

## VIII. ENHANCING REGIONAL COOPERATION IN FINANCING INFRASTRUCTURE INVESTMENT

### A. INTRODUCTION

Asian and Pacific countries in the region face huge annual infrastructure investment requirements and an equally huge gap in available financing, as indicated in chapter II. Any effort to narrow the gap would require a collaborative effort among all stakeholders, including the private and public sectors both within and across countries. Infrastructure also has a number of cross-border implications. In this context, enhancing regional cooperation in financing infrastructure investment would play a critical role in infrastructure development in the region.

Sound infrastructure is necessary for a country to benefit fully from openness to trade and investment. A general belief is that openness to international capital flows, which ushers substantial foreign direct investment into many countries, would provide countries with the opportunity to make use of regional capital markets in particular and international markets in general to finance infrastructure investment through regional financial intermediation. However, this has not happened so far. Is that a result of something inherent in international capital markets, or of inadequate institutional arrangements that have precluded countries and regional institutions from being able to access capital markets adequately for infrastructure development? The Asian and Pacific region is somewhat unique in the sense that there is a massive amount of resources in surplus savings and foreign exchange reserves available intraregionally. Is there scope for using these resources through regional cooperation in financing of the infrastructure gap? What has been done so far? Is there a need for institutional innovations to help close the region's infrastructure gap, and if so, what kind of innovations? These are some of the questions explored in this chapter.

Chapter II introduced the issues of infrastructure investment needs, the availability of financial resources and the gap they leave. The present chapter is organized as follows. Section B revisits and further analyses infrastructure investment needs and the financing gap. Section C examines various sources of financing of infrastructure, both domestic and international, including FDI and international and regional capital markets. Section D explores regional cooperation in infrastructure finance. Is there scope for an institution similar to the European Investment Bank, i.e., an Asian investment bank which could finance capital investment projects in Asian and Pacific countries using funds raised from private capital markets? What are the possible alternatives to such a bank? In particular, should there be a few subregional banks or funds rather than a single large financing entity, or would it be preferable (or practicable) to consider expanding the role of an existing institution such as the Asian Development Bank in some manner? Section E concludes with a brief action plan to further the effort to effectively address the region's financing gap in infrastructure investment.

*Infrastructure has cross-border implications; therefore, enhancing regional cooperation in financing infrastructure investment would play a critical role in infrastructure development in the region*

## B. INFRASTRUCTURE FINANCING GAP

Attempts to estimate the infrastructure needs of individual countries, let alone those of the developing Asian and Pacific region as a whole, are fraught with many difficulties. Foremost among these is the lack of data on certain areas/scales and issues relating to a notional target for infrastructure investment. The study therefore relies on adapting existing estimates from other sources. This section provides analysis of three different sources of estimates on infrastructure financing:

- (a) Estimates by the World Bank, Asian Development Bank (ADB) and Japan Bank for International Cooperation (JBIC)<sup>1</sup>
- (b) Sectoral estimates by ESCAP based on its own and various other sources and information
- (c) Estimates by ESCAP based on item (a) above plus new information

Table VIII.1 below provides a summary of infrastructure financing needs for Asia and the Pacific as estimated by the World Bank, ADB and JBIC (see annex VIII.1 for some details of how the estimates were produced). Based on their studies it is indicated that developing Asian and Pacific countries need investments annually of \$228 billion from 2006 to 2010, nearly half of it for the energy sector.

**Table VIII.1. Estimates of infrastructure financing needs for Asia and the Pacific**

Sector	Annual average infrastructure needs during the period 2006-2010 <i>(Billions of United States dollars)</i>		Percentage
Energy		107.3	47.1
Telecommunications	Main lines	30.8	15.8
	Mobile	5.2	
Transportation	Paved roads	56.4	26.6
	Railroads	4.3	
Water and sanitation	Water	13.0	10.6
	Sanitation	11.1	
Total		228.1	100

*Sources:* Marianne Fay and Tito Yepes, "Investing in infrastructure: what is needed from 2000 to 2010?", World Bank Policy Research Working Paper 3102 (Washington, D.C., World Bank, July 2003) and Tito Yepes, "Expenditure on infrastructure in East Asia region, 2006-2010", background paper for Asian Development Bank, Japan Bank for International Cooperation, World Bank, East Asia Pacific Infrastructure Flagship Study (Washington, D.C., World Bank, 2004).

<sup>1</sup> Marianne Fay and Tito Yepes, "Investing in infrastructure: what is needed from 2000 to 2010?", World Bank Policy Research Working Paper 3102 (Washington D.C., World Bank, July 2003) and Tito Yepes, "Expenditure on infrastructure in East Asia region, 2006-2010", background paper for Asian Development Bank, Japan Bank for International Cooperation and World Bank, East Asia Pacific Infrastructure Flagship Study (Washington, D.C., World Bank, 2004).

All "estimates" are based on a set of assumptions and thus have their strong points and weak points. The strong point of the estimate that the region's infrastructure requires an annual investment of \$228 billion is that the figure is derived from transparent and consistent methodology. The estimate assumes that the model incorporates constant and stable stock-flow proportionality in infrastructure, but this is based on demand-side variables and suffers from the usual statistical and data limitations. Moreover, the methodology uses data pertaining to infrastructure assets, which are clearly and consistently defined over time and space. However, the shortage of time series data covering a fairly long period (1960-2000), which is needed to generate stable and reliable econometric estimates, imposed a bias towards underestimating the infrastructure investment required. The estimate take account of only a limited number of infrastructure sectors (railways and roads, electricity, mobile and land telephones and water and sanitation). It did not include many areas which have shown phenomenal growth in the recent years, such as oil, city and urban transportation (underground and elevated trains) and the Internet, especially broadband, in information and communication technology. The above figure also does not include the investment required for disaster management facilities or the infrastructure investment requirements for Central Asia, owing to the difficulties in segregating Central Asian countries from European countries. As a result, the \$228 billion per year estimate significantly understates the region's infrastructure investment needs.

***Studies indicate the Asian and Pacific region will need infrastructure investment of \$228 billion per year from 2006 to 2010, but this is the "lowest benchmark estimate"***

By comparison, the Asia-Pacific Infrastructure Forum estimates the region's investment requirements at \$300 billion per year.<sup>2</sup> Agarwala and De (2005)<sup>3</sup> estimated Asia's infrastructure investment needs at \$377 billion annually during the next five years.<sup>4</sup> Furthermore, a summary of the estimates of sectoral investment needs, provided in chapters III to VII (see table VIII.2) brought forward to reflect current prices and assuming a very conservative discount rate of 2 per cent per annum for United States dollar assets,<sup>5</sup> estimates total infrastructure investment needs at \$608 billion at 2004 prices. Not surprisingly, energy and transport account for the major share of this total, as in the estimates of Fay and Yepes (2003) and Yepes (2004).<sup>6</sup>

***Total infrastructure investment needs could be as high as \$608 billion per year***

An estimate of \$430 billion per year, which is higher than \$228 billion also emerge when annual infrastructure financing needs are calculated as a percentage of GDP for each subregion, as computed by Fay and Yepes (see table VIII.3)<sup>7</sup> and supplemented by financing needs (at 2004 prices) for disaster preparedness and infrastructure recovery from disasters.

<sup>2</sup> The Asia-Pacific Infrastructure Forum 2004 website, <[www.infrastructureforum.com.au/](http://www.infrastructureforum.com.au/)>.

<sup>3</sup> Ram Agarwala and Prabir De, "Financial cooperation for infrastructure development in Asia", paper presented at the Fourth High Level Conference on Asian Economic Integration: Towards an Asian Economic Community, held in New Delhi on 18 and 19 November 2005.

<sup>4</sup> Ibid.

<sup>5</sup> See chapters III to VII for sectoral estimation methodologies. A discount rate of 2 per cent was assumed based on a 10-year inflation indexed treasury coupon rate of 1.875 per cent and a yield of 2.05 per cent (available at <[www.bloomberg.com/markets/rates/](http://www.bloomberg.com/markets/rates/)>, accessed on 11 January 2006). Implicit GDP deflator during the past four years averaged 2.175 per cent.

<sup>6</sup> Fay and Yepes, op. cit., and Yepes, op. cit.

<sup>7</sup> Fay and Yepes, op. cit.

**Table VIII.2. Sectoral estimates for developing countries in Asia and the Pacific**

Sector	Annual average infrastructure financing need (Billions of United States dollars)			Percentage
	Period	Amount (at 2000 prices)	Amount (at 2004 prices)	
Energy	2006-2015	185.4*	200.7	33.0
Telecommunications	2001-2030	19.1	20.6	3.4
Transportation	2006-2015	206.9**	224.0	36.8
Water and sanitation	2002-2025	98.9	107.0	17.6
Subtotal		510.3	552.3	91.8
Add: disaster preparedness and rehabilitation		51.8***	56.1	9.2
Total		562.1	608.4	100

*Source:* Assumptions and sources of data are explained in Chapters III to VII of the present publication.

\* Data relating to the Republic of Korea are not included.

\*\* Data relating to transport in 2004 prices (estimated at \$224 billion) are discounted at the rate of 2 per cent to obtain data at 2000 prices.

\*\*\* Data relating to disaster preparedness and rehabilitation (estimated at \$55 billion in 2003) discounted at the rate of 2 per cent to obtain data at 2000 prices. The same discount rate has been used to convert data at 2004 prices.

**Table VIII.3. Infrastructure financing needs revisited**

Subregion	Annual average infrastructure investment needs as a percentage of GDP (2006-2010)	Annual investment needs at 2004 prices (billions of United States dollars)
East Asia and the Pacific	6.57	237.0
South Asia	6.87	90.7
Central Asia	6.92	46.1
Subtotal		373.8
Add: disaster preparedness and infrastructure recovery		56.1
Total		429.9

*Source:* ESCAP estimates based on annual infrastructure investment needs as a percentage of GDP in Marianne Fay and Tito Yepes, "Investing in infrastructure: what is needed from 2000 to 2010?", World Bank Policy Research Working Paper 3102 (Washington, D.C., World Bank, July 2003).

**The infrastructure financing gap could be in the range of \$180 billion to \$220 billion per year**

A summary of the infrastructure financing needs based on different sources is given in table VIII.4. It may be observed that there are significant differences in the infrastructure financing gaps mainly because of differences in estimation methodologies, coverage (both country and infrastructure types under a particular sector), data availability and the number of countries reporting.

Three points can be highlighted. First, ADB, JBIC and World Bank estimate of \$228 billion is the lowest among all estimates and hence can be used as the lowest benchmark. Assuming that assured resources available to finance infrastructure investment would stand at \$47.8 billion annually (see chapter II), the resulting financial gap would be \$180 billion per year.<sup>8</sup>

<sup>8</sup> The amount of \$47.8 billion is the average over the period 2000-2003 of government investment on transport, ICT and energy, as reported by major countries in IMF Government Financial Statistics and private investment as reported by the World Bank.

Table VIII.4. Summary of infrastructure financing needs from different estimates

Source	Amount (Billions of United States dollars)	Financing gap (Billions of United States dollars)	Remarks
Asian Development Bank, Japan Bank for International Cooperation and World Bank (2000 prices)	228	180	Estimates are based on aggregate demand
Estimates derived from sectoral studies by ESCAP (2004 prices)	608	220	Estimates are based on sectoral demand

Sources: Asian Development Bank, Japan Bank for International Cooperation and World Bank, *Connecting East Asia: A New Framework for Infrastructure* (Manila, Asian Development Bank, Japan Bank for International Cooperation and World Bank, 2005) and ESCAP estimates.

Second, according to the sectoral estimates, the total infrastructure investment requirement is estimated to be \$608 billion (at 2004 prices). Based on national and other sources, the actual total investment in infrastructure in developing countries of the Asian and Pacific region is estimated to be about \$388 billion per year in recent years, most of which has been mobilized through the banking system and capital markets. Using this estimate (\$388 per year) as the assured resources, the financing gap is estimated to be \$220 billion annually. The gap corresponding to the ESCAP estimate exceeds the \$180 billion computed in the study by ADB, JBIC and the World Bank. Third, the huge dimensions of the resource gap would require similar extensive efforts by Asian and Pacific countries to cooperate in addressing the gap.

## C. SOURCES OF FINANCING IN INFRASTRUCTURE

In view of these large financing requirements, from where is the supply of funds expected to come? The Asian and Pacific region has resorted to various sources of financing for infrastructure ranging from government budgets to foreign direct investment.

### 1. GOVERNMENT BUDGETS

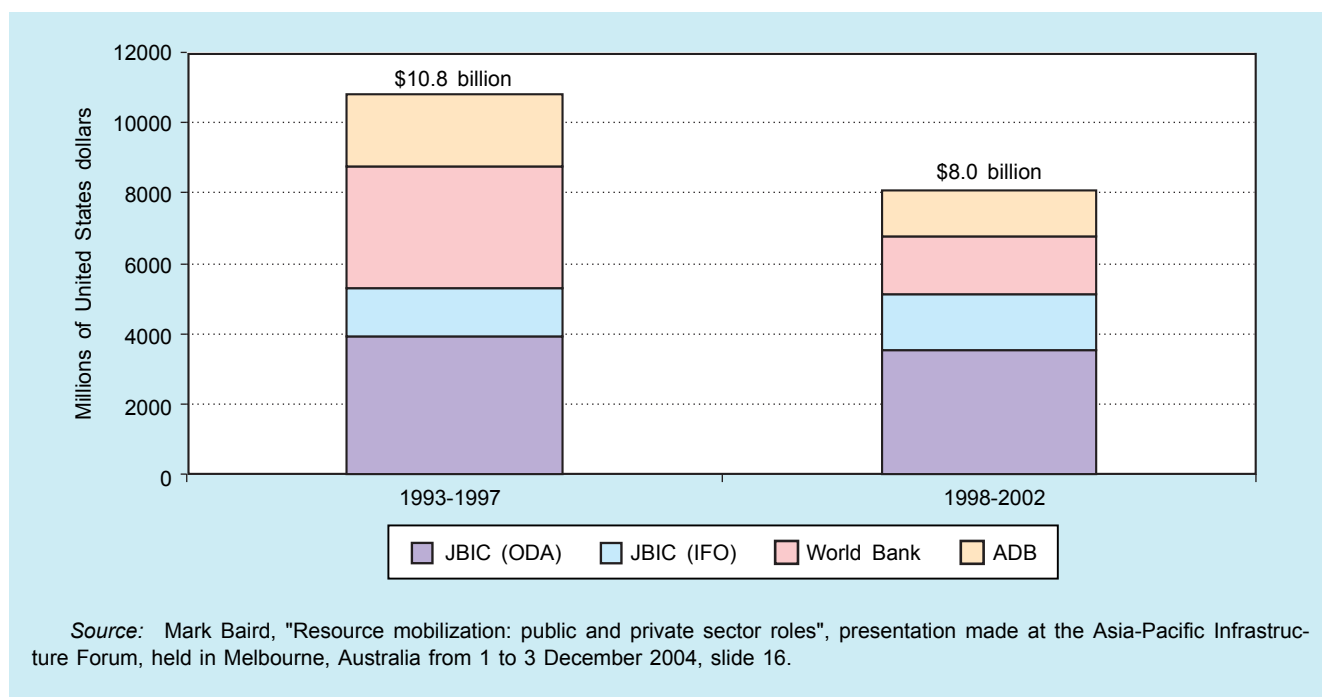
Many infrastructure projects have public good characteristics in terms of increasing the number of people who can use them at no significant additional cost. In addition, because infrastructure projects have significant forward as well as backward linkages in the economy, externalities inevitably occur in their production and consumption. Marginal social benefits often exceed marginal private ones, in which case the market provision of public goods may be less than optimal. Incomplete markets and imperfect and asymmetrical information also cause the market to fail at times. All these factors help to explain government intervention in the ownership and provision of infrastructure goods.

