with a total of US\$3 billion, which is hardly able to meet 1% of the estimated regional infrastructure financing needs. The initial phase called the Asian Bond Fund I (ABF I), involved 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. The size of the ABF I is US\$1 billion. Subsequent to the ABF I launched in June 2003 by the central banks at Executives' Meeting of East Asia Pacific Central Banks (EMEAP), a second US\$2 billion Asian Bond Fund II (ABF II) was launched in May 2005 investing in local currency, sovereign and quasi-sovereign bonds of various Asian countries. The main drawback of ABF is the size of the fund and the high transaction fees incurred because of the lack of secondary market liquidity.

While the Asian Bond Fund was launched by central banks, the Asian Bond Markets Initiative (ABMI) was endorsed by finance ministers of ASEAN+3. The objective of ABMI is to develop an efficient and liquid local currency bond market (Bhattacharyay, 2009). A wider variety of issuers need to be involved and market infrastructure enhanced to foster an Asian bond market.

- **The Asian Investment Financing Mechanism**

Very few private investors have participated in cross-border projects in Asia compared to other regions (Kohli, 2008). ASEAN member countries have also sought to organize and facilitate more private sector capital to invest in infrastructure projects through the creation of a regional platform such as the ASEAN Investment Financing Mechanism (AIFM).

The AIFM aims to: (i) accelerate infrastructure development to promote regional economic growth and prosperity, (ii) recycle ASEAN savings and strengthen ASEAN's financial resilience, (iii) accelerate private sector development, increase demand for intermediation services, and deepen capital markets across ASEAN; (iv) support the branding of ASEAN by providing a platform for the creation of regional products; and (v) strengthen intra-regional trade and investment, with a view to accelerating the realization of the ASEAN Economic Community 2015 vision (Goh Ching Yin 2008). An AIFM Task Force has been set up comprising senior delegates

from the Ministry of Finance of the 10 ASEAN countries and the Malaysian Securities Commission to support the implementation of regional infrastructure integration and development.

Similarly, ASEAN+3 has also set up a Task Force but is still in its early conceptual stages to offer policy options on infrastructure investment cooperation in East Asia and suggest an implementation mechanism for regional infrastructure integration. More specifically, the Task Force will (a) identify and prioritize infrastructure projects to be promoted according to a set of criteria and eligibility that is to be agreed among all member nations, (b) propose the investment cooperation mechanism in carrying out the projects such as cooperation between the regional governments and between the relevant public and private sectors (c) propose the funding mechanism and (d) propose the project implementation framework. The Task Force is likely to comprise members of the Network of East Asian Think Tanks (NEAT), public officials and private sector representatives.

## **9 Conclusion**

In this present 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 on financing the stimulus package and its sustainability. 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. In such situation, many economies face the problem of insufficient financial resources to carry out programs to expand domestic demand. The second issue is how to make the stimulus programs most effective and productive. Policy makers are confronted with the 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, with the exception of Thailand and Vietnam which have had to undergo some administrative requirements for fund raising. However, many of these countries may face a funding shortage if the crisis is prolonged and additional public sector expenditure is needed. During 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 had 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 shortage in future economic crisis.

As the present crisis is showing signs of stabilization and possibly recovery, East Asian countries should now turn their attention to the so-called “exit” or deficit-reduction strategies for the medium term sustainability of fiscal balance. Maintaining a sizeable persistent fiscal deficit will cast unfavorable view of a country’s economic health and management – the country’s sovereign rating may be downgraded and raising capital in international markets may be more expensive. Thus, East Asian governments should begin to have a realistic plan to reduce their deficits. They should ensure that the stimulus programs are not a structural feature and the private sector be encouraged to resume their lead role in economic and business activities.

This paper has shown that East Asian countries had spent most of their stimulus packages on national infrastructure projects. These infrastructure projects have many spillover benefits as they provided the foundation for future growth. This 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. This paper has also proposed the establishment 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 as the analysis on challenges shows that for such ventures, political will 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 China has started a US\$10 billion infrastructure fund. Hopefully the Japanese and Chinese initiatives can kick start the regional cross-border infrastructure investment efforts.

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. The political coordination and endorsement is important and this can be done through the ASEAN+3 leaders or ministers of finance meetings. Governments must play a larger multifaceted role in setting up a framework on the sharing of risks between nations and between the private-public partnerships, creating credible policy regimes to ensure private-sector confidence and providing direct or 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 signal and direction. Only with these elements in place will cross-border infrastructure investments be successful.

