



Reassessing Risk in Developing Country Infrastructure

Jonathan P. Doh and Ravi Ramamurti

Private investment in developing country infrastructure has grown rapidly in the last decade, yet hazards still exist that may undermine the stability of investment projects. This article reviews data and surveys recent cases that underscore the emergent threats faced by companies seeking to develop and manage infrastructure projects. Using a framework to classify the multiple roles of government in both facilitating and impeding investment, it proposes strategies for investors and developers to assess and mitigate these continuing risks. Its recommendations include leveraging international agreements, drawing on multilateral project finance, pursuing first-mover positions and engaging all relevant stakeholders. The paper concludes by drawing implications for management research and practice.

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Introduction

‘After what is happening to Enron [in India], I don’t believe a single power project will get financed in international markets.’ Anil Ambani, managing director of Reliance Industries, March 14, 2001¹

On 12 March 2001, Vinay Bansal, chairman of the Indian state of Maharashtra’s State Electricity Board (MSEB), said he would ask the federal government to withhold payment to Enron Corporation for a monthly bill totalling more than \$20 million owed by the state. Mr Bansal made the announcement after MSEB failed for the second month to pay Enron for the electricity produced at its Dabhol project. This announcement represented only one of a series of setbacks in what had become a 10-year saga in Enron’s efforts to be the first foreign developer to conclude a large-scale power project in India. In August 2001, Enron officials indicated that a sale of its stake in the project was ‘the best way to go’.² As of autumn 2002, following Enron’s collapse, the power purchase agreement was to be reworked and the foreign investors—Enron’s creditors, GE and Bechtel—were looking to divest their stakes in the venture, scrambling to recover whatever they could from the project.³

In June 2000, AES Corporation of Arlington, Virginia, began operation of a power plant in Merida, Mexico. AES, one of the largest independent power companies in the world, had closed financing just two years earlier, in June 1998, although at that time the firm had already begun construction of the \$230 million project. AES won the contract after a two-stage competitive bidding process initiated in 1998 when Mexican energy officials called for the addition of 15,000 megawatts (MW) to the country's existing 35,000MW of electric generating capacity by 2007, and tendered bids for 10 new private power-generating plants. It was Mexico's first true build-own-operate (BOO) project and featured a 25-year agreement to sell power to Comision Federal de Electricidad (CFE), the Mexican state-owned electric utility, and a 25-year fuel-supply contract to purchase natural gas from Pemex, the state oil company. The plant is operated by AES Merida III, a subsidiary of AES, and other partners include the Nichimen Corporation of Japan and Grupo Hermes of Mexico which own 25 per cent and 20 per cent respectively.⁴

These two projects illustrate both the risks and rewards of investing in developing country infrastructure. But what conditions lead some projects to come to successful closure, while others languish under repeated delays, intense political disputes and ultimate failure? We believe understanding the multiple—and often conflicting—role of government in infrastructure is an important element in answering this question.

In this article, we analyse the role of government in both facilitating and impeding investment in order to better understand the successes and failures of infrastructure investment. Using a simple but comprehensive framework, we classify the multiple roles of government in infrastructure: sponsor/investor; consumer/customer; rule-maker/regulator; and mediator/moderator of opposition political and non-governmental interests. We also survey recent cases in which governments have reneged on investment contracts. We offer suggestions for how investors can mitigate emergent risks associated with governments' roles in infrastructure, and draw implications for management research and practice.

Private investment in developing country infrastructure

Private investment in infrastructure is a relatively new phenomenon in the developing world. Fuelled by the opening of political and economic systems in eastern Europe, transition and emerging economies are increasingly turning to private sector investors—both local and foreign—to increase availability, improve access and move toward market-based pricing of infrastructure. These changes have stimulated interest by private investors, often consortia of local and foreign firms, who see new opportunities arising from governments' efforts to attract investment. These actions have resulted in sharp increases in foreign investment in developing countries: foreign direct investment flows into developing countries grew from \$23.7 billion in 1990 to \$166 billion in 1998, a sevenfold increase, resulting in such investment growing from 5 per cent of GDP to 20.5 per cent over the same period.⁵

Growth drivers

A number of interrelated factors are responsible for the rapid growth in private investment in developing country infrastructure, and the increasing role of the private sector as an important financier and long-term operator.⁶ The opening of eastern and central European economies in the early 1990s served a catalyst for privatisation and associated market liberalisation in the emerging and transition economies.⁷ In addition, governments are increasingly viewing basic infrastructure as an effective catalyst to accelerate overall economic growth and development. Aggregate data suggest that developing countries have invested on average about 4 per cent of their national incomes in infrastructure facilities, or about \$250 billion a year. The average annual *private* investment of about \$100 billion in infrastructure projects between 1995 and 1997 accounted for about 40 per cent of total infrastructure investment in developing countries.⁸ These projects typically attract some public financing, and some public projects attract some private financing, reinforcing the interwoven nature of the public and private sectors in infrastructure deals, and the continued importance of host and home government.

