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THE INFRASTRUCTURE SECTOR IN INDIA, 2005

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Infrastructure development has a key role to play in both economic growth and poverty reduction. Investors, policymakers and citizens alike acutely feel the constraint of physical infrastructure on economic growth. Many of the ingredients for rapid economic growth and poverty reduction in India are already in place and the transformation of the lives of millions seems within reach. Yet there is a long way to go. The challenge of finding the money to invest in infrastructure projects without jeopardizing fiscal health has been keeping policymakers on their toes. In this chapter we discuss the efforts made by the government in this area.

Many initiatives taken in the infrastructure sector, laudable as they are, are coming under the scrutiny of the public and the investors. The commercialization of infrastructure is not progressing fast enough to provide decent living conditions to citizens at large. Young India struggles daily to reach school and workplace and yet remains optimistic. We describe here, recent developments in different sub-sectors within the infrastructure sector. Challenges are emerging with changes in technology in the telecom sector. Development in the power and transport sectors is slowing down due to a plethora of issues, which we study here. Within the transport sector we map the growth trajectory of those sub-sectors that are expanding rapidly. Within urban infrastructure we take note of the important projects in progress and study the consequences of long-term policy failure.

NEW INSTITUTIONAL MECHANISM FOR PPP

Progress in creating new infrastructure has been slow while demand for infrastructure services is burgeoning. While it is

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clear that private sector is keen to participate in infrastructure projects, organizations are very cautious in their approach. Given the risks involved in large projects the government has realized that only public sector involvement with central government development assistance for infrastructure projects is not adequate to meet the challenge. Unless the government assures availability of funds at rates of return appropriately adjusted for risks, the private sector is unlikely to venture into infrastructure in a big way.

Recognizing the imponderable risks, which infrastructure projects entail, with long gestation periods, high costs and budget constraints, the government has proposed a flexible funding scheme, which will find support from budgetary allocation to fund public-private-partnerships (PPPs) for infrastructure projects. The government has proposed India Infrastructure Finance Company (IIFC) and formulated a scheme to support PPPs in infrastructure. As part of this scheme, PPP opportunities are to be awarded through competitive bidding in a transparent manner and for each project, performance is to be assessed against easily measurable standards, based on unambiguously defined criteria, in order to inspire confidence among investors.

India Infrastructure Finance Company

The Finance Minister announced a special purpose vehicle (SPV) to fund infrastructure projects in his 2005 budget speech. The SPV, India Infrastructure Finance Company (IIFC) is proposed to be a wholly owned government entity under the Companies Act. The authorized capital of the company is fixed at Rs 1000 crore and the borrowing limit for the current fiscal has been pegged at Rs 10,000 crore.

The company will fund projects in urban infrastructure, roads, power, railways, ports, airports, and tourism. The projects could be publicly or privately owned or could be schemes involving public-private partnerships. In case of projects

which need viability gap funding under a government scheme, IIFC will also fund these provided their viability is assessed by the Inter-Institutional Group (IIG) of banks and financial institutions consisting of IDBI, IDFC, ICICI Bank, SBI, LIC, Bank of Baroda and Punjab National Bank. The company will provide refinance to banks/financial institutions for loans of five years or more. It is hoped that the way National Housing Bank helped in the development of the housing market, the IIFC would be able to help in development of infrastructure in the country.

The borrowings of IIFC are to be guaranteed by the Union government. This is in marked contrast to a traditional SPV, which raises funds on the strength of a project's future receivables. Being a wholly owned government company, with lower return expectations and lower cost of funds emanating from a sovereign guarantee, IIFC will have the ability to bear risks at lower rates. The establishment of IIFC should accelerate the financial closure of many infrastructure projects and consequently, increase considerably, the size of the infrastructure loan market going forward.

Furthermore, since the appraisal of a proposed project for IIFC will be undertaken by the IIG, consisting of existing financial institutions, they will be fully involved in the projects supported by IIFC. This will ensure that the capital of IIFC is leveraged to the maximum extent possible by extending minimum crucial support to each individual project while structuring the funding in a manner that is complementary to the lending by existing financial institutions.

Scheme to Support Public–Private Partnerships in Infrastructure

The government has formulated a scheme to provide viability gap funds to infrastructure projects. The viability gap funding would make infrastructure projects commercially viable. It is a plan scheme to be administered by the Ministry of Finance (MoF). Funding under this scheme will be disbursed contingent upon agreed milestones (preferably physical) and performance levels attained, as detailed in a funding agreement. The project will then be put to bid by the concerned public agency through a transparent and open competitive process. The result of the bidding will indicate the extent of viability gap funding required, in other words, how much money is needed to make the project feasible.

In the first two years of the facility, funding will be allocated to projects on a first-come, first-served basis, subject to eligibility criteria. In later years, funding will be provided based on an appropriate formula that balances needs across sectors.

A lead financial institution will be responsible for regular monitoring and periodic evaluation of project compliance with agreed milestones and performance levels. The lead financial institution will release the viability gap funds to the project

authorities when due, and obtain reimbursement from the empowered institution (GOI 2005a).

The scheme covers roads, railways, seaports, airports, inland waterways, power, infrastructure projects in SEZs, international convention centres and other tourism infrastructure projects, urban transport, water supply, sewerage, solid waste management and other physical infrastructure projects in urban areas. Salient provisions under the scheme are:

- infrastructure asset indirectly owned by the government;
- project built and maintained by a private sector entity;
- project designed and an estimate of viability gap given by a government entity;
- viability gap fund—one time or deferred grant—provided by the government;
- viability gap fund not to exceed 20 per cent of the total project cost; but the entity that owns the project may provide additional grants up to another 20 per cent of the project cost from its own budget;
- a pre-determined tariff or user charge to be collected from users.

A revolving fund of Rs 200 crore shall be provided by the MoF to the empowered institution, which will disburse funds to the lead financial institution and claim reimbursement from the MoF. The government is yet to nominate the empowered institution to implement the scheme.

The new institutional mechanisms proposed by the government to build infrastructure are yet to bear fruit. Pace of development of different infrastructure sub-sectors has been quite uneven in the last two years. We capture essence of new developments in telecom, power, transport, and urban infrastructure and analyse reasons underlying the irregular pace of development and issues that have either helped in accelerating or impeding growth as the case may be.

TELECOM

In 2004–5, the biggest improvement in telephony was in voice services. Prices dropped dramatically to the point where India is now as competitive as developed markets. The steep cut in mobile STD rates and the availability of cheap mobile handsets can be expected to lead to further growth in coming months (Figure 1.1). The government has set a target of 200 million users by 2007—a goal that will require an addition of more than 3 million new users every month (TRAI 2005a)¹.

Service quality, a major problem in the past, has improved significantly, but there is ground left to cover as India still lags behind many other countries in this regard, even within the developing world. This problem is particularly evident in

¹ In the months of August, September and October 2005, the subscriber base for telephony services increased by 3, 2.87 and 3.24 million, respectively.

data services, whose quality has deteriorated with problems in last mile access. India needs to address these issues quickly because reliability is more important than low prices, especially for IT enabled services which provide significant employment opportunities in urban India and are making rapid inroads into rural India as well.

Recent Developments

The telephone subscriber base grew by 35–40 per cent per annum in the period 2003–5. India achieved teledensity of ten in August 2005—a target set for 2007—making India’s phone network fifth largest in the world. The subscriber base of private telecom operators is now more than that of public sector companies—Bharat Sanchar Nigam Ltd (BSNL) and Mahanagar Telephone Nigam Ltd. Private operators owned 50.24 per cent of the total 107 million subscribers’ market, comprising both landline and mobile segments. Private operators had 53.76 million subscribers by the end of July 2005, while the two PSUs had 53.24 million. The surge by the private operators is largely due to the growth in mobile usage (TRAI 2005a).

While private operators account for 47.33 million mobile users as of 31 July 2005, the state-owned companies, which entered the mobile segment rather late, service only 12.5 million mobile users. On the fixed line, however, the PSUs continue to rule the market with 40.74 million subscribers compared with 6.43 million subscribers on private operators’ network.

However, BSNL is still the largest operator in the country controlling 44.8 per cent of the total telecom services market with 47 million subscribers. Reliance is the second largest operator with 13 per cent market share. Bharti, which provides cellular services under the Airtel brand, has emerged as the biggest mobile company with a customer base of 12.79 million accounting for 21.38 per cent of the market in this segment.

Rapid spread of mobile telephony has led to an emphasis on value-added services (VAS) like SMSs, ringtones, news and cricket scores along with voice telephony. The operators have an incentive to provide such services, as profit margins are higher in this category as compared to voice telephony. In response to competition faced from private sector operators BSNL has been in the forefront in spreading last mile access and services throughout the country in the last two years. BSNL is targeting more than 1000 per cent increase in its revenues from VAS in 2005–6. In 2004–5, BSNL earned revenues amounting to Rs 45 crore from VAS alone.

The TRAI report on performance indicators of various telecom services suggests that broadband usage is increasing in the country (TRAI 2005b). On an average, each internet subscriber used 305 minutes per month and the average revenue per user (ARPU) per month for internet service was Rs 220 during January–March 2005. Broadband subscribers in India grew by 290 per cent from 0.47 lakh to 1.83 lakh in the same quarter. The tariff war in the broadband segment is intensifying. BSNL reduced its broadband usage charges by 50 per cent from Rs 500 per month to Rs 250 per month for a 256-kbps connection in August 2005. By the end of August 2005, total broadband connections in the country have crossed 5.3 lakh.

Worldwide Interoperability of Microwave Access (Wi Max) based solutions could extend the range of broadband backhaul and provide fast reliable, scalable, and cost effective, standard-based wireless broadband connectivity to villages. Facilitating connectivity anywhere anytime could become a reality in a couple of years in even sparsely populated rural areas (Box 1.1). The Department of Telecom (DoT) has announced a state wide area network policy extending network connectivity right up to the block level by expanding the existing National Informatics Centre network to the districts (GOI 2005b).

On the wireless local area network, popularly known as Wi-Fi, BSNL is set to provide 300 Wi-Fi hot spots in 24 cities by the end of August 2005. It has allowed users free access on Sundays. The telecom major has already identified cities where it will set up Wi-Fi hotspots in a phased manner. These locations are selected depending on customer usage profile. BSNL has chosen Calcutta, Chennai, Bangalore and satellite towns of Mumbai and Delhi for the first phase of the rollout. BSNL’s plan to roll out Wi-Fi spots is driven by the goal to achieve 70 lakh broadband subscribers by 2007.

In order to expand rural telephony, government introduced a transparent and benchmark-based support system through an open bidding process (TRAI 2005c). As part of this scheme, BSNL invited bids from private players to roll out wireless rural telecom network on a Build, Own, Operate and Transfer (BOOT) model. The successful bidder is expected to function as a BSNL franchisee on a revenue share basis. BSNL, however, will not give franchise to any company that already has a licence to offer telecom services.

