



# Paving the Path For India's Growth

by Andrew Chen and Jennifer Warren

**B**UDGET TIME IN India always brings fresh feel-good spending measures to improve the lives of the rural population. And with parliamentary elections probably less than a year away, Finance Minister P. Chidambaram took no chances politically this February, rolling out debt relief for farmers. Meanwhile he counted on continued fast growth to hold down the deficit. The big question in many investors minds now should be whether India can continue to achieve the necessary growth without greater government emphasis on building infrastructure. The Reserve Bank of India recently reported that “infrastructure bottlenecks are emerging as the single most important constraint on the Indian economy.”

According to New Delhi's own Eleventh Five Year Plan, the country needs to spend 9% of GDP on infrastructure by the end of 2012, compared to the current 5%. A lack of water and sanitation; poor seaports, airports and roads; and unpredictable energy supply all serve to discourage new private-sector investment. In order to

catch up with China's infrastructure stocks, India would need to invest 12.5% of GDP until the year 2015. Better infrastructure is one reason that in 2006 China attracted approximately \$34.8 billion in FDI compared to India's \$16.9 billion.

In the last several years, India's central and state governments have put out the welcome mat for the international investment community, proclaiming that the infrastructure sector is open for business. In 2007, high-level meetings between Indian and U.S. officials and executives sealed deals to set up new funds for infrastructure. Alongside the Indian government, Citigroup, General Electric Co., Macquarie, and Deutsche Bank, among others, have committed nearly \$16 billion thus far. But the Indian government estimates roughly \$500 billion is needed by the end of 2012 to sufficiently upgrade roads, ports, airports, power and other forms of infrastructure.

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Many factors play a role in the infrastructure challenge. Large-scale projects are inherently risky, since they require massive capital outlays with long completion times, with the possibility that the political or regulatory environment could change. In India, cases of corruption and political and economic risk make investors hesitate.

The classic example is the Enron-Dabhol power plant in Maharashtra state. The \$2.9 billion project, 180 kilometers south of Mumbai, was initiated in April 1992 by the now defunct Houston-based Enron. Bad contracts, politics and economic circumstances ultimately doomed the initiative. Allegations of corruption abound. Construction halted on the final phase in 2001 and the plant closed. The four-fifths completed Dabhol power plant was to have been the largest independent liquefied natural gas power plant in the world. In the end, the Indian economy and final consumer lost out. (The plant is under new management as Ratnagiri Gas and Power.)

## Underpinning the Construction

ONE WAY TO reduce the risks is the public-private partnership, a structure the Indian government is now promoting. But the PPP is not without its own set of potential problems. Under this arrangement, the government and private parties are bound by long-term detailed contracts which spell out the rights and obligations of both parties. The rationale of both PPP and BOT (build-operate-transfer) approaches in infrastructure finance is to attract private-sector participation and capital, increase efficiency through proper economic incentives, and to share the project risk between the government and the private sector. On the surface, the traditional PPP idea plays well and is appropriate for a large portion of infrastructure needs. International organizations such as the World Bank and

International Monetary Fund have urged countries across the globe to adopt the approaches of BOT and PPP.

While India has received global acclaim in information-technology services and business-processing exports, its infrastructure troubles slow the potential for economic growth in other sectors. India's infrastructure sector has been characterized as "being led by contractors and players in the trades," according to findings from a 2007 infrastructure conference in New Delhi. One objective of the Indian government is to increase the role played by financial investors in realigning economic incentives.

In India, power generation tops the list of infrastructure needs. In this mostly state-run sector, losses and subsidies are estimated at 1.3% of GDP, with unpaid electricity liabilities a further 1.1% of GDP, according to a recent study on infrastructure spending by Steven Wilkinson of the University of Chicago. But the data also suggests that India's growing middle class is more willing to pay for good quality and service, offering an opportunity for the private sector. The government recently awarded two "ultra" megapower projects, easing the bureaucratic and regulatory hurdles (and fuel linkages) to help reduce risk to investors.

In roadways, the BOT approach is already common, but now national highways are increasingly incorporating the PPP approach. To compete, roadways projects need to offer market returns to attract global players, as they have done in the U.S. and European Union.

Urbanization is driving the need to both build and update infrastructure with large populations living in urban areas—28% of India's approximately 1.1 billion population. More than 80 million urban citizens below the poverty level have little or no access to basic infrastructure such as water supply and sanitation. Treatment

of the resulting water-borne diseases are estimated to cost the government between \$15 billion and \$20 billion. There are no known “model” approaches in water and sanitation. Cities will need to take stock of their specific conditions and primary needs, and reform accordingly. Few successful water PPPs exist, but there are some success stories around the globe—one in Manila and another in Senegal.