## Tables

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

No.	Countries	2008	2009 (forecast.)	2010 (forecast.)
1	Brunei	-1.51	0.24	0.60
2	Cambodia	6.03	-0.51	2.99
3	China	9.05	6.52	7.51
5	Hong Kong	2.48	-4.47	0.52
6	Indonesia	6.06	2.50	3.50
7	Japan	-0.64	-6.20	0.52
8	Korea	2.22	-4.02	1.53
9	Lao PDR	7.22	4.38	4.72
10	Malaysia	4.64	-3.50	1.34
11	Myanmar	4.54	5.02	4.03
12	Philippines	4.64	3.4	0.97
13	Singapore	1.15	-9.99	-0.11
14	Thailand	2.58	-2.97	1.04
15	Taiwan	0.12	-7.46	0.01
16	Vietnam	6.51	3.27	3.97

Source: 2009 World Economic Outlook Database,IMF

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

No.	Countries	Q22007	Q32007	Q42007	Q12008	Q22008	Q32008	Q42008	Q12009
1	China	118.3	118.1	117.5	..	115.9	113	106.4	n.a.
2	Hong Kong	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	Korea	154.6	152	169.6	163.7	168.4	160.4	150.6	n.a.
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	n.a.
8	Singapore	141.3	156.6	148.5	151.9	133.3	139.3	132.6	n.a.
9	Thailand	171.9	181.9	191.84	199.29	189.32	195.77	176.42	162.47

Source: International Financial Statistics, IMF

**Table 3: Export Performance for Selected East Asian Countries (% change y-o-y)**

Countries	Nov 2008	Dec 2008	Jan 2009	Feb 2009	Mar 2009	Apr 2009	May 2009
Japan	-26.7	-35.0	-45.7	-49.4	-45.5	-39.1	n.a.
S.Korea	-18.3	-17.4	-32.8	-17.1	-21.2	-19.0	-28.3
China	-2.2	-2.8	-17.5	-25.7	-17.1	-22.6	-26.4
Malaysia	-4.9	-14.9	-27.9	-15.9	-15.6	-26.3	n.a.
Singapore	-17.5	-21.0	-35	-24	-17	-19.2	-12.1
Taiwan	-23.3	-41.9	-44.1	-28.6	-35.7	-41.2	-31.4
Indonesia	-1.8	-18.7	-36.1	-34.5	-32.1	-22.5	n.a.

Sources: Various Analysts Reports.

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

<b>Countries</b>	<b>Amount in US\$ (bil)</b>	<b>As a % GDP</b>	<b>Fiscal balance as % GDP (2009 est)</b>
Japan	774	16.4	-6.8
China	586	14	-3.2
S. Korea	86	12.8	-6.5
Singapore	13.8	10.7	-4.1
Malaysia	18.1	10	-7.6
Thailand*	3.3	1.2	-6.0
Indonesia	6.1	1.2	-2.1
Philippines	6.5	4.6	-2.3
Vietnam*	17.6	22	-4.0
Cambodia	0	0	-4.8

\*Financing of Vietnam and Thailand's second stimulus packages have been excluded as financing is yet to be finalized.

**Table 5: Fiscal Stimulus Packages in East Asian countries**

Countries	Measures Taken	Date Announced
Japan	<u>First package:US\$107.5bn</u>	29 Aug 08
	<ul style="list-style-type: none"> <li>• Mainly non-spending measures such as lower road tolls, fuel subsidies and loans to businesses, assistance to farms, help for part-time workers to find better jobs.</li> </ul>	31 Oct 08
	<u>Second package:US\$51bn out of US\$275bn is new spending</u> <ul style="list-style-type: none"> <li>• More than US\$20bn (40%) in bank rescue plan.</li> <li>• US\$20 billion (40%) in US\$600 handouts to every household of four.</li> </ul>	12 Dec 08
	<u>Third package: US\$255 bn</u> <ul style="list-style-type: none"> <li>• \$111 billion (44%) in tax breaks and public financing eg corporate tax cut to 18% from 22% for SME.</li> <li>• \$144 billion (56%) in capital injections.</li> </ul> <u>Fourth package:USD154.55 bn</u> <ul style="list-style-type: none"> <li>• Stimulating the "green economy"</li> <li>• Create 4 million new jobs in an economy</li> <li>• Help corporate finance</li> <li>• Strategies to reinforce Japan's competitiveness</li> </ul>	4 Apr 09
China	<ul style="list-style-type: none"> <li>• 45% for infrastructure including roads, rails &amp; airports (RMB1.8 trn)</li> <li>• 9.3% for improving electricity, water and roads in rural areas (RMB 370bn)</li> <li>• 7% for low income housing (RMB280bn)</li> <li>• 25% for post-earthquake reconstruction (RMB1trn)</li> <li>• 1% for healthcare and education (RMB40bn)</li> <li>• 8.8% for ecological and environment protection (RMB350bn)</li> <li>• 4% for technical innovation (RMB160bn)</li> </ul>	9 Nov 2008
S. Korea	<u>First package: USD26bn</u> <ul style="list-style-type: none"> <li>• Create more jobs by providing better job training through the expansion of internship system, increase job positions for underprivileged</li> <li>• Increase welfare support to stabilize livelihoods of low income classes and support in reducing childcare costs</li> </ul>	13 Dec 2008