Given the capital intensity associated with infrastructure, and the fact that governments lack resources to undertake the needed investments, political actors are increasingly open to private infrastructure investment. This openness has often taken the form of privatisation of state-owned or controlled assets, and the introduction of competition into newly privatised markets. Examples include the massive privatisation of the two largest Latin American telecommunications firms, Telmex in Mexico in 1993 and Telebras in Brazil in 1998.⁹

Governments are increasingly viewing basic infrastructure as an effective catalyst to accelerate overall economic growth

As a result of these trends, private activity in infrastructure—as measured by investment flows to projects with private participation—grew dramatically in developing countries between 1990 and 1997, from about \$18 billion to \$128 billion.¹⁰ It then declined to \$110 billion in 1998, and fell by an additional 30 per cent in 1999 to \$77 billion due to the Asian financial crisis, Latin American economic instability and a general concern about the economic and political environment for infrastructure investment around the world.¹¹ Although investment recovered to \$90 billion in 2000, it dropped again in 2001, to \$57 billion.¹² Even with this drop-off, investment over the past 11 years totalled more than \$750 billion. Much greater levels of investment have been directed towards telecommunications and energy infrastructure than other sectors because these sectors were the first to experience privatisation and broader market reforms. In addition, significantly higher levels of investment have occurred in East Asia and Latin America than other regions (such as Africa), a reflection of these regions' earlier commitment to privatisation and market reform (Table 1).

Table 1. Private Investment in infrastructure projects in developing countries 1990–2001 (2001 \$bn)

Sector and Region	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	Total
Sector													
Telecommunications	6.2	13.5	7.9	10.9	20.3	20.1	29.7	45.4	57.3	43.3	45.3	31.7	331.4
Electricity	1.3	1.3	8.9	11.1	15.2	20.9	30.6	48.7	24.6	14.4	26.4	10.0	213.3
Natural gas T&D	–	–	4.0	4.6	1.8	4.1	3.0	3.3	6.5	3.7	2.3	1.2	34.5
Transport	10.3	3.3	4.6	5.7	8.9	12.0	17.4	21.7	18.4	8.9	11.6	12.4	106.1
Water and Sanitation	–	0.1	2.0	7.9	0.5	1.8	1.9	9.3	2.4	6.9	4.8	2.2	39.7
Region													
East Asia/Pacific	2.6	4.3	9.6	14.6	18.6	24.7	33.2	41.3	12.2	16.0	17.5	16.1	210.6
Europe/Central Asia	0.1	0.4	1.4	1.5	4.3	9.4	12.2	15.7	12.9	9.9	22.9	6.5	97.1
Latin America/Caribbean	14.6	12.7	16.2	19.0	19.2	19.7	28.8	54.3	75.6	38.7	38.3	23.2	360.5
Middle East/North Africa	0.0	–	0.0	3.6	0.4	0.1	0.4	5.6	3.2	2.9	4.1	2.4	22.8
South Asia	0.4	0.8	0.1	1.4	3.3	4.1	6.5	6.7	2.7	4.9	4.2	4.6	39.6
Sub-Saharan Africa	0.1	–	0.0	0.0	0.8	0.9	1.5	4.8	2.7	4.7	3.4	4.6	23.4
Total	17.8	18.2	27.3	40.1	46.6	58.9	82.6	128.4	109.3	77.1	90.9	56.9	754.2

Source: Private Participation in Infrastructure Database, 2001.

What's different about infrastructure?

Raymond Vernon's seminal study of 1971 introduced the notion that investors' bargaining power in host countries would 'obsolesce', or diminish, over time, especially in industries such as infrastructure characterised by high fixed costs and the inability to transfer capital investment to the home country or another host.¹³ These conditions apply especially in infrastructure, suggesting local governments have greater leverage over foreign firms in these sectors once firms have committed investment to the market, and making changes in host government behaviour especially problematic because of the absence of alternative uses for the investment projects, a problem that some economists term 'asset specificity'.

As such, MNCs face hazards that originate directly from variation and unpredictability in political and governance systems.¹⁴ The state and its various institutions and agencies continue to pose a direct threat to multinational corporations through policy shifts in taxation or regulation, outright or de facto expropriation, or by allowing opportunistic exploitation of assets by local firms. Infrastructure investment is inherently characterised by an active government role. Until the mid-1990s, many infrastructure industries remained in state hands. Even now, in many developing countries, a relatively small percentage of infrastructure has been privatised. This is, in part, because of an economic assumption that these industries functioned best as 'natural' monopolies, a condition that is thought to occur when investors face near-indefinite long-run declining average costs.¹⁵ In addition, assumptions that citizens have a basic right to access these services have caused politicians to contend that government is the most reliable and responsible producer and provider. Hence, when governments finally allow private investment in infrastructure, either in the form of divestitures of state-owned enterprises or new 'greenfield' investment, they have a particularly important stake in the economic, social and political outcomes of that private investment.

Infrastructure projects are plagued by many kinds of risk, including exchange rate, input cost risks, technical risks and the risk of governments' renegeing on their commitments. In this article, we focus on the role of *governments* as both a source of risk and an absorber of risk. Government can absorb risks in many ways: for example by building risk-transfer into agreements by passing input cost inflation or exchange rate depreciation into prices or to third parties through counter-guarantees. But governments are also a huge source of risk, mainly the risk of renegeing on specific legal, regulatory or economic commitments. This risk is heightened by changes in government, by the obsolescing bargain discussed above, by political actions of interest groups, such as labour unions, nongovernmental organisations (NGOs), and by other forces. *The challenge for companies is to leverage the supporting role of government, while mitigating the threats that emanate from public sector institutions and actors.*

Historic and evolving government roles in infrastructure

Governments serve four important roles in infrastructure. However, as a result of privatisation, deregulation and the commensurate increase in private investment infrastructure, the role of government, while still important, has evolved in a number of directions described below.

Government as sponsor/investor

Governments can sponsor a project, retain a share in a newly privatised enterprise, partner in the venture, or, in some instances, invest in a new greenfield project. Alternatively, governments or their state-owned financial institutions may be involved as lenders, insurers or underwriters of infrastructure project debt. These are potentially the most supportive and least threatening of the various governmental roles.