The new airport deals in Delhi and Mumbai created high visibility for the government’s airport reforms. Infrastructure experts from a recent PPP infrastructure conference in India suggest that an array of financial players with varying levels of risk appetite—from contractors and trade investors to listed funds portfolios—could be enlisted to bring more innovative financing approaches to the infrastructure table. However, concerns have been expressed of a “bubble” forming in the airport sector which is characterized by high gearing in financial structures and high market values for these transactions.

## A Tale of Three Indias

INDIA’S REGIONAL DISPARITIES in terms of growth and specialization tell a tale of a two-speed, divergent India with implications for infrastructure development as a key piece of the puzzle. Under typical patterns of economic development, countries or areas tend to go through labor-intensive manufacturing cycles before they specialize. But in India, fast growth states or areas have skipped “directly to skill- and capital-intensive industries (within manufacturing) or to services, where they appear to have a comparative advantage,”

### BUILDING INDIA

*India’s expected annual expenditure needs by infrastructure sector, 2006-10*

	TOTAL INVESTMENT	
	\$ BILLION	% GDP
Electricity generation	25.3	2.86%
Paved roads	23.3	2.62%
Rail routes	1.6	0.18%
Telephone mainlines	4.5	0.51%
Mobile	4.8	0.55%
Improved water	4.6	0.46%
Improved sanitation	5.3	0.52%
<b>Total</b>	<b>69.5</b>	<b>7.70%</b>

SOURCE: CHATTERTON AND PUERTO, 2006. IN 2004 DOLLARS. ESTIMATES ARE TO SUSTAIN GDP GROWTH NEAR 7.5% PER ANNUM AND REPLACE OLD CAPITAL STOCKS. TOTALS MAY NOT TALLY DUE TO ROUNDING.

according to a 2006 International Monetary Fund working paper. That is, leading regions such as Delhi, Karnataka and Maharashtra that embraced the IT wave within their first-tier cities have realized faster growth and rising incomes alongside better infrastructure offerings.

Conversely, the lag-gard regions—Bihar, Madhya Pradesh, Rajasthan and Uttar Pradesh—have less-educated, faster growing populations, which will likely follow more traditional economic growth and development patterns. These areas will also be a political force for redistributing resources unless they have an incentive to reform governance, business climates and infrastructure offerings.

But what about the infrastructure opportunities for states in the middle which neither lead nor lag—such as West Bengal, Haryana, Andhra Pradesh or Uttarranchal? Might a new approach help West Bengal leapfrog its development challenges and reclaim its leading position in India?

In West Bengal, the state has identified key infrastructure needs: light rail in Kolkata, a new greenfield airport, a mega-petrochemical facility near Haldia (the principal industrial center), and a nuclear power plant at Haripur. These are just a few of the specific projects in which the government wishes to attract private investment, though many other needs are evident.

For greater logistics capacities, airports and ports are being modernized and upgraded, as in Kolkata. To provide greater access to the Durgapur-Anasol region, a prominent industrial and mineral-rich region, a new airport was announced in mid-2007, along with a township and IT and

logistics hub at Durgapur. As a gateway for international trade, improving connectivity to Haldia port has been a priority with two large BOT highway projects underway, led by a Malaysian consortium. Expansion at Haldia port is coming by way of a \$33 million BOT project. A new port Kulpi (which includes a proposed new greenfield special economic zone), led by Dubai Ports, was agreed to in 2004 but is still under consideration awaiting approvals from Kolkata Port Authority.

Discussing West Bengal opportunities in late 2005, a U.S. consul said that large projects which offer scale and scope are needed to attract big investors. A U.S.-based infrastructure project management firm, Astonfield Management, will construct two renewable energy projects—one a biomass project and the other the largest solar plant in India in Bankura district. Over a two-year period, this group expects to spend \$1.5 billion in India. In general, however, infrastructure shortfalls are posing a risk—with good roads, easy access to power, and water, cited, for example, as potential stumbling blocks for Tata Motor's car plant in Singur (outside Kolkata), which is currently under construction.

Given the widespread infrastructure needs across India, a progressive approach is needed that levels the playing field, deters political and policy risk, and develops more efficient, transparent market mechanisms. However, some severe problems based on the current "contract finance" approaches of BOT and PPP make them less desirable for infrastructure development now and in the future. A new approach should be considered—one based on market efficiencies, offering a truer form of sustainable PPP.

