



Building on East Asia's Infrastructure Foundations

The halfway measures taken toward privatizing East Asia's infrastructure have resulted in weak corporate governance, vulnerability to crises, and inefficiency. Faced with slowing growth, the region needs to shift its focus to increasing competition and adopting needed regulation.

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IN MERELY three decades, a number of East Asian countries have developed extensive and sophisticated infrastructure in sectors such as power generation and distribution, transport, water, and telecommunications. A predominantly public sector effort—in which governments or their agencies have taken the lead in conceiving and financing projects, regulating and operating companies, and delivering services—it often shows the best face of East Asian governments. This infrastructure, along with

East Asia's highly developed human capital, will be the foundation for continuing economic growth.

But the world has changed; governments everywhere are feeling the pinch of limited resources and scaling back their activities, allowing the private sector to play a bigger role in the economy. Attempts to privatize infrastructure in East Asia have moved slowly, however, because governments have been reluctant to let go. Privatization has been incremental, with little change in sector structure, and has often relied heavily on foreign financing for projects; the dangers of this approach were highlighted when many projects had to be suspended during the financial crisis of 1997–98 (Box 1). What is needed in East Asia are reforms that open the infrastructure sector up to competition while carving out a new strategic and regulatory role for governments.

Box 1

Private infrastructure on a roller coaster in 1997

In the first half of 1997, private financing of infrastructure in East Asia charged ahead at a hectic pace. After the crisis broke, activity virtually ceased, and important projects had to be deferred or canceled.

Estimates indicate that international equity, loan, and bond financing for private projects in East Asia reached only \$6 billion in 1997, down 20 percent from \$7.5 billion in 1996. The impact was particularly severe in the transportation and energy sectors in Indonesia, the country most dependent on international capital flows, although project development also slowed in Malaysia and Thailand. In Thailand, a controversial elevated rail project became unviable when property values dropped. In Malaysia, several projects were delayed because domestic financial institutions faced a severe liquidity crisis and the devaluation of the ringgit increased construction costs. In Korea, a high-speed rail project connecting the capital, Seoul, with Pusan, a major port, is being reevaluated. Private investment in infrastructure is expected to decline further in 1998, and lower credit ratings are likely to drive up financing costs.

The achievements

Ample evidence links East Asia's rapid GDP growth to high levels of infrastructure investment. The average developing country invests about 4 percent of GDP annually in infrastructure. In contrast, the high-performing East Asian economies have typically invested between 6 percent and 8 percent. Japan was their model. After a slow

Infrastructure development: East Asia has raced ahead

	Electric power generation (millions of kilowatts per 100 persons)			Telephone connections (number of connections per 100 persons)			Paved roads (meters per 100 persons)		
	1970	1992	Annual growth rate, 1970–92 (percent)	1975	1993	Annual growth rate, 1975–93 (percent)	1970	1990	Annual growth rate, 1970–90 (percent)
Hong Kong SAR	34.0	154.0	13.4	6.7	51.0	11.9	23.0	26.0	0.6
Japan	66.1	165.4	8.0	30.8	46.8	2.4	146.1	630.7	7.6
Korea	8.8	61.7	17.6	4.0	37.8	13.3	11.5	79.9	10.2
Malaysia	8.7	36.0	12.5	1.6	12.6	12.2	143.1	156.1	0.4
Singapore	31.0	126.8	12.4	12.3	43.5	7.3	58.3	101.9	2.8
Thailand	3.7	22.1	16.0	0.6	3.7	10.9	27.0	70.9	4.9
Brazil	11.8	35.8	9.7	2.2	7.5	6.9	53.1	108.4	3.6
Chile	22.9	35.4	3.7	3.0	11.0	7.5	79.1	83.4	0.3
Ghana	7.7	7.5	-0.2	0.3	0.3	-0.7	53.6	55.5	0.2
India	3.0	9.2	9.9	0.2	0.9	7.6	59.3	89.4	2.0

Source: Ashoka Mody, ed., 1997, *Infrastructure Strategies in East Asia: The Untold Story* (Washington, World Bank).

start in the decade after World War II, the Japanese government accelerated investment in infrastructure and sustained it at high levels over the next three decades. The rate of infrastructure investment in Korea has been at or above 8 percent of GDP in many years; in Taiwan Province of China, it has sometimes surpassed 10 percent. Hong Kong SAR, Malaysia, and Singapore also have high rates of infrastructure investment.

