Infrastructure Development in East Asia and Pacific

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Towards a New Public-Private Partnership

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EXECUTIVE SUMMARY

Developing economies in East Asia are under severe pressure to meet a massive new demand for infrastructure. Unless this need is filled, high economic growth cannot be sustained. Economies will run a major risk of faltering in their progress towards playing a greatly expanded role in the global economy. At the same time, great opportunities are to be found in the region's huge appetite for infrastructure. It offers a means of developing a new public-private partnership involving governments in developing and developed economies alike while providing unprecedented business prospects for the private sector throughout the region.

ii. East Asia's infrastructure challenges arise from three related elements. First, the projected investment requirements are vast: during the next decade, developing East Asian economies will need to invest between $1.2–1.5 trillion (by comparison, $0.6–0.8 trillion is needed in Latin America), equivalent to about 7% of GDP or about 2% more of GDP than the current levels. These investment requirements are driven by: the region's rapid economic growth; the need to compensate past under-investment in most economies in transition; rapid urbanization that will add a billion people to the region in the next generation; and the rising trade and globalization of the economies. Second, both the public at large and the business community are demanding better quality and service. And, third, cost effectiveness and choice of infrastructure services are increasingly important for international competitiveness. They need to be improved in most countries.

iii. Countries in the region acknowledge that the public sector has neither the finances nor the managerial resources to meet all the emerging infrastructure needs. In most countries, efforts are underway to encourage private participation in the provision of such services, though in most countries the public sector will remain responsible for significant infrastructure investment requirements, particularly in rural roads, mass transit, and water development. International evidence suggests that well-structured private participation not only results in more financing being available for infrastructure projects, but that efficiency and quality are enhanced. Private projects also facilitate, through demonstration and competition, improvements in the efficiency of individual public utilities as well as public investment overall.

iv. The private sector—operators, suppliers and financial markets from around the world—has demonstrated a keen interest in the investment opportunities in developing economies of East Asia and Pacific. Examples of successful private investments in infrastructure projects are to be seen in countries such as China, Indonesia, Malaysia and the Philippines. Most of such investments are in telecommunications, power and toll roads, with a rising though still modest involvement in water supply and port facilities. Two-thirds of the private investments in East Asia are by investors within the region.

v. But demand remains much greater than supply. Despite much talk about private investment in infrastructure, there is little action in most countries. Neither the governments nor the private sector are satisfied with progress to date. Hundreds of memoranda of understandings on projects totalling hundreds of billion of dollars are languishing. The few projects that have reached implementation took much more time and money to negotiate than first imagined. Except in Malaysia and in selected areas of the Philippines (power) and Indonesia (toll roads), the public has yet to see any visible results of new strategies to involve the private sector.

vi. Despite progress in getting a few projects started and the creation of a few big infrastructure funds, significant challenges remain, namely broadening the sector reforms and unleashing private capital flows. These

challenges must be met, and met fast, to raise much needed additional savings from the private sector and avoid the looming infrastructure crisis. Time is of the essence. Public satisfaction with the new strategies in the region is still fragile and investors are increasingly worried that early gains may not be sustained.

vii. The World Bank has identified seven major constraints to enhanced private participation after a review of global experience, country-level work in the region and a detailed survey of the private sector: (i) existence of a wide gap between the expectations of governments and the private sector on what is reasonable and acceptable; (ii) lack of clarity about government objectives and commitment and complex decision-making; (iii) need for more conducive sector policies (pricing, competition, public monopolies) and inadequate legal and regulatory policies, including investment codes and dispute-resolution mechanisms; (iv) need to unbundle and manage risks and to increase credibility of government policies; (v) under-developed domestic capital markets; (vi) need for new mechanisms to provide from private sources large amounts of long-term finance at affordable terms and (vii) need for greater transparency and competition to reduce costs, assure equity and improve public support. Not all of these constraints necessarily apply to each country.

viii. World Bank experience in both developed and developing economies indicates that these constraints would be alleviated, by a conducive and credible policy and institutional framework, and increase private participation. While individual country and sector conditions would vary, in most circumstances the framework would include two components. The first component relates to policies and actions necessary to promote overall economic growth and private sector development in all economic activities. In this context, two aspects deserve special emphasis: maintenance of a stable macroeconomic environment; and a transparent and robust investment environment. These policies are a necessary but not a sufficient condition for enhanced private participation in infrastructure. The second component relates to policies and actions specifically concerning infrastructure. These fall into four complementary areas: (i) clarification of government objectives and strategy for private participation, and reform of sector policies and the regulatory and legal framework to support the strategy; (ii) putting in place an explicit framework and mechanisms for unbundling, mitigating and managing risks, including selective government guarantees to make the policies more credible; (iii) reduction of transaction costs through transparent and competitive mechanisms to select private partners, plus streamlined public decision-making; and (iv) development of local capital markets and creation of mechanisms to facilitate provision of long-term debt by public as well as private financial institutions and institutional investors. In addition, there is a universal need for a concerted and continuous effort to mobilize public opinion in favor of private participation. Favorable public opinion is critical for the success of such programs.

ix. Most of the actions needed to enhance private participation are country and even sector specific. Such actions would need to be and can only be taken by individual developing countries after consultations with the private sector. As most developing economies in the region face similar challenges, there is considerable merit in learning from each other's experience. Regional sharing of information, cooperation and collaboration could also yield considerable benefit by creating synergies from parallel or complementary actions taken in the same policy areas. In parallel, OECD members and multilateral institutions can take steps that directly or indirectly would have a beneficial effect on private investment in the developing economies of the region.

x. On its part, affiliates of the World Bank Group—IFC, MIGA, FIAS and IBRD—are expanding their efforts to facilitate and promote private investment in infrastructure. These efforts include: increased support to individual countries in the development of the framework for private participation; more intensified contacts with the private sector; creation and greater use of new financial instruments and mechanisms to support private infrastructure projects (e.g. partial risk guarantees, single currency loans, infrastructure funds); and expanded technical assistance for institutional and human development as well as greater sharing of information and research findings.

I. BACKGROUND

Developing economies in East Asia and Pacific face huge challenges in meeting their infrastructure needs. East Asian economies will be unable to sustain high economic growth rates unless these challenges are successfully met. They will run a serious risk of faltering in their progress towards playing a greatly expanded role in the global economy. At the same time, their massive infrastructure needs offer an opportunity to develop new public-private partnerships while providing unprecedented business opportunities for the private sector throughout the region.

Governments are increasingly keen to allow the private sector to expand its role in the provision of infrastructure services. While this is gradually becoming a global trend, East Asia, along with Latin America, is at the forefront of evolving the new paradigm.

In many East Asian countries, private sector participation (including financing and management) in new infrastructure projects has either become, or is close to becoming, a reality. In Malaysia, major toll highways have been financed by the private sector under a Build, Own and Transfer (BOT) arrangement, as have a number of water supply and sewerage treatment projects. In Thailand, the Bangkok Expressway toll road is now in operation, and a rural telecommunications project is progressing well; both were built and partly financed by Japanese promoters under BOT-type schemes. In China, two power projects and a major toll highway in the South, all promoted and funded by a Hong Kong Chinese company, are now operational; a container port in Shanghai is a 50:50 joint venture with another Hong Kong company and a number of other projects are at an advanced stage. In Indonesia, a number of toll roads funded by the private sector are in operation and a major power project is finally underway. About two-thirds of the private investment in infrastructure in East Asia is by investors from within the region. The competition remains keen among the "sellers."

The most dramatic shift has been in the Philippines in the power sector. In response to major and persistent power shortfalls, the government in 1991 launched a crash program to have the private sector build the necessary generating capacity (the distribution companies are mainly private) under BOT-type schemes. A number of fast-track power projects have already been completed, and, by end-1994, over a dozen private projects were operational; another 20-odd projects have been signed. It is anticipated that by 1998 as much as 80% of national generating capacity could be in the private hands, compared to none in 1991. Based on this positive experience, the government has decided that all future generation capacity will be private It is considering full deregulation of the power sector, and has opened discussions to expand private financing to other infrastructure sectors (ports, roads, airports and water supply).

Nearly all countries in East Asia are now seeking increased private sector participation in infrastructure in one form or another. Some countries, having successfully invited private investment in a number of infrastructure projects (namely in power, telecommunications and highways) are now formulating policies and approaches to enhance efficiency gains, increase competition and reduce risks to private promoters. Despite these efforts and the few successes mentioned above, results have failed to meet expectations. Experience highlights some common problems whose resolution is necessary to attract private capital flows on a larger scale and on a more sustained and efficient basis. Time is of the essence in the region since public support for the new strategies is still fragile and the private sector increasingly concerned if the early gains can be maintained. Practical ways have to be found to move ahead with a larger number of "good" projects rather than waiting for the ideal solutions.

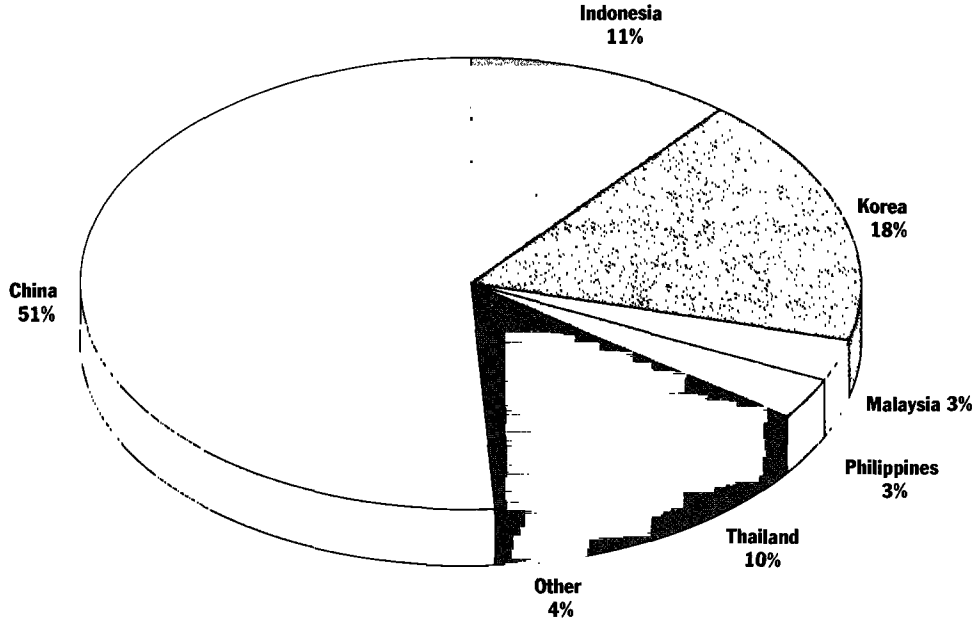
The basic objectives of this paper are: to outline the challenges faced by East Asia economies in infrastruc-

ture development; to describe their experiences in evolving a new public-private partnership; to identify, based on World Bank global and country specific experience, the major common issues and constraints to enhanced private participation in the provision of infrastructure services; and to propose a framework for possible ways of alleviating the constraints. While most of the remedial actions would necessarily be country and sector specific, in some areas discussions within regional forums may be of benefit to all.