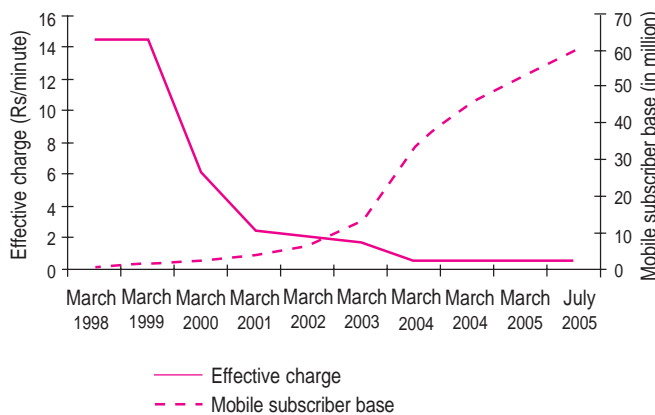


Fig. 1.1 Cellular Mobile Growth and Effective Charge per Minute

Source: GOI (2005 b)

Box 1.1
Wireless Broadband Technologies

The power of Wi Max (802.16) can be effectively used to create hot spots, extend the reach of last mile access, and provide broadband facility to any village. Various technologies are available for providing services in a converged way through broadband medium. At present, wireless technologies, which can provide broadband facility include GSM/CDMA, Wi-Fi, Wi Max, High Speed Data Packet Access (HSDPA), cable based broadband, VSAT based satellite technology, voice over internet protocol (VoIP), Internet telephony and Corrected Digital Enhanced Cordless Telecommunications (CorDECT). Salient features of some of these technologies are as follows (Table B1.1.1):

Table B1.1.1
Salient Features of Wireless Technologies

	3G (WCDMA)	Wi Fi 802.11a/b/g	Wi-Max (802.16 – 2004)
Range	Typical: 2–7 km	Upto 300 feet	Max: 50 km Typical: 5–10 km
Throughput	Up to 2 Mbps	11–14 Mbps	Up to 75 Mbps+
Functionality	Wide Area Networks	Local Area Networks	Metropolitan/Urban and Rural Area Networks
Usage Model	Higher mobility/Voice + data applications	Mobility/Enterprise connectivity	Fixed Wireless Broadband/DSL & Cable, Fibre Replacement

Source: GOI (2005b)

Private telecom companies have ventured into the global network arena. Flag Telecom, a leading global network service provider, is a Reliance Group company. VSNL—a Tata Group company—has acquired Teleglobe Inc. and Tyco Global Network. The former is a provider of wholesale voice, data, internet protocol and mobile signalling service and the latter has given VSNL control over a 60,000 km cable network spread over three continents.

Current Issues

One India

DOT is currently working out a regulatory framework for a uniform calling rate throughout the country—One India. The department proposes to do away with different rates for local and STD calls. If implemented, this would spell significant reform for the telecom sector. Implementation of this proposal will involve elimination of the current segmentation of the Indian telecom market into different circles and significant modification in the contentious Access Deficit Charge (ADC) system. Both of these have posed significant obstacles to a liberalized telecom environment. Access deficit is meant to compensate for revenue shortfall in legacy networks, especially in rural areas. Access Deficit Charge, currently applied to national and international long distance calls, too will need to be modified. The challenge of managing conflicting interests

of telecom operators and licence conditions agreed to in the past remains.

3G telephony

There exists an insatiable thirst for information and learning, and there is ample scope for online learning to thrive in India as well as abroad. But for this potential to be realized, the service must be supported by sufficient broadband speed. Broadband-based internet access unblocks distribution channels and opens up a huge new audience. Within the telecommunication sphere two new technologies are taking hold (Box 1.1). One is the penetration of broadband where ‘always on’ becomes the norm and second is Wi-Fi. Once a critical mass of people is connected to the web in always on mode, a new form of behaviour—how to communicate and find information—will take over. This, combined with Wi-Fi technology in a household implies voice over IP for that household, and the end of phone bills as we know them now.

Interestingly, the Cellular Operators’ Association of India, representing GSM operators, was opposed to any entry fee for 3G services. But their CDMA counterpart, the Association of Unified Service Providers of India, favours a one-time entry fee. DoT is not agreeable to levying of an entry fee as it may lead to legal disputes. Existing telecom licences permit all types of services and do not distinguish between second-generation and third-generation (2G and 3G) services. There

is also a clause in the license agreement that prohibits an entry fee for a new service. Hence, revenue-sharing is emerging as the best option, rather than imposing a one-time entry fee.

The Union Government is expected to announce a pricing policy for 3G spectrum soon. The DoT committee set up to look into the TRAI's spectrum recommendations has submitted its report. The committee has rejected the idea of an auction of the 3G mobile spectrum citing previous experience in telecom licensing and the more recent FM broadcasting imbroglio. The committee has agreed with TRAI's suggestion to link allocation with subscriber base numbers. The committee has recommended that since 3G spectrum is to be given to only existing operators who meet the subscriber base criteria, no additional charges be levied. It has also said that no entry fee be charged from existing service providers. On the pricing front, the report mentions a reduction of spectrum charges from the current 6 per cent to 5 per cent of annual gross revenues. The report fixes detailed rollout criteria for 3G spectrum, while rejecting the TRAI's recommendation for additional charges. The report also states that the present service tax regime is very high and makes a case for reduction from 10 per cent to 5 per cent.

Rural telephony

TRAI stresses the need for the government to increase competition in the rural sector by offering incentives to telecom service providers. In a study paper on the growth potential in India, TRAI has highlighted that the operators would be required to add 3 million new users every month, compared with just around 1.5 million at present, to achieve the teledensity target of 20 by 2007 set by the government (GOI 2005b). This is possible only if telecom services are made available in the rural segment.

TRAI has made a strong case for rethinking the policies related to the rural telephony sector. TRAI has highlighted

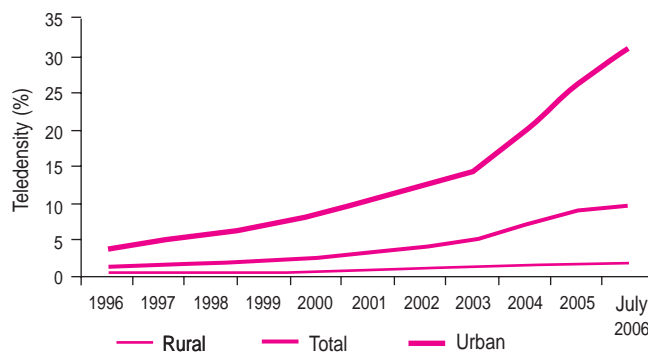


Fig. 1.2 Rural, Urban and Total Teledensity

Source: TRAI (2005e)

that whereas urban teledensity increased from 5.8 per cent to 21.3 per cent between 1998 and 2004, rural teledensity stagnated at much lower levels and increased from 0.4 per cent to 1.7 per cent. This disparity is phenomenal. At present, rural teledensity is around 1.94 per cent whereas urban teledensity is 31 per cent. In the metros the teledensity is at levels 40–50 per cent (Delhi 42 per cent, Mumbai 53 per cent).

The authority has argued that teledensity is inter-linked with the level of development and the large differential between rural and urban teledensity is not sustainable. Hence, wireless telecom operator may be provided funds to install and maintain the infrastructure from the universal services obligation provided they share the network resources with other service providers. Further, other fiscal incentives may also be provided to make the services financially viable. The authority reckons that there is enough money to connect all the villages in India through the wireless telecom network (TRAI 2005e).

Next Generation Telecom Networks

TRAI has pitched for the introduction of a unified licensing regime in the country to integrate networks and services leading to advanced and cheaper telecom services to customers through Next Generation Networks (NGN).

In a study paper on NGN, TRAI has argued that just as access problems were sorted out through a unified access service license, the push towards convergence of various networks can be achieved through a unified licensing regime. The objective should be to establish a regulation and licensing regime within which operators are free to choose the best and the cheapest networks and technologies (TRAI 2005d).

A unified licence can deal with the converging technologies, carriage, service, and platform. The transition would be difficult but would bring with it the benefits for the Indian economy, especially the rural segment, which represents a large demand for telephony, broadband, TV, and other services if they can be delivered at 'right' price. The unified licence would give an opportunity to service providers to innovate towards the best solution. Another option could be to bring a converged regime through a Convergence Act.

Recent technological developments are encouraging operators to move on to VoIP based NGN, which is creating regulatory problems for the licensor and regulator. The purpose behind moving to such networks is that services can be delivered at cheaper costs. As it grows in size, VoIP based NGN will challenge traditional offerings like voice communications. Carriers, particularly the incumbent fixed-line providers who stand to lose their historical market share, have started to realize that they must accept convergence if they are to survive. Convergence benefits consumers since it offers an easy-to-use

service, a single point of contact for billing and service inquiries, and greater value because of the bundled and discounted services. Although consumers and carriers are typically in favour of such technological developments, these are frequently perceived to be in conflict with the regulators' objective of preventing monopolies.

National Telecom Policy 2005

National Telecom Policy 2005 (NTP 2005) is slated to be a comprehensive policy, covering various aspects of the telecom sector like access, technology, equipment, manufacturing and spectrum management. Quality of Service (QoS) and research and development (R&D) are included in the thrust areas of the new policy.

DoT is close to proposing broad contours of the policy. The primary NTP 2005 vision document, among other things, is likely to advocate sweeping changes in interconnect norms to step up competition in the national long-distance (NLD) space and define a roadmap for increased availability and management of radio spectrum and, if required, release of radio spectrum from other existing users. It may also explore the possibility of merging ADC and Universal Service Obligation (USO) regimes since both the ADC and USO funds are meant for beefing up rural telecom penetration.

Interestingly, TRAI may not be involved in the formulation of NTP 2005 even though it had originally recommended unified licensing framework in 2003. The government is of the view that TRAI is essentially a tariff regulator and not a policymaker. NTP 2005 will be formulated by the DoT. It has already received feedback from all key industry associations and is in the process of finalizing the draft. However, TRAI has made its point of view amply clear through its recommendations on a unified licensing framework (TRAI 2005c)

The government, through the proposed NTP 2005 also intends to provide for wireless technologies like Wi Max and free up use of VoIP for domestic telephony. Carving the market into different circles and segregating telecom players into categories such as access providers, national or international long distance operators (NLDOs/ILDOs) leads to a sub-optimal use of resources (TRAI 2005c). Facilitating new technologies holds the promise of delivering more cost-efficient telecom services. Technologies—Wi Max and VoIP—and delivery platform-neutrality need to be an integral part of the new telecom policy. Also, any technology that meets quality of service standards needs to be permitted.

POWER

The power sector has been described as the 'engine of growth' of an economy. There is no dispute over the critical role that

the power sector plays in spurring economic growth and alleviating poverty as a direct outcome. But views differ on the exact nature of the policy implications and there is no long-term consensus among the strategists on the framework for this sector. In fact presently, there is a clear possibility that some of the reforms carried out in the past may face some reversals and many issues such as unbundling of state electricity boards, setting of tariffs, etc. may be revisited by the government.

Notwithstanding the policy issues, both the private sector as well as the state owned National Thermal Power Corporation (NTPC) are investing funds into building new power plants, both, thermal and hydel, and are ready to enter the arena of nuclear power generation as and when it is opened up to private sector.