As a result of these high rates of investment, infrastructure growth has been far more rapid in East Asia than in other developing regions (see table). Korea, which started with relatively underdeveloped power and telecommunications sectors, has experienced the fastest growth, but Thailand has been catching up. The impact is particularly striking when comparing Chile and Malaysia, which have economies of similar size. Although Chile had a more advanced infrastructure in 1970, Malaysia's infrastructure soon surged ahead. Between 1970 and 1980, annual GDP growth in Malaysia was 7.9 percent, compared with 1.8 percent in Chile. However, with Chile in the vanguard of market-oriented reforms in the 1980s, the pace of infrastructure development picked up there, as did GDP growth, which rose to 5.1 percent a year between 1980 and 1992, compared with 6.2 percent in Malaysia.

East Asia has given high priority to the domestic and international movement of goods and people—and, therefore, to the development of roads, ports, and airports. Since the 1970s, Japan has increased the length of its paved roads substantially; at 630 meters per 100 persons, it now has the highest road density in the world. Korea's road density has grown by 10 percent a year over the past 25 years. Both countries undertook major investments in the highway subsector that were considered gambles at the time (Box 2). Singapore, a city economy geared toward international transactions, most strongly exemplifies the links made by the region's policymakers between trade and its supporting infrastructure. Singapore's port and airport are among the best in the world.

Yet while the physical achievements are remarkable and their contribution to economic growth undeniable, some failures were inevitable—including, for example, instances of wasted expenditures, inadequate response to growing pres-

ures on (and sometimes neglect of) the environment, and a disregard for social and political sensitivities.

Privatization East Asian style

East Asia's transition to private provision is being undertaken in a style characteristic of the region, with governments exerting a strong influence. The share of private investment in East Asian infrastructure (outside Japan) is between 12 and 18 percent (this average is pulled down by China). In contrast, in Argentina and Hungary, at least 70 percent of infrastructure investment is private, and, in Chile, 50 percent is.

Some East Asian countries have made more progress toward privatization. Hong Kong SAR has traditionally had considerable private involvement in all sectors except water. In Malaysia, projects in the power, transport, water, and telecommunications sectors have all had some infusions of private capital. However, it is difficult to determine the extent of private capital at risk in Malaysia because the government continues to have a significant financial commitment, even in "private" projects, through equity, grants of land rights, direct subsidies, and concessional loans. (Such a fuzzy situation can trigger an exaggerated response by the market, as in the recent crisis, when fresh capital inflows suddenly dried up.) Private participation in infrastructure projects is also high in the Philippines—according to World Bank estimates, it accounts for about 40 percent of new investment—but many privately funded projects have benefited from government backing of payment obligations of the National Power Corporation. Indonesia, which probably has the same level of private investment as the Philippines, does not provide guarantees, but its "comfort letters" have been viewed by the market as assurances that obligations will be honored.

Other East Asian economies are gearing up for greater private investment in infrastructure. Project sponsors in China have begun to dedicate revenues from up-and-running power plants as security to attract fixed-income investors, using the proceeds for new project development. Such "pooling" structures have also been used for toll road projects. Although there has been little private involvement in infra-



Box 2

Taking gambles: The payoffs

Some of East Asia's large infrastructure investments have been bold gambles, given their potential economic impact—and the fact that international advisers expressed serious reservations about them.