As a result of privatisation, governments are less directly involved in the operation and management of infrastructure. Even when they retain a share of firms after the initial privatisation because of political sensitivities or capital markets constraints, governments have often subsequently sold off some or all of that remaining share as markets become more comfortable with the asset, the regulatory environment takes shape and political sensitivities die down. This was the case when the government of Mexico sold a minority (20.4 per cent), but controlling, interest in Telmex to

an international consortium composed of Grupo Carso, Southwestern Bell and France Cable et Radio for \$1.76 billion, and later sold additional shares to these same strategic investors.

Governments are increasingly serving as advocates and sponsors for investment by undertaking a range of policy changes to encourage development of infrastructure industries. India's power restructuring programme that began 1991 included liberalisation of trade restrictions and foreign investment regulations, commitments to protection of intellectual property rights and a general loosening of state control over business practices. India also offered additional incentives of tax holidays, reduced duties for capital equipment imports, fast-track regulatory approvals and power purchase agreements (PPAs) that provide guaranteed returns to attract investors to the market.¹⁶ Paradoxically, the very aggressiveness of some of these policies contributed to the destabilisation of support for the projects that resulted from them, as described below.

Both host and home governments are increasingly the guarantors of investment. In the case of India's power restructuring programme, the government offered counter-guarantees to protect investors in the event that the purchasers of the output reneged on their commitments.

As mentioned above, Enron had asked the finance ministry to honour the financial guarantee that the ministry provided for the project in order to recoup \$47 million that the MSEB failed to pay for power in December and January of 2000/2001. These examples show how governments, as projects advocates and guarantors, can be both a source and absorber of risk.

Government as consumer/customer

Governments or state-owned enterprises may be important consumers of the output of an infrastructure project, or the initial customer for the output but then distributor to the final consumer. This is particularly common in electricity infrastructure as many governments have privatised or deregulated electricity generation while retaining state-ownership over energy transmission and distribution. Under this model, governments then negotiate long-term power purchase agreements (PPA) with new private suppliers, and these negotiations provide opportunities for recontracting. Governments may privatise the upstream businesses, but remain active in direct service delivery, setting off a sensitive arrangement where governments or state-owned distributors feel political pressure to keep prices low (often below cost), while generators seek efficiency and economic return. This was part of the pressure felt by Enron and other power producers under India's power reform programme.¹⁷

In 1995, AES received a counter guarantee from the central Indian government for two, 210MW power projects. However, when a change in the Orissa state government occurred later that year, the new government challenged the prices associated with AES's contract and AES was forced to renegotiate, although this renegotiation was successful.¹⁸ Similarly, in 1999, the government of Indonesia reneged on its commitment to buy power from two projects sponsored by MidAmerica Energy Holdings, arguing that the projects, both of which were awarded on a sole source contract basis under the previous Suharto regime, were overpriced and the government simply could not afford to pay.¹⁹ More recently, in March 2002, Indonesia's Minister of Mines and Energy, Purnamo Yusgiantora, said his government would fight in US courts to release \$130 million being held in a Bank of America escrow account after Karaha Bodas, a power developer, won an arbitration award in its dispute with the Indonesian government over cancellation of a geothermal plant Karaha had agreed to build in collaboration with Indonesia's state electricity company.²⁰ In April 2000, the Bolivian government rescinded a 40-year contract with Aguas del Tunari, a consortium that included London-based International Water, Bechtel Enterprise Holdings, Italy's Montedison Energy Services, Spain's Abengoa Servicios Urbanos and four of Bolivia's largest construction companies, to supply water to Cochabamba, the country's third largest city.²¹

Hence, while governments' role as the prime customer may appear as a positive, stabilising variable, political tensions may jeopardise the viability of investment projects. This tendency of governments to negotiate a contract—and then renege on the financial obligations associated with that agreement—is part of the broader evolution in governments' role as a rule-maker of the

general terms of investment and the regulatory of the conditions under which markets may be opened to competition once initial privatisation is underway.

Government as rule-maker/regulator

Perhaps the most important role for governments is the rule-maker of the terms of investment and the regulator of the overall competitive environment for infrastructure. Governments are the ultimate arbiters for regulating the conditions under which foreign investment takes place, and this role in many ways supercedes the other roles described above. This role can support or frustrate investment, or both. Often, changes in policy are driven by an interaction among political and economic factors. The opportunity for host governments to renegotiate infrastructure contracts once MNCs have committed to an investment project is strengthened by the difficulty faced by the MNC in redeploying fixed assets elsewhere. In the past, these tendencies have resulted in outright expropriations. Such expropriations were pervasive in the 1970s, particularly in Latin American countries as quasi-socialist or populist leaders in Argentina, Chile, Venezuela and elsewhere seized valuable assets from MNCs and in so doing, chilled the atmosphere for infrastructure investment throughout the world. More recently, however, *outright* expropriations in developing countries have virtually disappeared, down from 83 cases in 1975 alone to just 11 cases between 1981 and 1992.²² Yet beneath these generally favourable statistics lies a troubling pattern: governments continue to engage in a pervasive practice of selective and disruptive recontracting of legally binding agreements, especially when there are shifts in political parties or ruling governments.

Governments are the ultimate arbiters for regulating the conditions under which foreign investment takes place

For example, in 1998, Pakistani Prime Minister Nawaz Sharif alleged that foreign companies investing in independent power projects had bribed officials from the previous Benazir Bhutto government in return for high electricity rates. He threatened to rescind the IPP contracts if the foreign companies did not cut their rates by more than 30 per cent.²³ Since 1995, India's national and state governments have changed parties many times. These changes, combined with India's longstanding ethnic, political and linguistic divisions, have created a confusing and high-risk environment for power investors. Of the first six projects identified for 'fast track' treatment in 1992, only two had reached financial closure by March 2002 (See Table 2). Ironically, when private investors are involved in actual (downstream) distribution of infrastructure output such as electricity, it has often resulted in failed projects. In 1993, the chief executive of Edelnor, Buenos Aires's electricity distributor, was jailed briefly when his company cut off power supplies to a distributor that had been tapping into the grid illegally. Members of Congress called for a case to be brought to the Supreme Court, with the charge that the firm had not fulfilled its maintenance obligations. Insurers noted that there was no coverage against loss of concession when a company has not fulfilled its obligations.