More specifically, the remaining parts of the paper (i) outline the massive investment and financing requirements in the developing East Asian economies; (ii) review briefly the case for a new public-private partnership and for enhanced private participation; (iii) present stylized facts and lessons of recent experience in East Asia and Latin America in evolving this new public-private partnership; (iv) identify key common issues and critical constraints to an enhanced and more efficient private participation; and (v) outline a framework for alleviating these constraints.

Over the next decade, infrastructure investment in China alone is projected to exceed 700 billion dollars.

Regional Investment Needs by Country, 1995–2004



II. INVESTMENT REQUIREMENTS

Developing economies in East Asia face a huge challenge in achieving investment levels necessary to overcome current bottlenecks and meet rapidly increasing demand. As detailed in *Annex 1*, after making modest levels of investments in the 1970s, East Asian economies have steadily increased investment in infrastructure in absolute terms and as a proportion of GDP. Total investments in infrastructure rose from 3.6% of GDP in the 1970s to about 4.6% in the 1980s and to around 5.0–5.5% of GDP in 1993. Total investment—both public and private—is estimated to have reached or even exceeded $70 billion in 1993.

Despite these large and rising investments, the region is plagued by infrastructure constraints. As shown in the charts on the previous page, most East Asian economies lag behind other developing countries, particularly those of Latin America, at their level of per capita income. Demand is outstripping supply even in some of the most basic services such as water supply and sanitation. Industry and urban areas are particularly hard hit. In 1990, just 60% of the region's population had access to safe drinking water and about 77% had access to sanitation. This translates into 460 million and 350 million people without access to safe drinking water and sanitation respectively; the coverage is even lower in rural areas. The penetration ratio in telecommunications is very low, at about 17 telephones per 1000 people. Power outages and brownouts are common across the region. Urban transport and environmental problems are legendary. In nearly every country, infrastructure constraints are a top economic, social and political issue.

Future investment requirements are massive and are driven by four major influences. First is the urgent need to overcome current bottlenecks and make up for past under-investment, particularly in countries in transition (Cambodia, Laos, Mongolia, Vietnam) and the Philippines. Second, is the need to sustain high economic growth rates. World Bank analysis of global experience reveals a strong correlation between economic growth and infrastructure investments. For every 1% growth in per capita GDP, infrastructure stock or investment needs to increase by about 1%. East Asia has been the fastest growing region in the world for the past 25 years. This high growth is expected to continue for a few years at least. During the next decade, the region is projected to grow at 7–8% per year, e.g. increase per capita income by about 6% per annum. This high growth in turn requires that investment levels in infrastructure rise as a proportion of GDP in order to forestall infrastructure constraints from restricting economic growth. Third, rapid urbanization throughout the region raises the need for much higher investment in urban infrastructure. World Bank projections indicate that, even if the current urban growth rate of 4% a year moderates, more than one billion people would be added to urban areas in the next generation. They will need access to clean water, sanitation, urban transport, telecommunications, power and housing. And, fourth, the rising trade and globalization of economies require world-class infrastructure services, particularly in power, communications and transport.

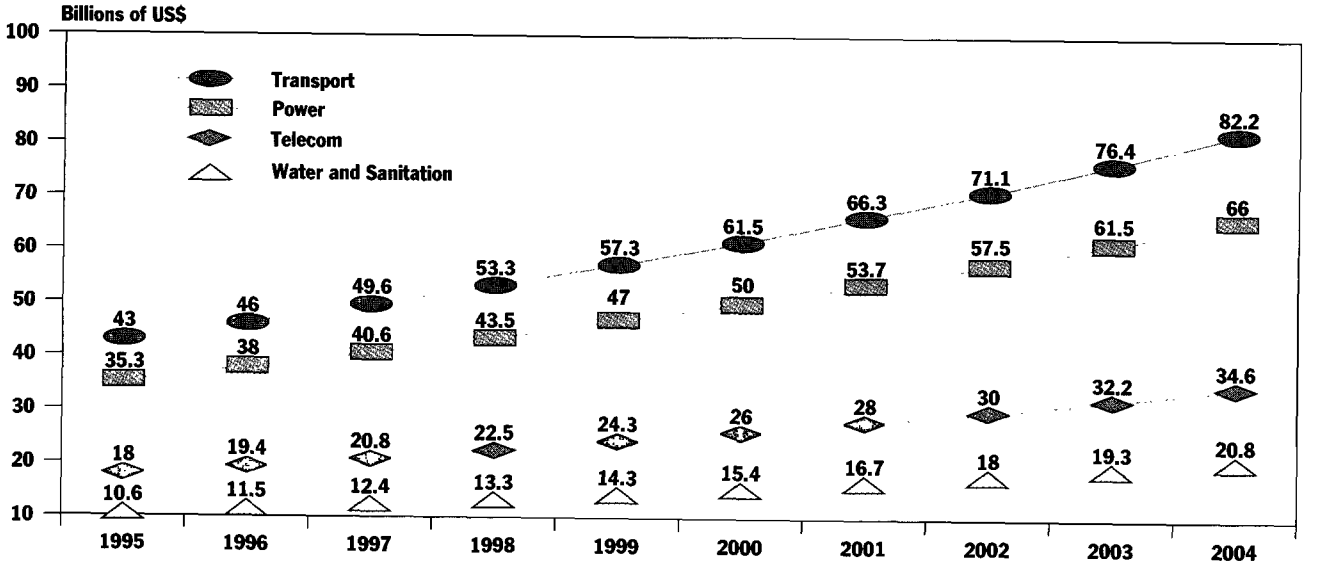
Based on World Bank country and sector specific reviews and on a quantitative modelling exercise, infrastructure investment requirements in developing East Asian economies are projected at between $1.3–1.5 trillion for 1995–2004. This suggests a need for a substantial increase in the investment to GDP ratio from about 5% to between 6.5–7%. Detailed projections are given in *Annex 1*. The baseline scenario is summarized in the table below and on the two charts on the following page.

These numbers must be regarded as orders of magnitude. There is much uncertainty about the underlying assumptions. Actual investments may deviate signifi-

cantly from projections. But it is clear that in both absolute terms and as a share of GDP, future investment requirements are so massive as to require special planning and provision.

The largest increases have been in transportation, with China in the lead.

Investment Requirements by Sector, 1995–2004



During the next decade, regional investment in infrastructure projected to exceed to US$1 trillion.

Indicative Investment Requirements in Infrastructure, 1995–2004

	Power		Telecom		Transport		Water and Sanitation		Total	
	US$ B	% GDP	US$ B	% GDP	US$ B	% GDP	US$ B	% GDP	US$ B	% GDP
Baseline Scenario (IEC baseline growth)										
China	200	2.0	141	1.4	302	3.0	101	1.0	744	7.4
Indonesia	82	2.9	23	0.8	62	2.2	25	0.9	192	6.8
Korea	101	2.1	32	0.7	132	2.7	4	0.1	269	5.6
Malaysia[a]	17	1.7	6	0.6	22	2.1	4	0.4	50	4.8
Philippines	19	2.7	7	1.0	18	2.5	4	0.4	48	6.8
Thailand[a]	49	2.4	29	1.4	57	2.8	10	0.5	145	7.2
Other[b]	25	3.1	18	2.2	14	1.7	4	0.5	61	7.5
East Asia[c]	493	2.2	256	1.2	607	2.7	153	0.7	1509	6.8

a. Estimates were available only for the public sector.
b. Others comprise Cambodia, Fiji, Kiribati, Lao PDR, Maldives, Mongolia, Myanmar, Solomon Islands, Tonga, Vanuatu, Vietnam and Western Samoa.
c. East Asia includes China, Indonesia, Korea, Malaysia, Philippines, Thailand and "Others."

III. CASE FOR A NEW PUBLIC-PRIVATE PARTNERSHIP

While motivations and circumstances vary from country to country, and within countries from sector to sector, three main factors are leading East Asia to consider a new public-private partnership. This new paradigm calls for both more efficient public entities and greater private sector involvement in the provision of infrastructure services.

First and foremost are the projected massive investment needs which cannot be met by the financial resources of the state alone without reducing other priority social and economic spending that can only be made by the state. As indicated above, East Asia countries currently invest between 5–5.5% of their GDP (or about $70 billion/year) in physical infrastructure; more than 90% of this is public investment. At this level, countries are experiencing major bottlenecks in supplying infrastructure. Future investment needs are projected to be much higher, requiring an increase in the investment to GDP ratio of almost 2% for the region and as much as 4% of GDP in countries such as the Philippines. However, most countries in the region are being forced to curtail overall public spending and yet find ways to spend more on social programs. They are not in a position to increase outlays on infrastructure projects at the same time. Even if the countries were to maintain the current level of public investment in infrastructure, other sources would need to be found to raise incremental financing totalling about $25 billion a year. The only solution is to turn increasingly to private financing (including user charges). In time, as domestic capital markets develop, local private savings should become a significant source. Foreign private investments are likely to be the major incremental source in the near term in most countries.

Second, *managerially there are capacity constraints within the public sector.* While some public utilities in the region (e.g. power utilities in Indonesia, Korea, Thailand) are performing well, in most countries the quantity, quality and cost effectiveness of infrastructure services have not kept up with the needs of the public or business. The public sector is unable to keep up with the myriad decisions and managerial challenges associated with the acceleration of investments at a time when the infrastructure business is becoming more complex. The state is also under increasing pressure to focus more resources (both financial and managerial) on social sectors. Many countries see private participation in infrastructure as the only way to alleviate the overall capacity constraint to greater investment in a high growth environment. The managerial and technological capacity associated with private investment, particularly foreign direct investment, is particularly relevant in this context. The foreign strategic and institutional investors also have a much stronger capacity to handle risks because of their broader experience, their diversification of portfolios and the pooling of risks across a number of countries.

And, third, there is a simultaneous recognition that *for countries to compete in the global market place, they must raise the efficiency and quality of their infrastructure.* Many surveys of international companies have indicated that the quality and cost of infrastructure is one of the primary considerations as to where to locate new investments. To compete for FDI, to facilitate exports, and more generally to improve their competitiveness, most countries in East Asia recognize an urgent need to improve the quality and variety of infrastructure services. Many countries see greater involvement of the private sector within a competitive environment as a tool to improve efficiency (both of investments and of operations) since private companies are seen as better at assessing market needs and managing risks. In political economy terms, privately provided services are also seen as better able to charge market prices. Elimination of subsidies would moderate growth in demand as well as reduce investment needs and consumption sub-

sidies. At the same time, recent technological and regulatory developments allow introduction of competition in activities earlier considered natural monopolies (e.g. in telecommunications, power), alleviating past concerns about private monopoly power and thus weakening the rationale for maintaining public monopolies.

There is mounting evidence in and outside the region that private participation can indeed yield all of the above benefits: raise additional financial resources; provide modern management skills and technology; and improve both efficiency and quality of services. In many cases, the benefits have become visible over a relatively short period. In the Philippines, the power supply shortages which plagued the country only three years ago have disappeared, eliminating a major political issue. Private power projects were completed at significantly lower costs and in 25–30% less time than public projects; their initial operating rates are higher and costs lower. So far, the private sector has committed about $3 billion in the power sector. In countries as diverse as Argentina, Chile, Malaysia and Macau, private concessionaires of water supply projects have reduced unaccounted water from upto 50–60% of the total to 15–25% and staffing costs by as much as 30–50%. The combination of increased revenues and reduced costs has made water utilities financially viable and enabled major new investments to be funded without the need for either budget support or any significant increase in water charges. Throughout the region, involvement of the private sector and increased competition in telecommunications have led to better service, lower costs to the consumer and major expansions of networks.