### **Shortcomings of PPP and BOT**

THESE TWO APPROACHES to infrastructure finance suffer the "plums" problem

where the buyer (bidder or firm providing capital) often knows more about the quality and economic value of the project than the seller (government agencies). Having better knowledge of the project's costs and value gives incentives for political games, corruption and waste. In the past two decades, this dynamic has created inefficiencies and added costs, resulting in the failure of many large-scale projects around the world. The \$2.9 billion Enron-Dabhol project highlights some of the complexities surrounding infrastructure projects. In this case, there was a lack of competitive bidding, unfair contracts and limited knowledge by the seller (the state government) in terms of project scale, technologies and complexity.

The plums story repeats itself over and over in infrastructure projects world-wide. The many cases of cost overruns observed around the world are likely the result of low bids by project sponsors to secure projects. Of the 837 central government-sponsored infrastructure projects in India (end of June 2006), 23% of projects had cost overruns of an estimated 43%. The World Bank pointed to bad negotiations in PPP and BOT investment projects as the source of billions of dollars lost during the Southeast Asian financial crisis. Consequently, project sponsors and investors may then be deterred from future projects in a host country.

With current "contract finance" approaches, the bidding process is often inefficient. Research by Mr. Wilkinson revealed that corruption in infrastructure projects often has political roots—the National Highway Authority of India being one such case where the competitive bidding process had historically been sabotaged by politics and special interests. Successful financing of major infrastructure developments is too important and vital for the rapid economic growth of many developing countries to simply be left in the hands of politicians with "special interests." Instead, project fi-

PROJECT	DEVELOPER	COST
New Delhi Airport upgrade	GMR Group (includes Fraport AG Frankfurt Airport Services Worldwide and Malaysia Airports Holding Berhad)	\$1.94 billion
Sugen Power Plant	Torrent Group in Akhakhol, Gujarat, India (megapower project status)	\$774 million
Cochin Port Project	Dubai Ports World international container transshipment terminal (ICTT) (as India Gateway Terminal Pvt. Ltd.)	\$529.5 million
Golden Quadrilateral Highway	National Highways Authority of India	\$12.3 billion
Ultramega power plant at Sasan, Madhya Pradesh (4,000 MW)	Reliance Power	\$5 billion
Ultramega power plant at Mundra Gujarat (4,000 MW)	Tata Power	\$4 billion

SOURCE: VARIOUS

nance should be guided by the invisible hand of global capital markets.

Inefficiencies in current approaches show up in negotiations and bidding processes which require lengthy amounts of time and effort for completion. The initiative for a new international airport in Bangalore began in 1995, with private companies' negotiations becoming quickly entangled in policy disputes. The consortium led by Germany's Siemens was finally selected in 2001, with Tata Group's consortium backing out. Finally, construction began in 2005 with operations expected this year. This example illustrates the opportunity costs from institutional inefficiencies. India has a reputation for bureaucratic red tape, especially in the more economically backward regions which tend to have more entrenched local political and business interests or clientelism.

Similarly, the risk that a government will discriminatorily change the law, regulations, or contracts governing an investment, or policy risk, is a problem for investors and consumers in developed and developing countries alike. Under these approaches, project contracts can be nullified, posing significant political risks to private firms. Water and power projects from Oris-

sa to Kerala have met with public contention over high tariffs without increased quality, poor service, and a lack of transparent public information about processes and goals. High bids are noted in port projects in India due to policy risk. These reversals are not unique to India however. Examples of reversals show up in countries world-wide, from the Philippines to Thailand to a private toll-road project in Dallas, Texas.

Finally, the two approaches suffer from a lack of diversification and liquidity. Project sponsors with concentrated equity bear almost all the risks—both financial and political—and also lack diversification in these risks given the small number of participants in project finance.

## Let the Markets Decide

GLOBAL CAPITAL MARKETS offer a viable source of diverse funds, promote better governance, and bring efficiency and transparency to the infrastructure puzzle. The experiences to date with privatizations and securitizations suggest that a “market finance” approach, which creates immediate private ownership of public-investment projects among diverse groups of investors, may lead to more efficient and successful infrastructure development.

Market-based financing solutions can help bring more rational economic decision making to infrastructure projects and the “real” economy. Projects should be founded on cost-benefit analysis for which the government has an important oversight role. Currently, Indian government and regulatory bodies are being reconfigured to make way for the private sector in-

**AIRPORTS**

New international airports at Bangalore and Hyderabad with an expected \$600 million investment. Investment needed for airports estimated at \$15 billion over five-year period.

**POWER PLANTS**

Over 900,000MW of new generation capacity needed in the next seven years, including investment in transmission/distribution networks. India needs \$200 billion up to 2012. Peak demand shortfalls of 12%, and average energy shortfalls of 7%.

**PORTS**

Investment needed of \$13.5 billion for India's 12 major ports and \$4 billion for 185 minor ports. Government-sponsored "Sagarmala" project for ports modernization projected at \$22 billion.