Recent Developments

Power sector reforms were undertaken to meet the growing demand for electricity through efficient generation and distribution of power. This was to be done by improving the operational efficiency of state electricity boards (SEBs), assuring minimum returns on investment, bringing transparency into the fixing of tariff based on cost of supply, freeing the regulation of the sector from government interference which had resulted in unsustainable levels of cross subsidy (Rastogi 2003, 2004).

An important milestone in the path of reforms was the Electricity Regulatory Commissions Act, 1998, which was meant to distance the government from tariff determination. Another significant step was the Electricity Act, 2003, which clearly lays down that the fixation of tariff could not be based on cost-plus basis only. Tariff rates should be a function of: 1) competition, efficiency, economical use of resources, good performance and optimum investments; 2) generation, transmission, distribution and supply of electricity on commercial principles; 3) reduction and elimination of cross subsidies within the period specified by the appropriate commission; 4) safeguarding consumer interest even while ensuring reasonable recovery of the cost of electricity (Pandey 2004). The Electricity Act, 2003, passed by Parliament, is still to see full implementation, with the government again under pressure to put off the deadline for unbundling SEBs.

The Electricity Act 2003 requires open access to be introduced for all users of 1 MW and above, no later than January 2009. Towards this end State Electricity Regulatory Commissions (SERCs) were to issue regulations by June 2005. Open access provisions are supposed to introduce competition and choice in the distribution segment of the value chain. This is extremely important to enable bulk consumers to access power from generating companies on payment of a wheeling charge and a cross subsidy surcharge fixed by the state regulator. Power producers can then bypass SEBs that

are not considered creditworthy and undertake direct supply to bulk consumers in the market, thus encouraging private investment in power generation and avoiding shortage. This will also put competitive pressure on distribution companies to control cost of supply.

SERCs of 13 states—Andhra Pradesh, Assam, Delhi, Gujarat, Madhya Pradesh, Rajasthan, Karnataka, Maharashtra, Uttaranchal, Himachal Pradesh, Haryana, Orissa and Jharkhand—have issued draft or final guidelines for allowing open access in distribution. The guidelines could act as the platform for enabling customers, starting with bulk users, to pick a power distribution utility of their choice. This would break the monopoly of the SEBs in power supply to bulk consumers in most states.

Amidst mounting fear that the SEBs may lose their industrial and commercial bulk power consumers, who are likely to be weaned away by new players, the SERCs are now inclined to the introduction of the open access regime in a graded manner based on levels of usage. Now high-paying customers in the 13 states have the option to either stick with the existing supplier of power—SEBs in most states—or to shift to another supplier of power, which could be a trader such as PTC India Ltd, a second distribution licensee or even directly hook on to a power generator.

APDRP

There is a perception that the power sector is doing well and its health is improving. SEBs have begun a clean-up of their balance sheets and have managed to partially reduce their cash losses. Led by West Bengal, Gujarat, and Andhra Pradesh, the distribution utilities of seven states have managed to collectively reduce cash losses to the tune of nearly Rs 3446.5 crore by 31 July 2005. Under the Accelerated Power Development and Reforms Programme (APDRP), SEBs are entitled to receive 50 per cent of the losses reduced by them in a year from the centre in the form of a grant. Under the matching grant component of the centre's APDRP scheme, the eight SEBs are entitled to Rs 1723.3 crore against a cash loss reduction of Rs 3446.5 crore.

Overall, before APDRP was launched, SEB losses used to be to the tune of 1 per cent of GDP per annum and as GDP grew so did losses. Now, losses have reduced to Rs 20,000 crore that is approximately 0.75 per cent of GDP. But endemic shortages of power in the states persist and summer of 2005 continued to witness power cuts in Delhi, Haryana, Rajasthan, MP, Gujarat, and Maharashtra.

The APDRP has both an investment component financing investment in state power systems and an incentive component linked to improvements in transmission and distribution (T&D) losses. Many of the projects sanctioned so far under APDRP, are on-going projects while some are nearing

completion. The sanction details given in Table 1.1 show that the impetus in project outlays at the beginning of the programme has subsided in subsequent years. However, what is more disturbing is that the incentive payment component has shrunk drastically. When the sanctioned projects are completed and implemented, it is expected that it would result in reduction in AT&C losses, improvement in supply of power, collection efficiency, and consumer satisfaction. This would, in turn, promote a commercially viable environment for the SEBs and utilities. Incentive claims would then pick up momentum.

Table 1.1
Project Outlays and Incentive Payments under APDRP
as on 31 May 2005

Year	Project outlays (Rs crore)	Incentive payment (Rs crore)
2002–3	14,710.74	379.28
2003–4	1899.43	503.30
2004–5	2878.66	73.00
Total	19,488.83	955.58

Source: MoP (2005a)

The government is thinking of restructuring the programme to make it a completely outcome-driven one, with established baselines and outcomes that can be monitored. The Ministry of Power has already engaged a number of independent agencies to evaluate the APDRP Schemes. The state utilities support the programme as it provides the only resource for upgrading distribution. However, they would prefer greater flexibility and scope for delegation in the design/implementation of the programme. The distribution sector has been neglected in the past and, based on the experience thus far with APDRP, it is estimated that an investment exceeding Rs 100,000 crore could be easily absorbed in the short to medium term to improve distribution efficiency. More resources are required to improve distribution of power over the next seven to 10 years (GOI 2005b).

Capacity Augmentation

The government plans to add 1 lakh MW of generation capacity by 2012. Out of this 77,000 MW is expected to come up in the public sector and 23,000 MW in the private sector. Renewable energy, especially through hydel power projects aggregating 50,000 MW is likely to be developed by 2017. The possibilities in power generation through wind power, bio-mass projects, and nuclear power is re-emphasized. In a bid to attract investors into the renewable energy sector, the government has announced handing over of 50 per cent subsidy

immediately after disbursement of the first instalment of loan as its contribution towards equity.

The Union power ministry plans to make the hydroelectric sector more attractive to private investors. The ministry has outlined recommendations to remove existing obstacles in the development of private hydroelectric power projects. The ministry has suggested that the state governments should prepare standard documentation on technical requirements for minimum capacity and set timelines for project developers to achieve critical milestones (MoP 2005b).

The Power Grid is floating a JV with a private company to address the long-term transmission requirements of the western region. It will also allow for interregional exchanges of power. The project is considered vital to facilitate the import and export of bulk power in the western region. It is also expected to facilitate the formation of a national grid. The JV is likely to be formed by end of 2005.

Parallel Distribution Licences

Maharashtra Electricity Regulatory Commission (MERC) as per Section 14 proviso 6 of the Electricity Act 2003, has asked the power distribution companies in Maharashtra—Tata Power Company, Reliance Energy Limited, and the Maharashtra State Electricity Distribution Company—to submit proposals to grant parallel distribution licences in the state. Once the authority grants the parallel licences, electricity consumers in Maharashtra (including Mumbai) will have a choice of drawing power from alternate suppliers.

Current Issues

National Electricity Policy

The National Electricity Policy, notified by the government in February 2005, lays special emphasis on time bound reduction in transmission and distribution losses. It also advocates promotion of competition to maximize consumer benefits. Increased private sector investment in distribution is sought to be encouraged. The policy highlights the fact that to attract adequate private investment into the power sector, returns on investment need to be at par with investment opportunities in other sectors.

The National Common Minimum Programme of the government targets complete household electrification including village electrification in next five years. The National Electricity Policy outlines the basics for developing the rural electrification distribution backbone. The policy also has provisions for capital subsidy to states towards rural electrification with special preference to weaker sections of society. The policy recognizes that a minimum level of support

is required to make electricity affordable for consumers in the 'very poor' category. Consumers below the poverty line who consume less than a specified level, say 30 units per month may receive special support in terms of tariff which is cross-subsidized. It is estimated that to meet the objective of rapid economic growth and power for all including household electrification, an investment of the order of Rs 90,000 crore would be required to finance generation, transmission, sub-transmission, distribution, and rural electrification projects up to the year 2012.

The National Electricity Policy seeks full development of hydro-potential. Exploitation of non-conventional energy sources such as small hydro, solar, biomass, and wind for additional power generation capacity is also envisaged.

The development of the National Grid is an important feature of the policy. The need to ensure recovery of cost of service from consumers to make the power sector sustainable is well recognized. The existing cross-subsidies for some categories of consumers need to be reduced progressively and gradually. The policy reiterates the importance of open access in transmission to promote competition and boost availability of cheaper power. The policy emphasizes that regulatory commissions need to provide a facilitative framework for non-discriminatory open access at the earliest with technological upgradation of the State Load Dispatch Centres by June 2006 to ensure data acquisition capability on a real time basis.

The policy highlights a long list of issues that need immediate attention if the power sector is to function as the true engine of economic growth. These include:

- enhancement of efficiency levels in generating plants through renovation and modernization;
- introduction of redundancy levels and margins in transmission capacity as per international standards;
- adequate transitional financial support for reforming power utilities;
- encouragement to private sector participation in distribution;
- establishment of independent third party meter testing arrangements;
- adoption of IT systems to ensure correct billing;
- speedy implementation of stringent measures against theft of electricity
- augmentation of R&D base and energy conservation measures;
- appropriate tariff structure for managing the peak load;
- development of training infrastructure in regulation, trading, and power market;
- providing boost to renewable and non-conventional energy sources; and
- necessary regulations and early appointment of ombudsmen for redress of consumers' grievances.

Operationalization of Appellate Tribunal for Electricity

Under the provision of Section 110 of the Electricity Act 2003, the Ministry of Power has established the Appellate Tribunal for Electricity at New Delhi. The Appellate Tribunal has come into operation since July 2005 and appeals against orders passed by Adjudicating Officers/Appropriate Commissions may be filed within forty-five days (MoP 2005c).

Proposal to amend the Electricity Act 2003

The MoP has faced opposition from the Central Electricity Regulatory Commission (CERC) and the Forum of Indian Regulators (FOIR) for its proposal to amend sections 61, 66, 79, 86, 107, and 108 of the Electricity Act 2003. MoP has proposed that in the existing provisions of the Act which stipulate that the Electricity Regulatory Commissions shall 'be guided by' the National Electricity Policy, Tariff Policy and National Electricity Plan, the words 'be guided by' should be replaced by the words 'act in conformity with'.

The FOIR has pointed out that the Act requires the central commission to 'advise the central government on the formulation of National Electricity Policy and Tariff Policy' [Section 79 (2) (i)], and in turn, stipulates that the electricity commissions 'shall be guided' by these policies. The underlying principle is the mutual respect of jurisdictions of the government and the regulator, based on reciprocal trust, confidence, and spirit of partnership. Also, sections 107 and 108 of the Act confer on the central government and the state government respectively, the power to issue policy directions to the appropriate commissions in public interest. The Act envisages that these policy directions be sparingly used by the government in exceptional circumstances, with due care for considerations of transparency, prudence, and objectivity. Such directions are to be exceptions rather than the rule. Following the concerns raised by electricity regulators and timely intervention by the Prime Minister, the proposed amendments in the Electricity Act which would have stripped the powers of the regulators are being reconsidered.

Rajiv Gandhi Grameen Vidyutikaran Yojana

Rajiv Gandhi Grameen Vidyutikaran Yojana—a scheme for rural electricity infrastructure and household electrification—was launched in April 2005 to attain the goal of providing access to electricity to all households in five years' time. This scheme merges the existing Accelerated Electrification of One lakh Villages and One crore Households and the Minimum Needs Programme for Rural Electrification.