Often the challenges and complexity associated with governments' tendency to seek to renegotiate investment rules and contracts are exacerbated by the participation of both national and regional governments in the project. Indeed, the uneven success of power developers in India, as shown in Table 2, may be largely attributable to differences in competency and outlook by regional governments. In India, Brazil, and, increasingly, China, states wield significant power, and this has been a particular problem in the development and financing of power, water and transport projects. The Linha Amarela project in Rio de Janeiro, an urban expressway that links the residential area of Rio to the downtown area, was initially bid with an official traffic estimate of around 55,000 cars per day in 1993–1994. However, when construction was complete and the road opened for business in 1998, traffic exceeded that amount, reaching 80,000 vehicles per day in early 2001.²⁴ When the new mayor of Rio, Cesar Maia, took office on 1 January 2001, he issued a number of

Table 2. March 2002 Status of Indian power projects approved under 1992 fast-track provisions

Projects	Location	Plant size	Cost	Developers	Status
Dabhol Combined	Dabhol, Maharashtra state	2,500 MW	\$2.5bn	Enron, Bechtel, General Electric	First was phase commissioned, second phase under construction; payment dispute, project effectively abandoned
Mangalore Thermal	Karnataka state	1,000 MW	\$1bn	China Light and Power (Cogentrix)	Counterguarantee not issued; financial closure not yet achieved
Ib Valley Thermal	Ib Valley, Orissa state	500 MW	\$600m	AES Corp.	Counterguarantee not issued; financial closure not yet achieved
Neyveli Thermal	Tamil Nadu state	259 MW	\$370m	ST Energy Power-CMS Energy	Construction underway
Jegurupadu Combined	Andhra Pradesh	215 MW	\$230m	GVK USA	Fully commissioned
Godavari Combined	Anhra Pradesh	210 MW	\$210m	Spectrum Corp.	Fully commissioned

Source: Embassy of India; Wall Street Journal, 14 March, 2001; World Bank; Author calculations.

decrees overturning policies of his predecessor. In one of these decrees, he dropped the toll from R\$2.40 to R\$2.00, citing a number of inadequacies of the concessionaire.

Another important and evolving role for governments in regulating infrastructure in developing countries is in determining the environment for competition post-privatisation. In the case of both the Telmex privatisation in Mexico and the Telebras privatisation in Brazil, first movers (those that partnered with the incumbent) experienced significant competitive advantages over later entrants because the delayed liberalisation (tacitly but unambiguously supported by the complicit government) provided incumbency protections, and these benefits seem to persist beyond the stated term of protection. Hence, governments continue to play a critically important regulatory role in infrastructure even after the bulk of assets are in private hands and the market has been nominally opened to new competition, often resulting in preferential treatment for early movers and disadvantages to later entrants.

Government as mediator and moderator of political opposition and NGOs

In addition to the three roles described above, governments are increasingly assuming broader roles as mediators and moderators of various political and social interests not historically represented in bilateral bargaining negotiations between investors and host governments. Governments act as the conduit through which MNCs interact with different elements of civil society, and may also operate as buffers—or may exacerbate—the tensions and pressures exerted on MNCs by these groups (See Figure 1).²⁵ While much of the pressure exerted on host governments is locally sourced, increasingly, international NGOs are also entering the fray.

In Costa Rica, the PLN party was forced to shelve a privatisation scheme (that included foreign investors) for the Instituto Costarricense Electricidad (ICE), the state monopoly in electricity and telecommunications, after ICE public employee unions, supported by other unions and citizen groups, argued that the true motive was to dismantle the state company. In Brazil, a backlash against privatisation in energy and telecommunications has caused significant problems for both governments and investors. After the 1997 partial privatisation of the Sao Paulo electric utility Light Servicos de Eletricidade (Light), continued power outtages and resulting political unrest caused the government to fine AES, Electricite de France and Houston Industries, each of which

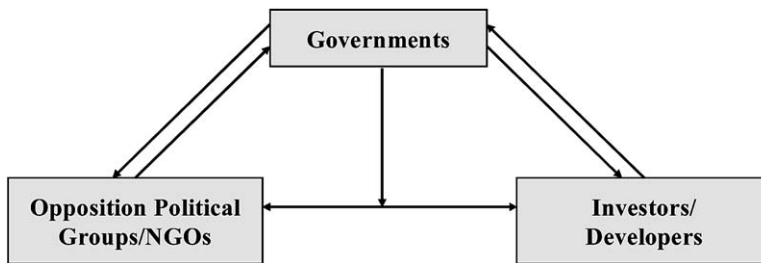


Figure 1. Governments as mediator/moderator of project investors/developers and opposition political groups/NGOs

had a stake in the newly privatised company. The sale of Embratel, the long-distance portion of Telebras, met with protests by union, environmental and citizen groups when it was sold to MCI for \$2.28 billion through its fully owned Brazilian subsidiary, Startel. MCI (now WorldCom) was presented with a 1.3 billion *reals* tax bill over profits made on calls while Embratel was still owned by the state. Some suggest this was a way for the government to demonstrate that it was not ‘giving away the store’ to foreign investors.