	<ul style="list-style-type: none"> <li>• Increase social overhead capital investment with focus on investments in construction projects including projects to advance the metropolitan economy and provincial traffic network expansion</li> <li>• Support stabilization of SMEs and financial markets by increasing SME guarantees</li> <li>• Support regional finances to offset reduced real estate tax</li> </ul> <p><u>Second package: USD37bn</u></p> <ul 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 upgrade the quality of life and environment</li> <li>• Carbon reduction and stable supply supply of water resources</li> <li>• Building of industrial and information infrastructure and technology development for greater energy efficiency</li> </ul> <p><u>Supplementary budget: USD21bn</u></p> <ul style="list-style-type: none"> <li>• Maintaining job security and revitalizing provincial economies and supporting industries with future growth potential</li> </ul>	<p>January 2009</p> <p>23 March 2009</p>
Singapore	<ul style="list-style-type: none"> <li>• “Job Credit Programme”- 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 to 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 Jan 2009
Malaysia	<p><u>First package: USD1.9bn</u></p> <ul style="list-style-type: none"> <li>• Upgrade and repair public amenities, rural roads, quarters for police and armed forces (RM1.5m)</li> <li>• Build low &amp; medium-cost houses (RM1.4m)</li> <li>• Upgrade and maintain public transport (RM0.5m)</li> <li>• Implement High Speed Broadband (RM0.5m)</li> <li>• Set up investment funds to attract private investments (RM1.6m)</li> <li>• Skills training and youth programme (RM0.6m)</li> <li>• Pre-school education &amp; grants to schools (RM0.4m)</li> </ul>	<p>4 November 2008</p> <p>10 March 2009</p>

	<p><u>Second package: USD16.2bn</u></p> <ul style="list-style-type: none"> <li>• Reduce unemployment and increase employment opportunities (RM2bn)</li> <li>• Ease the burden of vulnerable groups (RM10bn)</li> <li>• Assist the private sector in facing the crisis (RM29bn)</li> <li>• Build capacity for the future (RM19bn)</li> </ul>	
Thailand*	<p><u>Supplementary budget: USD3.3bn</u></p> <ul style="list-style-type: none"> <li>• One time living cost allowance of THB2,000 for those earning &lt; THB 15,000 per month</li> <li>• Extension of 5 public service subsidies programme 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 THB500 per month</li> <li>• Infrastructure projects</li> <li>• Tax measures to boost real estate, SMEs and the tourism industry</li> </ul> <p><u>"Strong Thailand 2012":USD42bn</u></p> <ul style="list-style-type: none"> <li>• Financing yet to be finalised</li> <li>• 79.7% will be spent on infrastructure investments on mass transit, transportation and communication &amp; energy. 16.1% to improve farm irrigation and water supplies to industries. The remainder is aimed at developing new sites, improvement of existing sites and rehabilitation projects for the tourism industry (6.63 billion baht); developing a creative economy covering cultural heritage, the arts and cultural performance, craftsmanship, creative products, software, design and research &amp; development (20.13 billion baht) and improving education (60.14 billion baht); reforming the public health service (9.29 billion baht) and increasing the income and quality of life (100 billion baht).</li> </ul>	<p>January 2009</p> <p>24 March 2009</p>
Indonesia	<ul style="list-style-type: none"> <li>• Tax breaks for individuals and companies (IDR43 trillion)</li> <li>• Waived import duties and taxes (13.3 trillion)</li> <li>• Infrastructure spending (12.2 trillion)</li> <li>• Diesel subsidy (2.8 trillion)</li> <li>• Rural development (0.6 trillion)</li> </ul>	February 2009