Under the scheme, village electrification infrastructure is expected to be set up with at least one distribution transformer

in each village and a network of decentralized distributed generation systems where grid supply is not feasible or cost-effective. The scheme would provide free connections to all rural households living below the poverty line. Electrification in rural areas had thus far been primarily for irrigation. Low Tension lines had been extended on a piecemeal basis resulting in unreliable and limited hours of power supply. The new programme envisions a qualitative transformation of the rural electricity infrastructure. The government hopes that round-the-clock supply of reliable power would also enable dispersal of small, khadi, and village industries into rural areas.

The scheme is being implemented by the state-owned Rural Electrification Corporation, which is providing 90 per cent of the capital cost on behalf of the centre as grant for creating a rural electricity distribution backbone with at least one 33/11 kV (or 66/11 kV) substation in each block.

TRANSPORT

The story of the transport sector is a mixed one. Some areas have seen reform while others have decelerated. Slow progress in the road sector has led to a rush to award contracts for capacity enhancement of busier stretches of national highways. Railways, ports, and civil aviation have seen the introduction of far reaching reforms though varied in scale and scope. At present, the sector is overwhelmingly dependent on government support. The government recovers some money through cess and user charges.

ROADS

India has emerged with the second largest road network in the world with a total network of 3.3 million km. The US tops the list with a road network of 6.4 million km. Currently, China has a road network of over 1.8 million km only. Roads occupy a crucial position in the transportation matrix of India as they carry nearly 65 per cent of freight and 85 per cent of passenger traffic. Highway spending is likely to be a key component of India's goal of sustained annual GDP growth of 8 per cent over the next decade.

Recent Developments

The National Highways Authority of India (NHAI) is strengthening and widening national highways (NHs) in multiple phases as part of the National Highways Development Programme (NHDP). Under the programme, phase I includes development of the golden quadrilateral connecting Delhi, Mumbai, Chennai and Kolkata and phase II includes development of the North–South and East–West links running from Srinagar to Kanyakumari and Porbunder to Silchar

respectively of the NHs. The phases I and II are under implementation. The first phase of NHDP has fallen way behind schedule, having missed even the extended deadline of December 2004; original deadline was December 2003 (Tables 1.2 and 1.3).

Phase III, what was earlier called Pradhan Mantri Bharat Jodo Pariyojana, entails upgrading of existing NHs, two-laning of important roads and expansion of the crowded NHs to six-lanes. This phase would include widening of 71 stretches aggregating to 10,417 km of road which have already been identified based on traffic density, connectivity of state capitals with phases I and II and links to places of commercial and tourist importance. Preparation of Detailed Project Report for phase III has already begun. The government is planning to fund the scheme through a mix of budgetary support and external assistance, but the exact funding mechanism is yet to be finalized. It is proposed that the centre will provide capital grants up to 40 per cent of the project cost to enhance viability on case by case basis and it will fund the entire cost for consultancy and land acquisition.

The Ministry of Shipping, Road Transport and Highways has announced four more phases of the NHDP which are planned to be completed by 2012. The ministry has suggested that all the projects included in NHDP III to VII now be implemented using build, own, and transfer (BOT) contracts. The government has cleared 4 to 6 laning of 4000 km of National Highways under phase III and has in-principle approved 4 to 6 laning of additional 6000 km under NHDP Phase IV. The total cost of this development is estimated to be Rs 55,000 crore. Under the NHDP V, the ministry has proposed to widen 5000 km of 4-laned National Highways

Table 1.2
Status of NHDP as on 31 August 2005

	GQ	NS-EW	Port Conne- ctivity	Others	NHDP Phase III	Total
Total Length (km)	5846	7,300	356	811	4015	18,328
Already 4-Laned (km)	4976	777	99	287	–	6139
Under imple- mentation (km)	870	2925	251	156	886	3016
Contracts under implementation (No.)	50	45	7	6	2	110
Balance length for award (km)	–	3522	7	358	3129	7016

Note: GQ: Golden Quadrilateral, NS-EW: North South–East West
Source: www.nhai.org

Table 1.3
Projects under Implementation as on 31 August 2005

	No. of Projects	Total length of the NH in kms
Delhi–Kolkata	22	1453
Mumbai–Chennai	18	1290
Kolkata–Chennai	31	1684
Delhi–Mumbai	10	1419
North South Corridor	16	4000
East West Corridor	10	3300
Port Connectivity	7	–
Other projects	4	–

Source: www.nhai.org

to 6-lanes. The contracts for this work are being awarded. The ministry has identified about 400 km of the Vadodara–Mumbai section for construction of an expressway under NHDP phase VI besides other highways, which would be converted into expressways. The ministry is in the process of identifying cities that need ring roads for proper regulation and movement of traffic under phase VII of the programme.

The NHDP has led to another revolution in BOT projects, with some bids opting for negative grants that is, private infrastructure companies bidding for contracts to build roads are offering to pay the government a lump sum amount arrived at through the bidding process if the contract is awarded to them. Half-a-dozen such projects are already underway and the number is rising (Table 1.4).

The slow progress of the NHDP Phase I attracted the attention of the Comptroller and Auditor General (CAG). The CAG has criticized the NHAI, for completing only 1846

Table 1.4
BOT Projects with Negative Grants

Project	Project cost (Rs crore)	Length (km)	Negative grant (Rs crore)	Contractor
Guna Bypass, MP	46	14	19.03	IVRCL
Jalandhar– Amritsar Section	263	49	6.88	IVRCL
Ambala– Chandigarh	298	36	105.00	GMR Group
Keonics City– Hosur elevated Rd	450	9	16.00	Soma Enterprises
Delhi–Gurgaon Exp	550	28	61.00	Jaypee DSC
Panipat Elevated Highway	418	10	96.30	L&T

Source: www.nhai.org



km stretches, out of the target 6359 km of national highways by June 2004. In its report, it said that the overall performance of NHAI in terms of output in NHDP phase I (Golden Quadrilateral) was only 29 per cent. The report has pointed out there was no corporate plan to implement such a large project. Deficient planning and inefficient contract management by the design and project consultants, contributed to the under-performance (GOI 2005c).

While the centre has imposed an additional cess of 50 paise for the development of national highways, 34.16 per cent of the central road fund (CRF), amounting to Rs 1535 crore allotted to states and union territories is still lying unspent. Nearly 30 per cent of the CRF, collected through a cess of Rs 1.50 on petrol and diesel, goes to states. About 60 per cent is used for building national highways and the rest for rail over-bridges. States have not come forward with enough proposals on road development. The amount released to state governments is based on the progress in various projects. The fund is non-lapsable. A low utilization, despite high accruals, would mean locking up of resources, till the states have found a use for them.

A new model concession agreement (MCA) for highway projects has been finalized. The new agreement includes design, build, finance, operate and *transport* activities instead of build, operate and transfer. Replacing 'transfer' by 'transport' is crucial as it implies that government, instead of owning the asset after the concession period, would continue to buy 'road services' from the concessionaire. All the new NHAI projects, including the widening of 6500 km highways at a cost of Rs 22,750 crore cleared by the PM's Committee of Infrastructure would be awarded as per the new MCA.

Current Issues

National Road Transport Policy: The Department of Road Transport and Highways has drafted a national road transport policy to ensure greater participation of the private sector and the rationalization of the motor vehicle tax regime across states with a view to eliminating octroi alongside implementation of VAT. The proposed policy is focused on environmental, technological and fiscal aspects of motorized transport and would be complementary to the urban transport policy and rural road development programme being pursued by the ministries of urban and rural development respectively. It makes a strong case for state level statutes to facilitate land acquisition, shifting of utilities, approval for cutting of trees, and control of law and order and encroachments for the on-going national highway development project.

It has suggested creation of equipment leasing companies, accreditation of vehicle body manufacturers and a differential taxation system to encourage the use of multi-axle vehicles. To generate employment, it envisages co-operative societies

set up by state governments to train unemployed and unskilled youth for maintenance services as is the present practice in Kerala and Maharashtra.

The draft says though the road network (3.38 m km) is extensive, it remains inadequate due to paucity of funds. Broad estimates indicate that a three to four fold increase in investments would be required and budgetary resources could be leveraged to increase private investments.

While the personalized motor vehicle industry has seen substantial influx of new technology, truck and bus manufacturing has a clear and urgent need for a major technology upgrade. The fabrication of bus and truck bodies has become virtually unregulated. A bus body code has been developed and work is on to draft a similar code for trucks. To implement these norms, a system of accreditation of heavy vehicle body manufacturers needs to be evolved.

Proposing a differential tax on multi-axle vehicles that save 50 per cent of fuel per tonne km, the draft says there is need for increased use of low tare weight. On the environment front, it has proposed a fitness regime for non-transport vehicles which includes adherence to pollution control norms, temperature and engine speed standards. Total implementation of the Mashelkar Committee recommendations on auto-fuel and imposition of road safety norms are also part of the draft policy (GOI 2005d).

Railways

The railways, which had been struggling to keep afloat for nearly a decade, spent the last year and a half (that is, 2003–5) in implementing measures to recapture its market share of freight business. As a consequence, the operating ratio has shown a clear improvement from 98 to 91 in 2004–5 and a target of 87 has been set for 2005–6. To meet the challenge of low cost airlines and roadways and maintain the market share of railways in passenger business during the lean season, seasonal variations in passenger tariff have been introduced. The railways hope to generate sufficient funds for capital expenditure and plan to sign PPP agreements to build fixed rail infrastructure and expand connectivity and capacity of the existing rail network.

Recent Developments

To improve operational efficiency, the railways enhanced wagon utilization in the past two years. The per unit cost of freight which was 61 paise per net tonne km (ntkm) in 2001, is 56 paise per ntkm now, in 2005. Similarly freight volume increased from 310 billion tonnes km to 460 billion tonnes km during the period. In a move to win back the bulk freight traffic lost to the road sector, the railways announced a slew

of measures including a rebate of 20 per cent on bulk commodities transported in the empty flow direction. As part of its agenda to boost freight traffic during the slack season the railways will provide a rebate of 15 per cent on incremental loading (Kumar 2005).

Though operational efficiency has improved, capital expenditure is still in a jam. Among the 300 projects in the Rs 100 crore and above cost category, more than 130 are encountering time overruns of up to 160 months. A comprehensive review of 78 such railway projects to identify problem areas has revealed that all suffered huge time and cost overruns due to various problems related to land acquisition, litigation, rehabilitation, contractor/labour problems, finances etc.

The railways are using PPPs to build freight terminals and warehousing facilities. In partnership with the Central Warehousing Corporation (CWC) twenty-two private freight terminal and warehousing projects have been initiated across the network of Indian Railways. A pilot project of rail side warehousing at Whitefield, Bangalore, has already been implemented.

The Indian Railways has also decided to encourage freight customers to develop their private sidings to increase its share in the transportation of goods. Further, the Railways proposes to share the cost of a new railway siding if the industry makes a long-term traffic commitment for 10 years or more. Under this arrangement, the Railways will bear the cost of the removable super-structure such as tracks, sleepers, fastening, overhead electric equipment; and the capital cost of all traffic facilities like the 'Y' connection, additional lines at serving stations, crossing stations and patch doubling. The siding owners will bear the cost of land, earthwork and the sub-structure of tracks.