Even as the private sector expands its role, however, the public sector will remain important. First, it will need to keep funding those infrastructure facilities where insufficient private capital is available or where certain opportunities are of no interest to the private sector. Investments in rural roads or infrastructure in remote areas are two examples. Simultaneously, as the shareholders of state-owned utilities, governments would need to give higher priority to their reform and/or privatization. Second, as competition increases and a mix of private and public utilities provide services to the consumers, the government's policy-making and regulatory roles would assume greater importance and require strengthening. These roles would also need to be separated from its role as the owner of state enterprises. New independent commissions or institutions may be needed to protect the public interest. There will also be a need for streamlined and more transparent procedures to select and approve private projects. Finally, governments would need to promote the new public-partnership. The exact nature of such partnerships would vary by country and by sector and also evolve over time.

IV. SOME STYLIZED FACTS AND LESSONS OF RECENT EXPERIENCES

The following discussion of some stylized facts and lessons must be introduced with two caveats. First, there are wide differences between countries and sectors; any generalizations are subject to exceptions. Second, most countries are still at very early stages of private sector involvement in infrastructure. While there is widespread interest in attracting the private sector, and discussions are underway on a large number of projects involving most countries in the region and encompassing all sectors, the number of projects under actual implementation is relatively small. Those under operations are even more limited.

Experience in East Asia vs. Latin America. Countries in East Asia and Latin America have made the most progress and have the most potential in developing private infrastructure. Therefore, even though this paper is focussed on East Asia, it is instructive to start with an overview of the initial experience in the two regions. With some exceptions, there is a major difference between Latin America and East Asia in how countries have attempted to introduce the private sector to infrastructure. *Many countries in Latin America—Chile, Argentina, Peru and recently Mexico—have started by privatizing public monopolies* through outright sale to foreign or domestic companies, by selling a significant share of equity in capital markets and/or by inviting the private sector to take over management on a long-term lease or concession. This is most common in telecommunications, airlines and power. In many cases it is also underway for ports, water supply and sewerage systems. *In East Asia, by contrast, initial attempts to attract the private sector have focussed on helping private investment to build new capacity.* In very few cases were the existing public utilities, or assets, offered for sale to the private sector as the first step. The following factors appear to explain the difference.

First, the technical performance of the East Asian utilities in fields most suitable for early privatization (e.g., power companies) has been satisfactory, unlike Latin America where the performance and efficiency of almost all public utilities was widely seen as very poor. Therefore, while in Latin America privatization was seen as a necessary initial instrument to improve the performance of existing utilities, there were no such urgent pressures in much of East Asia (the Philippines and Indochina are exceptions). Second, countries in Latin America sought proceeds from privatization as a vehicle to close fiscal deficits and reduce foreign debt. For most East Asian countries this was not a major consideration. Third, in Latin America privatization is an important ideological element of economic reforms because of widespread economic distress and the resultant general dissatisfaction with the past performance of the state. By comparison, East Asia has enjoyed economic stability and robust growth; there was no constituency for a drastic break with the past. Fourth, because of its high economic growth, East Asia needed to increase investment and decided to tap private resources to develop some of the new capacity. In much of Latin America, the main challenge was how to improve the use of existing (often excess) capacity. Perhaps for the same reasons, many Latin American countries have been more innovative in sectors such as water supply and waste management. And, finally, in Latin America, the relative borrowing costs of the public and private sector have shifted significantly in the past 20 years. First, as the international capital markets "discovered" the region in its efforts to recycle the petro dollars, public borrowing costs dropped leading to a much increased role of the state. More recently, after the debt crisis hit, the private sector was able to borrow more cheaply than the public sector.

However, these differences between the two regions must not be exaggerated. *The two approaches are starting to converge.* In Latin America, with the resumption of economic growth, efforts are now underway to attract private investment in new, independently-owned infra-

structure projects. In East Asia some of the existing public utilities (e.g. in Singapore, Thailand, the Philippines) are now slated for privatization as the governments have decided to reduce their direct role in commercial activities.

Sectoral Differences: *There are also major differences between sectors in terms of the extent of private sector interest and the instruments used in its participation.* These differences are explained by technology, industry structure and financial returns. Generally, telecommunications is one of the first sectors to attract private investment. The main reasons are: rapid technology breakthroughs that permit very high return-to-risk ratios; high market growth potential due to unmet demand; willingness of consumers to pay; relatively short payoff period; and potential for revenues in foreign currency to help meet financial obligations. Because of these attractive industry characteristics and aggressive marketing by suppliers, governments normally have been able to attract private capital without providing significant sovereign guarantees (e.g. guaranteed returns). It has been enough to open entry to foreign companies; many countries have started with either overseas communications and/or domestic value-added services. In Thailand, though, a BOT scheme is being used successfully to expand telephone services to rural areas, and in the Philippines, the main telephone company is already private. Indonesia has just succeeded in attracting much private investment by inviting private companies to participate in and manage regional telecommunications companies created by breaking the single national company.

Like telecommunications, the power sector has proven to be an early candidate for infusion of private capital and management, again due to limited market risks. But the methods used are quite different because of industry structure. In most East Asian countries, pending far-reaching institutional reforms and/or privatization of state owned power companies, the private sector has been invited to invest in independent power projects, often under BOT arrangements. The private sponsors finance, implement and operate power plants, with the state owned public utility undertaking to buy power under a take or pay contract. Under most early agreements, the private sponsors have borne only limited risks; the public utility and government have ended up bearing most commercial, sovereign and convertibility risks. However, there is an evolution in the way power purchase agreements are framed. Initial projects derived tariffs on the basis of a minimum rate of return (e.g., a cost plus arrangements) giving little incentive to promoters to minimize costs. Some recent projects in countries such as the Philippines have been awarded on the basis of the lowest tariff price without limiting return on investment, thereby giving incentives to the promoters to minimize costs both during construction and operations.

The private sector has also started to invest in water supply and treatment projects, and highways, container ports, tunnels and bridges, again mainly on a BOT basis, but in a more limited way than with power projects. In response to the initial positive experience with the water supply and sanitation projects (Malaysia, Macau), there is a rising interest in them throughout the region. In these sectors, instruments other than BOT are under active consideration; of particular interest are long-term leases or concessions under which private sponsors undertake to manage and upgrade facilities without assuming formal ownership. While substantial investments in highway projects in Malaysia, Thailand, Indonesia and China have been made, the total number of such ventures is small. Private capital flows into other sectors is also limited. After telecommunications, power and water supply, ports and airports may offer more financially viable projects than other transport (e.g. roads) sectors. In the latter sectors, the state would need to provide direct or indirect financial support (e.g. free land, land development rights, assignment of revenues from existing state-owned assets) to assure financial viability and attract private financing.

Infrastructure Finance: *Most privately funded infrastructure projects are being financed through limited or non-recourse project finance techniques,* e.g., the lenders do not have recourse to the assets of the parent companies and instead rely primarily on the cash flows generated by the project. This reduces the risk borne by the parent companies of project promoters, allowing greater financial leveraging and imposing discipline on everyone involved to make the project financially viable on

its own. But it also has two other implications. One, it makes project structuring and negotiations more complex, time-consuming and costly. Two, it puts a premium on risk mitigation. This in turn results in project sponsors asking the government and/or its organs to help mitigate both commercial and sovereign risks. The complex formulation of most agreements is a direct consequence of this financing technique.

Equity financing appears plentiful for financially viable projects in East Asia. The main advantages of private equity over debt are two fold: it does not lead to an increase in fixed debt service obligations of a country and it brings private management skills to manage risks. There are four major sources of equity finance for infrastructure projects. First are the international or regional project promoters, which include large investors, contractors and equipment suppliers. Second more selectively and on a smaller scale are the domestic investors who identify project possibilities and link up with international companies and financiers to structure the projects. Third, are a number of large infrastructure funds that have raised money from institutional investors and which aim to take substantial equity interest in infrastructure projects without playing an active role in project promotion or management. The three or four large and a number of smaller infrastructure funds aimed at East Asia have so far been able to invest only a small part of some $3 billion or so at their disposal. And, fourth, are public equity markets—both domestic and international—that some (telecommunications) projects have tapped. Most of those involved agree that right now equity funds are more plentiful than projects reaching financial closure. However, to obtain the desired attractive returns on equity, project sponsors leverage it with significant amounts of debt financing on reasonable terms and, therefore, in a typical project pure equity would not exceed one-third or one-fourth of total financing. Also, while project promoters and others are willing to put equity funds on the table first, such offers do not become actual investment until full financial closure of the project.

In terms of debt financing, *commercial bank lending is not yet the major source of funding.* This may be because international money center banks are still reluctant to increase their exposure in many countries and because the terms of their loans are not suitable for financing most infrastructure projects, which require long-term (15–20 year maturity) term. So far, most private projects have relied primarily on suppliers or export credits. Attempts are underway to tap bond markets, which would yield both longer maturity and lower interest rates than commercial bank loans (stretching of loan maturity from 10 years to 20 years would reduce tariff levels by about 1.5 cents/kwh equivalent to about one-fifth of the total tariff). Overall, lack of appropriate term financing is seen as a binding constraint to the finalization of more privately funded projects.

Cost of Private Finance vs. Sovereign Debt: *The average nominal cost of private financing—equity and debt) is clearly higher than the cost of sovereign debt.* Thus, purely in financial terms and everything else being the same, the cost of privately financed projects, would be higher than those funded through public or publicly guaranteed money. But *there are three offsetting reasons why privately funded projects may still be more attractive in economic terms.* First, is the difference in risk sharing. In a typical public sector project, the state assumes most of the associated risks. On the other hand, in a well structured private sector project, the sponsors assume the project completion and commercial risks. To the extent that private financing can be associated with the government offloading important risks to the private sector, the "economic" (or risk weighted) cost of private financing would be lower than that suggested by a straight comparison of nominal rates. Second, there are often substantial efficiency gains (in terms of project costs and higher operating efficiency) that may more than offset the higher cost of financing. Initial experience with private power projects boath in East Asia and Latin America confirms that sponsors are able to implement them at lower cost and on a shorter schedule than public projects. And, third, perhaps even more importantly, many countries need to and would like to limit sovereign debt as a matter of policy. They can not afford to take on billions of dollars of additional sovereign debt to finance infrastructure.

Competition Between Countries: Recent East Asian experience suggests *that countries are being compelled*

to compete with each other to attract quality investors into infrastructure. To yield expected results, infrastructure projects must be designed, implemented and managed by sponsors who are technically competent, managerially strong, possess substantial financial strength, and see investments in developing countries as a long-term commitment. There are a limited number of sponsors (or possible consortia) who meet all these criteria. In the short-term, there are limits to how many large projects each of them can undertake. High quality sponsors like the fact that they have a choice between countries. They are tending to concentrate on countries they find easiest to work in, not only in terms of negotiating contracts, but also in the speed and transparency with which decisions are made. For example, despite its relatively small size, the Philippines has succeeded in closing many more projects than China or Indonesia. Just as private enterprises compete for business in a country, so countries are competing with each other. A country can strengthen its negotiating position by learning from the successes and failures of other countries.