**ROADS**

India's second largest road network in the world, will need \$50 billion to \$60 billion in next five years. Government spends \$4 billion per annum for roads development.

SOURCE: WWW.INVESTMENTCOMMISSION.IN

involvement in infrastructure PPPs, which currently funds projects in the realm of 1% of GDP. Chile increased private-sector participation to 5% of GDP, and limits its government's service provision to passenger rail and small airports.

The financing of projects should be guided by global capital markets' invisible hand to determine the economic value of an infrastructure project and provide the necessary resources for construction, operations, and maintenance. In this truer form of public-private partnership, government focuses on identifying and facilitating the project and then allows the private sector to create an efficient, sustainable public-works asset that offers a financial reward to risk-takers and its owners. With contractors and the trades leading project development versus investors, incentives of a plums nature exist.

Project securitizations or initial public offerings of project securities can be designed with financial innovations for any new large-scale infrastructure project. This would create diversification, liquidity, and mitigate many of the problems that accompany existing approaches in financing infrastructure. It would also begin to unravel the perverse incentives in infrastruc-

ture spending in India, and foster transparency.

This approach would bring true private sector participation for economic development of a social nature. It would ensure ample funding, strong interest, and awareness of a project on a global scale. Managerial incentives could be more aligned with productivity, thus reducing the widespread problems of cost overruns and inefficiency. India's governments'—central, state, and local—could be allocated project securities to achieve true public-private ownership.

Financial innovations in the securities offering can serve as both a deterrent and an incentive. For example, including event-risk provisions in project bonds can deter politicians' attempts to make undesirable policy changes. This can ultimately foster a more investment-friendly environment, prized by India. Sound decisions and proper management will bring its own reward through enhanced project value and the value it brings to the community and economy at large, which must be communicated to stakeholders. In the end, the explicit costs of debt financing for infrastructure would be lower. Of great consequence, the invisible hand may prove more capable in setting infrastructure project agendas which span varied administrations and political agendas.

The Indian government should rethink how infrastructure development is hampered by bureaucracy, corruption and macroeconomic stability. These areas beg the question of how to reconcile existing infrastructure-financing approaches with a country's desire for better governance and a more attractive business climate for private investment. With India's democracy a source of national pride, why not democratize assets in a way that both public and private sectors work together? With central and state governments' hold on infrastructure provision slowly giving way, both private and public sector owners of PPP

infrastructure assets can set the agenda with the best of market-based practices.

This new approach complements public-private sector developments in progress. While the central and state governments continue to build capacity to facilitate further private sector involvement in infrastructure, municipalities have a role in smoothing the process by including the vested stakeholders—the citizens who elected them. India's use of IT, bringing transparency and information to the process via its PPP portal, is one piece of the equation to create market mechanisms.

Progressive ideas are emerging across the development spectrum. In the village of Avasari Khurd, for example, 40 kilometers from Pune, in the state of Maharashtra, land-acquisition problems are being dealt with in an innovative way as farmers, working together with an industrialist, have become stakeholders and shareowners in an SEZ. A further integrated approach—connecting local government to investors whether corporate or the local public—would enhance investor interest. Inclusiveness ultimately reduces project risk and fosters more successful long-term outcomes.

Importantly, the innovative market finance PPP applies to the launch of new infrastructure projects, utilizing financial innovations to mitigate risk and participate in gains. The capital market finance approach can also be applied to groups or consortia of new smaller-scale projects related by sector or geography. The Mundra Port

IPO, a first-of-its-kind private port (and SEZ), raised nearly \$450 million, attracting \$2.1 billion in bids. Notably, eight Indian infrastructure equity funds outperformed global peers in 2007.

Individual and institutional investors alike enjoy new choices in social investment. With pension funds seeking better returns through alternative assets, holding a portion of an Indian power plant or water utility is not so far-fetched. Hedge funds are already doing so. Greater access to global capital markets can further expand the mix and amount of resources available for development and sustainable growth as in the case of India.

In addition to physical infrastructure, India has a solid foundation in “soft” infrastructure. A reliable banking system, functional capital markets, a well-developed legal system and educational opportunities underpin India's political and economic life. The appearance of many diverse stakeholders—foreign investors, governments, and domestic investors and consumers—can further catalyze the reforms India needs. Prior methods of infrastructure project finance have worked, but at costs hidden to society.

Parts of the vicious cycle of infrastructure project finance can be turned more virtuous. Infrastructure-challenged India represents a “greenfield” opportunity for a new approach that would attract the financial resources for sustainable development—and more fully include India and its citizens in the global economy. ■