International (versus local) NGO pressure is less likely to target specific investments, but may result in broader ramifications through boycotts, public advocacy and shareholder resolutions. Friends of the Earth (FOE) sponsored a resolution at Exxon Mobil’s 2001 shareholder meeting that would require the company to abandon fossil fuels in favour of ‘clean’ energy.²⁶ Although these proposals are unlikely to win significant support, such initiatives will have a growing impact on MNCs, especially those involved in the politically and socially sensitive infrastructure sectors.

Table 3 provides a summary of governments’ role in infrastructure and how that role has evolved over the past decade. In the next section, we discuss specific strategies and approaches that firms should consider in response to governments’ evolving role in infrastructure.

Table 3. Government roles, historic and evolving activities in infrastructure

Government roles	Historic activities	Evolving activities
Sponsor/Investor	Direct government or SOE ownership of infrastructure	Owner of downstream business; post-privatisation or greenfield partner; project guarantor or sponsor
Customer/Consumer	Direct consumer of output	Customer of upstream business (generation) and distributor for downstream (transmission/ distribution)
Rule-maker/Regulator	Bilateral negotiating partner with governments, possible ex-post expropriation	Regulatory appropriation (recontracting terms of investments); architect of post-privatisation regulatory regime
Mediator/Moderator	Suppressing, co-opting local opposition to projects	Supporting/integrating perspectives of opposition political groups/NGOs

Strategies for mitigating emergent risks in international infrastructure

In response to some of the challenges presented by governments’ roles in international infrastructure investment, there are a number of available tools and specific strategic approaches that can help companies mitigate risk in infrastructure. We suggest investors should consider:

- Leveraging bilateral, regional and international trade and investment agreements;
- Drawing on bilateral and multilateral financial support, and using project finance structures to separate project exposure from overall firm risk;

- Entering markets early in the privatisation/liberalisation cycle;
- Establishing a local presence and partnering with local firms, including SOE incumbents;
- Structuring contract tenor to match upstream fuel supply obligations with downstream service commitments;
- Bidding fairly and avoiding deal structures that may later be perceived as one-sided; and
- Pursuing pre-emptive stakeholder management strategies to secure relationships with all relevant actors.

Table 4 provides a summary of the strategies we recommend, an account of whether these strategies were followed in the case of the Enron Maharashtra project, and examples of other projects in which investors *did* follow the particular strategy in question.

Leveraging international trade and investment agreements

Traditionally, researchers have suggested that investor and home country leverage comes from a combination of bargaining power of the home government, and the ability of the MNC to bring jobs, capital, exports and other development benefits to the host country. More recently, however, bargaining leverage may arise from bilateral and multilateral trade and investment agreements and institutions. Hence, MNC-host government relations are increasingly characterised by a two-tier, multi-party bargaining process that includes broad, macro-level bargaining levers in addition to bilateral country to country or country to investor exchanges.²⁷

One of the mechanisms through which new bargaining relationships have developed is via the signing of bilateral investment treaties (BITs) that reduced FDI restrictions in developing countries.²⁸ For US investors, BITs with foreign governments assure investors of better treatment or most favoured nation (MFN) treatment at the time of entry, ensuring that they must be treated as well as domestic investors, or, if some international investors are accorded better treatment, as well as them.

In addition, many developing countries' commitments to FDI liberalisation and other regulatory and institutional reform have now taken the form of specific obligations in regional and multilateral trade and investment agreements. These include specific commitments under the North American Free Trade Agreement (NAFTA), Uruguay Round of multilateral trade negotiations and other agreements. In particular, the NAFTA agreement, which permits a foreign investor to sue a government directly, has already proved its worth for investors: in compliance with the ruling of a NAFTA Chapter 11 arbitration panel, Mexico paid \$16 million to Metalclad of the US after Metalclad sued Mexico on the grounds that the declaration of an ecological reserve on property to be used by as a toxic waste dump represented an effective expropriation of Metalclad's investment.

Drawing on multilateral financial support and using project finance

A related strategy involves using bilateral or multilateral funding options in conjunction with private project finance. Although multilateral lending became less important as a source of finance for developing countries in the 1980s and 1990s, according to some analysts, the leverage of the IMF and the World Bank over developing countries may have actually *increased*. This new leverage results from the increasing tendency of the IMF and World Bank to place requirements on countries to privatise and liberalise as conditions of their borrowing. Such leverage has successfully pressured countries to adopt investment liberalisation and privatisation initiatives. In addition, private sector actors often follow the lead of the World Bank in regard to whether a particular investment location provides the appropriate level of legal, regulatory and institutional security.

Moreover, the World Bank and its private finance and insurance arms (The International Finance Corporation, IFC, and the Multilateral Investment Guarantee Agency, MIGA), and corresponding regional development banks, are increasingly active in private sector projects co-financed with banks and bond underwriters. This participation creates an environment in which government recontracting on a project cofinanced with one arm of a multilateral development bank is constrained because it can have implications for broader funding upon which the government depends.