Overall Progress: The overriding conclusion of this review of the recent experience is that in most cases, *the original high expectations of the host countries and of private sponsors have not yet been met.* To summarize: many privately sponsored projects are underway or at an advanced stage of negotiation. But, with the exception of Malaysia (and power projects in the Philippines), only a fraction of projects for which memoranda of understanding have been signed have been implemented. Given the region's needs and potential, and the extent of global private capital flows, the size of private investment in infrastructure it is attracting remains miniscule. While in the past year the pace of investments has increased, overall the results fall well short of the expectations. Neither the governments nor private sector are satisfied with progress.

V. CRITICAL CONSTRAINTS TO ENHANCED PRIVATE PARTICIPATION AND POSSIBLE REMEDIES

During the past year, World Bank staff have analyzed the reasons for the slow progress in enhancing private participation. This involved a combination of: country and specific work; extensive consultations with the private sector; and global policy and sector research work, including the preparation of the 1994 World Development Report which focussed on infrastructure. Country level work—covering sectors such as power, water supply and sanitation, transport and in some countries telecommunications—has been completed or underway for all major developing countries in East Asia. Country-specific roundtables and meetings that brought together the public officials and the private sector to discuss the issues identified have been held in China, Indonesia, the Philippines and Thailand. In addition, discussions were held at a number of regional forums including a major conference on Asian Bond Markets held in Hong Kong.

The Bank also commissioned a consulting firm with extensive contacts in the private sector to conduct a survey of the major private players within and outside the region. The objective was to obtain their perspectives on the major issues and constraints in developing and implementing infrastructure projects in East Asia. Personal interviews were conducted with more than 500 senior executives in some 200 private entities, including developers, suppliers, investment and commercial banks, equity funds, institutional investors, and rating agencies. The consultants and Bank staff visited China, Indonesia, Korea, Thailand, the Philippines, Vietnam, Hong Kong, Japan and North America. Executives were asked to identify project specific and country-wide issues, then rank them in importance.

These consultations identified the following seven major constraints and issues that are common to most countries of the region. By addressing these issues, countries would be *much better equipped to meet the twin objectives of increasing private capital flows into infrastructure and of achieving greater efficiency and transparency.*

A. Gap in Expectations and Perceptions of Risks

One basic reason for protracted negotiations and frustrations on all sides is *misunderstanding about the degree of perceived and real risks* in a particular project; who should bear these risks; and what returns are reasonable. Host countries tend to perceive much lower risks than do sponsors and lenders in the private sector. They also tend to compare the rate of return (or tariff) demanded by the private sponsors with the usually modest returns allowed to the local public utility, e.g., 10–12% and with existing tariffs paid by the consumers, which are often subsidized. In many cases, countries expect companies to accept uncertainties about future sector and regulatory policies, and to conform to government decisions in the key technical and managerial areas which private companies normally consider to be their areas of competence and responsibility. Private sponsors, on the other hand, typically sought high risk premiums. Particularly in the first few ventures they normally start negotiating by demanding very high returns, while wanting to leave as many of the risks to the country as possible. Such a negotiating position is driven not only by their desire to maximize the return to risk ratio, but also by demands from their potential lenders (e.g. banks, credit rating agencies) who wish to minimize their own risk exposure. The weak financial position of some public utilities who purchase the output is another major concern. As initial project agreements are finalized and their terms become familiar, so there has been greater understanding of what the market will bear. As a result, in many countries, negotiations on the second generation of projects are starting with a more realistic position on both sides.

B. Government Objectives, Commitment and Processes

Another fundamental constraint in many countries is the lack of clarity about the government's objectives and commitment, and the complex decision-making processes. This has often discouraged private participation. It has also led to excessive transaction costs and risks for the private sector.

Private participation is justified on two fundamental and interrelated considerations: to raise additional financial and managerial resources; and to improve the efficiency and quality of services. In most countries, however, private participation has so far been seen primarily as the means to raise additional financial resources in order to overcome budget constraints. Insufficient emphasis has been given to the efficiency objective. As a result, the private sector has been seen as an additional supplier or sub-contractor (e.g. BOT approach) to the existing public sector utilities, instead of as a new competitor supplying services directly to the consumer. *Not enough attention has been paid to increasing competition, reforming existing public monopolies, and making fundamental reforms in the sector policies and structure and in the legal and regulatory systems.* It is important that countries lend equal emphasis to the financing and efficiency objectives and undertake the reforms necessary to achieve this. Unless these reforms are put in place, it will not be possible to attract and sustain private investment at the scale necessary.

There is a direct relationship between the degree of government commitment at the top and of the clarity of its objectives, and the success a country has in attracting private investment in infrastructure—perhaps even more so than is the case in manufacturing, because of the large size and long gestation of such projects. Malaysia and the Philippines are believed to have done much better than other, potentially more attractive larger countries in the region, because private investors, as well as all relevant parties within the country, are persuaded that the top political and government figures are fully committed to the objective of enhancing the role of the private sector. This clear commitment translates into more timely actions to remove any formal (policy or legal) constraints to private participation through faster government decisions and decrees. Equally important, it helps to overcome the natural resistance to change of the bureaucracy and existing public monopolies. Without clear, consistent and public support from the highest levels of the government, efforts to attract private investment are often bogged down in seemingly endless studies and negotiations. Transactions that ultimately result are often expensive. In many countries, progress has been painfully slow because of the lack of clear commitment at the top, or by confusing signals (or, worse, conflicting decisions) from different government bodies.

Feedback from the private sector consistently underscores the *critical importance of streamlining government processes to facilitate private participation.* Nearly all private parties expressed frustration with the complex, slow and often unclear ways in which governments make decisions. In many cases, not all concerned government agencies have the same attitude towards private sector and sometimes lower echelons in the public sector are not committed to implementing official government policy. Even the strongest commitment at the top would not yield results unless clear lines of authority and streamlined processes are established to speed decisions. Countries that have moved the farthest and fastest have found ways to streamline government decision-making. Some have designated a senior group - at ministerial level with direct access to the head of government—to take charge of the process and make final decisions on behalf of the entire government.

C. Sector Policies and Legal and Regulatory Framework

Lack of appropriate sector policies and a transparent, stable and credible legal and regulatory framework is the next critical barrier to attracting - and sustaining - substantial private investment. Indeed, such a framework is a pre-requisite for the country to capture efficiency gains associated with competition and private sector management. There is growing evidence that such a framework can indeed help to reduce perceived and real risks or uncertainties. It sharpens competition, achieves better terms for the country, reduces transaction costs and shortens the time needed for reaching decisions on indi-

vidual proposals. Many countries (Indonesia, the Philippines, China) have found it necessary to start the first few projects in the absence of a comprehensive framework, and to set the rules of the game through detailed contracts. However, such an approach is inefficient, if not unworkable over the long term. Countries are finding it difficult to move forward with a larger number of projects not only because such an approach is time-consuming but, more importantly, because sponsors are demanding high returns in the absence of a clear policy and institutional framework. On the other hand, the Philippines which has had a well-developed legal system and which put in place an appropriate policy framework in the power sector after the first few transactions were concluded, has seen a surge in interest from sponsors despite its smaller market size and lower country credit rating. In general, *countries over the longer term should aim to guarantee their policy and regulatory regime, and not individual projects.*

Another basic issue needing priority attention in most countries concerns *pricing of infrastructure services*. Obviously, the basic reason for price reform is to promote economic efficiency. But pricing reforms are also essential to make infrastructure projects "bankable" and to attract private investment on a sustained basis. Greater self-financing resulting from higher tariffs also reduces the need for outside financing. Unlike the prices of tradeable goods, prices of infrastructure services are normally below economic costs in most countries. Yet only when producer prices reflect real costs can privately sponsored infrastructure projects become financially viable on their own. To assume commercial risks, sponsors require reasonable assurances on future pricing policies. Otherwise, most of the risks associated with individual projects are left with the public sector, which negates one of the primary benefits of involving private investors.

In the absence of broader sectoral reforms, BOTs are seen as a practical instrument to attract the private sector and introduce competition in areas such as power generation. But *BOTs involving state entities as buyers are a transitional instrument because they require the state to assume directly or indirectly many of the commercial risks.* The commercial risks can be borne by private parties only when sponsors are allowed to deal directly with consumers. In sectors such as telecommunications and power, the objective should be to go beyond project formulations that require the state to bear commercial risks and instead move towards a more competitive industry sector.

In both East Asia and Latin America, some countries have started on deregulation reform and/or privatization of public monopolies and/or privatization. To create competition, infrastructure activities have been unbundled in many cases; for example, in power, Chile and the Philippines have decided to separate generation, transmission and distribution, which permits a number of independent operators in generation and distribution to buy and sell to each other. Under such an institutional model, proven in the U.S. and the U.K., private companies can assume all project and commercial risks in the presence of an appropriate legal and regulatory framework. Over the longer term, such a model is much more preferable than the BOT type schemes. Other countries such as Indonesia and Thailand are also considering the use of this model. Admittedly, this model is more appropriate for some sectors (e.g., power) and much less for others (e.g., transport and water supply, where leases and concessions may be more appropriate for now). In any case, it is important to conceive initial private sector entry through mechanisms such as BOTs or concessions within the framework of a longer term strategy for the sector. The objective is to enable independent—private or public—service providers, whenever possible, to assume commercial risks and raise financing directly from domestic and international capital markets with no or very limited sovereign guarantees.

D. Unbundling, Mitigation and Managing of Risks

Unbundling, mitigation and management of risks is one of the primary issues in nearly all countries and projects. As mentioned, the backing demanded from the state by new foreign investors is often considered unreasonable by the governments. Indeed, to get initial projects started, many governments in the region have assumed most of the risks, including commercial ones which the private sector normally assumes in market economies. As a result, most countries have assumed contingent liabilities (obligations under guarantees against both commercial and sovereign risks) which are unsustainable.

For many more private projects to proceed on a more sustainable basis, it is necessary to reduce both the perception and the reality of risk, and to unbundle the various risks so as to determine which participant is best placed to manage which risk at the lowest cost and how the cost of risk mitigation can be shared equitably.

The best way to manage or reduce uncertainties and risks associated with a project is to put in place an appropriate policy, legal and regulatory framework as proposed above. A complementary need is to agree on mutually acceptable mechanisms, including neutral arbitration procedures, for enforcement of contractual obligations. In addition, for sponsors to assume the commercial risks, they must be allowed to make their own decisions on the technical and managerial aspects of the equipment needed for the project (instead of the current situation in many countries, where government entities prefer to dictate decisions on plant size, location, technology, local participation, implementation arrangements, and so on, as used to be done for projects under public monopolies).