Philippines	<ul style="list-style-type: none"> <li>• Job creation programme to provide 824,000 temporary jobs at government departments by July 2009.</li> <li>• Tax reduction in corporate income tax and waiver of personal income tax for minimum wage earners</li> <li>• Infrastructure projects</li> <li>• Waiver of penalties on loans from social security.</li> </ul>	January 2009
Vietnam*	<p><u>First stimulus package:USD1bn</u></p> <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 Jan to May 2009</li> </ul> <p><u>Second stimulus package:USD17.6bn</u></p> <ul style="list-style-type: none"> <li>• Infrastructure projects</li> <li>• Measures to support manufacturing and export sectors</li> <li>• Social security and social welfare</li> </ul>	December 2008  March 2009

Source: ESCAP: Economic & Social Commission for Asia and the Pacific and MOF, Malaysia

**Table 6: Monetary Policy Responses in East Asia, 4Q08-2Q09**

Country	Monetary Policy	
	Change from peak (basis points)	Current rate (%)
Japan	-40	0.10
China	-216	5.31
Hong Kong	-625	0.50
Indonesia	-225	7.25
Malaysia	-150	2.00
Philippines	-175	4.25
Singapore	na	Na
South Korea	-325	2.00
Chinese Taipei	-237	1.25
Thailand	-250	1.25