Table 4. Risk mitigation strategies in response to government roles in infrastructure

Strategy	Use of strategy in Enron Dabhol project?	Other examples where strategy used
Leveraging international trade and investment agreements	Yes—bilateral (US) financial support provided and Indian federal government guarantee No—no bilateral or multilateral trade/investment agreement in place, although significant US government pressure when project stalled	Mexico paid \$16m to Metalclad under NAFTA investors dispute settlement procedures IDB used leverage with Brazil to pressure Rio to reverse initial drop in toll in Linha Amarela project
Drawing on bilateral and multilateral financial support, and using project finance structures to separate project exposure from overall firm risk	Yes—project finance provided by various financial institutions; some support from multilaterals	SBC/France Telecom in Mexico—combined private, bilateral and multilateral financing. MidAmerica used project finance backed by OPIC insurance in Indonesia—OPIC paid \$290m to compensate for power project loss
Entering markets early in the privatisation/ liberalisation cycle	Yes—Enron was first foreign developed to take advantage of liberalisation programme	SBC/France Telecom in Mexico; Sprint in Brazil; AES in India
Establishing local presence and partnering with local firms, including incumbents	No—no substantial local presence, and overt resistance to including local partners	SBC partnered with incumbent Telmex and with Grupo Carso (local partner) and France Cable et Radio (international partner) in Mexican telecom privatisation. AES partnered with EDF and Houston in purchase of Light Servicos de Eletricidade (Light), which then took equity in Sao Paulo power provider
Structuring contract tenor to match upstream fuel supply obligations with downstream service commitments	No—Enron would provide and arrange for fuel source; no relationship with local firms/ govt. agencies for fuel supply	AES Merida project included 25-year agreement to sell power to CFE and 25-year contract to purchase natural gas from Pemex, state oil company
Bidding fairly/avoiding deals that may later be viewed as one-sided	No—sole source contract negotiated with abnormally high rates of return	AES Merida, and Mexican/Brazilian telecom privatisations included at least two-staged procurement bidding procedure (technical and economic)
Pursuing pre-emptive stakeholder management strategies	No—Enron only consulted opposition groups after-the-fact	AES Bujagali project included environmental impact assessments, modernisation of local schools, construction of a cultural centre for traditional rulers, and compensation for land assets, resettlement, and crops

This was the case when the Inter-American Development Bank successfully pressured the Rio government to overturn the toll reduction in the earlier example.

Typically, multilateral and bilateral financial institutions provide guarantees or insurance for private financing, as opposed to direct loans. A specific form of debt financing—project finance—has become one of the most important tools in mitigating risk in international infrastructure. According to *Project & Trade Finance*, the total value of global projects peaked in 1996, with \$224 billion in total deals signed.²⁹ Project finance is a unique form of financing in which financial institutions make loans or other investments tied directly to a specific project as opposed to taking out a bank loan or making a general debt offering backed by assets on the company's balance sheet. As such, the remittance schedule is associated directly with the income generated by a project such as a power plant, toll road, airport or telecommunications network. Only the capital stock, physical assets and contracts secure the remittance and cash flows associated with that plant subsidiary. Investors and lenders are satisfied to look initially to the cash flows and earnings of that economic unit as the sources of funds from which a loan will be repaid and to the assets of the economic unit as collateral for the loan. The balance sheet of the parent or developer is therefore largely protected from the risk associated with the specific project.³⁰

Project finance deals are typically cofinanced, and the participation of bilateral and/or multilateral financing such as the US Overseas Private Investment Corporation (OPIC), IFC or MIGA can help check host governments' recontracting tendencies. In the MidAmerican Energy dispute in Indonesia mentioned earlier, OPIC had insured the power project, and in 1999 paid out a claim to MidAmerica of \$290 million to compensate the company for its effective loss. OPIC, however, was able to settle its claim with the Indonesian government, effectively forcing the government to pay the company for its action. Riza Ramli, Indonesia's economic minister justified the settlement, saying: 'The US is our strategic partner. We don't want to have a confrontation with the US in regard to this issue.' Emir Moeis, a member of parliament, said that despite suspicions over some deals cut under the previous Suharto administration, this situation concerned 'the image of Indonesia before the eyes of foreign investors'.³¹

Entering early in the privatisation/deregulation cycle

Strategy experts have often recommended first mover positioning and various forms of alliances in order to accelerate market entry.³² In infrastructure, the ability to enter markets early, partner with incumbents, and localise ownership and governance of the projects may be especially valuable.³³ As mentioned above, the new role of government as regulator of the post-privatised competitive environment argues for consideration of partnership with local government and private firms to compete as a local firm and as a means to achieve protection from regulatory vagaries facing subsequent entrants. In Mexico and Brazil, initial entrants gained important beachhead positions that made it very difficult for followers to gain substantial shares of the markets, even when the market was nominally opened to competition. These first mover positions, and the persistent incumbency advantages that followed, were secured largely with the help of government policy, benefiting SBC and France Telecom (in the case of Mexico) and Sprint (in the case of Brazil).

In Mexico and Brazil, initial entrants gained important beachhead positions that made it very difficult for followers to gain market share

Partnering with local firms

Investors in developing countries have long recognised the value (and potential risks) of partnering with local firms. In infrastructure, such relationships are especially valuable because they help

investors establish credibility with local political and other groups, such as unions, and they also help identify foreign investors as legitimate contributors to local development efforts.³⁴

For example, in electricity, AES purchased a 13.75 per cent stake in the Sao Paulo electric utility Light Servicos de Eletricidade (Light), and in so doing, gained access to regional opportunities that may have been difficult without a local investment. In addition to the AES stake, Electricite de France and Houston Industries Energy each took 11.35 per cent of the utility. Light then paid \$1.78 billion for a 28 per cent equity stake of Sao Paulo power provider Eletropaulo Metropolitana that includes control of 75 per cent of the voting shares of the electricity distributor.³⁵ The purchase gives Light, and by extension its three foreign partners (including AES), responsibility for distributing electricity in Brazil's two largest metropolitan areas and completing a value chain of electricity generation and distribution, a purchase that would have been impossible for the three foreign partners without the local affiliate.³⁶

Bidding fairly and avoiding deals that may be perceived as one-sided

Investors are understandably tempted to negotiate the best possible deals when considering infrastructure investments. Sole-sourced agreements are especially attractive because they allow investors and governments to avoid lengthy negotiations and administrative procedures, and accelerate the project approval process. Yet some analysts have argued that investors should avoid generous sole-source (noncompetitive) arrangements and other imbalanced contract features because they may ultimately destabilise support for the investment, and in so doing, invite the wrath of political and citizen groups. Sole-sourced contracts appear to be at the centre of disputes over the Indian and Indonesian projects discussed above, while competitively bid contracts appear to have created greater project stability in the cases of AES's Mexican projects and the telecom privatisations in Mexico and Brazil.