*High asset specificity saddles infrastructure with financing risks that tend to deter private investors and give Governments a key role in infrastructure development*

The high asset specificity of infrastructure (including long gestation periods, high incremental capital output ratios, low returns and lumpiness of capital) saddles infrastructure with financing risks that create serious disincentives to private investors. As a result, infrastructure projects have generally been publicly financed. In the early 1990s, 70 per cent of the infrastruc-

ture investments were publicly financed, while about 22 per cent were privately funded and the remaining 8 per cent were funded by ODA.<sup>9</sup> However, public financing of infrastructure has declined over the years from 60 per cent in 1995 to 54 per cent by 2003.<sup>10</sup> Funding of infrastructure in all developing countries by multilateral organizations also declined by 47 per cent between 1993 and 2002.<sup>11</sup> This, combined with the growing fiscal stress faced by Governments in this era of globalization, has led economists and policymakers to consider alternative, mainly private, sources of funding to fill the large and burgeoning infrastructure gap.

Figure VIII.1. Official lending for infrastructure projects in the Asian and Pacific region, 1993-2002



## 2. DOMESTIC BANKING SYSTEM

A number of countries have funded large-scale infrastructure projects with domestic savings intermediated via the banking system. China has used this modality extensively and such directed lending at relatively low rates has ensured that infrastructure projects have been comparatively well funded. In 2002, 31 per cent of infrastructure investment in China was financed by banks' corporate loans.<sup>12</sup>

<sup>9</sup> See World Bank, Private Participation in Infrastructure website, <[www.worldbank.org/infrastructure/ppi/index.html](http://www.worldbank.org/infrastructure/ppi/index.html)>.

<sup>10</sup> IMF, Government Finance Statistics August 2005 CD-ROM; International Financial Statistics August 2005 CD-ROM; World Bank, World Bank annual reports (various years), World Development Indicators 2005 CD-ROM, Private Participation in Infrastructure Database, <<http://ppi.worldbank.org>>, accessed on 2 September 2005.

<sup>11</sup> World Bank, *Global Development Finance 2004: Harnessing Cyclical Gains for Development* (Washington, D.C., World Bank, 2004), p. 163.

<sup>12</sup> D.H. Scott and Ivan Weber, "China's corporate bond market: creating new options for infrastructure finance", mimeo (June 2004).

Although such a policy of directed credit can work well for a limited period, concerns persist about the impact on the domestic banking system (large non-performing loans), off-balance-sheet liabilities of the Government and possible over-investments in fixed capital in some areas. As China continues to reform its domestic banking system, directed credit policies will be used less. Most other Asian and Pacific developing countries do not have the quantum of domestic savings to emulate the experience of China or have financial systems that are more market-based; therefore, they are unable to channel funds (bank deposits) into infrastructure projects. Countries in Asia and the Pacific thus need to consider diversifying domestic sources of financing from banks to other more innovative (non-bank) forms of financing.

*There is a need to consider diversifying domestic sources of finance away from banks to other more innovative forms of financing*

For countries that are unable to enhance public funding for infrastructure investment because of high consolidated fiscal deficit, special instruments and other innovative means have been used to tap domestic resources and to enhance public-private partnerships for infrastructure development. India created the "special purpose vehicle" (SPV) in its Union Budget (2005-2006) to finance infrastructure projects that had difficulty raising private resources. SPV will offer long-term loans for selected projects in key areas, including roads, seaports, airports and the tourism sector in order to supplement loans from banks and financial institutions.

The SPV, called "Infrastructure Development Finance Company Ltd." is under the purview of the Finance Ministry but is to be distinct from the fiscal budget. It will be allowed to raise long-term funds from the domestic as well as international capital markets. The Government of India will provide at least a partial guarantee, thus reducing the credit risk. This in turn should help to keep the cost of borrowing by the SPV fairly low, although conversely, it effectively raises the Government's contingent or off-budget liabilities.<sup>13</sup> This hidden deficit is one of the main reasons why fiscal authorities in India and elsewhere generally seem to prefer using the indirect means of capital expenditure financing (via an SPV) rather than selling bonds directly to the central bank in return for reserves. However, while the SPV scheme is an innovative accounting device, for all intents and purposes, the economic consequences could be similar to running an actual fiscal deficit. The Government has decided not to offer any guarantees for exchange rate risks and not to compensate the SPV for depreciation of the rupee, but in the event of a major default by the SPV, the Government may have to bail it out to avoid the type of adverse nationwide impacts that arose as a result of the 1997 Asian financial crisis. Such concerns have led to suggestions that most funding for SPVs comes from domestic sources rather than external borrowing, which will raise the country's overall indebtedness. This issue is discussed further in the next section.

*Special purpose vehicles are gaining momentum as an instrument of infrastructure financing*

### 3. USE OF FOREIGN EXCHANGE RESERVES

Many countries in the region have been contemplating using part of their foreign exchange reserves to fill at least partially their infrastructure

---

<sup>13</sup> See Ashoka Mody, "Contingent liabilities in infrastructure: lessons of the East Asian Crisis", mimeo, the World Bank (May 2000) and Timothy Irwin, "Fiscal support for infrastructure: toward a more effective and transparent approach", based on a background paper written with Hana Brix, presentation made at the Infrastructure in East Asia and the Pacific: Bali Workshop, Bali, Indonesia, 29 June 2004 for discussions on contingent liabilities in infrastructure, with particular reference to the East Asian crisis of 1997-1998 and its aftermath.

*The possible use of reserves for financing infrastructure investment has been prompted by growing recognition of the high opportunity costs of holding reserves*

financing gap prompted by growing recognition of the high opportunity costs of maintaining reserves compared with the yield from safe assets such as United States treasury bonds.<sup>14</sup> At first glance, this appears to be an attractive proposition, but there are specific concerns about channelling reserves to fund infrastructure. In particular, countries need to be wary of the potentially inflationary consequences, as the proposal effectively implies that additional liquidity will be released into the economy. To the extent that improved infrastructure raises the supply capacity of the country, the inflationary consequences of excess liquidity may be short-lived, but the risk is that those consequences can last for quite some time in view of the long gestation period of infrastructure projects. One seemingly ingenious method of limiting the potential inflationary effects is to require that most of the intermediate inputs needed for local infrastructure projects (steel, cement, machinery, technology) be imported. The logic for such action is that imports do not add to domestic demand and can thus ease immediate inflationary pressures. The rise in imports will also reduce the size of the country's balance of payments surplus, hence moderating the pace of future reserve buildup. The problem is that the import-intensity of infrastructure development, and therefore the extent of its inflation-neutrality, is unclear.

#### **4. PRIVATE INTERNATIONAL INVESTMENT: FOREIGN DIRECT INVESTMENT**

New technologies have made it feasible to unbundle large-scale projects and to introduce a degree of competition into some infrastructure projects that were in the past considered natural monopolies. For instance, the development of wireless telephony and fibre-optic cable has increased the scope for competition even in basic line networks.<sup>15</sup> Changes in the regulatory environment in many countries, including innovations in contractual arrangements, such as build, operate and transfer and build, own and operate have further increased the feasibility of private sector involvement in, and ownership of, infrastructure projects in a number of areas.<sup>16</sup> A large variety of public-private partnerships (PPPs) have surfaced to facilitate provision of infrastructure services in both traditional areas, such as small water and power systems, along with newer ones, such as mobile telecommunications and airlines (see figure VIII.2<sup>17</sup> and annex tables VIII.1 and VIII.2).<sup>18</sup>

*A large variety of public-private-partnerships have emerged to facilitate provision of infrastructure services*

---

<sup>14</sup> In order to promote a better allocation of Asia's official reserves, there has been strong support and conceptual justification for the establishment of an Asia investment corporation, as documented in Geneva Report on the World Economy (see Hans Genberg, Robert N. McCauley, Yung Chul Park and Avinash Persaud (2005). *Official Reserves and Currency Management in Asia: Myth, Reality and the Future*, Geneva Reports on the World Economy 7, International Center for Monetary and Banking Studies and Centre for Economic Policy Research).

<sup>15</sup> The World Bank, *Global Development Finance 2004: Harnessing Cyclical Gains for Development* (Washington, D.C., World Bank, 2004), pp. 151-154 elaborates on the technological changes that have occurred in various sectors including telecommunications, power, water and sanitation and transport.

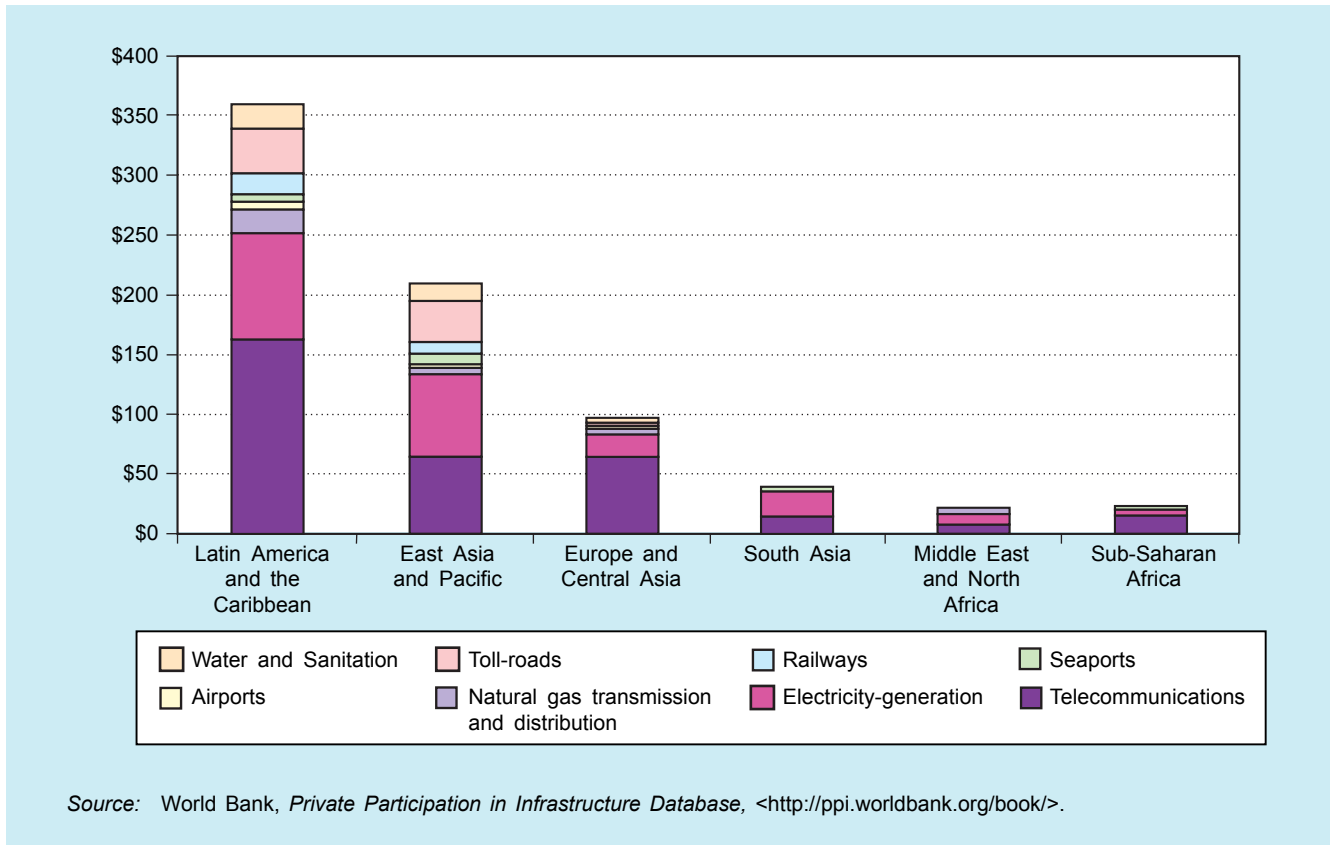
<sup>16</sup> See Frank Sader, "Attracting foreign direct investment into infrastructure: why is it so difficult?", *FIAS Occasional Paper No. 12*, (Washington, D.C., Foreign Investment Advisory Service, World Bank and International Finance Corporation, 2000).

<sup>17</sup> There can be various gradations of ownership ranging from service contract to outright divestiture.

<sup>18</sup> Despite technical advances, there could be political sensitivities and affordability issues for low-income countries that in some instances necessitate public sector ownership and provision.