The basic approach to risk management should be based on the principle that the party best able to manage a risk at least cost should mitigate it. The private sector—sponsors, financiers, insurance companies) should be asked to bear commercial and managerial risks whenever possible. But, in the case of country and policy risks (e.g. currency transfer, policy performance), it may be more economic if the public sector assumes them. An early definition of a framework for risk mitigation at the country and sector level will go a long way to encourage a realistic perception of what lies ahead. As risks are mitigated and shared more equitably between the parties, the private sector should be more willing to accept lower returns and assume more risks (commercial risks) than in the past. However, as mentioned, as long as the private sector is involved in take or pay contracts or BOT-type projects, the risk related to the estimation of demand would stay with the public sector.

Significant differences exist between sectors as to which participant (e.g. entrepreneur, financier, the consumer, public utility, government) is best placed to manage a particular risk. An independent telecommunications company is able to assume nearly all project completion and commercial risks and may require assurances from the government only on its future ability to repatriate capital to overseas investors and lenders and that tariffs will be adjusted in a timely and acceptable manner. An independent power producer typically wants several additional assurances such as that the local utility will be able to honor its obligations under the take-or-pay contract and that the fuel will be available etc. Toll highway and bridge projects typically have required even more assurances from the state (e.g. land acquisition, assignment of revenues from existing facilities). In short, what is legitimately accepted as a commercial risk in one sector may become a sovereign or country risk in another. In the absence of a proper framework, however, this argument can be carried too far. Under a case-by-case approach, arguing that each project is unique, sponsors of individual ventures can try to negotiate mitigation of each and every risk by the state. To avoid that and to increase transparency and competition, attempts are being made in a few countries to develop "templates" for each major sector, clarifying ahead of bid competition as to who will mitigate what risks and how. This way, all potential participants in a given sector would be treated equally and would know the rules of the game before submitting proposals.

E. Domestic Capital Markets

Privately financed infrastructure projects need well developed domestic capital markets and provide an opportunity to develop them. Infrastructure investments needs are massive. But most such investments generate revenues in domestic currency. Except in sectors such as power and telecommunications, most of the costs are also in domestic currency. Over the long term, it would not be sustainable to finance these investments primarily by foreign obligations, even though an argument can be made that additional infrastructure investments would raise the overall efficiency of the economy and thus its capacity to earn foreign exchange. *There is both the scope and the need to develop financial instruments and the market infrastructure to tap domestic capital markets* to finance infrastructure projects.

The long term objective should be to let domestic private capital markets directly finance projects sponsored by

autonomous and financially viable enterprises, both public and private, without recourse to government guarantees. The bulk of infrastructure investments world-wide are made from domestic savings, mainly by using financial instruments (e.g. bonds, convertible securities, private placements etc.) that provide long-term debt financing through securitization of future cash flows. A few countries in East Asia are trying to develop such instruments, which would provide higher yield investment opportunities to a broad base of institutional investors (e.g. pension and provident funds, insurance companies). Malaysia and Thailand have reached a stage where domestic institutional investors (public and private) and domestic capital markets more generally are becoming an important source of financing for infrastructure; all of the financing for the Malaysian North-South Expressway and most of the financing for the Thailand Rural Telecommunication project was raised from domestic private or non-budgetary sources. But in most countries in the region, domestic private markets are not yet capable of supplying much long-term financing—especially debt financing. For such countries, foreign private investments and debt would be the primary source to supplement state resources in the immediate future. At the same time, the availability of infrastructure loans and bonds could help drive the desired development of domestic capital markets.

F. Mechanisms to Provide Long-Term Debt

Lack of appropriate term financing is widely considered a binding constraint. Because of the nature of their assets, most infrastructure projects require long maturity—15 to 20 years—debt financing. In developed countries, infrastructure projects and utilities raise such financing from institutional investors (e.g., insurance companies, pension funds, endowments), either through public bond markets or through direct placements. These sources have billions of dollars at their disposal and prefer to invest most of them in fixed-income long-term, but liquid, assets. Many large international institutional investors are interested in diversifying their portfolios by investing a small proportion of their resources in emerging markets, particularly those in East Asia. Even after adjusting for the premiums they would expect from their initial investments in emerging markets, this potential source of term financing could offer major advantages over other sources of private debt: the maturity period would be much longer; the interest rate would be fixed and often more attractive; the potential size of funds would be much larger; and the instruments used to attract international institutional investors would also help to develop domestic capital markets.

Since institutional investors buy fixed-income, long-maturity securities which do not have a major upside potential (except for capital gains through trading), they are much more anxious to seek protection against downside risks than equity investors. The best terms are available for securities and projects deemed investment grade by the international rating agencies. But even for private placements of non-investment grade securities (private placements are possible for both investment and non-investment grade paper), investors seek tight risk mitigation and rigorous credit analysis. Consultations with investment banks, rating agencies and institutional investors suggest that it may be feasible to obtain such funds for financially viable and well structured projects, provided they can feel comfortable with the so-called "country policy performance" and transfer (convertibility) risks. For many countries, some potential lenders would prefer such comfort to involve a multilateral institution such as the World Bank during the transition period. There is a need to develop a variety of mechanisms—at the multiple as well as at individual project levels—or institutions to offer the guarantees to cover country (but not commercial) risks.

One emerging concern about the BOT or any other project-by-project financing approach is the relatively high transaction cost (up to $5–10 million per project for bid preparation, etc. plus the cost of raising finance). In countries with a steady flow of private infrastructure projects, there may be opportunities to reduce these up-front costs. Ideas to reduce costs associated with bidding and government decision-making are discussed separately. With financing costs, some countries such as the Philippines are considering the creation of "debt funds" to reduce transaction costs and increase the overall flow of long-term debt financing. The basic idea is to have a privately controlled and managed institution that would raise funds from institutional investors worldwide and invest in a variety of commercially viable

infrastructure projects rated high by the market. Through economies of scale and pooling of risks, such funds are expected to provide financing to individual (non-mega) projects at lower costs. However, such funds are likely to be efficient only in countries with potential for a significant number of private projects.

G. Transparency, Competition and Transaction Costs

In most countries, *initial projects were handled on a transaction by transaction basis*. Most of the transactions did not involve open competition and resulted from unsolicited offers; the resultant agreements are generally on a cost plus or a minimum rate of return basis. There were no real alternatives. But such agreements also led to a lack of transparency, high transaction costs, and occasional questions about whether the country received the best possible deal. In the second stage, governments are considering ways to increase competition and enhance the sponsors to reduce costs. For example, in the latest power projects in a few countries, authorities have the sponsors after competition and on the basis of the delivered cost of power (and not on an agreed minimum rate of return on investment). The cost of power from the latest projects in the Philippines is about 25% cheaper than the first few projects, and compares favorably with that offered for large power projects elsewhere in Asia. *Experience confirms that, with time, transaction costs can be cut, particularly through open competition.* The use of sector "templates", standard bidding documents and availability of credible and consistent planning data may be particularly useful in this context. An important added benefit of a competition-oriented approach is its greater transparency and credibility with the general public. As recent developments in a number of Asian countries have demonstrated, the importance of a competitive process to maintain transparency, attain maximum efficiency and build public confidence can not be over-emphasized.

VI. A FRAMEWORK FOR FACILITATING PRIVATE INVESTMENTS

For the necessary huge private investments in infrastructure to take place in a broad and sustainable manner, the three main parties must be satisfied. The government needs to know that the financing and efficiency objectives are met. The private sector has to be confident of earning a return consistent with risk. Equally important, the public must believe that service would be improved and that the cost is justified.

While a few projects can be financed without major changes in existing policies and institutional arrangements (e.g. through BOT type arrangements), big private investments (international and local) would only take place under the following preconditions: that private projects are "bankable" without significant government subsidies or support e.g., financial return is commensurate with risks as seen by private markets (not only by investors but capital markets); that the projects can produce services at prices the public is willing to pay; that the projects are able to raise and service their debt (both local and foreign) without special government assistance; and more generally, the private sector finds it feasible and practical to do business in the country. Accordingly, the framework for private participation should aim to: (i) improve financial viability and profits; (ii) reduce risks; (iii) increase competition and transparency; and (iv) overcome obstacles to unleashing availability of large volumes of private long-term debt on reasonable terms.

While individual country and sector conditions would vary, the overall framework for facilitating large-scale private participation in developing APEC economies would normally consist of two components. The first component relates to policies and actions necessary to promote overall economic growth and private sector development—both domestic and foreign—in all economic activities in the country. These policies and actions are a necessary but not sufficient condition for private participation in infrastructure. The second component of the framework consists of actions needed to facilitate private participation in infrastructure specifically.

Under the first category, two elements deserve particular emphasis. The first is maintenance of a stable macroeconomic environment to ensure price and exchange rate stability and permit stable and modest interest rates in real terms. For foreign investors, foreign exchange convertibility—or at least predictable availability—is also of significant importance. Fortunately, most countries in East Asia are following prudent macroeconomic policies and their internal and external balances are reasonable (except for countries in transition). They thus should be able to meet these conditions soon, except that foreign exchange convertibility remains an issue in many. The second element concerns the creation of a transparent and robust investment environment. Specifically, private sector gives priority to the presence of: a viable and robust investment code; a reasonable and predictable tax regime; an effective and credible legal and judicial system; and a credible, reliable and prompt dispute resolution mechanism.

On issues directly related to infrastructure, four areas would deserve priority in most countries: (i) formulation of overall country objectives, strategy and priorities, and reform of sector policies, and of the legal and regulatory framework to support the agreed country strategy; (ii) facilitation of projects and increased transparency of government decisions; (iii) unbundling mitigation and managing of risks; and (v) development of domestic capital markets and mobilization of private term financing from both domestic and international institutional investors. Each of these areas is briefly discussed below; the major issues and possible approaches to resolve them were discussed in Section V above.

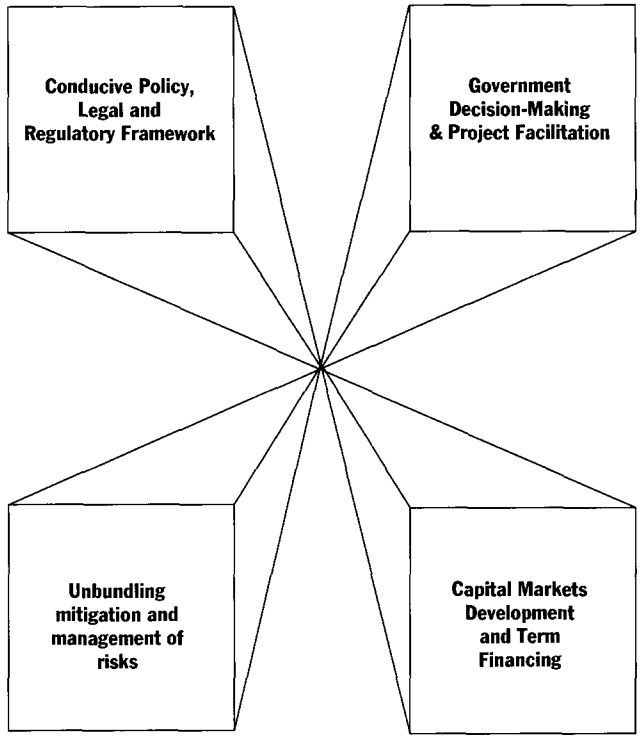
Countries which have succeeded in attracting significant private investment in infrastructure have all devel-

oped *clear objectives, priorities and strategies for this purpose*. As elaborated in paragraphs 36–39, it is crucial that a country's political and economic leadership clearly articulate the national objectives and priorities for inviting participation. This is important for ensuring that all parts of the government work towards common objectives, that the private sector is fully aware of the direction of government policy, and that the public is aware of and supports it. The twin objectives of raising additional finance and improving the efficiency and quality of services need to be equally emphasized. The governments should develop explicit strategies for each sector to show how these objectives and priorities would be achieved. Finally, as discussed, institutional responsibilities and government decision-making processes should be clarified and streamlined to reduce bureaucratic delays and transaction costs.