A related issue is determining an appropriate risk-adjusted return. In the case of the Maharashtra project, Enron was seeking US dollar returns of more than 25 per cent. The CEO of one of Enron's competitors suggested that '9.6 cents per kilowatt hour was an outrageous, lopsided price and Enron knew it. That approach may be fine if you want to do just one deal, but any hope of follow-on business is lost with that kind of approach.'³⁷ By comparison, AES's Merida project provides electricity to citizens in the Yucatan at approximately 3 cents a KWH, less than the subsidised Mexican rate of 4 cents a KWH, and in the range of US prices. This very favourable price helped ease any nationalistic concerns that might have been voiced over the fact that AES would assume complete ownership of the plant under the BOO agreement.

Structuring contract tenor to match upstream fuel supply with downstream service

As mentioned above, many infrastructure deals involve a purchase agreement that obligates the downstream service distributor to purchase electricity, water or telecommunications service for an agreed price over a particular period of time. In the case of the Enron deal, the MSEB was obliged to purchase the output of the Dabhol project at a fixed price per KW over a fixed term. Enron was responsible for managing fuel supply, and the original project structure called for development of a gas project in the Middle East and the transportation of liquefied natural gas (LNG) to Dabhol using a train of special tankers. This arrangement was one of the first to come under fire because of its high costs. When the incoming government repudiated the deal, Enron was forced to agree to a revised deal that would reduce power rates, capital cost and other expenditures, and switch to NAPTHA, a locally produced fuel. In the case of AES's Merida project, the negotiated agreement included a match between AES's 25-year agreement to sell power to CFE, and a 25-year fuel-supply contract to purchase natural gas from the state oil company, Pemex, through CFE. This symmetry meant that any change in the downstream obligation would naturally disrupt the upstream fuel supply contract with a related government corporation, partly insulating the project from the potential for pressure to reduce prices and/or alter service obligations.

Engaging stakeholders and pursuing ‘social legitimacy’

In addition to leveraging bilateral and multilateral agreements and opting for specific operational approaches such as project finance and local partnerships, firms should consider more strategic stakeholder identification and management activities, and the development of a proactive approach to attaining and maintaining social legitimacy as a way to protect against risks. Stakeholder management is focused on those interests and actors who affect, or in turn, are affected by the corporation.³⁸ Stakeholders’ interests may be aligned with those of the host government, of the MNC, or may reflect a combination of both or neither.

Stakeholder management may lead investors to establish relationships with opposition parties and interests in environments that may be subject to rapid political change. In the last half of the 1990s, leaders of a number of countries in which autocratic or dictatorial governments controlled negotiations with foreign investors have been toppled. The ousting of leaders in Peru, Indonesia, Malaysia, the Philippines and Venezuela has led to a backlash against incumbent foreign investors and forced many project leaders to withdraw or renegotiate the terms of their investments. In Indonesia, President Suharto’s 30 years of dictatorial and nepotistic government has been totally discredited, and those investors whose reputations are closely associated with his legacy face a challenging environment for preserving the economic viability of their presence. Had investors made low-level contacts with these opposition groups, they may have aggravated existing relationships with government, but secured some protections for the future. *Knowing when—and how—to exercise such relationships is a difficult but necessary strategy.*

Stakeholder management also suggests that nongovernmental organisations (NGOs) should be viewed as important actors and not just organisations that provide input via governments.³⁹ The examples above illustrate the power and influence of nongovernmental and broader civil society in undermining the stability and longevity of infrastructure deals. Even in hypersensitive projects such as dams, stakeholder management through consultation can pay off. AES was eager to build a \$550 million 200MW–250MW dam in Uganda, but met objections from environmentalists and local opponents who said the project was ecologically damaging, financially flawed and ignored the Nile’s ancestral spirits. In spite of the problems, AES was able to secure financing and begin construction after it conducted environmental impact assessments showing that the dam would have a relatively small impact. It also helped to modernise local schools, built a cultural centre for traditional rulers and compensated and resettled affected residents. A report noted: ‘In all respects, the project’s resettlement efforts are outstanding in the global context.’⁴⁰

Implications for management research and practice

International infrastructure remains a high-risk/high-reward area for business investment activity. Project developers, banks, securities firms, insurers and equipment suppliers have much at stake in ensuring that investment is welcomed and not unfairly threatened by the shifting sentiments of government policymakers or other stakeholders. At the same time, governments also have an interest in making certain that investment projects continue to generate needed income, jobs, exports and technology. This recognition has caused many developing countries that once rejected foreign infrastructure investment to embrace it, and instead of thwarting investment plans of MNCs, many countries are now competing aggressively for that investment.

Implications for investors

The results of our analysis suggest that MNCs should adopt more strategic, long-term and variegated responses to their infrastructure investments. Early investments in privatising markets, while risky, may position the firm for a favourable future position. In addition, MNCs must sometimes resist temptations to negotiate a maximum return in the short term, and instead seek to achieve a fair return while laying the foundations for additional opportunities in the future. Traditional capital asset pricing models may not always guide investors toward a strategy that balances pressures for short-term profits with longer-term credibility. While firms should seek support from their home government, multilateral agreements and arrangements may be less politically charged

than home country pressure, and yet accomplish the same essential goals of securing investment sovereignty. Partnering with local firms (and not necessarily just those that are currently in favour by the government) may insulate the investment from challenges lodged by opposition groups and NGOs. Credibility can be further enhanced by inviting a range of interests to the bargaining table, even if it delays the project.