**Figure VIII.2. Investment in developing country infrastructure with private participation, by sector, 1995-2002**

(Billions of United States dollars)



Consistent with the growing interest in PPPs, until mid-1997 there was considerable interest shown by foreign direct investors in regional infrastructure projects, particularly in East Asia.<sup>19</sup> However, their interest declined sharply following the regional financial crisis and it has failed to rebound despite the return of regional growth. International investments in Asian and Pacific infrastructure shrank from a peak of about \$47 billion in 1997 to \$16 billion in 1998 and has remained stagnant since then (see figures VIII.3, VIII.4a and VIII.4b).<sup>20</sup> It is instructive to note that international investments as a share of total gross capital formation in the Asian and Pacific region peaked at 6.2 per cent in 1997, fell to 5 per cent during the crisis, and has remained at less than 4 per cent since 2001, even dipping below 3 per cent in 2002 (see annex table VIII.3). The pertinent point here is that the decline in international infrastructure investment in the region has been more sustained than the overall decline in gross capital formation.

The lack of foreign direct investment interest in regional infrastructure is at least partly attributable to concerns over the "bankability" of projects as

**Foreign direct investors showed considerable interest in regional infrastructure projects until 1997**

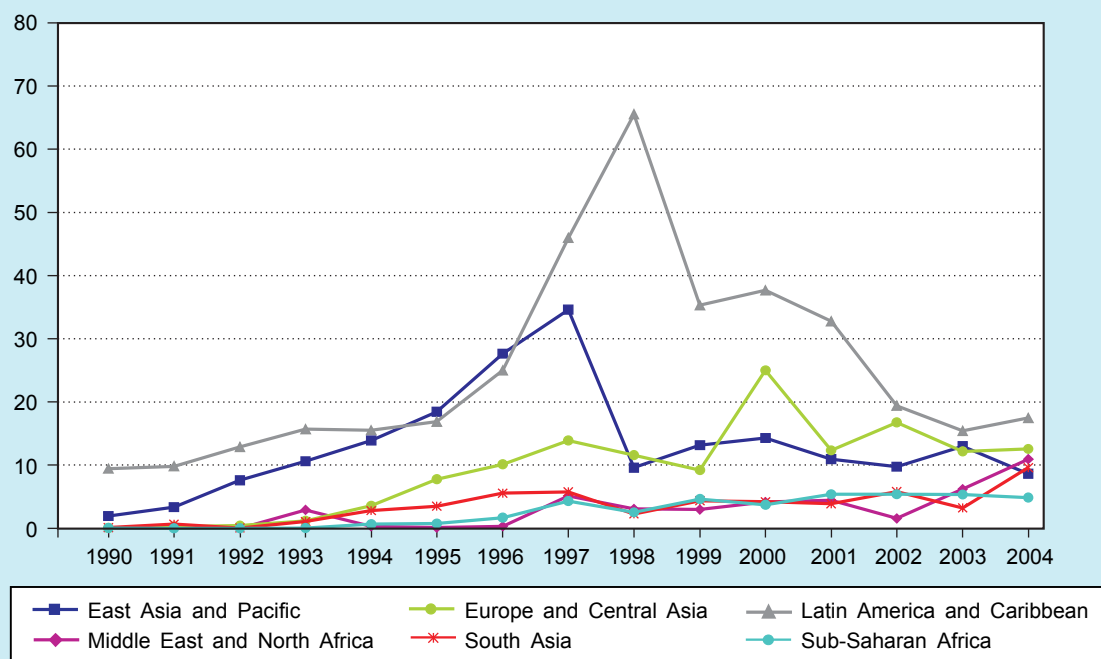
**Lack of interest in foreign direct investment in infrastructure since 1997 is due partly to concerns about the "bankability" of projects**

<sup>19</sup> See Sader op. cit. Chapter 7 for a discussion of the impact of the 1997-1998 regional crisis on financing of private infrastructure projects in the region.

<sup>20</sup> Chapter I of the present study estimates that private sector (domestic plus international) investment in infrastructure in the Asian and Pacific region has been about \$21 billion annually between 2000 and 2003.

**Figure VIII.3. Annual investment in developing country infrastructure with private participation by region, 1990-2004**

(Billions of United States dollars)



Source: World Bank, *Private Participation in Infrastructure Database*, <<http://ppi.worldbank.org/book/>>.

well as to heightened risk aversion in a period when the region's credit ratings declined and then stagnated (see annex figure VIII.1). Leaving aside the sharp contraction in the telecommunications sector worldwide in 2001,<sup>21</sup> many infrastructure projects in developing countries are viewed as being financially non-viable for private investors because of perverse or uneconomic pricing policies, ineffective delivery systems, uncertain regulatory frameworks and a slow-moving bureaucracy, which hinders quick decision-making.<sup>22</sup>

**Investors in middle and higher-income Asian and Pacific economies are showing greater interest in providing foreign direct investment infrastructure opportunities**

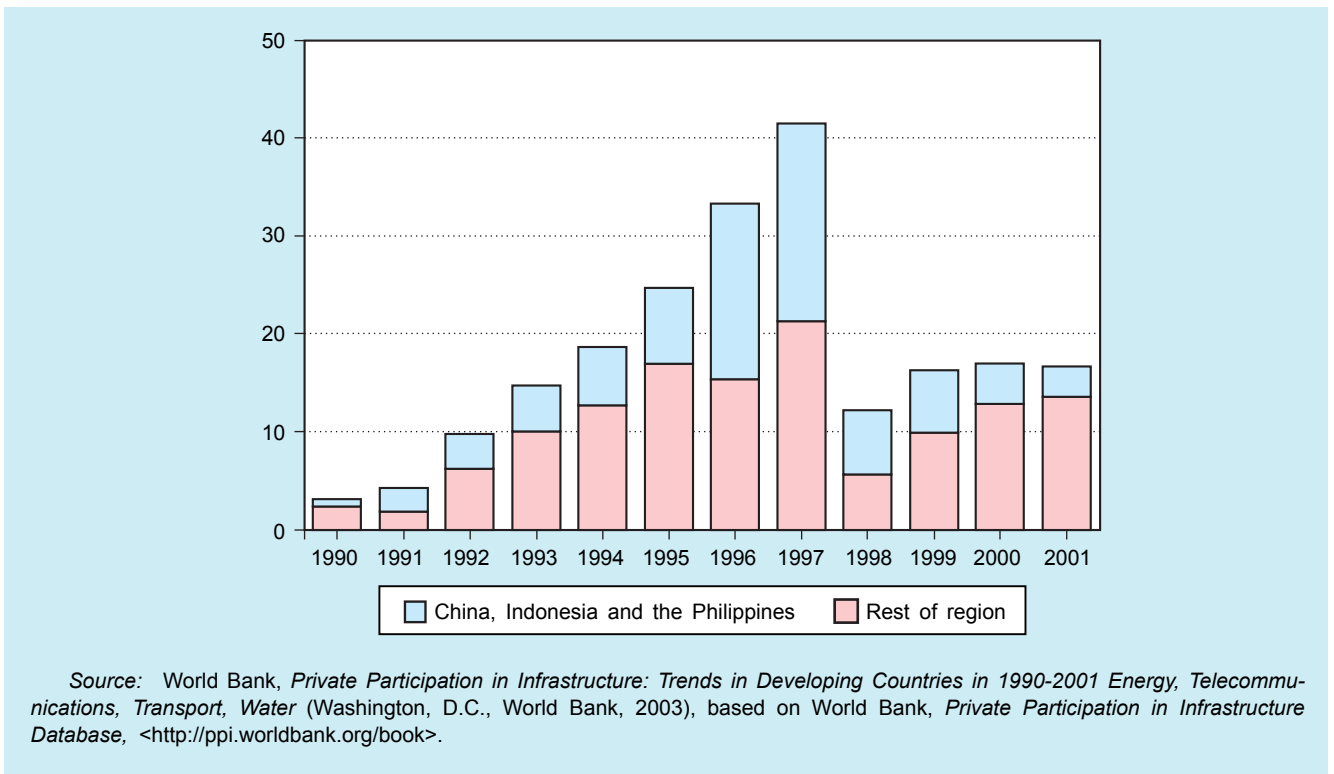
Anecdotal evidence suggests, however, greater interest in providing FDI in infrastructure is being shown by investors in middle and higher-income Asian and Pacific economies. Both Malaysia and Singapore have recently been heavily involved in housing and road projects in China and India. Nonetheless, increased FDI flows into the region have not been able to offset the overall decline in FDI in the Asian and Pacific region. It is therefore incumbent on Governments of countries in the region and development institutions to try to infuse greater interest among foreign investors.

<sup>21</sup> See John Ure, "FDI in telecommunications services in Asia", presented at High-level Policy Seminar on Services, FDI and Competitiveness in Asia, UNCTAD and ASEAN, Ritsumeikan University, Kyoto, 2-4 March 2004, and "Infrastructure in East Asia and the Pacific – the way forward: telecom note", mimeo (July 2004) for discussions on FDI in Asia's telecommunications sector.

<sup>22</sup> See also Asian Development Bank, Japan Bank for International Cooperation and World Bank, *Connecting East Asia: A New Framework for Infrastructure* (Washington, D.C., World Bank, 2005), p. 63.

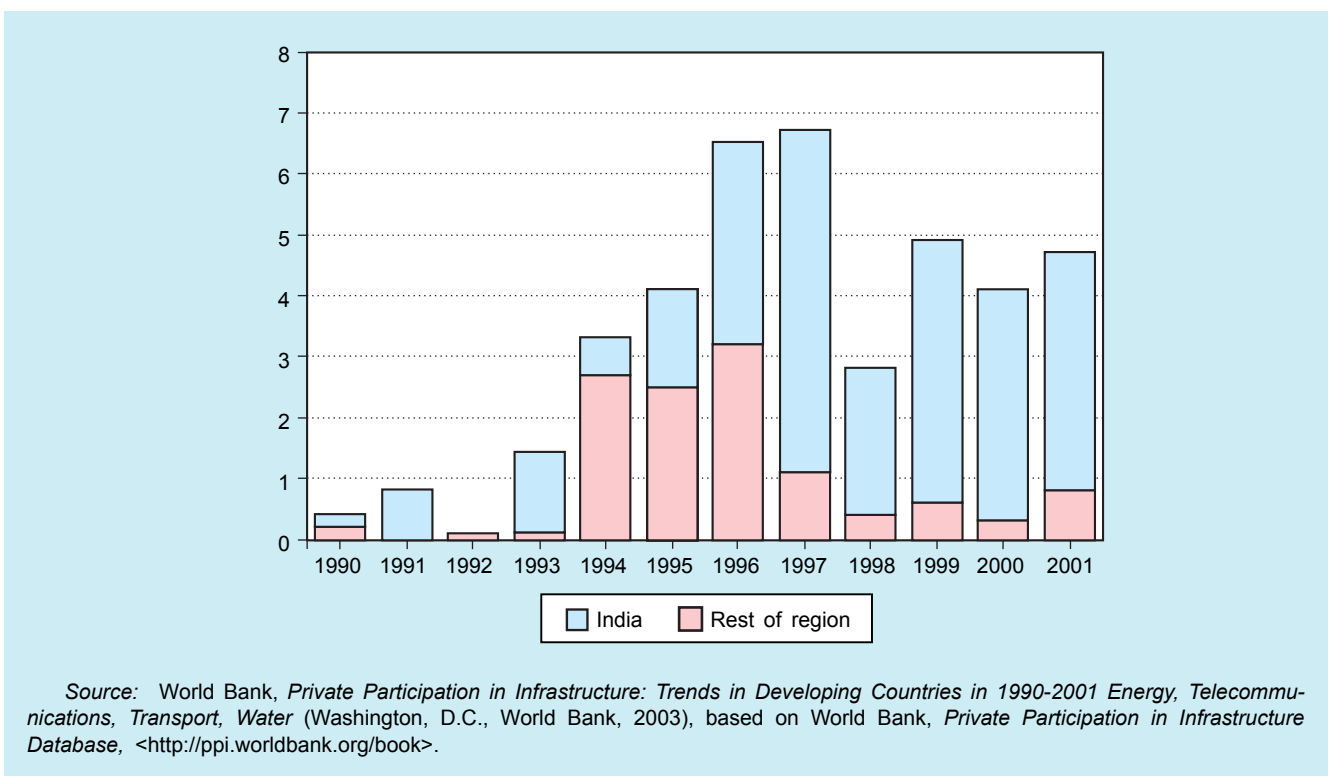
**Figure VIII.4a. Annual investment in East Asian infrastructure with private participation, 1990-2001**

(Billions of United States dollars)



**Figure VIII.4b. Annual investment in South Asian infrastructure with private participation, 1990-2001**

(Billions of United States dollars)



Box VIII.1 provides a summary of what needs to be done to create a more enabling environment for private investments in infrastructure and to mitigate the risks inherent in investing in infrastructure, including the provision of guarantees. Box VIII.2 highlights the types of guarantees that Governments or other institutions can offer.<sup>23</sup>

**Box VIII.1. What Governments need to do to create an enabling environment for the private sector**

<b>Transparency of process</b>	Private sector investment opportunities are conditioned on the existence of specific government policies and programmes that encourage private sector entry and a transparent system of evaluating bids and awarding contracts.
<b>Competitiveness of bids</b>	Transparency and public accountability are best achieved by using a competitive bidding process to select contractors for infrastructure projects.
<b>Appropriate allocation of risk</b>	Risk-sharing among the Government, utility, lenders and developers is at the heart of most reservations or debates about private sector build, operate and transfer/build, own and operate projects.
<b>Developer returns commensurate with risks</b>	Quantifying the risk inherent in, and, by extension, the acceptable equity return on, large infrastructure projects is difficult but essential.
<b>Stable policy regime</b>	Private investors in infrastructure, whether they are domestic or foreign, seek a policy regime (including such elements as the tax and investment frameworks) that is both stable and predictable.
<b>Government guarantees and credit enhancements</b>	Bilateral and multilateral guarantees and credit enhancements are often critical to the successful financing of infrastructure (including, among others, independent power provider) projects, particularly during their early years and the transition from State dominance to a more market-oriented economic system.

Source: Anil K. Malhotra, "Private participation in infrastructure: lessons from Asia's power sector", *Finance & Development*, December 1997, pp. 33-35.