Creation of *conducive sector policies and institutional structure and of a robust and credible regulatory framework* is essential for enhancing private participation on a sustainable basis and for improving the efficiency of the sector as a whole. Without the necessary policy and institutional reforms at sector level, private investors would be unable or unwilling to assume commercial risks, negating the objective of limiting public sector obligations. Five areas deserve special attention: (i) clear and publicly known policy and strategy to unbundle the sectors and to create contestable markets wherever possible, to open entry to private parties and to create equitable competition between all parties; (ii) clear policies to break public monopolies and reform and/or privatize public utilities; (iii) reasonable and clear pricing policies; (iv) clear and predictable regulatory framework; and (v) development of independent regulatory bodies.

Transparent and competitive mechanisms to approve private projects and preparatory measures by public agencies to reduce the costs and risks involved in bid preparation are particularly important for large infrastructure costs. They increase competition, can lead to significantly reduced costs and are essential to gain necessary public support and credibility. Normally, three complementary steps are required. First, promulgation of transparent and competitive selection procedures based on bid evaluation criteria that are well understood and credible

Framework for Facilitating Private Participation: Response in Four Complementary Areas



(e.g., price of service to be delivered, full conformity with environmental standards). Second, prior to bid invitation, adequate strategic sector planning and project preparation work (pre-feasibility studies) must be done to define the project scope and choices in sufficient detail to allow potential bidders to prepare comparable offers at reasonable costs. And, third, facilitation assistance is required in areas such as obtaining the right of way where the public sector has significant competitive advantage.

Definition of government policies and institutional mechanisms for *unbundling, sharing and management of risks* that are applicable to all potential entrants in a sector are seen as important by project sponsors and capital markets alike. They are also important for the involvement of multilateral development banks. The issues that need to be clarified in this context were discussed in paragraphs 44–47.

Finally, *development of domestic capital markets and of mechanisms to facilitate provision of long-term debt require priority attention in most countries.* Indeed, without sufficient progress in these areas, significant private investments in infrastructure cannot be sustained. Development of domestic capital markets is important for the economy as a whole. Creation of fixed-income securities and bond markets specifically is crucial for private infrastructure projects. Without sustained cooperation between governments and the private sector, this binding constraint to private investment would not be alleviated. As the recent World Bank sponsored conference on Asian Bond markets indicated, there is plenty of interest from the private sector in helping to develop national and regional bond markets. As in the case of other areas discussed above, the specific issues to be examined and actions needed to develop domestic capital markets and to attract international institutional investors would depend very much on country individual circumstances. At the same time, cross-county cooperation and coordination in a few selected areas is likely to yield particularly rich dividends. In addition, OECD countries could assist in facilitating greater flow of capital from international institutional investors. Availability of guarantees from OECD countries and from multilateral institutions could also be important.

Most of the actions needed to enhance private participation is country and even sector specific. Such actions can only be taken by individual developing countries according to their national policies and strategies after consultations with the private sector. As most developing economies in the region face similar challenges, there is considerable merit in learning from each other's experience. Regional sharing of information, cooperation and collaboration could also yield considerable benefit by creating synergies from parallel or complementary actions taken in the same policy areas. However, it may be prudent to initiate such regional cooperation cautiously by undertaking a limited number of relatively low-cost but high-reward steps first.

In parallel, OECD members can take a number of steps that would have a beneficial effect on private investment in the developing economies of the region. First, in the event of developing economies succeed in attracting much greater private participation, many of the export credit agencies may need increased resources. OECD countries can assist by ensuring that their export credit agencies and other relevant public agencies would continue to have adequate capacity to provide long-term debt financing to eligible projects. Second, they could provide a larger volume of guarantees against political risks to viable private investment. Third, they need to remove some existing regulatory barriers or other disincentives to investment by the private sector—including institutional investors—in East Asian infrastructure. Fourth, they could provide more resources for technical assistance to the developing economies for policy and institutional development. Indirectly, by maintaining stable interest rate and exchange rate policies, they would encourage economic growth, financial stability and private investment in the region as a whole.

All members of the World Bank Group—IFC, MIGA, FIAS and IBRD—are expanding their efforts to facilitate and promote private investment in infrastructure. The Bank Group has: increased its support to individual countries for the development of the framework for private participation; expanded its dialogue with the private sector; is making a greater use of the new financial instruments and institutions designed to support private infrastructure (e.g., guarantees, single currency loans, infrastructure funds); and is providing more intensive technical assistance for institutional and human development as well as greater sharing of data, information and research findings.

ANNEX

Investment in Infrastructure: Past Trends and Future Requirements[1]

Economic Growth and Infrastructure Needs[2]

1. Over the past quarter century, East Asia[3] has been the fastest growing region in the world. The region's per capita income has nearly quadrupled with an average annual growth of 5.3 percent during 1965–90, while low- and middle-income countries as a whole (including East Asia) nearly doubled their per capita income (Figure 1).

2. This strong economic growth is expected to continue over the next decade and the developing East Asian economics are projected to grow at 7–8% per annum. To sustain this impressive economic performance, and to meet increasing demand for infrastructure services, it is crucial that East Asia address its infrastructure bottlenecks.

3. Analysis included in the World Development Report 1994 confirmed that there is a strong relation between the availability of infrastructure—telecommunications, power, paved roads, and access to safe

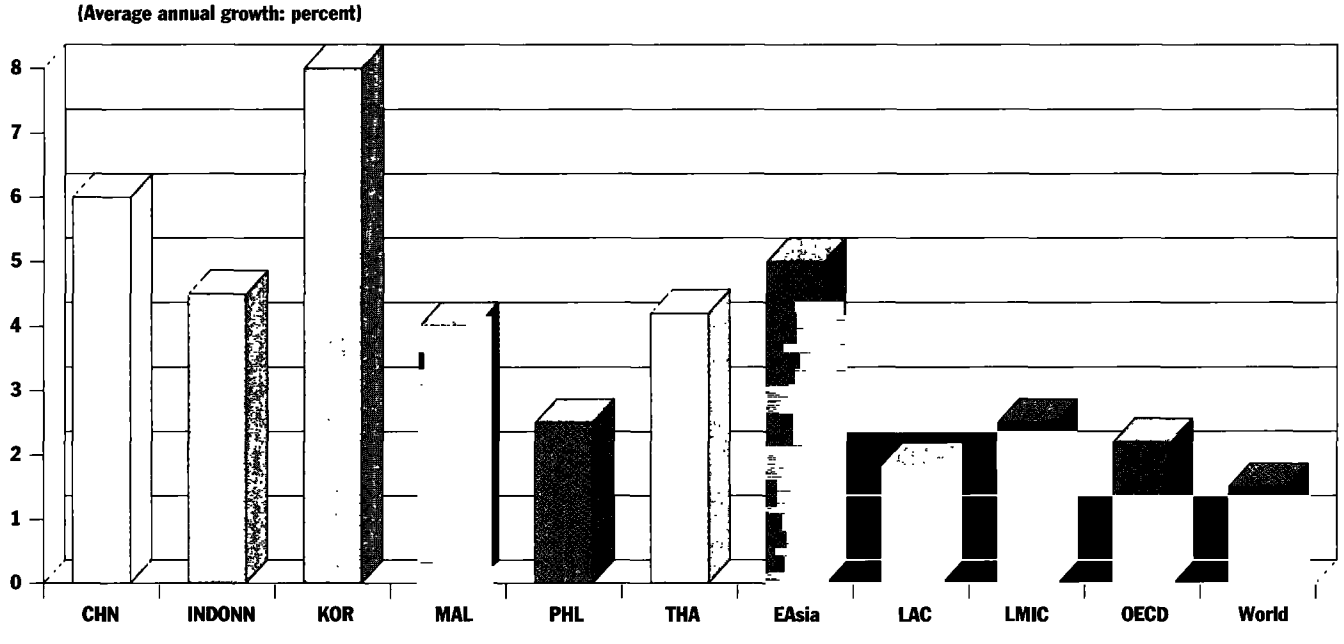
1. This annex is based on a more detailed report prepared by Mr. Kali Konduri, World Bank, in September 1994.

2. Throughout this paper infrastructure is defined to include power, telecommunications, transportation, water supply and waste disposal; irrigation and housing sub-sectors are not included.

3. Developing East Asia comprises the low- and middle-income countries of the region: China, Indonesia, Korea, Malaysia, Philippines, Thailand and Viet Nam.

Over the past quarter century, East Asia has been the fastest growing region in the world

Figure 1: Growth in GDP per capita, 1965–90



drinking water—and per capita GDP. Roughly, for every 1% growth in per capita income, countries need to increase infrastructure stock by 1% of GDP. At the same time, the composition of infrastructure stock changes significantly as incomes rise. For low-income countries, more basic infrastructure such as water, irrigation and to a lesser extent transportation are most important. As economies mature into the middle-income stage, the share of agriculture in the economy shrinks, and more transport infrastructure is needed while the proportion of investments in irrigation drops. The share of power and telecommunications in investment and infrastructure stocks becomes even greater in high-income countries.

Investment in Infrastructure: Historical Trends

4. During the 1970s, despite high gross domestic investment (GDI), East Asian investment in infrastructure averaged about 3.6% of GDP with the bulk of it (1.7%) in the transportation sector[4]. The 1980s have witnessed stronger efforts in expanding infrastructure stock with an increased investment of 4.6% of GDP.[5] Investment in the power sector averaged 2.1% of GDP, followed by transportation (1.6%), telecommunications (0.6%) and water and sanitation (0.4%) sectors (Figure 2).

5. This higher investment rate significantly expanded the infrastructure stock and services in East Asia during the period 1980–90 (Table 1).