The Railways has proposed the introduction of double stack container trains on one of the identified routes connecting Northern India with ports in Gujarat such as Kandla and Mundra in the next two years.

The Centre for Railway Information Systems (CRIS) plans to use radio frequency identification (RFID) technology to improve the wagon management. CRIS proposes to have a RFID tag or chip embedded in all the wagons and sheds with handheld devices to read these chips and register the data. The details can then be fed into the railways system to help track wagons accurately. At present wagons are tracked manually. While running trains are tracked every two hours, wagons are generally tracked over a cycle ranging from 4–5 days. The RFID tracking of the wagons would eliminate human error and improve operational efficiency.

Current Issues

Dedicated Freight Corridor: In 2004, the PM mooted the idea of a dedicated rail freight corridor running along the railways

Golden Quadrilateral (GQ). The double-line freight corridor is expected to evolve systematic and efficient freight movement mechanisms and ease congestion along the existing GQ. It would leave the existing GQ free for passenger trains.

The 9260 km dedicated freight corridor to be built at a cost of Rs 60,000 crore (US\$ 13.7 billion) is being funded partially with a US\$ 5 billion loan from Japan. The work is expected to be completed within the next 5–7 years. The first phase of the project would include the Delhi–Howrah and the Delhi–Mumbai routes. The Japan International Cooperation Agency (JICA) is likely to begin its feasibility study in early 2006 to finalize details for extending the loan. In the first phase, the project is estimated to cost Rs 12,000 crore for the Delhi–Mumbai stretch and another Rs 10,000 crore from Delhi to Kolkata. The loan from Japan is a tied loan; Japan is going to be the main facilitator of the project, while the sub-contractors could be from any other country.

Though the government has announced the project, there are no details on how the corridor is to be developed and what its alignment, load carrying capacity and type of technology should be including type of prime movers. If the Railways uses BOT arrangements and pays annuity to project developers to construct fixed infrastructure, traffic demand is going to be difficult to forecast and railways would not be able to generate enough internal resources to meet their financial obligations. Under such circumstance the least present value of gross revenue as a method to award the BOT contract which would transform uncertainty in traffic into uncertainty of concession period would be an appropriate method to finance the project.

The Gujarat government has proposed the alignment of the freight corridor via Ajmer, Palanpur, Ahmedabad and Vadodara. It has argued that this route would be closer to the Northern hinterland by about 300 km compared with the Jawaharlal Nehru Port Trust (JNPT) and Nhava Sheva International Container Terminal Ltd. (NSICT) terminals in Mumbai. Gujarat has several minor ports that handle 20–30 per cent of the cargo throughput of various ports of India. If the dedicated rail freight corridor is aligned as above, the Gujarat ports such as Mundra, Kandla, Pipavav, Bedi, Porbandar, Dholera, could be connected through short feeder routes and the economic viability of the rail freight corridor would also improve.

Public–private partnership in Railways: The Indian Railways is keen to encourage private participation. The Prime Minister's Committee on Infrastructure has asked the Ministry of Railways to prepare a paper jointly with the Planning Commission on PPPs in various areas. The running of goods trains between specific points such as coalmines and power stations and passenger trains between tourist destinations have the potential for expansion through PPPs.



In its policy paper on allowing private players to participate in the container operations sector, the Railways is believed to be considering various alternatives including the issuing of route specific licences. The route to be specified for the operator is likely to be such that it connects various hinterland points with the port near which the operator has invested in building a rail line. Players who have made significant investments in laying of railway tracks would be accorded preference in container operations and the private sector company would have to either own an inland container depot (ICD) or tie-up with an ICD operator.

The operators are likely to be asked to pay a certain percentage of their revenues as licence fee. Alternately, they could be charged a fee for every km they moved on. This fee would be at par with that charged to Concor. The determination of the final freight tariff for the containerized traffic would be left to the individual operator as is the current practice for Concor. RITES has submitted its draft report on opening up of container transportation by rail to private parties. Based on the report, the Railways is expected to come out with a detailed policy framework soon. Private companies such as Gateway Distriparks, Pipavav Rail Corporation, Adani Ports and P&O Ports are keen to run container train services in the country.

New passenger reservation system: To counter the competition offered by the aviation industry, the Railways is planning to launch an open ticket system akin to an airline ticket. Under the scheme passengers would be able to switch their reserved tickets at any time before the journey. Further, if a particular train ticket is not confirmed or is trailing way down in the wait list, then the passenger would be given the option of switching over to a ticket which has a better reservation status, or some other train going to the same destination. There would be no extra charges for this facility, which would be carried out online.

Rail Land Development Authority: The Railways is estimated to own 43 lakh hectares of vacant land across the country lying unutilized for years. This land is spread over historical, heritage, and tourist places and could be utilized commercially through PPPs to improve the financial health of the railways by constructing tourist lodges, resorts, and yatri niwas hotels. The Parliamentary Standing Committee on Railways has suggested the constitution of a Rail Land Development Authority (RLDA) to this end. The Ministry of Railways will now constitute the RLDA and finalize its strategies and programmes. Wherever surplus railway land is identified to be available, the authority would put forward its assessment of how it could be best utilized commercially. The Parliament has approved the Railways (Amendment) Bill, 2004 to permit the use of surplus land for commercial purposes. The change in the land use is incorporated into the Railways Act so that

the railways does not have to wait for the state governments to provide various clearances and the land remains with the railways (GOI 2004).

Rail Tariff Regulatory Authority: The Planning Commission in the mid-term appraisal (MTA) of the tenth plan had pointed out that the most important policy distortion in the Indian Railways was the skewed tariff regime, which overcharged freight movement in order to subsidize ordinary passenger traffic. The commission had pointed out that heavy cross-subsidization of passenger fare was economically irrational and could not be justified on social grounds since the beneficiaries of the subsidy were not the poor. The MTA had suggested that the railways should establish an independent rail tariff regulatory authority for tariff fixation on technical and commercial considerations (GOI 2005b). The Ministry of Railways has however rejected the recommendation.

Ports

The decline in trade barriers with the advent of globalization has witnessed a boom in world trade. Despite an increase in the world's container-fleet capacity by an average of 10.6 per cent a year in 2000–04, the demand for container transport has exceeded supply worldwide largely as a result of China's bumper economic-growth rates and burgeoning exports. India's liberalization policies have led to a volume growth of 8 per cent per annum in foreign trade and India is expected to sustain this growth rate in the coming decade as well. Clearly, our port capacity needs to be enhanced to handle increasing volumes of goods. As world-shipping lines are expanding, they are also integrating vertically to reduce time taken to transport a container door-to-door. Indian ports sector has not been isolated from international developments and is preparing itself to meet the challenge of servicing large container ships, which will start operating in couple of years' time.

Recent Developments

India's external trade grew at an impressive compounded annual growth rate (CAGR) of 13.4 per cent during the last decade (1990–2000) driven by liberalization policies of the economy. This coupled with the increasing participation of the private sector in port infrastructure development resulted in massive investments in major Indian ports like JNPT, Mundra, Pipavav, and Chennai. With expanding volume trade and the improved port infrastructure the total cargo handled by the major Indian ports reached 333.9 million tonne in 2004–5, registering an impressive CAGR of 7.6 per cent over the past ten years. However, the growth of containerized cargo traffic at a CAGR of 17.2 per cent is even more remarkable and reflects the shift towards containerized cargo.

India's export mix is in a flux with manufactured items such as auto components, engineering goods, leather goods and textiles progressively commanding a higher share in it. This change is likely to boost the containerization of goods, thereby expanding the market for containerized cargo. To make the most of the growth opportunity thrown up by the surge in external trade, major Indian ports are on a massive expansion spree. The capacity of JNPT alone is slated to increase from the current 2.4 million twenty equivalent units (TEUs) to a whopping 6.7 million TEUs once the third and fourth terminals of the port become operational. The Chennai port has decided to construct its second container terminal on a BOT basis. P&O Nedlloyd is expected to start work on its second container berth at Mundra port while Maersk-Sealand is building a container terminal at Pipavav. The containerized cargo business is clearly set to enter a high growth trajectory.

Mumbai Port Trust (MbPT) has also drawn up a plan to increase port capacity, purchase new equipment and replace old machinery. It has introduced a competitive cost structure for users, including steeper discounts for ICD containers, in an attempt to recapture the market lost to JNPT. Volume discount, lower box rates, early de-stuffing of long standing containers and zero cut-off for exports are also being offered to woo customers.

Sethusamudram Corporation Ltd, a SPV floated to create a navigable channel from the Gulf of Mannar to the Bay of Bengal through the Palk Strait to facilitate the movement of bigger ships, has charted out a time frame for the execution of the project. The multi-crore Sethusamudram Ship Canal project is expected to be thrown open to traffic by November 2008. The first leg of dredging started on 2 July 2005. The Dredging Corporation of India would be dredging 13.57 km of the Palk Strait area in two years' time.

The Prime Minister's Infrastructure Committee has also set up two Inter-Ministerial Groups (IMGs) to look at the pros and cons of improving rail and road connectivity to the ports and study the revenue generation model of ports. One of the groups is also preparing an MCA for the port sector. The MCA would lay down the regulatory framework for public-private partnership in the port sector. A draft MCA is expected to be ready by the end of 2005.

Current Issues

New policy in the port sector: The shipping ministry's new policy allows Indian firms in the port sector to match the lowest offer received from foreign bidders provided their bids are within 5 per cent of that offer. The policy represents a shift from the earlier stand that any attempt to interfere with the rates thrown up by the tender process would not only offend against transparency but also give Indian port developers an advantage that would ultimately have to be paid for by

the port user, who, in effect, is forced to subsidize a less competitive bid.

Indian investment has thus far flowed mostly into shipping, where returns are at best, uneven. Investment in ports, which is far more profitable, has been the exclusive preserve of foreign capital. With the shift in policy delineated above, domestic investment is now being nudged in building port capacity.

Inter-ministerial committee on corporatization of ports: The government has set the ball rolling for corporatization of ports. Estimating that investments of about Rs 50,000 crore would be required by 2012 for upgradation and modernization of the 12 major ports in the country, the government plans to evolve a model concession agreement for the port sector to facilitate the participation of the private sector. The concession agreement, which lays down the terms under which the private bidder can operate, will be prepared by an IMG headed by the shipping secretary which will also evolve a clear policy on port corporatization by 2006.

Port corporatization as an issue had first been raised by the NDA government in 1996. At that time there was a disagreement whether corporatization of major ports should be done through amendments to the Ports Trust Act or under the Companies Act. The previous Lok Sabha had referred the relevant Bill passed by the Rajya Sabha to a standing committee. Though the committee had favoured retaining the ports under Ports Trust Act, the corporatization project ultimately got shelved. Currently out of the 12 major Indian ports, only Ennore Port is run by a company, Ennor Port Limited, registered under the Companies Act. A recent study of Jawaharlal Nehru Port Trust recommended privatization of the port. The study recommended that JNPT as a landlord port, where port authority retains the port infrastructure and regulatory functions and port services are provided by private operators, will have greater role clarity and it would be able to grow faster (Raghuram 2005).