## 5. DEBT MARKETS

*Since the 1997 Asian financial crisis commercial banks have remained highly averse to the risk involved in financing long-term infrastructural projects*

Many investment projects require significant financing in the form of international debt. A typical build, operate and transfer type of infrastructure project requires about three quarters of its overall cost to be financed with debt. However, since the financial crises, in 1997 and 1998 commercial banks have remained highly risk averse and are more reluctant to fund long-term infrastructural projects or they are unable to do so because of problems such as high non-performing loans and loan-to-capital adequacy. Accordingly, Governments of countries in the region could more actively access regional and international capital markets to help to fund large-scale infrastructure projects.<sup>24</sup>

<sup>23</sup> Of course, there is a trade-off in the sense that failure to undertake necessary reforms to make a project commercially viable might require Governments to offer guarantees (implicit subsidies) in order to attract private sector financing.

<sup>24</sup> World Bank, *Global Development Finance 2004: Harnessing Cyclical Gains for Development* (Washington, D.C., World Bank, 2004), p. 163, p. 149. The World Bank has stated that "global capital markets have the depth, maturity, size, and sophistication potentially to fund all viable investments and projects in developing countries' infrastructure".

## Box VIII.2. Types of support arrangements

<b>Grants, subordinated loans or equity participations</b>	In such cases the Government or other institutions could have substantial up-front exposure by providing a direct cash injection to the project. These mechanisms tend to be applied for public-private partnerships, which are otherwise commercially non-viable projects.
<b>Debtor equity guarantees</b>	Governments or other institutions can also provide direct guarantees for the annual debt service or a minimum return on equity. The guarantees can be general or limited to specific risk categories. Generally, it is needed to maintain a project's debt service or exercise a buyout option at a pre-determined return. This option tends to be a high-risk contingent liability and is rarely used.
<b>Exchange rate guarantees</b>	They can range from full guarantees against exchange rate movements to guarantees on the convertibility and transferability of domestic currency earnings. The latter are common, but full volatility guarantees present potentially substantial contingent liabilities.
<b>Cash-flow guarantees</b>	These are guarantees for support when minimum revenue or consumption targets are not being reached. They are frequently used in toll road projects in the form of minimum traffic guarantees.
<b>Government counter guarantees</b>	These are generally the most talked-about form of guarantee. The host government promises to assume liability in case a public sector contractual party fails to meet its financial obligations towards the project company.
<b>Revenue enhancements</b>	Enhancements can take the form of direct government expenditures, such as the construction of complementary and adjacent facilities (transmission lines, feeder roads etc.), or give investors the right to develop ancillary facilities and other services (i.e., land development rights). They can also be in the form of guarantees, such as limiting the construction of new, or the use of existing, competing facilities.
<b>Concession term extensions</b>	Many Governments allow for the possibility of extending the concession term in order to lengthen the investment recovery period in case unforeseen events adversely affect a project's revenue stream.
<b>Change-of-law guarantees</b>	General guarantees can be issued by the host government against any changes in legislation, regulation and administrative practices that might change the operating environment. These guarantees may exempt the project company from such future changes, or the government may commit itself to making compensatory payments.

Source: Adapted from Frank Sader, "Attracting foreign direct investment into infrastructure: why is it so difficult?" *FIAS Occasional Paper No.12* (Washington, D.C., Foreign Investment Advisory Service, World Bank and International Finance Corporation, 2000).

There has already been some movement in this direction. For instance, countries in the region have been actively developing their bond markets in order to reduce their overdependence on bank flows and reduce maturity mismatches.<sup>25</sup> Initiatives have also been taken by ASEAN+3<sup>26</sup> and the Asian Development Bank to promote bond markets in the region. Indeed, the pace of domestic bond market development from 2000 to 2004 outper-

***Bond financing has improved but there is still a long way to go***

<sup>25</sup> See Takatoshi Ito and Yung Chul Park, eds., *Developing Asian Bond Markets: Challenges and Strategies* (Canberra, Asia Pacific Press, 2004); see also Barry Eichengreen, "The unintended consequences of the Asian Bond Fund", mimeo (May 2004), for a critical evaluation of reasons behind the lack of depth and liquidity of Asian bond markets.

<sup>26</sup> ASEAN+3 Comprises the 10 member countries of the Association of Southeast Asian Nations (ASEAN) plus China, Japan and the Republic of Korea.

formed that of the world (see table VIII.5). The size of the regional bond market grew by 18 per cent during that period when the global market grew by less than 2 per cent. However, notwithstanding the recent growth, the size of the region's domestic market is very small except in a few countries such as Japan. Furthermore, most of the region's domestic bond markets, given their small size, have serious limitations in terms of liquidity, efficiency and growth. As such, proactive measures are needed to develop the bond market in the region considering the importance and benefits of a robust and dynamic bond market for infrastructure development.

**Table VIII.5. Size and composition of domestic bond markets in selected Asian and Pacific economies, by sector and residence of issuer**

(Percentage of GDP)

Country or area	Sovereign issues		Financial institutions		Corporate issuers		Total	
	2000	2004	2000	2004	2000	2004	2000	2004
Australia	20.5	13.0	16.8	20.2	12.3	13.3	49.6	46.5
China	14.9	17.4	7.2	8.6	0.3	0.7	22.5	25.6
Hong Kong, China	9.4	9.5	12.9	14.8	2.5	3.4	24.9	27.8
India	23.5	30.3	0.0	0.2	5.9	0.3	29.5	30.8
Indonesia	..	19.7	..	1.2	..	1.5	..	22.4
Japan	102.6	137.3	15.8	26.2	15.8	16.3	134.2	179.9
Malaysia	26.5	36.3	5.2	12.7	37.4	37.4	69.1	86.4
Republic of Korea	16.1	21.4	19.2	28.3	22.8	22.1	58.1	71.8
Singapore	22.3	34.9	..	14.8	2.2	5.0	24.5	54.7
Thailand	..	18.4	..	5.1	..	11.5	..	35.0
Turkey	24.9	46.9	..	..	..	..	24.9	46.9
Total	68.9	80.4	13.0	19.0	12.5	11.8	94.4	111.1
United States	85.1	45.3	46.9	88.1	29.3	22.0	161.3	155.4
<b>World<sup>a</sup></b>	<b>65.6</b>	<b>54.3</b>	<b>29.0</b>	<b>43.2</b>	<b>15.3</b>	<b>14.3</b>	<b>109.9</b>	<b>111.8</b>

Sources: Bank for International Settlements, *BIS Quarterly Review, December 2004* and *December 2005* (Basel, Switzerland, BIS, 2004 and 2005) and World Bank, *World Development Indicators Database*.

<sup>a</sup> "World" in this table comprises Argentina; Australia; Austria; Belgium; Brazil; Canada; China; the Czech Republic; Denmark; Finland; France; Germany; Greece; Hong Kong, China; Hungary; India; Ireland; Italy; Japan; Malaysia; Mexico; the Netherlands; Norway; Poland; Portugal; the Republic of Korea; Singapore; South Africa; Spain; Sweden; Switzerland; Thailand; Turkey; the United Kingdom; and the United States.

**Debt instruments, in particular bonds, are better placed for weathering financial storms**

Debt instruments such as bonds are widely used because of their specific characteristics. For example, bonds are considered a relatively more stable source of debt financing, as bond yields do not vary much on the basis of changing market circumstances. On the other hand, bank loans are primarily illiquid, fixed-price assets in the sense that the bank interest rate, which is the price of a loan, reflects general macroeconomic factors and is set by monetary authorities. Thus, almost all the adjustment has to take place via rises and falls in the quantity of bank lending, which in turn leads to sharp "booms" and "busts" in bank flows.<sup>27</sup> These sudden reversals in bank flows had adverse and long-lasting effects on the domestic financial systems of

<sup>27</sup> Martin N. Bailey, Diana Farrell and Susan Lund, "The Color of Hot Money", *Foreign Affairs*, March/April 2000, pp. 79, 99-109; and Ramkishan S. Rajan and Reza Siregar, "Private capital flows in East Asia: boom, bust and beyond", in Gordon de Brouwer, ed., *Financial Markets and Policies in East Asia* (London, Routledge, 2002).

several Asian countries in 1997 to 1998. It is acknowledged that compared with the bank market, bond markets offer some advantages in terms of longer maturities, tradability and back-weighted repayment structures that help to support equity returns. Infrastructure project bonds appeal in particular to institutional investors, such as insurance companies and pension funds, for which the long-term nature of investment projects is an advantage, as they can generate stable, long-term cash flows to match long-term liabilities.<sup>28</sup>

Improvements in institutional frameworks for protecting creditors' rights have enabled some countries in the region to raise capital successfully by issuing infrastructure bonds, domestically and internationally.<sup>29</sup> However, international bonds carry the risk of a currency mismatch (between debt and interest payments in foreign currencies and assets and revenue streams in local currencies). Countries in Asia and the Pacific have tended to issue longer-term bonds denominated in foreign currencies (usually United States dollars), exposing themselves to exchange risks. To try to allay the risks of foreign currency exposure, some countries in the region have recently undertaken a regional initiative called the Asian Bond Fund, which is aimed at developing regional bond markets.<sup>30</sup> The merits and potential limitations of the Fund will be discussed in section D.

## 6. EQUITY MARKETS AND EQUITY FUNDS

In addition to helping to develop local capital markets, multilateral organizations and national Governments have started to pay more attention to equity funds. India created the Infrastructure Development Finance Corporation (IDFC) in 1997 in order to raise funds for infrastructural projects in the country.<sup>31</sup> Since then IDFC has approved loans totalling Rs 250 billion (roughly \$6 billion) for 198 projects. The exposure of IDFC to infrastructure projects was Rs 124 billion (about \$3 billion) with approvals for energy projects accounting for 34 per cent of that amount, followed by telecommunications at 27 per cent and transportation at 26 per cent. A number of other private equity funds, such as the Macquarie Group in Australia, have been actively financing infrastructure in the Asian and Pacific region and elsewhere.<sup>32</sup>

By and large, however, IDFC and other equity funds have not been nearly as successful as had originally been hoped. Part of the problem appears to be that private equity investors have demanded high rates of return as a result of heightened post-crisis risk aversion. Going forward, however, equity markets offer a promising potential source of finance for infrastructure that should, and are likely to receive more attention. China, for example, reportedly plans to fund at least part of a \$240 billion project to upgrade and expand its railroad system by restructuring some of its State-owned railway companies and listing them on the stock market.<sup>33</sup>

*Greater emphasis needs to be placed on equity-market financing of some infrastructure projects*

<sup>28</sup> By ensuring more "objective" (i.e., market-based) and closer monitoring, bond financing also ought to help to mitigate some of the moral hazard and adverse selection problems that arise from bank financing.

<sup>29</sup> The issue of bond market development is discussed in ESCAP, (2005). *Implementing the Monterrey Consensus in the Asian and Pacific Region: Achieving Coherence and Consistency*, United Nations publication, Sales No. E.05.II.F.8, pp. 20-25.

<sup>30</sup> Also see Robert Sheppard, "Capital markets financing for developing-country infrastructure projects", *DESA, Discussion Paper No.28*, DESA, United Nations, 2003.

<sup>31</sup> For details see IDFC private equity website, <[www.idfc.com/](http://www.idfc.com/)>.

<sup>32</sup> For details on MacQuarie's infrastructure vehicles, see <[www.macquarie.com.au/au/corporations/sfpc/infrastructure\\_funds/overview.htm](http://www.macquarie.com.au/au/corporations/sfpc/infrastructure_funds/overview.htm)>.

<sup>33</sup> *Bangkok Post*, 10 September, 2005.

*Incentives for regional cooperation in infrastructure investments include the availability of a substantial pool of funds within the region, the transboundary nature of many projects and avoiding the negative impact of inadequate infrastructure on growth and development*

*There are four possible options: expand the role of the Asian Development Bank in infrastructure financing, expand the Asian Bond Fund, establish or reinvigorate subregional banks/funds and set up a new institution such as an Asian investment bank*

*An institution similar to the European Investment Bank could be effective in promoting infrastructure*

## **D. REGIONAL COOPERATION IN INFRASTRUCTURE FINANCE**

It would be inefficient for individual countries in the Asian and Pacific region to attempt to access the limited pool of investable funds independently in order to finance their own infrastructure needs. This is where intensified regional cooperation takes on added significance. Three other factors highlight the advantages of cooperation:

- (a) A substantial pool of funding available within the region in search of better yields;
- (b) Certain projects cross national boundaries and require cooperation and coordination among one or more countries;
- (c) Failure to alleviate transborder infrastructure bottlenecks will hinder the development and intensification of regional supply networks (i.e., integrated vertical chains of production) which have fuelled trade and income growth in the region, especially in East Asia.

### **1. WHAT ARE THE OPTIONS?**

The limited range of effective cooperative initiatives and the need for financing of intraregional, cross-border infrastructure projects underline the need to consider innovative institutional arrangements for funding infrastructure in the region. The possible cooperative initiatives to intermediate the region's surplus savings for infrastructure investment include the following:

- (a) Expanding the involvement of ADB in infrastructure financing by refocusing its mandate on infrastructure development (rather than development in general) or by setting up a subsidiary such as the International Finance Corporation that focuses on raising funds from private capital markets;
- (b) Expanding the Asian Bond Fund to include most of Asia and the Pacific and making it infrastructure financing-friendly;
- (c) Establishing or reinvigorating subregional banks/funds such as the proposed northeast Asian development bank<sup>34</sup> and the South Asian Development Fund;
- (d) Setting up a new institution, such as an Asian investment bank, similar to the European Investment Bank (EIB), for cross-border financial intermediation.

The experience of Europe suggests that an institution similar to the European Investment Bank (EIB) could be quite effective in promoting infrastructure and related development by raising the necessary financing directly, as well as by catalysing private investments. Indeed, the EIB provides a significant amount of financing, amounting to more than 43 billion euros (about \$55 billion) in 2004, for projects in transport, telecommunica-

<sup>34</sup> See annex VIII.1 to this chapter.