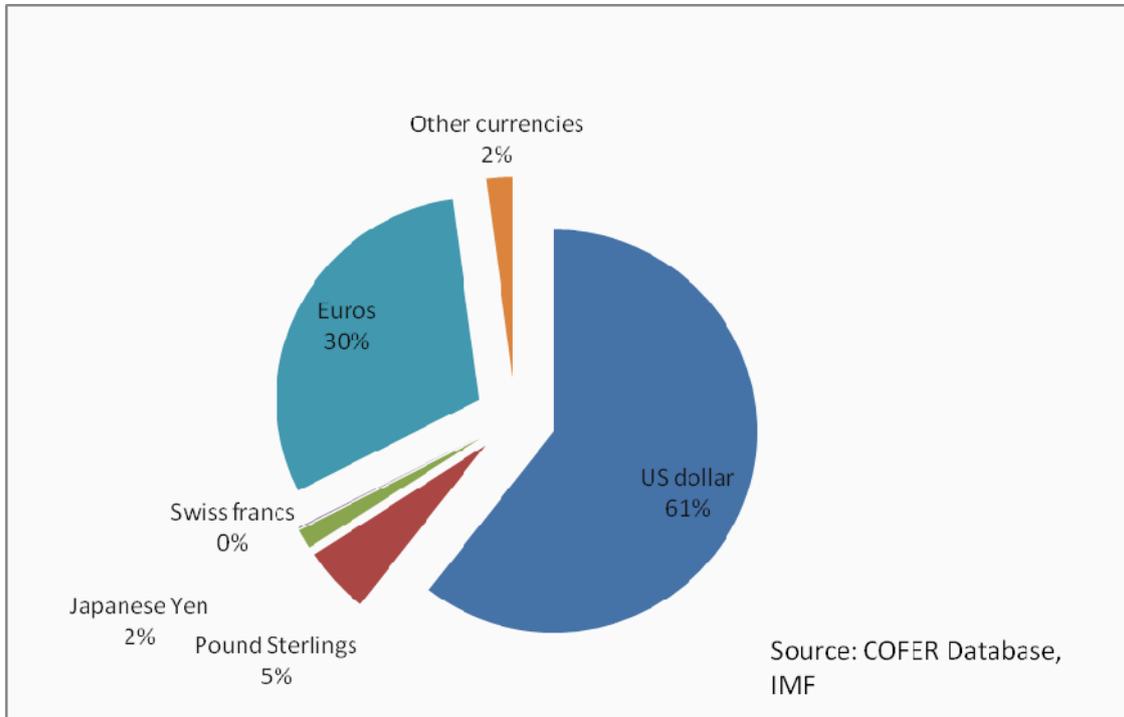
Source: National authorities

**Table 7: Government Budget Surpluses/Deficit (Percentage of GDP), 1990-2009**

Year	Brunei	Cambodia	China	Hong Kong	Indonesia	Japan	Korea	Lao	Malaysia	Myanmar	Philippines	Singapore	Thailand	Taiwan	Vietnam
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	n.a.	4.3	-2.2	-0.7
1992	-3.9	-3.6	n.a.	2.7	-1.1	-2.4	-0.5	-5.2	-0.8	-2.1	-1.2	n.a.	2.6	-5.3	-0.8
1993	-0.7	-4.7	n.a.	2.1	-0.5	-3.6	0.6	-2.7	0.2	-1.4	-1.5	n.a.	1.9	-3.8	-3.4
1994	15.5	-5.7	n.a.	1.0	1.0	-4.3	0.3	- 11.1	2.3	-2.5	1.0	n.a.	2.7	-1.7	-2.2
1995	15.1	-7.2	n.a.	-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	n.a.	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	n.a.	-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	n.a.	-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	n.a.	-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	n.a.	-4.0	n.a.	-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	n.a.	-5.3	n.a.	-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	n.a.	-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	n.a.	-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	n.a.	-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	n.a.	-1.1	6.7	1.1	-0.2	-1.8
2007	n.a.	-1.2	0.7	7.2	-1.2	n.a.	3.8	-2.7	-3.2	n.a.	-0.2	n.a.	-1.7	n.a.	-5.4
2008	n.a.	-2.2	-0.4	-0.3	-0.1	-1.4	0.3	-1.8	-4.8	n.a.	-0.9	1.5	-1.1	-1.3	-1.6
2009 (est.)	n.a.	-4.8	-3.2	-4.1	-2.1	-6.8	-6.5	-5.4	-7.6	n.a.	-2.3	-4.1	-6.0	-5.0	-4.0

Source: ADB Key Indicators 2008 and The Economist Country's Profile

**Figure 1: Foreign Exchange Reserves Composition for Emerging and Developing Economies**



**Table 8: Public Debt to GDP Ratio for Selected East Asian Countries (%), 2008**

Countries	Ratio
China	15.70%
Hong Kong	14.50%
Indonesia	30.10%
Japan	170.40%
Korea	32.70%
Malaysia	42.77%
Philippines	56.5%
Singapore	113.7%
Thailand	42.0%
Vietnam	38.6%

Sources: CIA World Factbook

**Table 9: Gross International Reserves (US billions)**

Country	2004	2005	2006	2007	2008
China	614.50	821.51	1,068.49	1,540	1,980
Hong Kong	123.57	124.28	133.20	152.69	182.54
Korea	199.07	210.39	238.96	262.22	201.22
Taiwan	241.74	253.29	266.15	270.31	291.71
Brunei Darussalam	0.51	0.49	0.52	0.61	0.65
Cambodia	0.81	0.92	1.10	1.61	2.29
Indonesia	36.32	34.72	42.59	56.92	51.64
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	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
Thailand	49.83	52.07	66.99	87.46	111.00
Viet Nam	6.31	8.56	11.48	21.00	23.00

Source: Asian Development Bank

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

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

Source: Yepes (2004)

**Table11: Projected Infrastructure Requirements in ASEAN 2006-2015 Base Case (US\$ billions)**

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

*Source: "Overview of infrastructure financing in ASEAN", Rita Nangia of ADB (January 2008)*

<b>Table 12: Private Sector Investments in ASEAN 1990-2006 (USD million)</b>					
	Energy	Transport	Water & Sanitation	Telecom	Total
Cambodia	231	445	-	331	1,007
Indonesia	13,160	4,634	992	18,455	37,241
Lao PDR	2,586	-	-	198	2,784
Malaysia	14,313	16,113	10,144	8,577	49,147
Myanmar	719	50	-	-	769
Philippines	15,818	2,625	8,071	11,545	38,059
Thailand	12,244	3,576	596	14,254	30,669
Vietnam	2,715	115	213	946	3,989
Total	61,786	27,558	20,016	54,306	163,669

Source: "Overview of infrastructure financing in ASEAN", Rita Nangia of ADB (January 2008)

**Table 13: Capacity of East Asian Countries to Contribute using equal weightage on GDP and GDP per capita**

	Share of total of NEAT	Weightage	Share of total GDP/capita of NEAT	Weightage	Capacity to contribute
<b>Brunei</b>	0%	50%	23%	50%	<b>11.7%</b>
Philippines	1%	50%	1%	50%	1.3%
Indonesia	4%	50%	1%	50%	2.8%
Cambodia	0%	50%	0%	50%	0.2%
Lao PDR	0%	50%	0%	50%	0.3%
<b>Malaysia</b>	<b>2%</b>	<b>50%</b>	<b>5%</b>	<b>50%</b>	<b>3.4%</b>
Myanmar	0%	50%	0%	50%	0.2%
<b>Singapore</b>	2%	50%	24%	50%	<b>12.8%</b>
Thailand	2%	50%	2%	50%	2.5%
Vietnam	1%	50%	1%	50%	0.7%
<b>Japan</b>	44%	50%	25%	50%	<b>34.7%</b>
<b>China</b>	33%	50%	2%	50%	<b>17.4%</b>
<b>S Korea</b>	10%	50%	14%	50%	<b>12.1%</b>
Total	100%		100%		100.0%

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