National Maritime Development Programme: A massive national maritime development programme is set to be launched to rejuvenate the port sector and strengthen it to handle increasing port traffic that has expanded at a CAGR of 9.97 per cent and 10.78 per cent in 2003-4 and 2004-5 respectively. The project will be based on PPP and will have an estimated investment of more than Rs 60,000 crore. Approximately Rs 5000 crore is earmarked to improve rail and road connectivity. A JV involving the ports, NHAI and the respective state governments is envisaged to provide connectivity to the northern hinterland. In all, 228 projects have been identified that will be taken up in two phases. The Ministry of Shipping has invited suggestions on the capacity expansions proposed by various ports. The 10-year PPP initiative is based on a detailed assessment of the projected national traffic demand till 2013-14.

Civil Aviation

Air traffic in the country has grown by a whopping 25 per cent in the calendar year 2004 and it is growing at a rapid rate in 2005 as well. There is an urgent need to expand the infrastructure of metro and non-metro airports. More runways are under consideration at Delhi and Mumbai to take advantage of open sky agreements with the US and the UK. Plans are underway to construct a new terminal at the Kolkata airport and develop the Chennai airport further. The government has also decided to develop 25 non-metro airports. With many low-cost, no frills airlines in the fray offering their services, there is an urgent need to upgrade airports all over the country.

Recent Developments

The government is formulating a comprehensive National Civil Aviation Policy based on the Naresh Chandra Committee Report on Civil Aviation. The main objective of the policy would be to enhance air connectivity across regions and to make air transport affordable. Privatization of Delhi and Mumbai airports through a JV with 74 per cent participation by the private party and 26 per cent equity held by the Airport Authority of India is under progress. The thorny issues that are being addressed before the privatization of the Mumbai airport include: removal of encroachments from the Mumbai airport and on the issue of equity participation in the proposed second airport at Navi Mumbai, giving first right of refusal to the winning bidder for the Mumbai airport at Santa Cruz. The Ministry has issued a transaction document to the pre-qualified bidders. The government has received six bids for the Mumbai airport and five bids for the Delhi airport. Evaluation of the bids will be carried out by the end of 2005.

The new Bangalore airport project is in progress where the Bangalore International Airport Ltd. (BIAL) has already executed the relevant project agreements and achieved financial closure in June 2005. As per the concession agreement entered into between the centre and BIAL, the new airport at Devanahalli is required to be completed within 33 months from the date of financial closure.

The concession agreement for Shamshabad Hyderabad Airport has been signed with Hyderabad International Airport Ltd (HIAL). The project agreements for Shamshabad Hyderabad Airport are in different stages of execution. HIAL is required to complete it within 36 months from the date of financial closure, as per the concession agreement entered with the Central government. The financial closure for the project was achieved in August 2005.

The centre has granted approval for the construction of a new greenfield airport at Mopa in Goa. The state government has prepared the technical feasibility report for the project. Besides Goa, there are also plans to develop airports at Navi

Mumbai, Chakan near Pune, Ludhiana (Punjab), Kannur (Kerala), Pakyong (Sikkim) and Kohima (Nagaland). The plans for these airports are in preliminary stages. Indian private firms can leverage the huge opportunity over the next five years in building and ramping up of the airport infrastructure in the country to international standards.

The Road Ahead

Indian carriers have emerged as big buyers at the Paris Air Show in 2005. They have announced orders for 160 aircraft, worth US\$12 billion. This is incredible, considering that the total number of large jets currently in service with all airlines in India is 156. With the arrival of half a dozen low-cost airlines in 2005 and the signing of open skies agreements with the UK and the US, the collective fleet of the Indian airline industry is set to treble by 2010 to more than 500 aircraft.

Some of the budget airlines offering low cost no-frills services have big expansion plans. Airport infrastructure is grossly overloaded and strained at the moment. New airport terminals at Mumbai and Delhi have been commissioned. New runways are being built at metro airports and new international airports in Bangalore and Hyderabad are being constructed using PPP. All these developments have created quite a buzz in the Indian aviation industry.

URBAN INFRASTRUCTURE

There is a constant influx of population into urban centres and urbanization as a phenomenon is expanding rapidly. It is estimated that population living in urban areas will increase from 29 per cent in 2000 to 40 per cent by 2030. The urbanization experience is not unique to India but a part of the history of other Asian countries as well. The escalating demand for basic services in urban centres is resulting in a serious deterioration of service quality across housing, transport, healthcare, power, water supply and sanitation, and education. Benign neglect of urban sprawls by civic authorities has led cities to be vulnerable to natural disasters and disease. The Mumbai floods of July 2005 that brought the city on its knees were flashed on television sets worldwide (Box 1.2). The death and destruction that the floods brought in their wake, reinforced India's image as a poor, undeveloped country unable to care for its own. Infrastructure of cities everywhere is crying for help.

While the policy spotlight has thus far focused largely on Tier I cities—Mumbai, Delhi, Chennai, Kolkata, Bangalore, and Hyderabad, cities such as Nagpur, Surat, Vadodara, Ahmedabad², and Vijaywada, that is, Tier II cities with

² Ahmedabad is a Tier I city but in the NCAER report it is taken as Tier II city.

Box 1.2
Deluge in Mumbai

A crisis comes unannounced. By definition it cannot be foreseen. On 26 July 2005 Mumbai received a record rainfall of 94.4 cm in one day (whereas in a normal year Mumbai receives an average rainfall of 94.6 cm in all of July), the eighth heaviest day of rainfall in Indian history in over 125 years. The city came to a virtual standstill. Electricity and telephone lines were snapped, air and rail services suspended, and communication with the rest of the country nearly collapsed. Power and water supply got affected, the city's transportation network stalled and thousands of homes were washed away, belongings lost, in the torrential floods that followed. The government and its agencies were caught unaware and chaos prevailed. It exposed the stark deficiencies in infrastructure and limitations of the city administration.

It would not be appropriate to say that the disaster came without any warning at all. The city administration was obviously not alert enough to read the signs and prepare accordingly. Regions around Mumbai—Thane, Nashik, Sangli and Pune had all experienced flooding that week. In fact, the morning edition of the *Times of India* dated 26 July carried news on the flooding of districts adjoining Mumbai as well as a photograph of a flooded street of Mumbai. 26 July, which coincided with a high tide of more than 4.5 metres, should have been identified as a crucial day to watch out for heavy rains and the civic administration and its disaster management team should have swung into action, at least after seeing the papers in the morning.

The Mumbai administration clearly failed on three counts:

- There was no disaster management plan in place, and if one existed, it was dormant and useless.
- There was no communication, either before or during the key crisis period through the multiple media channels that were available that is, radio, SMS and even on ground, through the traffic police and other bodies.
- There was little tangible action from the government, local MLAs, MPs and municipal councillors to show that they cared and was trying to solve the problem and help the public.

It is perceived that inadequate drainage of the Mithi River system caused the flooding. The river is a safety valve for storm water, which may spill from the lakes—Tulsi, Vihar, and Powai. Unfortunately, this is also linked to Mumbai's sewage system. The three major lakes of the city—Tulsi, Vihar, and Powai—feed the Mithi River. As the torrential rains came after a month of the outbreak of monsoons, all the lakes were already brimming. As the unrelenting rains virtually turned the city's expressways into rivers and flooded all the western suburbs of Andheri, Santacruz, Juhu, and Bandra. The flooding of sewage pumping stations forced two such stations to close down. It can be argued that storm water drainage system of the city is neither designed nor ever will be to take care of such deluge as may occur once in 125 years. Flash floods are known to have occurred in many metros all over the world; London, New York, Chicago, Tokyo, Paris, Beijing, Seoul, Manila and many other metros have experienced floods at one time or the other. In the wake of Hurricane Katrina, the devastation it left behind in New Orleans in the US is a reminder that cities do experience hardships due to natural disasters.

A 'crisis management plan' cannot prevent a natural disaster but is definitely expected to mitigate the disastrous impact in terms of financial and human losses and help the citizens to cope with the crisis. The flooding could be blamed on dereservation of open spaces, encroachment around rivers, dilution of the coastal regulation zone (CRZ), unregulated planning, and lack of governance. Inability to handle the aftermath on the other hand, was the result of skewed spending, improper maintenance of storm drains and sewers, lack of adequate public transport, and a poor primary health system.

Rescuing Mumbai

The civic administration and providers of essential services have acquired some learning from the disaster. Support is now growing for a multi-billion rupees plan to restore the natural drainage system and other natural protection against flooding. Some of the steps being taken towards prevention of such a disaster in the future include:

- establishment of a Mithi River Development Authority to clean up the 15 km long water channel;
- a state-level disaster management authority; and
- formation of a fact-finding committee.

The report of a fact-finding committee is now awaited to officially identify what went wrong.

population of over half a million are growing at a daunting pace and need urgent policy attention. National Council Applied Economic Research (NCAER) estimates that though India's Tier I cities remain the country's richest, those in Tier II are emerging as the new growth centres (NCAER 2003). While Tier I cities represent 6 per cent of the population and

contribute 14 per cent of India's GDP, Tier II cities represent about 7 per cent of the nation's population and contribute about 13 per cent to GDP.

The Indian IT-ITES industry is deeply entrenched in all the key metros of India. The country's Tier I cities have all emerged as significant hubs for both Indian and global IT-



ITES companies. As these cities are attracting IT-ITES investments and creating employment for thousands of citizens, real estate costs are escalating, the pool of skilled IT professionals drying up and infrastructure such as power, roads and airports is stretched. The infrastructure bottlenecks—highlighted by many Indian IT companies—are creating challenges for IT-ITES organizations that have set up operations in these cities. It is being felt that Tier II and Tier III cities need to be developed for the IT-ITES sector, so that some of the pressure can be taken off the country's Tier I cities. A number of Tier II cities offer advantages in terms of cheaper real estate, access to appropriately skilled manpower and gradually improving telecom and physical infrastructure and coming into their own in terms of drawing global and Indian IT majors. A NASSCOM–KPMG Study has revealed that Tier II cities—Kochi, Pune, Nagpur, Chandigarh, and Jaipur offer more advantages to ITES companies (NASSCOM 2004). Tier II and Tier III cities have little time to improve their infrastructure to ensure that they continue to remain attractive to private sector investments in long-term.

Recent Developments

Cities are wealth creators and generate employment for urban youth—rich and poor, skilled and unskilled. Urban infrastructure projects are ideal for financing through PPP routes and the time is ripe to regenerate urban India. In the following sections we document some of the projects that are being built to meet the existing demand for urban transport.

Delhi Metro Rail

Though Delhi Metro is a central government scheme executed by the Delhi Metro Rail Corporation, it is an example of a good urban infrastructure project keeping in view growing requirements of the city.

The underground stretch of Delhi Metro connecting the Central Secretariat with Kashmere Gate, built at a cost of Rs 2200 crore, was inaugurated in July 2005. The Kashmere Gate–Delhi University section of the underground stretch was inaugurated in December 2004. Two lines of the Delhi Metro are already operational: first, the elevated section between Shahdara in the North-East and Rithala in North-West and second, the underground section between Delhi University and Kashmere Gate. The new mode of transport would reduce traffic jams in the capital and save time for commuters.