One such gamble was Japan's Kobe-Nagoya Highway, which connects several important economic centers in Japan and is a major element in a network of toll roads. In 1960, the Japanese government requested financial assistance from the World Bank to fund a portion of the anticipated \$260 million in construction costs and, at the Bank's suggestion, invited a mission headed by an international transportation expert to assess the economic feasibility of the road. Although the mission supported the planned toll network and recognized the highway's economic importance, it advised against constructing the road as planned, partly on the grounds that the tolls would not be sufficient to cover costs. Japan went ahead with the highway anyway, funding construction with the revenues from tolls and a special account of earmarked gasoline taxes, as had been suggested by the mission. The highway has made an important contribution to Japan's economy.

An even riskier enterprise, at least from the perspective of the late 1960s, was the Seoul-Pusan Highway. The road was constructed not as a response to overwhelming demand but in an effort to drive economic activity. The World Bank and other development agencies advised against building it, on the grounds that the costs would outweigh the benefits. Today, however, the highway serves an extended industrial community. Moreover, the project launched a construction industry that is a major force.

structure in Korea, the country recently raised its target for private financing of infrastructure from a 10 percent share to a 40 percent share, to be reached by 2001–2002.

From monopolies to competition

Both technological change and institutional innovations are making greater competition possible in the infrastructure sectors. Competition is most advanced in Argentina, Chile, New Zealand, the United Kingdom, the United States, and certain states of Australia. In addition to direct competition among providers in telecommunications, power generation and distribution, and railways, competition for the right to provide services could lead to lower prices and services that are more responsive to customer needs.

Direct competition. Competition makes regulation easier since it fosters efficiency and fair pricing. In Hong Kong SAR, competition exists between suppliers of household energy; in Malaysia and the Philippines, providers of telecommunications services compete. But direct competition among providers is rare in East Asia.

Price competition among power generators to supply transmission grids is becoming increasingly common in other parts of the world. However, in East Asia, private gen-

erators supply only through long-term, take-or-pay power purchase agreements with government-owned power utilities. The government power company makes a commitment to pay the private operator a capacity fee, which typically covers the latter's debt and operating costs, whether the power is drawn or not. Thus, even when there are multiple power generators, they do not compete with each other. Competition for customers in the distribution sector, as in Latin America, the United Kingdom, and certain parts of the United States, is not even under consideration in East Asia.

Competition for the "market." Those who believe that high East Asian investment levels have often been wasteful point to the "negotiated tenders" used to award the rights to provide infrastructure services. Malaysia, in particular, has used negotiated tenders extensively. The arguments for competitive bidding for the award of contracts are compelling. Competition leads to fairer deals for society, avoiding the excessive profits (and political fallout) associated with highly visible negotiated contracts. The private sector also typically values competition when the rules are clear.

Proponents of negotiated, or noncompetitive, tendering argue that the procurement process may be faster and preparation costs lower (the costs that would have been incurred by unsuccessful bidders are eliminated), and private sponsors have more opportunity to be innovative in project design. The evidence on its speed is mixed, however. Negotiated contracts are often slowed down by controversy heightened by perceived lack of fairness. Also, the benefits of negotiated tenders can be had in a competitive setting: costs of early design and of development can be subsidized, and post-contract award negotiations can make project design more responsive to user needs.

A competitive process can also be tainted, of course. A lack of clarity as to the criteria used in choosing the winning bidder and a perception that the rules of the game have been changed midway through the process are typical sources of controversy. To reap the most benefit from competition, governments need to establish the basic rules and legal framework for eligible projects.

From planning to strategy and regulation

The highly centralized planning system that has been a hallmark of East Asia must now be broken down into specialized institutions more capable of dealing with the increasingly complex relationships between the public and private sectors. Governments still have responsibilities but these have changed. They include taking the necessary measures to ensure that investments are efficient, that services are not overpriced, and that broader social concerns (for example, protection of the environment, humane resettlement, and provision of services to the poor) are addressed. When domestic capital markets are not channeling funds efficiently into high-risk, long-term investments, governments also have a role to play in stimulating capital market development.