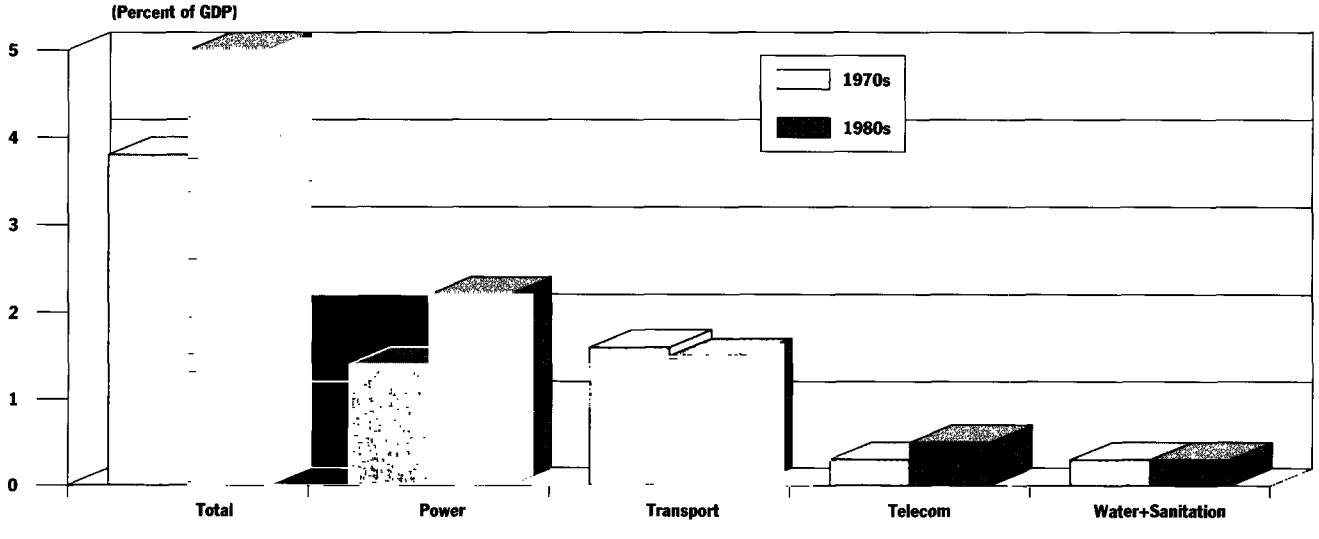
6. Since 1990, there has been a further major increase in investment. As shown in Table 2, regional investment in infrastructure jumped dramatically from $38 billion in 1990 to about $53 billion in 1992, an increase of about 40 percent. At the country level, investment trends do vary considerably—while China, Malaysia and Thailand on average have increased their public investment compared with the 1980s level, Indonesia, Korea and the Philippines reduced their investment in 1992. Complete regional data are not yet available for 1993 and 1994. Preliminary data, however,

4. For the 1970s, East Asia includes Indonesia, Malaysia, Philippines, Singapore and Thailand; data for China and Korea were not available.

5. For the 1980s, data are for China, Indonesia, Korea, Malaysia, Philippines and Thailand.

With rapid growth, East Asia has been able to increase investment in infrastructure during the 1980s.

Figure 2: East Asian Investment in Infrastructure



Source: Bank economic and sector reports and public expenditure reviews.

Infrastructure stock and services have increased dramatically in the 1980s.

Table 1: Growth in Infrastructure Stock and Services, 1980–90

(Period growth rates; percent)

					% Change in Coverage				
	Paved Roads	Elec. Gen. Capacity	Elec. Production	Telephone Main Lines	Railroad Tracks	Access to Safe Drinking Water	Access to Sanitation.	GDP	Population
China	..	105	107	64	..	..	..	132	15
Indonesia	106	312	534	184	5	11	22	72	20
Korea	120	134	197	299	38	18	..	143	12
Malaysia	36	107	143	301	7	15	24	79	29
Philippines	-20	48	46	45	-55	36	-2	17	27
Thailand	69	142	206	262	6	14	..	116	20

Source: Based on World Development Report 1992 and 1994; World Tables 1994

indicate further significant increases in investment in China (to about $39 billion), Indonesia and the Philippines. It is possible that total public investment in the region exceeded $70 billion for the first time.

7. The above figures reflect only public sector investment. There is increased private sector participation in infrastructure, and if allowance were made for private investment, regional investment in infrastructure during 1990–92 would be just over 5 percent of GDP and in 1994 possibly between 5.5–6.0%.

8. Infrastructure investment requirement is governed by several factors, particularly:

GDP Growth: Demand for infrastructure fundamentally depends on income growth. Assuming East Asia maintains its rapid growth, demand for infrastructure services will increase substantially. The structure of economy also influences investment requirements; for example, in the newly industrializing economies of Korea, Singapore and Taiwan, manufacturing has been the dominant sector. To the extent that this trend continues and the other economies in the region follow suit, major investments in power and transport sectors will be needed.

Population Growth and Urbanization: Growth in demand due to population growth can be substantial, especially in China, Indonesia, and Vietnam where present levels of urban infrastructure stock are relatively low. During the next generation, urban populations in the region is projected to increase by 1 billion people.

Current Unmet Demand: Unmet demand remains quite high in East Asia. In telecommunications, the waiting period for telephone connections is more than 10 years in the Philippines, and about 2.6 years in Indonesia in 1993. Similarly, only 69 percent of demand for access to safe drinking water and 77 percent of demand for sanitation are currently being met.

Tariff and User Fee Structures: In many countries, most infrastructure services are provided by the state and governments have tended to keep tariffs and user fees lower than their economic prices. This increases demand and investment needs. To the extent that tariff levels can be brought in line with economic prices, demand for services, and therefore, investment requirements will be lowered.

Environmental Considerations: Substantial investment will be required to upgrade existing infrastructure stock and to introduce newer and cleaner technologies to preserve and improve the environment.

9. Much uncertainty is associated with many of these factors so the projection of investment requirements that follows below should be considered only as indicative. The projections are derived from a model which correlates country specific growth rates with key factors that

A rising trend in infrastructure investment in the 1990s.

Table 2: Investment in Infrastructure, 1990–92 (US$ M)

	Power	Telecom	Transport	Water and Sanitation	Total	GDP (US$B)	Invest. as a % of GDP
1990							
China	7667	1161	5820	1382	16030	388	4.1
Indonesia	1554	2887[a]		819[c]	5260	107	4.9
Korea	3415[b]	7140[a]			10555	236	4.5
Malaysia	520	312	831	197	1860	42	4.4
Philippines	378	24	318	280	1000	44	2.3
Thailand	1695	441	1020	98	3254	80	4.1
Others[d]					1632	40	4.1
East Asia[e]	15229	11965	7489	2776	39591	937	4.2
1991							
China	7710	1463	7655	1599	18427	407	4.5
Indonesia	1458	2709[a]		768[c]	4935	116	4.3
Korea	5724[b]	7491[a]			13215	283	4.7
Malaysia	1124	392	1430	275	3221	47	6.9
Philippines	455	40	571	269	1335	45	3.0
Thailand	1878	404	1627	141	4050	93	4.4
Others[d]					1910	48	4.0
East Asia[e]	18349	12499	11283	3052	47093	1039	4.5
1992							
China	9732	2634	10100	2171	24637	484	5.1
Indonesia	1418	2635[a]		747[c]	4800	126	3.8
Korea	5999[b]	7845[a]			13844	296	4.7
Malaysia	1212	423	1542	296	3473	58	6.0
Philippines	694	16	361	216	1287	52	2.5
Thailand	2209	315	2039	217	4780	110	4.3
Others[d]					2268	57	4.0
East Asia[e]	21264	13868	14042	3647	55089	1183	4.7

a. Includes transportation and communication.
b. Includes water and sanitation.
c. ncludes irrigation.
d. Others include: Cambodia, Fiji, Kiribati, Lao PDR, Maldives, Mongolia, Myanmar, PNG, Solomon Islands, Tonga, Vanuatu, Vietnam and western Samoa.
e. East Asia is defined to include China, Indonesia, Korea, Malaysia, Philippines, Thailand and Others as defined above.

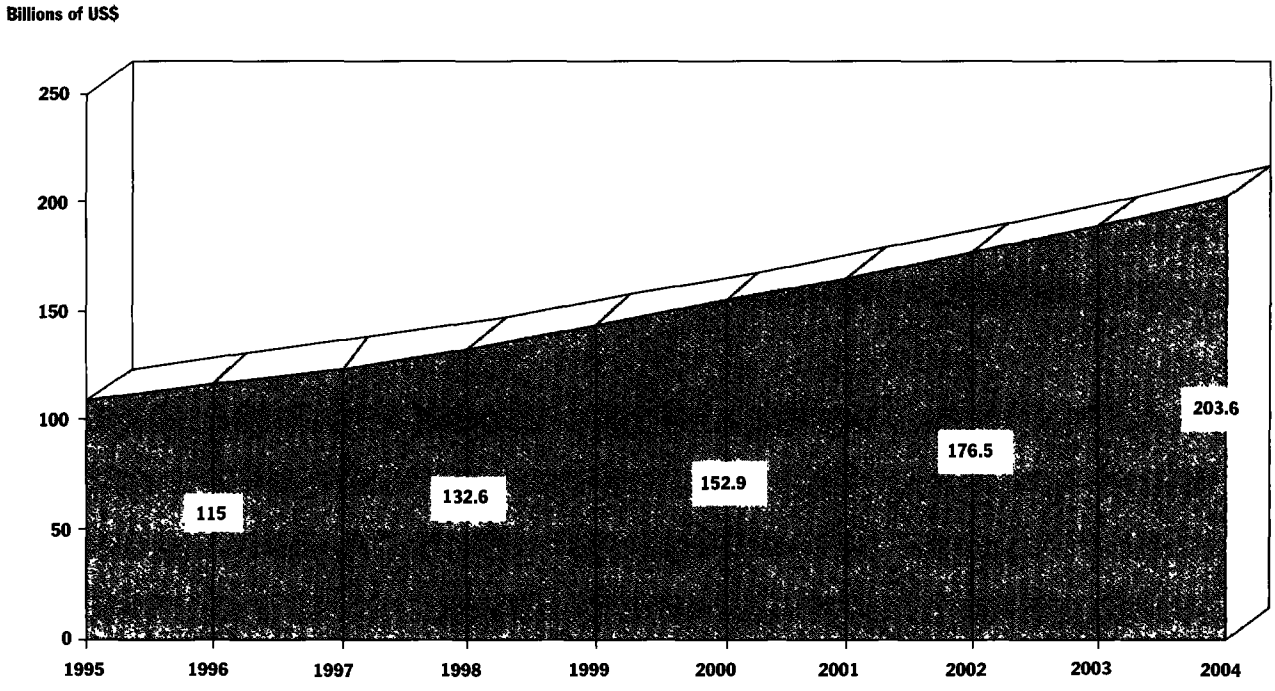
determine infrastructure investments. The macro projections were cross-checked with bottom-up estimates prepared by country and sector as part of World Bank sector work and investment program reviews. The resultant projections are similar, but generally lower than, projections by other institutions.

During the next decade, regional investment in infrastructure is estimated at well above US$1 trillion.

10. Under the baseline scenario, the estimated regional investment requirement of 6.8 percent of GDP translates into a staggering $1.5 trillion during 1995–2004. Of this, more than half is in China alone (Figure 5). While this large regional investment requirement represents a significant increase from the estimated 1994 levels of about $70–75 billion, it should be noted that estimated investment reflects demand and that the region needs to catch-up with other developing regions in

By 2004, regional infrastructure investment will have to rise to about $210 billion a year.

Figure 3: Indicative Investment Requirements, 1995–2004



terms of coverage and to narrow the gap with the industrial countries in the provision of infrastructure services. Due to supply constraints and lack of resources, the estimated requirements may not lead to the same level of actual investments.

11. Figures 4 (a) and (b) provide sectoral and country breakdowns. The largest block of the estimated level of investment is in transportation followed by power, telecommunications and water supply and sanitation.