<sup>35</sup> EIB lent additional \$8 billion to projects in research and development, innovation, communication and information technology networks and human capital formation.

tions, energy, water, sanitation, health and education in 2004.<sup>35</sup> In contrast, ADB lent a little over \$5 billion, of which amount about \$2.8 billion went to projects in transport, communications, energy, water and sanitation. JBIC provided loans totalling about \$16.5 billion in 2003, of which amount about \$5 billion was for financing infrastructure, mainly in Asia.<sup>36</sup> The World Bank lent \$11 billion worldwide in 2004 through the International Bank for Reconstruction and Development (World Bank), \$9 billion through the International Development Agency about \$5 billion through the International Finance Corporation and \$1 billion through the Multilateral Investment Guarantee Agency. Even more worrying for Asia is the fact that the financing provided by ADB, JBIC and World Bank shows no sign of increasing significantly in the near term (and in some cases has actually declined). It is clear that maintaining the status quo cannot be an option; new avenues to finance infrastructure clearly need to be sought with some urgency.

However, even if one were to accept the need for an institution specialized in infrastructure financing and development, one is left with a series of questions. Should such an institution be self-standing? Should an existing institution such as ADB refocus its objectives and mandate specifically towards meeting the region's infrastructure financing needs, or create a subsidiary to deal with these new objectives? Should one eschew the thought of a single institution (self-standing or otherwise) altogether and instead consider creating a few subregional banks or even funds? These alternatives are briefly evaluated below.

## 2. EXPANDING THE ROLE OF THE ASIAN DEVELOPMENT BANK IN FINANCING REGIONAL INFRASTRUCTURE

A valid concern about creating an entirely new institution is the high transaction costs of setting it up and the possibility that its objectives and functions would overlap with those of existing development institutions.<sup>37</sup> To avoid such overlap, ADB might have to refocus its objectives and functions towards its primary objective of raising and channelling long-term financing to good quality infrastructure projects in the region.

*An expanded Asian Development Bank could reduce initial operational costs and overlapping objectives*

Although ADB has been involved in infrastructure financing, unlike the EIB, its comparative advantage and core focus do not appear to lie in being able to access private capital markets and function as an investment bank. Since its establishment, ADB has invested over \$113 billion in developing Asia and the Pacific, over half of it being invested in transportation and communications infrastructure, energy provision and water and sanitation services.<sup>38</sup> However, there has been a steady decline since its inception as it has redirected attention to social and poverty programmes, and more recently, subregional monetary, trade and financial cooperation (ASEAN+3) as well as addressing the avian influenza outbreak. In other words, ADB appears to have multiple and ever-growing objectives compared with the single-minded focus on infrastructure of the EIB (see Box VIII.3).

<sup>36</sup> The remaining \$11.5 billion lent by JBIC financed "international finance operations", including export and import loans, guarantees, overseas investment loans and untied loans.

<sup>37</sup> It should be noted that similar concerns were raised at the initial stages of setting up of ADB.

<sup>38</sup> Liqun Jin, "Sustainability and developing Asia", statement at the FIDIC Annual Conference, Beijing, 4-8 September 2005.

**Box VIII.3. The Asian Development Bank, European Investment Bank and European Investment Fund at a glance, 2004**

<b>Asian Development Bank</b> <i>(Millions of United States dollars)</i>		<b>European Investment Bank</b> <i>(Millions of United States dollars)</i>	
Operational activities		Operational Activities	
Total lending ( <i>amount</i> )	5 293	Loans signed	53 573
Ordinary capital resources:		Loans approved	56 767
Loan approvals	4 501	Loans disbursed	47 914
Loan disbursements	2 508	Resources raised (after swaps)	61 834
Public	2 399		
Private	109		
Asian Development Fund:		Resources (end of 2004)	
Loan approvals	1 242	Own funds	36 751
Disbursements	1 055	Balance sheet total	319 637
Government and government-guaranteed loans	4 947	Net profit for year	1 712
Private sector loans	347	Subscribed capital	202 931
Equity investment	185		
Technical assistance	197		
Co-financing and guarantees	2 441		
Guarantee	75		
Loans to infrastructure sectors	2.8 billion/year		
		<b>European Investment Fund</b>	
		<i>Activity in 2004</i>	
Resources (end of 2004)		Venture capital (15 funds)	444
Ordinary capital resources		Guarantees (40 operations)	1 794
Subscribed capital stock ( <i>at the end of period</i> )	54 162	<i>Situations as at 31 December 2004</i>	
Annual borrowings	1 629	Subscribed capital	2 480
Outstanding borrowings	24 212	Net profit for year	27
		Reserves and provisions	237

Source: Annual reports of the Asian Development Bank and European Investment Bank.

**The Asian Development Bank has been quite active recently, in accessing capital markets to raise funds for infrastructure development, but it has not raised enough to meet the region's needs**

However, apart from offering concessional country loans, ADB has attempted to raise finance for infrastructure development by accessing capital markets and in 2004 raised \$1.6 billion in this manner. ADB has, up to now, invested in over 30 regional infrastructure funds and mobilized about \$4 billion in investment capital for Asia. Its more notable initiatives include the Asian infrastructure (equity) funds of the American International Group (AIG) and the Asia Infrastructure Development Company (AIDEC), which offers debt financing.

AIG Asian Infrastructure Fund (Asia I) is a \$1.08 billion fund established in 1994 to invest in infrastructure and related industries in Asia. The fund is fully invested, with its investments structured primarily as direct private placements of shares and equity-related securities in infrastructure projects and companies. AIG Asian Infrastructure Fund II (Asia II) started operations in 1997 and has raised \$1.67 billion in private equity capital. In addition to being its sponsor, AIG is also a significant investor in the Fund. An affiliate of the Government of Singapore Investment Corporation is the

principal investor and the International Finance Corporation (IFC)<sup>39</sup> of the World Bank Group is also a key investor. More than half its investments are in the transport, power and telecommunications sectors. The Fund's investments have taken the form of equity, quasi-equity and convertible instruments, usually placed directly with the invested company. Asia II's focus economies in the region are China, the Philippines, the Republic of Korea, and Thailand as well as India, Malaysia and Taiwan Province of China.<sup>40</sup>

ADB has made an initially approved equity investment of \$30 million in AIDEC, which expects to raise total equity of about \$1 billion. Other shareholders are the Overseas Economic Fund of Japan, IFC and other regional private institutional investors. The aim of AIDEC is to provide debt financing to selected projects in the Asian and Pacific region and those investments are to be managed by AIDEC Management Company Private Limited, a Singapore-based, wholly-owned subsidiary of the company.<sup>41</sup>

ADB has also been an active participant in the Public-Private Infrastructure Advisory Facility, which is a multi-donor technical assistance facility established jointly in 1999 by the World Bank and the Governments of Japan and the United Kingdom. The Facility broadly aims to channel technical and financial assistance into public infrastructure projects in developing countries. Particular attention is focused on water and sanitation, energy, transport and telecommunications.<sup>42</sup>

While these initiatives are important and suggest that ADB is willing to look at more creative mechanisms to fill the gap in infrastructure financing, the aim is limited to raising finance, which is insufficient. A specialized infrastructure institution needs to:

- (a) Closely monitor the manner in which investments are channelled to complement national regulatory frameworks as well as to help countries to implement regulatory reforms, which are key to attracting private investments;
- (b) Work effectively with the private sector by co-financing and facilitating the lowering of project risk premiums (through direct or indirect guarantees);
- (c) Help to promote long-term financing instruments and sources of funds that can be effectively channelled into infrastructure as well as to formulate projects in such a way that they are attractive to capital markets.

To be effective in the area of infrastructure financing, ADB needs to refocus its attention on the goals of infrastructure development and on catalysing private sector capital flows and participation. Moreover, infrastruc-

***If ADB is to specialize in infrastructure financing, it needs to refocus its attention on infrastructure development and on catalysing private sector capital flows and participation***

---

<sup>39</sup> Established in 1956, IFC, is the largest multilateral source of loan and equity financing for private sector projects in the developing world. Its stated mandate is to "promote sustainable private sector development primarily by financing private sector projects located in the developing world; helping private companies in the developing world mobilize financing in international financial markets and providing advice and technical assistance to businesses and governments". See [www.ifc.org/](http://www.ifc.org/).

<sup>40</sup> Information based on Emerging Market Partnerships, <[www.empwdc.com/EMPAisial2.htm](http://www.empwdc.com/EMPAisial2.htm)> and Emerging Market Partnerships, <[www.empwdc.com/EMPAisial2.htm](http://www.empwdc.com/EMPAisial2.htm)>.

<sup>41</sup> Another notable debt fund established by ADB is the Asian Infrastructure Mezzanine Capital Fund. To date, this fund has made investments in telecommunications and power projects in China and India.

<sup>42</sup> Details available at the Public-Private Infrastructure Advisory Facility website, <[www.ppiaf.org/](http://www.ppiaf.org/)>.

ture financing and development require a singular institution and specialized personnel.<sup>43</sup> One possibility would be to create a subsidiary along the lines of IFC to focus exclusively on infrastructural financing. Such a subsidiary could benefit directly from the institutional knowledge and human capital of its parent institution and it may be more cost effective than creating an entirely new institution. On the other hand, a subsidiary is unlikely to offer many advantages over a self-standing institution and in some cases could actually be negative as it may be burdened by the constraints and tensions plaguing its parent institution.

**Infrastructure financing is far too important and massive a task to be left to a subsidiary of an existing institution**

The question of whether there needs to be an entirely new institution or whether such a role could be taken on by one or more existing institutions requires in-depth knowledge and discussion of individual institutional constraints, mandates and related issues. However, it is instructive to note that the largest and oldest institution in Europe is one that is focused almost solely on infrastructure development. The European experience appears to be to allow existing institutions to focus on specific objectives, while establishing new, albeit smaller, ones if there is a need to fulfil additional objectives.<sup>44</sup> Importantly, the main institution, namely the EIB, has been a significant shareholder of newer institutions (European Investment Fund and European Bank for Reconstruction and Development). Financing infrastructure development has remained central to the objective of EIB. Given the magnitude of the problem in the Asian and Pacific region, infrastructure financing is far too important and massive a task to be left to a subsidiary of an existing institution.

### 3. ENLARGING THE ASIAN BOND FUND

**Establishment of bond markets provides Asian investors with relatively easy access to bankable investment projects**

Asia accounts for the bulk of the world's savings; it had an estimated savings surplus averaging about \$200 billion annually between 2000 and 2003 (see chapter II). The excess of savings over investment along with quasi-managed exchange rates have given rise to large current account and overall balance of payments surpluses in Asia. Historically, the lack of sufficiently liquid financial instruments has led to too much of Asia's savings being rechannelled outside the region. The establishment of bond markets provides Asian investors with relatively easy access to bankable investment projects in Asia without posing much concern about illiquidity.<sup>45</sup>

Eleven regional economies that are members of the Executives' Meeting of East Asia-Pacific Central Banks (EMEAP)<sup>46</sup> have been working to

---

<sup>43</sup> Montek S. Ahluwalia, "Financing private infrastructure: lessons from India", in Harinder S. Kohli, Ashoka Mody and Michael Walton, eds., *Choices for Efficient Private Provision of Infrastructure in East Asia* (Washington, D.C., World Bank, 1997), pp. 87-106.

<sup>44</sup> See Griffith-Jones, Jenny Kimmis, M. Gama. Santos and Ana Fuzzo de Lima (2003). "Financial mechanism for accession: the European experience and lessons for the WHFTA", mimeo, Institute of Development Studies, University of Sussex (May) for a discussion of European Union regional policy evolution and the concomitant creation of various intraregional financing mechanisms, including EIB.

<sup>45</sup> Of course, bond markets may also be illiquid and some bonds may not be easily tradable.

<sup>46</sup> EMEAP is a cooperative organization of central banks and monetary authorities in the East Asia and Pacific subregion. The 11 members of EMEAP are Australia; China; Hong Kong, China; Indonesia; Japan; Malaysia; New Zealand; the Philippines; Republic of Korea; Singapore and Thailand. There have been other regional bond market initiatives, such as the Asian Bond Market Initiative by the ASEAN+3 members, along with initiatives by Asia-Pacific Economic Cooperation and the Asian Cooperation Dialogues as well as the private sector Asian Bond Market Forum. These are not discussed here; for a summary of these initiatives, see <<http://aric.adb.org/asianbond/index.htm>>.

intensify regional financial cooperation with particular emphasis on the bond market. The first phase of the Asian Bond Fund (ABF1), established by EMEAP on 2 June 2003 essentially involved Governments of 11 countries in the region voluntarily contributing about 1 per cent each of their reserves to a fund dedicated to purchasing regional sovereign and semi-sovereign bonds denominated in United States dollars.<sup>47</sup> The initial value of ABF amounted to about \$1 billion, passively managed by the investment management unit of the Switzerland-based Bank for International Settlements. In a noteworthy next step, the Fund's second stage, ABF2, was established in December 2004. The quantum of funds involved was doubled to \$2 billion and the mandate was to invest in selected domestic currency, sovereign and quasi-sovereign bonds in various countries.

More specifically, ABF2 comprises two components (\$1 billion each): the Pan-Asian Bond Index Fund and a Fund of Bond Funds. The Index Fund is a single bond fund while the Fund of Bond Funds is a two-layered structure with a parent fund investing in eight single market subfunds. The benchmark indices for all nine funds have been created by the International Index Company, a joint venture between ABN AMRO, JP Morgan and Morgan Stanley. The funds are passively managed to match the benchmark index. The seed money for the single bond fund was divided on predetermined criteria and local fund managers were appointed to manage it.<sup>48</sup> The parent fund is limited to investments by EMEAP member central banks only. While the initial phase of the Index Fund was confined to investments by EMEAP central banks only (\$1 billion), it was opened up to investments by other retail investors in phase 2.

In broad terms, the objectives of ABF are as follows:

- (a) Develop regional financial/capital markets by reducing supply-side constraints, introducing low-cost products and raising investor awareness and by broadening the investor base on the demand side;
- (b) Encourage a convergence in financial and capital-market policies and accelerate improvements in financial-market infrastructure;
- (c) Recycle regional funds intraregionally;
- (d) Reduce currency and maturity mismatches.

All of these, particularly the latter two, are important in infrastructure funding.

While ABF is a welcome move for regional financial cooperation, it remains an open question whether or not this initiative will become a significant source of regional infrastructure funding. Apart from the fact that ABF is focused exclusively on bonds, not equities or other such instruments, three factors appear to be compelling:

- (a) The quantum of funding available is rather limited. The current \$2 billion funding of ABF II is less than 1 per cent of the estimated infrastructure financing requirements of the region. Policymakers in

*It remains an open question whether or not the Asian Bond Fund will become a significant source of regional infrastructure funding*

<sup>47</sup> The mandate is to invest in bonds in 8 of the 11 member countries of EMEAP. The developed countries of Australia, Japan and New Zealand are the sole lenders to ABF.