Regulation to promote efficiency. East Asia has limited experience with modern regulatory practices, including “incentive regulation,” which reduces the amount of information regulators need to do their jobs by creating incentives for private providers to operate efficiently. An example is so-called “price-cap” regulation, which establishes a maximum allowable rate of price increase. While setting the price cap requires a great deal of information, once prices are set they need to be adjusted only every five to seven years. In East Asia, price caps are rarely used outside of power generation contracts.

Another challenge for East Asia lies in ensuring the independence and accountability of regulators. Experience shows that countries can adopt varying strategies in this regard, but they must be committed. When the political economy is murky, public information and the use of competition help insulate regulators from different interest groups.

Dealing with broader social concerns. Environmental and resettlement concerns need to be dealt with explicitly and early. Perceived risks to investors can often be turned to the advantage of both project developers and society when improved environmental performance goes hand in hand with increased operating efficiency. To realize this potential for mutual benefit, regulators must be clear about the performance standards project sponsors are expected to meet and allow them sufficient flexibility in operations.

If not handled carefully, resettlement associated with transportation and hydroelectric projects can arouse strong political opposition. Government involvement is required to ensure that those affected are consulted, relocation sites are suitable, and support to restore long-term incomes is adequate. Private project sponsors can work alongside government agencies in implementing resettlement.

In most countries, the poor end up paying much higher prices for infrastructure services, especially water and electricity, because they have recourse only to private vendors. To achieve minimum access for the poor while safeguarding the public network's commercial viability, explicit subsidies for targeted households work best. For example, in Chile, subsidies for rural electrification are built into contracts that are then competitively bid.

Broadening capital markets. In East Asian economies other than Malaysia, substantial finance for private infrastructure has come from foreign sources. Yet most of the revenues from infrastructure finance are in domestic currency. These projects are extremely vulnerable in the event of a currency devaluation, as demonstrated by the recent financial



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crisis, which brought much of the pipeline of private projects in the region to a halt.

The issue is clearly not a lack of domestic finance. With their high saving rates (30–35 percent of GDP), East Asian economies could easily finance much more private infrastructure investment. Apparently, domestic investors and lenders are more averse to the risks associated with the present phase of infrastructure investment than are foreign investors, who presumably have greater opportunities for diversification.

Financing for infrastructure investment could be raised in East Asia's stock markets, which have become fairly efficient. The bigger challenge lies in the development of East Asia's debt markets. Bank deposits are mainly short-to-medium term, limiting banks' ability to make the long-term investments that are typically needed for infrastructure projects. (Where East Asian banks have shown an appetite for infrastructure finance, as in Malaysia and Thailand, they have been guided by their governments toward priority projects.) The development of bond markets is on the agenda of many countries in the region and will require greater issuance of government bonds, the development of incentives and institutions for contractual savings, and the establishment of infrastructure for bond issuance and trading.

Conclusion

To derive greater benefits from private infrastructure, East Asian governments need to disengage from direct or contingent financing of projects. A transparent regulatory environment that addresses social concerns is not only good public policy but is likely to send strong signals of government commitment to privatization, which, in turn, should be conducive to stable long-term flows of investment.

The many successes of the East Asian countries are due to their ability to change course when faced with new challenges. That ability will be tested severely, paradoxically, because of East Asia's very achievements in installing substantial delivery mechanisms. To reorient their largely successful systems, countries will need both political capital and skilled administrations. The evidence from the past is that East Asia can rise to the challenge. **F&D**

This paper draws upon two recent monographs: Ashoka Mody, ed., 1997, Infrastructure Strategies in East Asia: The Untold Story (Washington: World Bank); and Harinder Kohli, Ashoka Mody, and Michael Walton, eds., 1997, Choices for Efficient Private Provision of Infrastructure in East Asia (Washington: World Bank).