In a few cases local firms will be in a position to serve as the general developer for large infrastructure projects. Hence local firms will almost always rely on foreign partners as co-developers. In this regard, choice of a foreign partner may be even more important for local firms, than choice of a local partner is for foreign ones. A credible partner that will be viewed as reliable by government and other groups brings significant goodwill and resources to the table.

Implications for governments and governance

Managers and management scholars are increasingly focused on questions of 'governance' in their evaluation of the political, legal and economic environment for investment. Specifically, states in which rules and commitments are malleable and subject to political influence should cause investors to pause, even when those states have espoused free-market policies and liberalisation programmes. In some instances, states simply do not have the governance systems in place to deliver their promises. In India, rules and procedures promulgated by the federal government were effectively overturned by subcentral governments. Similar challenges have been encountered in Brazil, where state governments wield substantial power, and economic and financial hardship have resulted in a populist reaction to privatisation and liberalisation.

Countries that take a slower and more methodical approach may end up as the winners over the longer term

Our analysis suggests governments should pursue a measured and orderly approach to liberalisation and market opening. India's effort to 'jump start' this process appears to have backfired, while Mexico, where state control over energy resources is enshrined in the constitution, took a much more measured approach. Following revisions to the Electricity Law in 1992, the Mexican government began granting access to the power industry to private-sector companies under either the BOO system, where private investors build, own and operate a plant and market electricity to power companies, or the BLT system, where private investors build a plant, lease its facilities to the Comision Federal de Electricidad (CFE), and transfer ownership to CFE at expiration of the lease term. This two-tiered approach helped insulate the programme from domestic concerns about foreign ownership of energy resources.

Developing countries frequently feel pressure to accelerate the process of reform, often at the urging of institutions such as the International Monetary Fund and foreign governments that are eager to see immediate results. Yet, as the Asian economic crisis has partly demonstrated, those that take a slower and more methodical approach may end up as the winners over the longer term. The example of China (versus India) may further validate this approach, as the former undertook a gradual process of liberalisation over a decade or so, while the latter tried to accomplish the same objectives in a few years. While China does not face the ethnic and religious divisions of India, there is still a lesson for other developing countries. In 1996, around the time that India was attempting to implement its accelerated power liberalisation programme, China's then State Planning Commission Chief Chen Jinhau said that the ninth Five-Year Plan, due to start in 1996, would focus on making industry more efficient and on improving industry's technical capabilities. Privatisation of state-owned enterprises is not the first goal. 'We need more efficiency, quality, and technical progress. That will be our focus,' said Mr Chen.

Implications for managerial research

We have argued that the traditional bargaining model in which MNC investors trade off technology and other resources with host governments for the right to invest has itself 'obsolesced'. Instead, a much more complex and interactive model has emerged, with additional actors and institutions, and new points of exchange. New actors include not just home and host governments, but bilateral and multilateral financial institutions, local firms, NGOs and supranational institutions. The possible bargaining forums in which negotiations take place have multiplied accordingly. Hence, researchers must shed additional light on these emerging systems that transcend the simple bilateral bargaining relationships originally described by Vernon and others. This task will be challenging, as the existence of these multiple actors means there will be unforeseen developments and unpredictable outcomes.

In addition, the capital asset pricing model, which serves as the central organising framework of a financial approach to capital projects investment, clearly has limits when it comes to analysis of developing country infrastructure. Even when such models are adjusted for risks, they may never be able to incorporate the range of qualitative variables that have shown to influence infrastructure. Again, paradoxically, the very risks that drive investors to seek greater returns for their investments may imperil those investments by pushing investors to search for returns that are unsustainable in the face of political pressures—by seeking such high returns, investors actually increase the risks that the investments will fail.

Conclusions

As governments face new pressures and concerns about the structure, form and social and environmental costs of infrastructure investment, investors must initiate financial, operational and social-political strategies that are responsive to these pressures. Such responses can help mitigate risk and increase the likelihood that projects remain viable and sustainable. Through this process of continuous and dynamic strategic management of infrastructure risks, companies may be in a position to mitigate some of the most severe risks and reduce the costs of uncertainty associated with their investment. In so doing, they may have the opportunity to generate the best of the benefits of such investments, not just for themselves and host governments, but the ultimate beneficiaries of infrastructure development—societies at large.

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Biographies

Jonathan Doh is Assistant Professor of Management at Villanova University and member of the Executive Faculty at GSBA-Zurich. A Senior Associate at the Center for Strategic and International Studies and consulting advisor to the Global Energy Group of Deloitte Touche Tohmatsu, he was previously a U.S. government trade negotiator. His research focuses on international strategy, business-government relations, the telecommunications and energy industries, and corporate social responsibility. Recent publications have appeared in *Academy of Management Review*, *California Management Review* and *Organizational Dynamics*. Email: jonathan.doh@villanova.edu

Ravi Ramamurti is the Walsh Research Professor at Northeastern University, Boston, MA, and a frequent lecturer at IMD, the International Management Development Institute, in Lausanne, Switzerland. He studies business-government relations and corporate strategy in emerging economies. Recent publications have appeared in *Academy of Management Review*, *Journal of International Business Studies*, and *World Development*. He has advised a number of governments and corporations on international development and investment strategies. Email: r.ramamurti@neu.edu