12. To the extent that the underlying assumptions are subjective, a sensitivity analysis was also done. Table 4 illustrates the baseline scenario as well as a low case scenario. The baseline scenario incorporates the World Bank's best case GDP growth assumptions for each country, while the low case scenario assumes an across-the-board reduction in growth rate of 2 percentage points from the baseline. Under these assumptions, regional investment requirements in the low case scenario were estimated at $1.2 trillion during 1995–2004 while the baseline investment requirements were estimated at about $1.5 trillion.

13. In view of the above estimates, infrastructure investment requirements in East Asia and Pacific over 1995–2004 may fall within the range of $1.2 to $1.5 trillion.

Table 3: Indicative Investment Requirements in Infrastructure, 1995–2004

	Power		Telecom		Transport		Water and Sanitation		Total	
	US$ B	% GDP	US$ B	% GDP	US$ B	% GDP	US$ B	% GDP	US$ B	% GDP
Baseline Scenario (IEC baseline growth)										
China	200	2.0	141	1.4	302	3.0	101	1.0	744	7.4
Indonesia	82	2.9	23	0.8	62	2.2	25	0.9	192	6.8
Korea	101	2.1	32	0.7	132	2.7	4	0.1	269	5.6
Malaysia[a]	17	1.7	6	0.6	22	2.1	4	0.4	50	4.8
Philippines	19	2.7	7	1.0	18	2.5	4	0.4	48	6.8
Thailand[a]	49	2.4	29	1.4	57	2.8	10	0.5	145	7.2
Other[b]	25	3.1	18	2.2	14	1.7	4	0.5	61	7.5
East Asia[c]	493	2.2	256	1.2	607	2.7	153	0.7	1509	6.8
Low Case Scenario (GDP growth lower by 2 percentage points)										
China	150	1.7	113	1.3	265	3.0	88	1.0	616	7.0
Indonesia	73	2.9	20	0.8	56	2.2	23	0.9	172	6.8
Korea	80	1.9	26	0.6	106	2.5	3	0.1	215	5.1
Malaysia[a]	16	1.8	6	0.7	22	2.4	4	0.4	48	5.3
Philippines	16	2.6	5.5	0.9	14	2.3	2	0.3	38	6.1
Thailand[a]	38	2.2	26	1.5	52	2.9	9	0.5	125	7.1
Other[b]	18	2.5	14	1.9	13	1.8	3	0.4	48	6.7
East Asia[c]	391	2.0	211	1.1	528	2.7	132	0.7	1262	6.5

a. Estimates were available only for the public sector.

b. Others comprise Cambodia, Fiji, Kiribati, Lao PDR, Maldives, Mongolia, Myanmar, Solomon Islands, Tonga, Vanuatu, Vietnam and Western Samoa.

c. East Asia includes China, Indonesia, Korea, Malaysia, Philippines, Thailand and "Others".

The largest increases have been in the transport sector and among countries, in China.

Figure 4 (a): Investment Requirements by Sector, 1995–2004

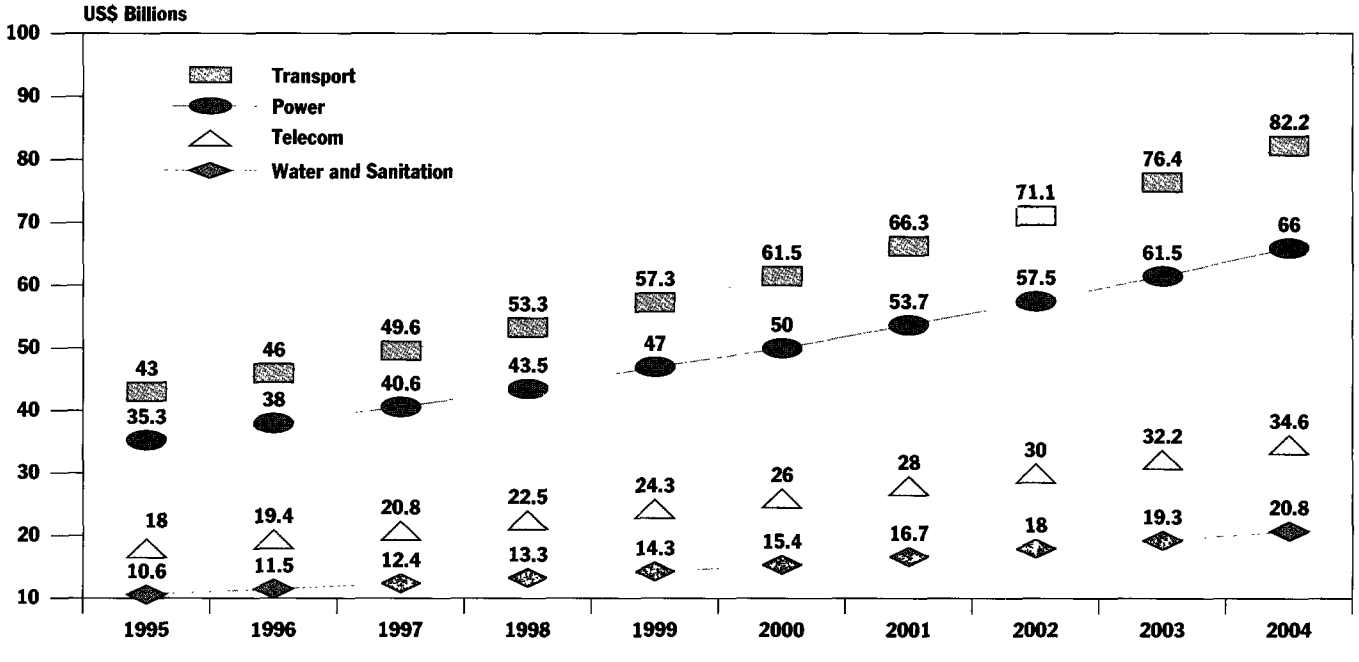
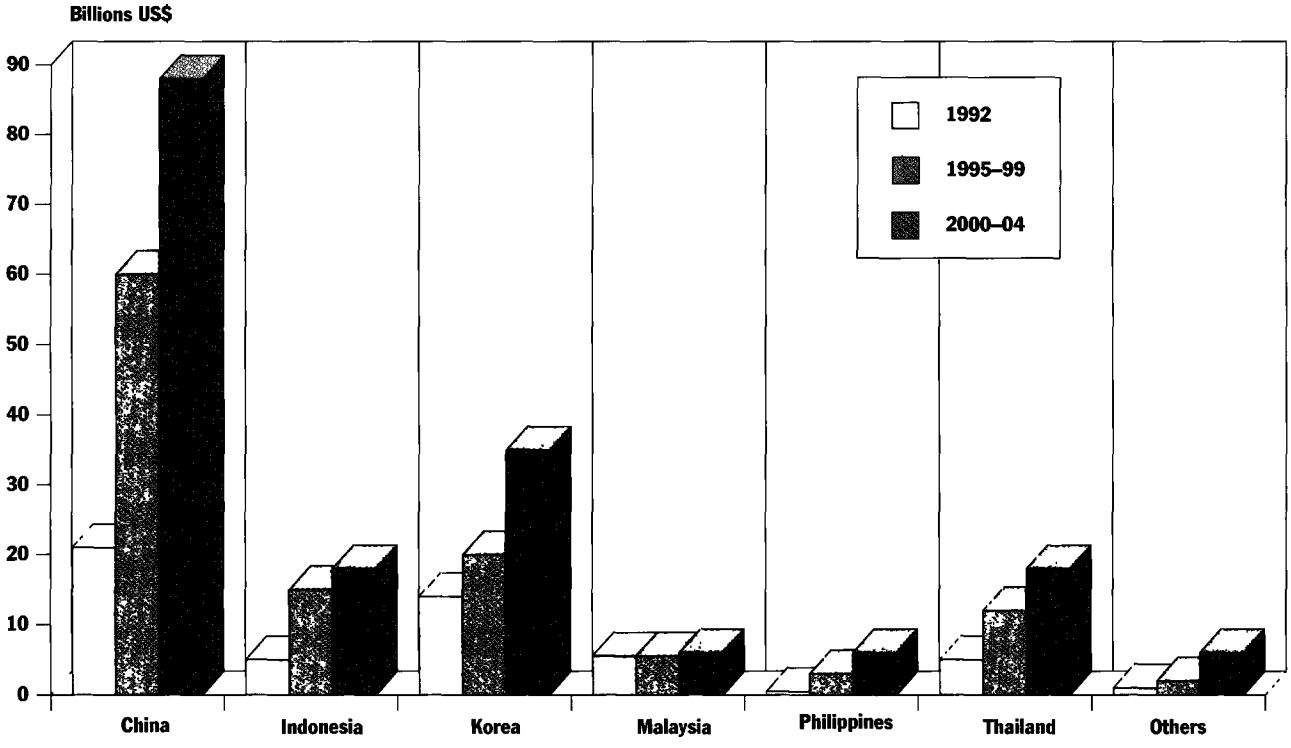


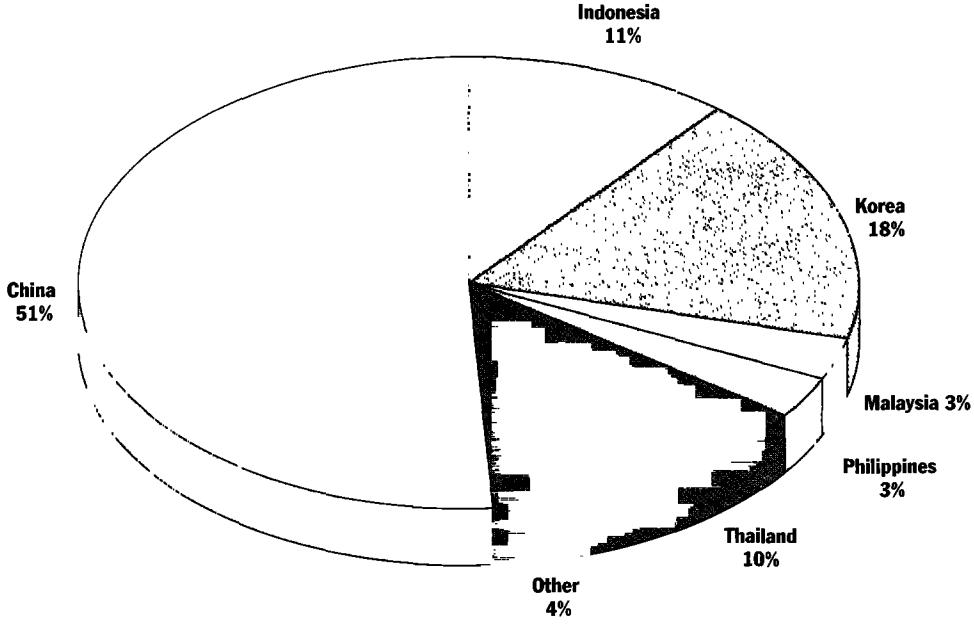
Figure 4 (b): Average Annual Investment (1992: Actual; 1995–2004: Requirements)



Over the next decade, infrastructure investment in China alone is projected to the tune of 744 billion dollars

Figure 5: Regional Investment Needs, 1995–2004

(Baseline scenario)



Source: Table 3

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