<sup>48</sup> Guonan Ma and Eli M. Remolona, "Opening markets through a regional bond fund: lessons from ABF2", *BIS Quarterly Review*, June 2005, pp. 81-92.

the region will need to commit themselves to massively scaling up this amount if ABF is to be viewed as a significant instrument of regional infrastructure financing.

- (b) If the supply of good quality sovereign and quasi-sovereign paper is limited, which appears to be the case, this situation could merely crowd out private bond purchases, hence leading to no additional net financing taking place.<sup>49</sup> This in turn implies the need to support providers of infrastructure services in achieving commercial standards of creditworthiness to access capital markets on a sustainable basis over the long term.<sup>50</sup>
- (c) As noted, ABF is limited to a small number of countries; it needs to be significantly expanded to include other countries in South Asia, South-East Asia and the Pacific which have thus far been excluded.

#### 4. REINVIGORATING SUBREGIONAL BANKS AND FUNDS

*Subregional initiatives for financing infrastructure are not new, but political will is needed to put them into action*

There appears to be a growing degree of implicit political support for an EIB-type institution among Governments in the region.<sup>51</sup> To cater to Asia's heterogeneity and minimize the risk of duplicating the functions of existing development institutions, an alternative to creating a pan-Asian entity might be to set up subregional banks (North-East Asian, South-East Asian, South Asian investment or development banks). Such a bank was proposed during a meeting of the Northeast Asia Economic Forum, which agreed to create an ad hoc committee for the establishment of "Northeast Asian development bank"; but the proposal has not been pursued further (see annex VIII.2).<sup>52</sup>

An Asia-wide investment fund has also been proposed to promote workable public-private partnerships for infrastructure development.<sup>53</sup> It is useful to keep in mind that a handful of regional and international funds already exist.<sup>54</sup> These include the ADB-sponsored AIG Infrastructure Funds

---

<sup>49</sup> See Stephany Griffith-Jones, Alfred Steinherr and Ana Teresa Fuzzo de Lima, "The European Investment Bank: useful inspiration for emerging countries?", paper presented at Seminar on Regional Financial Arrangements, Economic Commission for Latin America and the Caribbean and United Nations Department of Economic and Social Affairs, 14 and 15 July 2004, for a more detailed and forceful critique of such regional bond initiatives.

<sup>50</sup> World Bank, *Global Development Finance 2004: Harnessing Cyclical Gains for Development* (Washington, D.C., World Bank, 2004), p. 161.

<sup>51</sup> The proposed northeast Asian development bank would raise funds from capital markets to finance infrastructure projects in member countries.

<sup>52</sup> Stanley S. Katz, "The role of the northeast Asian development bank in northeast Asia's future development", *Proceedings of the Ninth Meeting of the Northeast Asia Economic Forum (Tianjin, China, 26-29 October 1999)*.

<sup>53</sup> Yung Chul Park, "An Asian investment fund: what it will do and why needed?" mimeo (17 May). Malaysia has also suggested the creation of an Asian infrastructure development fund, although no details of this proposal are available. It should be noted that the Asian investment fund (AIF) envisioned here is somewhat different from suggested by Park who has drawn inspiration from the European Investment Fund (EIF). Park notes that similar to EIF, AIF could focus primarily on the development of SMEs in Asia and its role in financing infrastructure should be limited to guaranteeing projects bonds.

<sup>54</sup> For instance, there is the rather little-known United Nations Capital Development Fund which lends capital to local development programmes and microfinance institutions in 28 least developed countries. A well-known fund is the Latin American Reserve Fund, which is more a mechanism to aid member countries in the event of a balance of payments crisis and to assist in correcting payment imbalances rather than to finance development projects. For details, see Rajan and Siregar, op. cit.

previously discussed and the South Asian Development Fund (SADF), which was proposed at the Sixth SAARC Summit in Colombo in 1991.<sup>55</sup> It is aimed at mobilizing external funds for the development of South Asia. The basic objective of SADF is to provide finance for industrial and infrastructure development, institutional and human resources development, poverty alleviation, protection of the environment and promotion of development projects in the SAARC region. After receiving the endorsement of the Eighth SAARC Summit in 1995,<sup>56</sup> SADF was created in 1996 by the merger of two SAARC funds, namely, the SAARC Fund for Regional Projects and the SAARC Regional Fund. Members of SADF are Bangladesh, Bhutan, India, Maldives, Nepal, Pakistan and Sri Lanka. As of 2003, it had \$5.8 million in capital. SADF has financed 17 projects so far, drawing up feasibility reports and provided training in order to fine-tune the skills of human resources. However, SADF has not made much progress owing to a lack of capital, formal structure and operating guidelines. At the September 2005 Meeting of SAARC Finance Ministers in Kathmandu, financial experts recommended reconstituting SADF and creating a SAARC development fund.<sup>57</sup> It also underlined the need to mobilize funds from within and outside the region, and examined proposals for creating a poverty alleviation fund, an infrastructure fund and the prospects for creating a South Asian development bank.

Such subregional banks and funds have the advantage of being more intensively focused and may give smaller countries greater opportunities for participating in their ownership, but they also give rise to concern about the possible lack of coordination with other subregions, the absence of economies of scale, overstretching of resources and competition for a limited pool of funds in capital markets. A more cost-effective option may be to start with a pan-Asian bank but initially limiting its membership. As such an institution gains expertise and sorts out such critical issues as operating boundaries and responsibilities with existing multilateral institutions,<sup>58</sup> it could expand its membership and the scope of its activities.<sup>59</sup>

## 5. EXPLORING THE POSSIBILITY OF AN ASIAN INVESTMENT BANK

There appears to be a basic conundrum. On the one hand, the involvement of ADB and the World Bank is essential for any new institution involved in infrastructure development finance in the Asian and Pacific region. On the other hand, it may be useful to create a distinct, i.e., operationally independent, institution to focus on regional infrastructure financing and development using private capital.

*The region's challenge is essentially finding how to intermediate regional resources for the development of the region*

---

<sup>55</sup> SAARC, The Colombo Declaration of the Heads of State or Government of the Member Countries of the South Asian Association for Regional Cooperation, Sixth SAARC Summit, Colombo, Sri Lanka, 21 December 1991.

<sup>56</sup> SAARC, Delhi Declaration on Strengthening Regional Economic Cooperation in Asia and the Pacific towards the Twenty-first Century, Eighth SAARC Summit in New Delhi, 4 May 1995.

<sup>57</sup> SAARC, "SAARC considers a new financial mechanism", Meeting of Financial Experts, Kathmandu, Nepal, 1-2 September 2005.

<sup>58</sup> For instance, an Asian investment bank might provide financing that encourages private sector participation and deal with project evaluation and monitoring, while multilateral institutions provide partial guarantees.

<sup>59</sup> For a discussion of membership issues surrounding Asian regionalism, see Ramkishan S. Rajan, "Asian economic cooperation and integration: sequencing of financial, trade and monetary regionalism", in *Asian Economic Cooperation and Integration: Progress, Prospects and Challenges* (Manila, ADB, 2005), pp. 77-92.

In other words, the case for establishing a new institution may arise for the following reasons:

- (a) The lack of financing has seriously constrained infrastructure development in Asia and the Pacific. The region's challenge is how to intermediate financial resources for development. The region is a big saver, with savings in some countries exceeding 40 per cent of GDP. The region's foreign exchange reserves are mainly invested outside the region at low rates of return. However, the region's investment rate is relatively low and the amount currently available for financing regional infrastructure stands at only \$48 billion a year,<sup>60</sup> far short of what is required. A new institution of the caliber of EIB could help to address this problem;
- (b) Existing mechanisms, including the domestic banking systems and foreign direct investment, have limited scope owing to a host of issues including limited savings in many countries and possible destabilizing effects;
- (c) Existing regional cooperation mechanisms such as ADB and ABF do not have the mandate or the resources to cater to the needs of infrastructure financing. The focused attention of ADB is on social and poverty programmes and its role in regional financial intermediation is very limited. ABF is not meant for financing infrastructure investment. A new institution could complement existing institutions rather than substitute for them in intermediating the region's financial resources;
- (d) Identifying infrastructure projects, structuring them in a manner that makes them financeable, and taking care to meet the complex risk-mitigation requirements of different types of investors are tasks better performed by a specialized institution. Such an institution could also provide liquidity support and securitize the cash flow of infrastructure projects. The existing mechanisms have so far failed to accomplish this.<sup>61</sup>

**An Asian investment bank could play a substantive role in the integration and development of the countries of the region as the European Investment Bank did in the European Union. The Asian Development Bank, World Bank and other multilateral institutions could be shareholders along with member countries**

An Asian investment bank could play a substantive role in the integration and development of the countries in the region as the EIB did for countries of the European Union (see annex VIII.3 on EIB). One way forward might be to establish such a new institution while ensuring that ADB, World Bank and other important development agencies such as JBIC and even possibly EIB are among the main shareholders, along with countries in the region and some developed non-regional countries, if they are inclined to become shareholders. Ideally, shareholders for AIB should *eventually* include every country in the Asian and Pacific region. It would also be ideal if large, private equity companies and banks also participate. This would be necessary if the proposed bank would want to develop public-private partnerships in the area of infrastructure financing.<sup>62</sup>

---

<sup>60</sup> This is based on the average public and private investment in infrastructure during 2000-2003. See chapter II for details.

<sup>61</sup> Ahluwalia, op. cit.

<sup>62</sup> In the context of PPP, it is worth quoting a recent report by Fitch Ratings (2004). "Public-private partnerships: the next generation of infrastructure finance", *Project Finance Special Report* (August 6) at some length from pp. 2-3: "For a number of countries, a new and more interesting generation of public-private partnerships (PPPs) is now emerging...For this new generation of PPPs to flourish, the host countries must nurture some important prerequisites. These include promoting a relatively stable macroeconomic environment, developing a legal and regulatory framework for infrastructure projects and nurturing the development of a domestic debt market. Unfortunately, these prerequisites do not exist in most of the world, which means that some of the traditional roles of the multilateral and development banks will remain necessary over the long term. In countries where these prerequisites are taking shape, however, there are real opportunities to expand the availability of capital by using pooled financings and credit enhancements to harness a developing domestic debt market".

It would be premature at this stage to offer too much detail on a possible structure of the new institution. However, if a new EIB-type institution is created, it is envisaged that only its developing country members would be eligible to receive financing for projects. The beneficiaries of lending by the proposed Asian investment bank should be projects that are led by government agencies as well as by private consortiums. Such a bank should not be dependent solely on its shareholders to provide it with funds to finance projects. The members should only pay for their share of the subscribed capital. The actual funds that would provide the money for financing projects should be raised from the capital markets by issuing bonds and via other debt instruments. Since the goal of the bank is to offer loans that are typically cheaper than what is available elsewhere, it is imperative that it has high credit ratings so that it can pass on the benefits to its clients.<sup>63</sup> This is important as the lower cost of financing does not mean that its loans are concessional or subsidized.<sup>64</sup>

At the same time, an institution such as the proposed Asian investment bank should finance only infrastructure projects that fulfil certain criteria. While EIB has a list of criteria that projects must fulfil (see annex VIII.2), the criteria that the Asian investment bank must have in place should be tailored to the requirements of Asia and the Pacific. Ideally, to ensure its effectiveness and sustainability, the Asian investment bank should:

- Engage in medium and long-term lending. EIB lends for periods of between 4 and 20 years and it does not lend more than 50 per cent of the total cost of a project;
- Lend mainly in local currencies to minimize currency risks for the borrowing country;<sup>65</sup>
- Require adequate security to cover the significant risk in its lending. This security should be provided by banks or other financial institutions or large companies with a good credit rating, or even other multilaterals such as ADB or the World Bank;
- Monitor all projects, especially the larger ones, which it co-finances or (partially) guarantees;
- Minimize moral hazard and adverse selection problems in financing both by constant project monitoring and by working with other multilateral institutions, such as ADB, and national Governments in the areas of regulatory and legal reform, improving transparency and disclosure requirements and contract enforcement and making the investment and operating environment more predictable.<sup>66</sup>

***An Asian investment bank should have lending criteria for projects tailored to the needs of Asia and the Pacific while establishing safeguards to ensure efficiency and sustainability***

---

<sup>63</sup> As with EIB, care must be taken to ensure that administrative costs are relatively low, so even if the interest charged on loans covers the administrative costs, the rates remain very attractive to borrowers.

<sup>64</sup> It is premature at this stage to go into detail on such issues as how an Asian investment bank should handle loan financing and credit guarantees.

<sup>65</sup> See Tobias C. Hoschka, "Local currency financing – the next frontier for MDBs", *ERD Working Paper No. 68*, Asian Development Bank, April 2005, for an elaboration of the role of multilateral banks in local currency lending to developing countries.

<sup>66</sup> The crafting of regulations for infrastructure projects is detailed in Ionnis N. Kessides, *Reforming Infrastructure: Privatization, Regulation and Competition* (Washington, D.C., World Bank 2003 (chapter II); it is beyond the scope of the present publication.

**An Asian investment bank should be based on the concept of a public-private partnership to mobilize resources mainly from the capital market, to co-finance and guarantee projects and to provide financial and technical assistance at relatively low cost**

These are key requirements if the private sector is to participate more actively and in a much bigger way in Asia's infrastructure development. To summarize, the proposed Asian investment bank could include the following elements:

- (a) It could be based on the concept of public-private partnership rather than being a purely public institution;
- (b) It would mobilize resources mainly on the capital market for financing the region's infrastructure needs through the issuance of bonds and other financial instruments;
- (c) It would have the capacity to identify and evaluate infrastructure projects, make environmental impact assessments and monitor programme finance;
- (d) It would co-finance and guarantee private sector investment in infrastructure;
- (e) It would stand on its own yet still provide financial and technical assistance at relatively low cost.