Approximately 130,000 passengers use the existing lines resulting in the withdrawal of a 1000 buses from the streets. It is estimated that about 70,000 more people will start using the metro with the commissioning of Central Secretariat to Kashmere Gate line. Phase II of the project, which will extend

the reach of all the metro lines has been approved by the central government.

Bandra–Worli Sea Link in Mumbai

The Bandra Worli Sea Link (BWSL), expected to be completed by December 2007, will connect the island city and the western suburbs and lead to the decongestion of the Mahim causeway and the western corridor. The project, being planned on a BOT basis, will establish a six-km link between Bandra (at the beginning of the Western Express Highway) and Worli. The sea link is an eight-lane 'cable-stayed' bridge meant exclusively for fast moving four-wheelers. Advance surveillance systems and emergency support systems are also being installed on the sea link. The sea link has been designed with a 20-metre clearance between the base of the bridge and the sea below, ensuring uninterrupted sea transport. A 16-lane toll plaza at Bandra is equipped with an automated toll collection system for the BWSL.

Bangalore Mass Rapid Transit Ltd

The Rs 6200 crore Bangalore Metro Rail project has been approved by the state government. The 33-km metro rail will provide an alternate means of public transport for the city. The project is expected to be completed by October 2008. The project has been conceived as a JV of the state government and the centre along with debt raised from nearly 20 FIs led by UTI Bank. While the state will provide Rs 1807 crore, the centre will contribute Rs 1447 crore and the FIs, the remaining Rs 2953 crore. Land for the metro will include 102 acres from the defence authorities, 55 acres from the state government and 40 acres from private owners. A 7-km stretch is planned to be built underground around Vidhana Soudha and the rest would be elevated. The centre has deferred its approval for the project and asked the state government for further information on the proposed tariff plan and equity sharing formula for the project (GOI 2005b).

Current Issues

ULB Reforms

In continuation with the reforms in municipal governance, the government of India has approved the National e-Governance Action Plan for implementation during 2003–07 (Joshi 2003, 2004). The objective of the plan is to keep citizens abreast with the local developments and provide basic municipal services such as registration and issues of birth/death certificates and payment of property tax etc. electronically (Box 1.3). Finally, model municipal laws have been approved by the government (Box 1.4). The implementation of e-Governance and model municipal laws is gaining momentum.

Box 1.3

Implementation of e-Governance in Municipalities*Hitesh Vaidya and Mukesh Mathur*

The Government of India approved the National e-Governance Action Plan for implementation during 2003–7. The Plan aims to create citizen-centric and business-centric environments for good governance through:

- appropriate governance and institutional mechanisms;
- core infrastructure and policy implementation; and
- Mission Mode Projects at the centre, state, and integrated service levels.

The Ministry of Urban Employment and Poverty Alleviation (MUEPA) is executing an action plan for municipalities under the National e-Governance Action Plan. This incorporates a significant degree of citizen interaction, since municipalities provide a large number of basic services to millions of citizen living in India's urban centres. The key objectives of the e-Governance initiative include:

- provision of single window services to citizens on an 'any time, anywhere' basis;
- enhancement of efficiency and productivity of ULBs;
- development of a single and integrated view of ULB information system across all ULBs in the state;
- provision of timely and reliable management information relating to municipal administration for effective decision making; and
- adoption of a standards-based approach to enable integration with other related applications.

MUEPA decided to cover the following services/management functions in the first phase of Mission Mode Project:

- Registration and issue of births/deaths certificates
- Payment of property tax, utility bills
- Grievances and suggestions
- Building approvals
- Procurement and monitoring of projects
- Health programmes
- Accounting system
- Personnel information system

An assessment of the plan was carried out in four states (Andhra Pradesh, Karnataka, Tamil Nadu, and Maharashtra) and seven ULBs (Hyderabad, Bangalore, Trichy, Coimbatore, Vizag, Kalyan, and Mumbai) in 2004. The key learnings from the assessment are as follows.

Data related Issues

1. Data creation, cleansing/validation, security, ownership and common databases are necessary first steps for implementation of e-Governance initiatives.
2. Certain standards are needed to ensure data correctness and uniformity, software development methodology and documentation, functionalities of various modules, software testing procedures, etc.
3. Security, data privacy, and audit issues need to be addressed.

Functions, Processes, and Reengineering

1. With a few exceptions, most ULBs implemented different modules in a stand-alone manner. Integration with accounting and sequencing of implementation of key functional modules is very important.
2. Functionality of e-Governance modules needs to be defined to carry out reengineering of select processes.
3. ULB agreements with banks facilitate citizens' convenience and internal operational efficiency. Issues like immediate credit of collection and reconciliation remain to be resolved.
4. Lack of qualified personnel and guidelines has influenced software development and deployment.
5. Except in the case of Tamil Nadu, none of the projects has made the use of the local language for actual application data.
6. Except for Andhra Pradesh, there was no evidence of documented procedures or evidence of system audits in any of the initiatives.
7. Finally, use of upgradable technology is necessary for sustainability of e-governance in municipalities.

Note: Views expressed here are of the authors of the box.

Box 1.4

Model Municipal Law to Enable Urban Reforms

Chetan Vaidya and Hitesh Vaidya

The Ministry of Urban Development (MoUD), Government of India finalized a Model Municipal Law (MML) of India in October 2003. The basic objectives of the MML are to implement in totality the provisions of the 74th CAA for empowerment of the urban local bodies (ULBs), and provide the legislative framework for implementation of the Ministry's urban sector reform agenda. This initiative is expected not only to enhance the capacities of ULBs to leverage public funds for development of urban sector but also to help in creating an environment in which ULBs can play their role more effectively and ensure better service delivery.

A Policy Options Paper and the MML for one set of selected options was prepared by the Times Research Foundation in 2004 (TRF 2004). MML was finalized with the active participation of experts and state governments. The document consists of: (a) Policy Options for Framing Municipal Laws; and (b) the Law. The policy options paper provides issues, options and selected option for the law. Salient Features of MML are:

Constitution and Government

- Executive powers should vest with Empowered Standing Committee
- Five-year term for Mayor/Chairman
- Provision for wards and ward committees
- Functions classified in terms of core, assigned by government, and others
- Dissolution of elected council only after review by a committee
- Re-election of dissolved council within six months

Financial Management

- State government to prepare municipal accounting manual
- Municipalities to prepare annual balance sheets
- Provision for appointment of a Municipal Accounts Committee
- Provision for appointment of chartered accountants as auditors
- Capital and revenue heads to be separated out in municipal accounts
- Separate accounting heads proposed for water supply, roads, etc.
- Annual subsidy and environmental status reports
- Annual inventory of municipal properties
- Comprehensive debt limitation policy by state government
- Enabling access to capital markets and financial institutions for capital investments

Municipal Revenue Generation

- Property tax (PT) assessment system on area or capital value basis
- Provision for self-assessment system for PT
- Unique property numbering system
- Reference to implementation of SFC's recommendations

Urban Environmental Infrastructure and Services

- Participation of private sector, NGOs, and CBOs in delivery of services
- Service charges to reflect O&M and capital costs
- Provision to meet the Hazardous and Bio-medical Waste Handling Rules of MEF, GOI
- Provision to meet the Solid Waste Handling Rules of MEF, GOI
- State-level regulatory commission on municipal services

Others

- Representation to municipalities on District/Metropolitan Planning Committees
- Provision for implementation of development plans by Municipalities
- Easy planning approvals to small-sized buildings designed by architects

- Regulatory powers to manage illegal construction activities
- Easy access to information on various activities of municipalities.

The MOUD has suggested the following steps to implement the recommendations of MML:

1. State governments should set up committees to review existing acts and prepare a state-level agenda;
2. Finalize state-level agenda;
3. Identify role of Town Planning Act vis-à-vis the Municipal Act;
4. Identify legal basis for DPC and MPC; and
5. Draft new acts.

Based on MML, many state governments have initiated revisions of their municipal laws. The Government of Orissa promulgated Orissa Municipal Corporations Ordinance incorporating many suggestions of draft MML. The Delhi Municipal Corporation reviewed the Revenue Chapter of the Delhi Municipal Corporation Act. Many state governments including Uttaranchal, Gujarat, AP, HP, Maharashtra, MP and Orissa have set up committees to review the municipal acts and suggest revisions based on the model law. The Government of Rajasthan prepared a draft state municipal law based on MML.

Note: Views expressed are authors' personal views.

Propelled by the 74th CAA and the Twelfth Finance Commission award to municipalities the Government of India (GOI) has decided to overhaul its approach to providing financial support to municipalities to shoulder the responsibilities entrusted to them by the CAA. GoI has proposed to merge all its urban improvement schemes into three schemes: (i) Jawaharlal Nehru National Urban Renewal Mission (JNNURM); (ii) Urban Infrastructure Development Scheme for Small and Medium Towns (UIDSSMT); and (iii) Integrated Housing and Slum Development Programme³. While JNNURM would deal with 63 cities, the other two schemes would cover the remaining Urban Local Bodies (ULBs) (Annexe Table A1.1).

Jawaharlal Nehru National Urban Renewal Mission

The Jawaharlal Nehru National Urban Renewal Mission—a centrally sponsored scheme—covering seven mega cities, 28 million plus cities and 28 other identified important urban centres, was launched by the government in December 2005. The JNNURM is proposed to have two sub-missions namely Urban Infrastructure and Governance under the Ministry of Urban Development and Basic Services to the Urban Poor to be administered by Ministry of Urban Employment and Poverty Alleviation. A key assumption in designing the scheme is that urban infrastructure should be financially self-sustaining, subject to the provision of a reasonable amount of viability gap funding. The scheme would be implemented through a designated state level nodal agency (GOI 2005b).

³ The reason why slum development is pursued as a separate scheme is that while the first two schemes come under the Ministry of Urban Development (MoUD), slum development is under the purview of the Ministry of Poverty Alleviation.

The JNNURM has the following features:

- ensure that cities generate outcome oriented pro-poor plans through participatory processes
- pool all relevant GOI programmes/schemes into a centralized Mission fund, which can be enhanced
- use Mission funding to focus on supporting services for the poor
- disbursement should be linked to performance parameters
- secure effective linkages between asset creation and asset management so that the infrastructure services created in the cities are not only maintained efficiently but also become self-sustaining over time.
- development of the cities is well planned including peri-urban areas, out growths, urban corridors, so that urbanization takes place in a dispersed manner. Infrastructure projects admissible under JNNURM are:
 - water supply and sanitation, including setting up desalination plants, where necessary;
 - sewerage and solid waste management;
 - hospital waste management;
 - laying/improvement/widening of arterial/sub-arterial roads and bridges to remove transport bottlenecks;
 - urban transport and construction and development of bus and truck terminals;
 - environmental improvement and city beautification schemes;
 - construction of working women hostels, marriage halls, old age and destitute children's homes, night shelters with community toilets;
 - street lighting;
 - slaughter houses;
 - civic amenities like playgrounds/stadiums, community halls.

Financing of the projects under the JNNURM is proposed in a manner, which fulfils the JNNURM objectives and promotes PPPs in the creation of urban infrastructure (Table 1.5).