## **E. CONCLUSION**

A recent ESCAP publication highlighted the necessity of paying adequate attention to the financing of infrastructure as a key to reinforcing the foundations of sustained development in the Asian and Pacific region.<sup>67</sup> This should be viewed within the broader context of finance for development and must be the central focus of the region's development agenda.

As discussed in the previous chapters, the infrastructure needs of the Asian and Pacific region are monumental, thus confronting the region with a significant annual financing gap. To deal with this gap, national Governments and multilateral organizations must systematically access savings through domestic and international capital markets while developing public-private partnerships.

Commitment at the political level will be key to moving forward in that direction. An action plan that could be facilitated by ESCAP is needed to further the process of enhancing cross-border financial intermediation in the Asian and Pacific region. The status quo is not an option. ESCAP members and associate members need to formulate a mechanism to make use of the region's savings for the development of its infrastructure. Forming an inter-governmental committee/task force to further evaluate the options and make recommendations on the way forward could be the next step.

**Commitment at the political level is the key to moving forward in developing public-private partnerships and mobilizing resources for infrastructure financing**

---

<sup>67</sup> ESCAP, *Implementing the Monterrey Consensus in the Asian and Pacific Region: Achieving Coherence and Consistency* (United Nations publication, Sales No. E.05.II.F.8).

## Annex VIII.1

### ESTIMATING FUTURE INFRASTRUCTURE INVESTMENT NEEDS: METHODOLOGY AND RESULTS

The methodology for estimating future infrastructure investment needs was first introduced by Fay and Yepes in 2003.<sup>68</sup> Subsequent studies in this area have used a similar but revised methodology.<sup>69</sup> This box summarizes the main features of the methodology and the results of using it are summarized below.

#### The model

- The infrastructure sectors considered are electricity, roads, water and sanitation, railroad, telecommunications (fixed-line and mobile);
- Demand for infrastructure services (by the categories described above) as consumption goods as well as inputs for production are determined by specifying:
  - Consumption demand as a function of per capita income
  - Input demand as a function of aggregate output, share of agriculture and industry in GDP and a proxy for technology;
- As the flow of infrastructure services is proportional to the infrastructure stock, demand for infrastructure stock is estimated by using relationships of the categories above with per capita income, aggregate output and the share of agriculture and industry in GDP.

#### The data

The following variables are used to represent infrastructure stock:

- Main telephone lines per 100 persons
- Mobile telephones per 1,000 persons
- Kilowatts (Kw) of electricity-generating capacity per capita
- Kilometres (Km) of railroad per 1,000 persons
- Km of paved roads per Km<sup>2</sup> of land
- Percentage of households with access to water and sanitation
- Ordinary least squares (OLS) regression using data for 113 countries during the period 1960-2000 is the method used to estimate the relationships of the above variables with the economic variables (e.g., aggregate output) discussed previously for each of the countries.

---

<sup>68</sup> Marianne Fay and Tito Yepes, "Investing in infrastructure: what is needed from 2000 to 2010"?, World Bank Policy Research Working Paper 3102 (Washington, D.C., World Bank, July 2003).

<sup>69</sup> The Asian Development Bank, Japan Bank for International Cooperation, World Bank study which states that the same methodology has been used is *Connecting East Asia: A New Framework for Infrastructure* (Manila, Asian Development Bank, Japan Bank for International Cooperation and World Bank, 2005).

- The relationships are used to estimate future demand for infrastructure for the countries using economic variables projected by the World Bank.

### Resource requirement for investment

- Future demand for infrastructure assets is multiplied by unit costs (in United States dollars) of infrastructure investment and of infrastructure maintenance to estimate the financial resources required for future infrastructure investment.

### The results

Using the study by ADB, JBIC and World Bank and the annual investment requirements for developing East Asia (including Pacific island countries) during the period from 2006 to 2010 are as follows:

	<b>Investment</b>	<b>Maintenance</b>	<b>Total</b> <i>(millions of United States dollars)</i>
Energy	63 446	25 744	89 190
Telecommunications	13 800	10 371	24 171
Transportation	24 345	12 524	36 869
Water and sanitation	5 458	9 359	14 817
<b>Total</b>	<b>107 049</b>	<b>57 998</b>	<b>165 047</b>

Adding investment requirements for South Asia as given in an earlier World Bank study, total annual infrastructure investment needs for the developing Asian and Pacific region during the period 2006-2010 are:

	<b>Investment</b>	<b>Maintenance</b>	<b>Total</b> <i>(millions of United States dollars)</i>
Energy	74 570	32 730	107 300
Telecommunications	20 425	15 590	36 015
Transportation	31 046	29 649	60 695
Water and sanitation	9 077	15 062	24 139
<b>Total</b>	<b>135 118</b>	<b>93 031</b>	<b>228 149</b>

## **Annex VIII.2**

### **NORTHEAST ASIAN DEVELOPMENT BANK**

The idea of establishing a northeast Asian development bank was first presented at the Northeast Asia Economic Forum meeting in Tianjin, China, in September 1991. Political leaders put forward the proposal in order to address specific conditions that the region faced and because they believed that integration would enhance the region's economic prospects. The proposed bank appeared on the agenda of successive annual meetings of the Forum. In 2000 the Forum created the Ad Hoc Committee for the Establishment of the Northeast Asian development bank and once again emphasized the strong need for such a bank to play a role in fostering greater economic cooperation and financing infrastructure investment and economic development in the region.

#### **The need for a northeast Asian development bank<sup>70</sup>**

A successful bank would involve not the public sector alone in promoting economic development; in market-based economies it would also engage the private sector as the primary driver of economic progress. However, private investment in resource development, manufacturing, financial markets and service industries would take place only when potential investors are confident that a country's basic infrastructure, such as transportation, telecommunications, energy and environmental facilities, are adequate to support and service their investments.

The state of the infrastructure in North-East Asia falls short of widely accepted standards. Expanding the transportation infrastructure is essential to economic integration in North-East Asia but would require huge investments in construction, raw materials, plants and equipment.

#### **The role of a northeast Asian development bank**

The proposed northeast Asian development bank would supplement financing of the existing multilateral financial institutions such as ADB and the World Bank.<sup>71</sup> The bank's main role would be to fill the perceived financing gap and it would therefore direct its financing primarily to projects that improved and expanded the region's infrastructure. In addition to providing financial support, the bank would also provide technical assistance in identifying, designing, evaluating and implementing projects.

#### **The capital structure**

The proposed bank's capital structure would be the same as that of ADB's, where subscribed capital constitutes the largest portion of financial resources, with only a small percentage of it paid up and most available as callable capital.

---

<sup>70</sup> Katz, *op. cit.*

<sup>71</sup> D.W., Nam, "Why is a northeast Asian development bank needed? Summary of Discussions in the Northeast Asia Economic Forum at Tianjin, China, 2-7 September 1991.

### **Opportunities and benefits**

A northeast Asian development bank would bring both economic and social benefits.<sup>72</sup> A regional development bank would enable resource development and provide a market for services and equipment. More of the finance for infrastructure could be raised from capital markets, thereby reducing the burden on the few countries such as China, Japan and the Republic of Korea, with its ability to finance such investments in the region.

The proposed bank would also play a role in ensuring that long-term infrastructure projects would be funded by long-term borrowing, thus helping to reduce the mismatch involved in using short-term financing to fund long-term projects exposed in the 1997 financial crisis. The bank would maintain greater financial discipline, ensure investment decisions are based on the region's infrastructure priorities and prevent waste.

---

<sup>72</sup> Katz, *op. cit.*

## Annex VIII.3

### EUROPEAN INVESTMENT BANK: ORGANIZATIONAL BACKGROUND AND KEY FUNCTIONS

Founded in 1958 under the Treaty of Rome signed in March 1957, the European Investment Bank provides long-term loans and guarantees mostly for fairly large-scale public and private projects, mainly within the European Union, but also in the developing world.<sup>73</sup> The latter are provided under the European Union's development aid and cooperation policies.<sup>74</sup> Although EIB is a European Union institution, it is a legally separate and financially autonomous entity with headquarters in Luxembourg. Its members are the European Union's 25 member States which have all subscribed to the Bank's capital. Each member's capital share is calculated on the basis of its economic weight within the European Union as measured by the size of its GDP relative to the total GDP of all member States.<sup>75</sup> Four countries, Germany, France, Italy and the United Kingdom, make up about two thirds of the Bank's shareholding. Shareholders are fully eligible for bank financing operations without any geographical or sectoral quota restrictions.

The stated mission of the Bank is "to further the policy objectives of the European Union by making long-term finance available for sound investment".<sup>76</sup> Projects in which the Bank can invest must be broadly aimed at fulfilling one of the following objectives: (a) development of the European Union's less-favoured or less developed regions; (b) modernization of businesses and creation of new activities which cannot be entirely covered by national funding resources; and (c) provision of aid for investment in the infrastructure of community interest which, as a result of its scope or nature, cannot be funded by one member State alone.

#### **a) Lending by the European Investment Bank**

In 2004, the Bank started to concentrate on public – private partnerships engaged in building infrastructure and delivering public services. In explaining the rationale of PPPs the Bank's 2004 annual report noted that they:

Represent a relatively new approach to building infrastructure and delivering public services. Their main attraction lies in the increased efficiency and effectiveness achieved by sharing a project's risks, which are shouldered by those best able to manage them: the construction and operational risks are borne by private enterprise, while public authorities take on the responsibility for establishing and maintaining a balanced legal and

---

<sup>73</sup> A more detailed description of EIB is provided by Griffith-Jones, Steinherr and de Lima, op. cit.

<sup>74</sup> The duration of the loans generally is between 4 and 20 years. Extraregionally, EIB lends to countries in Africa, the Caribbean and the Pacific (ACP); in South Africa, the Western Balkans and the Russian Federation, Asia and Latin America; (ALA); countries in the Mediterranean as well as to Romania and Bulgaria which are European Union accession countries. In 2004, ACP countries received 440 million euros while the ALA countries received about 230 million euros in loans (less than a third of this went to Asia).

<sup>75</sup> The current subscribed capital of EIB is slightly over 160 billion euros. Germany, France, Italy and the United Kingdom are the largest shareholders, each having a stake of about 16 percent.

<sup>76</sup> See <[www.foei.org/publications/pdfs/eib1.pdf](http://www.foei.org/publications/pdfs/eib1.pdf)>.

economic framework throughout the life of the project. In addition, PPP's enable public authorities to create public service infrastructure while staggering the burden of their investment over time and, in certain cases, allowing off-balance sheet commitments (p. 25).

The Bank's PPP lending has particularly concentrated on transportation projects, which have accounted for 85 per cent of total approvals; health and education projects accounted for the remainder of the funds approved. The Bank has also recently focused on the development of efficient transport, energy and information networks within Europe.

As a rule, the Bank lends up to 50 per cent of the project cost and it requires adequate security for its loans. This security could take the form of guarantees from a bank, a financial institution, or a large, well-diversified parent company with a good credit rating. In certain circumstances, EIB might, also include a risk margin in the financing arrangements.<sup>77</sup> In addition, EIB seeks assurances that no other creditor is in a more favourable position than itself. EIB monitors the project's progress and may carry out on-site inspections. While the Bank usually lends money to large projects, it also supports smaller investments through a facility called "global loans", under which EIB provides capital to smaller banks, which in turn lend the money out. Such loans have to conform to all EIB specifications.

#### ***b) Financing of the European Investment Bank***

EIB relies primarily on two sources of funding. Apart from its capital and reserves, EIB raises a significant amount of money from international capital markets via the issuance of bonds and other debt instruments. The rating agency, Moody's, has given EIB a triple-A rating. In 2004, the Bank raised almost 50 billion euros, an 18 per cent increase over that of the previous year. EIB is so well recognized in capital markets that it has received awards such as the "Borrower of the year 2004", "Most impressive borrower" and "Most innovative borrower". All of this translates into cheaper borrowing for EIB and it means cheaper credit can be provided to its clients for development work. In other words, the Bank lends at low, but market-based rates; they are not concessional.

### **THE EUROPEAN INVESTMENT FUND**

In 1994 EIB co-founded the European Investment Fund (EIF) as a joint venture with the then European Commission. EIB took a 60 per cent shareholding, the European Union took 30 per cent and 34 financial institutions took a combined stake of 8 per cent. The Fund's authorized capital is 2 billion euros. As part of the EIB Group, the Fund is also committed to contributing to the pursuit of European Union objectives. However, unlike EIB, the Fund does not provide loans; EIF was founded specifically to pursue one of the priorities of EIB, which is "support for small and medium-sized enterprises (SMEs) as well as mid-cap companies of intermediate size". The Fund focuses on providing venture capital and guarantees. It

---

<sup>77</sup> The availability of such guarantees has ensured that the European Investment Bank has the highest quality assets; however, there are two criticisms. First, lending to borrowers that have good credit standing or are able to obtain credible guarantors and thus may be able to raise finances themselves may merely crowd out private lending. Second, what about those countries that are less developed and caught in poverty traps and are not able to obtain third-party guarantees as easily?

makes equity investments in venture capital funds and business incubators that support SMEs, particularly technology-oriented enterprises that are in an embryonic development stage. In essence, EIF acts as a fund-of-funds. It also provides guarantees to financial institutions that provide credit to SMEs. In its role as the risk-capital arm of the EIB Group, the Fund uses the financial means at its disposal to support the development of the European venture capital market.

## **NEXUS BETWEEN THE EUROPEAN INVESTMENT BANK AND THE EUROPEAN BANK FOR RECONSTRUCTION AND DEVELOPMENT**

An issue of interest to Asia and the Pacific is the nexus between EIB and EBRD. Why does Europe have two public development and investment banks?

The role of EIB has been noted. EBRD was established in 1991 to nurture the private sector in the newly democratic States of Central and Eastern Europe after the break-up of the former Union of Soviet Socialist Republics (USSR). The EBRD is owned by 60 countries (including the United States) and two inter-governmental organizations (EIB and European Union), with total subscribed capital of 20 billion euros (compared with 160 billion euros in the case of EIB). EBRD is currently involved in 27 countries stretching from Central Europe to Central Asia. It provides project financing for banks, industries and businesses, both new ventures and investments in existing companies. It works with publicly owned companies to support privatization, restructuring State-owned firms and improving municipal services, and with Governments to institute policies that will help to bolster the business environment. EBRD also tries to function as a catalyst of change. It promotes co-financing and FDI, mobilizes domestic capital and provides technical assistance.<sup>78</sup>

Both EBRD and EIB raise money from capital markets by issuing bonds and other instruments to finance their loan operations. Both institutions have co-financed some projects and they both have triple-A ratings, thus enabling them to raise money cheaply and to pass on the benefits to their borrowers. Both institutions are involved in infrastructure development as well as financing environmentally sound projects and both lend on a long-term basis. However, apart from some organizational differences, the main distinction between EIB and EBRD is that the former tends to lend relatively more to large infrastructure projects while EBRD, with its smaller capital base, finances mostly smaller private sector projects. For example, EIB lent over 40 billion euros in 2004 while EBRD lent only about 4 billion euros. The broader objective of EIB is to further the development policy objectives of the European Union; in the case of EBRD it is to help to develop free markets and the growth of democracy in the former USSR and elsewhere. Annex table VIII.4 summarizes the key characteristics of, and differences between, EIB, EIF and EBRD.

---

<sup>78</sup> See <[www.ebrd.com/about/](http://www.ebrd.com/about/)>.

## Annex VIII.4

### TABLES AND FIGURES

**Annex table VIII.1 Cumulative investment in infrastructure projects with private participation, by developing region, subregion and sector, 1990-2001**

(Billions of United States dollars)

Region/subregion	Tele- coms	Elec- tricity	Natural gas transmission and distribution	Air- ports	Sea- ports	Rail- ways	Toll roads	Water and sani- tation	Total
Latin America and the Caribbean	163.2	89.5	19.6	7.1	5.7	17.9	36.9	20.7	360.6
East Asia and the Pacific	65.0	68.6	6.0	2.6	8.8	10.1	34.1	15.3	571.1
Europe and Central Asia	64.9	19.1	4.7	1.5	0.7	0.3	2.6	3.3	307.7
South Asia	14.6	22.1	0.2	0.1	1.8	0.0	0.5	0.2	136.7
Middle East and North Africa	8.1	9.0	3.9	0.7	0.9	0.2	0.0	0.1	62.4
Sub-Saharan Africa	15.7	4.8	0.1	0.3	0.2	0.3	1.9	0.2	46.2
<b>Total</b>	<b>331.4</b>	<b>213.2</b>	<b>34.5</b>	<b>12.5</b>	<b>18.0</b>	<b>28.8</b>	<b>76.0</b>	<b>39.8</b>	<b>754.1</b>

Source: World Bank, *Private Participation in Infrastructure Database*, <<http://ppi.worldbank.org/>>.

Annex table VIII.2 Infrastructure projects with private participation, by country, subregion and sector, 1990-2001

(Percentage of GDP)

Region	1995			2000			2001			2002			2003							
	Energy	Telecom- muni- cation	Trans- porta- tion	Water supply and sanitation	Energy	Telecom- muni- cation	Trans- porta- tion	Water supply and sanitation	Energy	Telecom- muni- cation	Trans- porta- tion	Water supply and sanitation	Energy	Telecom- muni- cation	Trans- porta- tion	Water supply and sanitation				
<b>South and South-West Asia</b>	0.60	0.11	0.04	-	0.73	0.61	0.02	0.02	0.11	0.43	0.01	-	0.05	0.54	0.06	-	0.02	0.26	0.03	
Bangladesh	-	0.07	-	-	0.04	0.15	-	-	0.99	0.10	-	-	-	0.12	-	-	-	0.81	-	
Bhutan	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
India	0.27	0.19	-	-	0.62	0.14	0.02	0.05	0.06	0.68	0.02	-	0.02	0.91	0.11	-	0.04	0.31	0.05	
Iran (Islamic Republic of)	-	0.00	-	-	-	-	-	-	-	-	-	-	-	0.00	-	-	-	-	-	
Maldives	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Nepal	-	-	-	-	0.73	0.28	-	-	-	0.53	-	-	-	0.02	-	-	-	-	-	
Pakistan	2.64	0.03	0.45	-	-	0.04	-	-	0.10	0.25	-	-	-	0.25	-	-	-	0.21	0.04	
Sri Lanka	6.03	-	-	-	47.01	-	-	-	2.69	44.56	-	-	-	106.94	-	-	-	0.06	-	
Turkey	1.04	0.07	-	-	1.79	2.27	0.06	-	0.14	0.11	-	-	0.20	0.11	-	-	0.70	0.38	0.31	
<b>South-East Asia</b>	1.39	0.97	0.81	0.03	0.56	0.32	0.23	0.01	0.68	0.78	0.43	0.09	0.37	0.60	0.14	0.00	0.19	0.31	0.31	
Cambodia	-	0.06	3.63	-	0.77	0.06	-	-	0.23	0.70	1.90	-	-	0.76	0.19	-	-	-	-	
Indonesia	1.22	1.20	0.24	-	-	0.43	-	-	-	0.62	-	0.03	0.11	0.83	0.34	-	-	0.41	-	
Lao People's Democratic Republic	-	-	-	-	-	0.35	-	-	-	0.68	-	-	-	0.60	5.47	-	-	-	-	
Malaysia	1.35	1.14	2.13	0.01	-	0.32	1.21	0.03	1.98	0.42	0.66	-	0.01	0.49	-	-	1.99	0.28	1.63	
Myanmar	1.73	0.02	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Philippines	3.14	0.93	0.40	-	2.39	0.51	0.01	-	0.74	1.61	1.26	-	-	0.91	0.04	0.03	0.47	0.64	0.15	
Singapore	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Thailand	0.82	0.68	1.01	0.09	0.70	0.17	-	0.02	0.77	1.03	0.39	0.21	-	0.40	-	-	0.91	0.24	0.03	
Viet Nam	-	0.62	-	-	-	0.05	-	0.06	-	0.05	-	0.47	5.03	0.05	0.08	-	1.08	0.64	-	
<b>East and North-East Asia</b>	0.07	0.00	0.02	0.00	0.07	0.33	0.11	0.00	0.03	0.02	0.11	0.01	0.03	0.07	0.06	0.06	0.07	-	0.06	
China	0.14	-	0.04	0.01	0.11	0.52	0.18	0.00	0.05	0.03	0.16	0.02	0.05	0.11	0.09	0.10	0.10	-	0.09	
Hong Kong, China	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Macao	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Mongolia	-	1.05	-	-	-	0.95	-	-	-	0.49	-	-	-	-	-	-	-	-	-	
Republic of Korea	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
<b>North and Central Asia</b>	-	1.78	-	-	1.06	4.83	0.37	0.14	0.67	3.54	-	-	0.42	4.42	-	-	0.00	5.56	0.05	
Azerbaijan	-	-	-	-	0.36	1.16	-	-	4.03	0.30	-	-	2.33	0.11	-	-	0.05	0.55	-	
Georgia	-	0.35	-	-	1.64	1.25	-	-	0.47	0.47	-	-	-	0.44	-	-	0.05	0.41	-	
Kazakhstan	-	-	-	-	-	0.41	-	0.22	-	0.29	-	-	-	0.47	-	-	-	0.50	-	
Kyrgyzstan	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Russian Federation	-	30.04	-	-	-	93.45	8.46	-	-	67.73	-	-	0.84	89.76	-	-	-	110.04	1.02	
Tajikistan	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Uzbekistan	-	-	-	-	-	0.26	-	-	-	1.50	-	-	-	0.29	-	-	-	0.18	-	
<b>Pacific island economies</b>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Fiji	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Papua New Guinea	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Vanuatu	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
<b>Total</b>	<b>0.50</b>	<b>0.25</b>	<b>0.19</b>	<b>0.01</b>	<b>0.34</b>	<b>0.45</b>	<b>0.11</b>	<b>0.01</b>	<b>0.16</b>	<b>0.28</b>	<b>0.13</b>	<b>0.02</b>	<b>0.09</b>	<b>0.33</b>	<b>0.07</b>	<b>0.04</b>	<b>0.15</b>	<b>0.19</b>	<b>0.09</b>	<b>0.01</b>

Sources: World Bank, Private Participation in Infrastructure Database, <<http://ppi.worldbank.org/>> and United Nations, Statistics Division Common Database, <<http://unstats.un.org/unsd/cd/>>.

**Annex table VIII.3 International investment in infrastructure of developing countries as a share of gross domestic capital formation, 1992-2003**

(Percentage)

Region/subregion	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003 <sup>a</sup>
<b>Total</b>	<b>1.5</b>	<b>2.5</b>	<b>2.1</b>	<b>3.8</b>	<b>3.8</b>	<b>6.2</b>	<b>5.1</b>	<b>5.6</b>	<b>5.4</b>	<b>3.7</b>	<b>2.9</b>	<b>3.4</b>
East Asia and the Pacific	2.8	5.1	3.5	4.7	4.6	4.7	5.1	3.1	4.4	1.7	3.1	4.2
Europe and Central Asia	0.6	0.8	1.3	4.3	3.2	5.9	7	8.3	8.1	4.3	4.9	5.5
Latin America and the Caribbean	1.3	1.4	1.2	2.7	4.2	8.1	5.9	5.9	7.5	7.8	2.8	1.7
Other regions	0.8	1.5	1.6	3.2	2.2	5.8	2.4	7	3	2.6	1.1	2.1

Source: World Bank, Global Development Finance 2004: Harnessing Cyclical Gains for Development (Washington, D.C., World Bank, 2004), p.155.

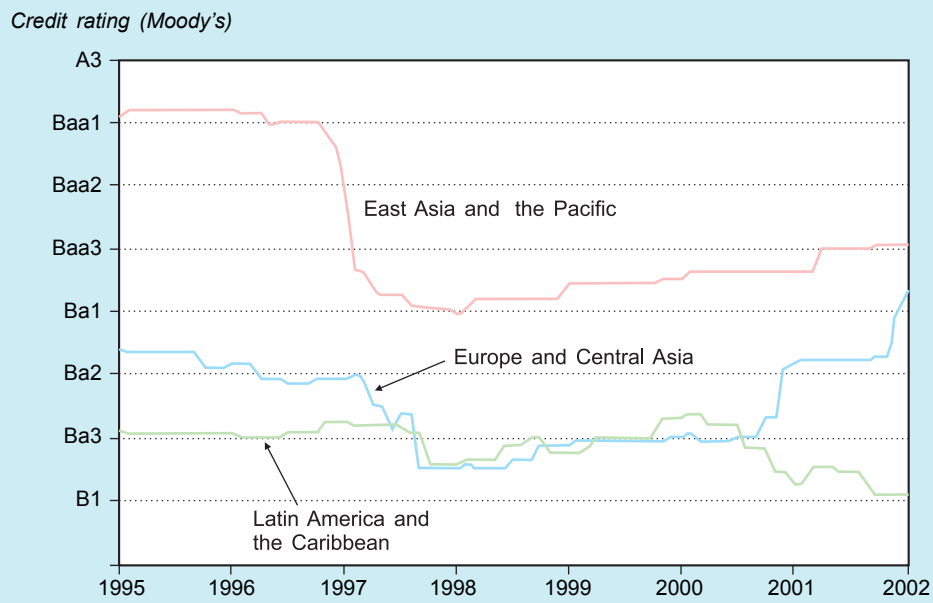
<sup>a</sup> Data are from January-November.

**Annex table VIII.4 Characteristics of the European Investment Bank, the European Investment Fund and the European Bank for Reconstruction and Development**

Institution	Year of inception	Subscribed capital	Key objectives	Type of financing	Regions served	Financing provided in 2004
<b>European Investment Bank</b>	1958	164 billion euros	<ul style="list-style-type: none"> <li>• Develop European Union's less-favoured or less developed regions.</li> <li>• Modernize businesses and create new activities which cannot be entirely covered by national funding resources.</li> <li>• Provide for investment in infrastructure of community interest which, as a result of their scope or nature, cannot be funded by one member State alone.</li> </ul>	<ul style="list-style-type: none"> <li>• Mostly in the form of loans given for infrastructure projects, such as industries, schools and hospitals.</li> </ul>	<ul style="list-style-type: none"> <li>• Primarily European Union member countries</li> <li>• Southeastern Europe</li> <li>• Asia and the Pacific</li> <li>• Latin America</li> <li>• Caribbean</li> <li>• Africa</li> </ul>	48 billion euros
<b>European Investment Fund</b>	1994	2 billion euros	<ul style="list-style-type: none"> <li>• Stimulate technological and industrial innovation throughout a project's early-stage, development and expansion.</li> <li>• Foster economic growth and job creation.</li> <li>• Transfer new technologies to and their adoption by more traditional small and medium-sized enterprises; the objective is to contribute to the diffusion of innovation.</li> <li>• Make investments with a regional development focus the goal being to reinforce balanced development.</li> <li>• Contribute to the establishment of efficient risk capital markets.</li> </ul>	<ul style="list-style-type: none"> <li>• Does not directly invest or lend money.</li> <li>• Venture capital in small and medium-sized enterprises through intermediaries. Act as a fund-of-funds.</li> <li>• Providing guarantees to institutions that provide loans to small and medium-sized enterprises</li> </ul>	<ul style="list-style-type: none"> <li>• Primarily European Union member countries.</li> </ul>	<ul style="list-style-type: none"> <li>• Venture capital committed: 358 million euros.</li> <li>• Guarantee provided: 1.44 billion euros.</li> </ul>
<b>European Bank for Reconstruction and Development</b>	1991	20 billion euros	<ul style="list-style-type: none"> <li>• Help to move a country closer to a full market economy by providing assistance during the transition period.</li> <li>• Take risks that support private investors without crowding them out.</li> <li>• Apply sound banking principles.</li> </ul>	<ul style="list-style-type: none"> <li>• Provides loans to former communist countries.</li> <li>• Provides project financing for banks, industries and businesses, both new ventures and investments in existing companies</li> </ul>	<ul style="list-style-type: none"> <li>• 27 countries in Central Europe and Central Area</li> </ul>	4.1 billion euros

Source: Compiled by Sunil Rongala and Ramkishan Rajan

Annex figure VIII.1. Average regional credit quality, 1995-2002



Source: World Bank, *Global Development Finance 2004: Harnessing Cyclical Gains for Development* (Washington, D.C., World Bank, 2004), p.158.

Annex figure VIII.2. Structure of the Asian Bond Fund (ABF2)