Table 1.5
Structure of Project Finance under JNNURM by Source of Assistance (per cent)

	Grant		Loan from FIs
	Centre	State	
Cities with 4 million plus population as per 2001 census	35	15	50
Cities with million plus but less than 4 million population as per 2001 census	50	20	30
Other cities	80	10	10
For setting up de-salination plants within 20 km from sea-shore and other urban areas predominantly facing water scarcity due to brackish water and non-availability of surface	80	10	10

Source: <http://urbanindia.nic.in/mud-final-site/programs/urbandevelopment/nurm.htm>

In order to be eligible for assistance, respective ULBs and state governments have to undertake a set of mandatory reforms. In case of ULBs, such reforms include full (O&M) cost recovery over 5 years, accrual accounting, e-Governance, pro-poor budgeting. Similarly, mandatory reforms for states include repeal of Urban Land Ceiling and Regulation Act (ULCRA), reform of rent control laws, independent regulators for urban services, etc. In addition, states and ULBs are required to implement any five optional reforms, such as, VRS, by-laws for rain water harvesting and computerization of land title system, in the first year⁴ (see Annexe Table A1.2).

Each assistance-seeking ULB would also be required to prepare a City Development Plan (CDP), based on a Rapid City Assessment (RCA). The RCA is expected to help the ULB to (a) develop a vision for its city; (b) ascertain the gap between infrastructure and investments; and (c) set out priorities, sequencing and timelines for undertaking various reforms and investments. While preparing its CDP, the ULB is expected to pay particular attention to three key aspects, namely, delivery of services, governance and financing, and identify investment projects for assistance under the Mission⁵.

⁴ <http://urbanindia.nic.in/mud-final-site/programs/urbandevelopment/nurm.htm>

⁵ Even before the JNNURM was approved by the Cabinet, cities were already busy in preparing the CDP. Municipal Corporation of Mumbai has invited Expression of Interest in September 2005 for preparation of CDP and city investment plan for Mumbai city from

The CDP and the detailed project reports (for proposed investments) shall be used to formulate a Memorandum of Agreement (MoA) between the ULB, state and the centre. The tripartite MoA, in a multi-year framework, sets out reform targets and milestones to be achieved by ULBs/states, GOI funding commitments and procedures for monitoring, evaluation, disclosure and dispute resolution.

City Development Plan: The objective of the plan is to force civic authorities to systematically think of the city's future, and determine how it wishes to shape up. Hence, a city development plan should have a medium-term perspective of the city's development. The plan should spell out developmental priorities that are consistent with the city's needs. It should have estimates of unmet present demand as well as projected demand especially for sectors and activities constituting the JNNURM. It should also outline the nature of interventions for implementing the vision and the degree of impact expected on the developmental priorities. Further, it must have broad estimates of investments required to implement the medium-term perspective. Broadly, a CDP should be a product of consultative and participatory deliberations, involving the private sector, business and industry, the city government, other governmental agencies, and the civil society. It should have qualitative and quantitative information on the city's past and present. It should be able to identify infrastructure bottlenecks, impediments to growth and opportunities for improvement.

National Urban Transport Policy

An urban transport policy is an integral part of the JNNURM as public transport in a growing city is its lifeline. The central government has circulated the draft of the National Urban Transport Policy (NUTP) to states and union territories with an aim to promote the public transport system and accord priority to cleaner technologies. The draft NUTP aims at curtailing the use of private transport vehicles and gives impetus to public transport and non-motorized vehicles such as the bicycle. A number of measures have been suggested in the policy to improve the use of public transport. These include special taxes on the use of private transportation like higher parking fee, additional fuel tax and cut in the parking space (GOI 2005e).

Considering the high initial cost of developing efficient and adequate public transport systems and the limited resources available with state governments, the policy suggests that the union government set up SPVs and also offer financial support either in the form of equity or a one-time viability gap financing.

organizations of national/international repute (www.mcgm.gov.in/Tenders/tdr11136.PDF).

Performance Based Deferred Payment Structure can also be used to mitigate financing needs while assuring maintenance of quality.

The prime objective of the urban transport policy will be to ensure easily accessible, safe, affordable, quick, comfortable, reliable and sustainable mobility for all. It will have to adopt a four-pronged approach to attaining this objective, namely:

- reduce the existing levels of congestion;
- reduce the impact of motor vehicles on urban air pollution;
- improve road safety; and
- foster the use of sustainable technologies that minimize the consumption of imported fuel in urban transport and thus preserve the country's energy security.

The policy will encourage each city with a population of more than 4 million to start planning for a mass transit system, adopting a technology that would best suit the city requirements in a 30-year time-frame. Options for this include buses on dedicated corridors, elevated sky bus and monorail system, electric trolley buses and underground metro systems. The policy will be given priority under the JNNURM.

Maharashtra Water Resource Regulatory Authority

Maharashtra is the first state to enact the Maharashtra Water Resource Regulatory Authority (MWRRA) Act 2005 to regulate water resources within the state of Maharashtra, facilitate and ensure judicious, equitable and sustainable management, allocation and utilization of water resources, fix tariff for agricultural and industrial water consumption, drinking water requirements and use of water for other purposes (GOM 2005).

Salient features of the Act are:

1. The state will have a State Water Council and a State Water Board with secretaries of various ministries as its members.
2. The State Water Board will use the basin- and sub-basin-wise water plans to draft an Integrated State Water Plan to submit it to the council for its approval. The Plan may be reviewed after every five years.
3. The regulatory authority will determine the distribution of entitlements across various categories of use as well as the equitable distribution of entitlements within each category based on the terms and conditions as may be prescribed in the State Water Plan (GOM 2003).
4. At the water resource project, sub-basin and river basin levels the regulator will determine the priority of water distribution during periods of scarcity.
5. The authority will also establish a water tariff system. Water charges shall reflect the full recovery of the cost of irrigation management, administration, operation, and maintenance of water resources project.
6. Bulk Water Entitlements or Quotas shall be transferable within the respective category of use as long as such transfers are compatible with the operation of the specific water

resource facilities involved that is, the state can have a water market.

7. The regulatory authority shall support and aid the enhancement and preservation of water quality within the state and in doing so the principle of 'polluter pays' shall be followed.
8. The authority may appoint consultants to assist it in discharging its functions.

CONCLUSION

India's agenda to promote PPPs for infrastructure development aims at enhancing the quality and quantum of infrastructure services, releasing the full potential of public sector assets and ensuring that stakeholders receive a fair share of benefits from the PPP. These partnerships backed by the IIFC and the viability gap fund scheme hold the promise of faster financial closure of infrastructure projects without overburdening the country's public finances. An infusion of private capital and management can ease fiscal constraints on infrastructure investment and boost efficiency. In general, wherever private sector is participating to finance, build and operate a wide array of infrastructure projects, either on its own or within the framework of PPP, the sector is recording growth. In order to manage a complex PPP programme in the country government is leaning on project appraisal and prioritization skills of financial institutions that are also partners in lending to infrastructure projects. The government is keenly aware that it has to facilitate PPP actively. The proposed IIFC and the scheme to support PPPs in infrastructure would go a long way in construction of large infrastructure projects in the country.

A disturbing sign in the development of infrastructure in general and PPP in particular is government's inclination to curb the powers of the regulator. Close on the heels of the proposed changes in the Electricity Act, which tried to clip the wings of SERCs, the Department of Telecom has issued a policy diktat against the telecom regulator, TRAI. Fortunately, not all the government departments are keen to curb the powers of regulators. There have been strong objections from the Planning Commission and the MoF on many issues related to the obstruction of the functioning of regulators.

The exponential growth witnessed in the telecom sector is the result of competition, decline in tariff and an India with aspirations for success. Falling capital expenditure required to install a wireless telephone line coupled with substantial reduction in hand set prices have helped operators to expand their network profitably and tap huge reservoir of customers at lower prices. Value Added Services such as ringtones, public examination results, reality TV shows and on-line FM radio have provided unprecedented volume of voice and data services to telecom operators that they can offer to their customers.

Expanding telecom network capacity has brought down prices and made the internet more widely available, fuelling a new round of online innovation. In metropolitan cities spectrum availability has become an issue before 3G services can be rolled out. Just as with the growth of mobiles, broadband use explodes only when it becomes affordable to large sections of people. This requires both the connectivity and the internet access devices (such as PCs) to be affordable and programmes which are useful to users which are hitherto either not available or accessible at prohibitive cost. Government is keenly aware of the constraints and is in the process of drafting the National Telecom Policy 2005, which may see convergence of telecom, internet and TV. The issue related to fair compensation to the incumbent state owned operator which has last mile access is yet to be resolved. TRAI's recommendations on rural telephony, if implemented, will help in achieving the target of 200 million users by 2007 set by GOI.

Power is indispensable as an infrastructure input for the growth of an economy and acceleration in the growth of the power sector greatly depends upon the financial and commercial viability of the sector. The implementation of APDRP in the last two years shows reduction in aggregate technical and commercial losses of the SEBs and a step towards commercial viability of the power sector. The Planning Commission's evaluation of the power sector, however, suggests that the sector is still saddled with several shortcomings, and remains an area of serious concern. The assessment points out that although power sector reforms in the country have been underway for over a decade, with a few milestones reached in crucial areas, the sector remains locked in a situation that is fundamentally unsustainable. The enforcement of Electricity Act 2003 marked a renaissance in the power sector of the country with its progressive package of policy initiatives, the positive results from it are yet to manifest in the full. But, large investments are being committed to develop generation and transmission capacity as power become a tradable commodity across the states and generators are free to sell power directly to high paying customers.

To achieve an 8 per cent growth in GDP, the transport sector, mainly comprising of road, rail and shipping sectors needs to display a 9 per cent growth. There is acute awareness that lack of transport capacity could be the stumbling block in realizing the growth potential. Further development of national highways appears to have slowed down though impetus is being given to ensure that the national highways network

continues to expand its capacity. The government is keen to link the national highways network and the rail network with ports. Indian Railways, however, is largely dependent on budgetary support for capacity expansion. A review of recent investment decisions would indicate that while road and ports have made quite a few positive moves in the recent past, the Railways' action plan is somewhat hazy.

The port sector is also expanding and there is competition to develop large container port capacity. A massive national maritime development programme is set to be launched to rejuvenate the port sector and strengthen it in the face of increasing traffic. The project will be based on public-private partnership and will have an estimated investment of more than Rs 60,000 crore.

India is on the verge of an aviation revolution. Only 50,000 people travel by air each day—a fraction of the number using the rail network. Existing airport infrastructure is being augmented and new airports are at various stages of development to be able to service national and international travellers. New developments in the civil aviation sector have included many budget airlines and low-cost, no-frills airlines, which have commenced to offer services in a big way.

The development of urban infrastructure has been fairly stop-gap in the last few decades. Barring a few large projects in a handful of cities, paucity of urban infrastructure projects is glaring. Whereas city mass transport systems and airports have found place in developmental plans, essential services such as roads, drinking water, sewage management, drainage, and primary health—the under belly of urban infrastructure have not yet come on the developmental radar. Efforts are being made to develop urban infrastructure in a sustainable fashion. Government wants ULBs to seriously take up the planning and development of urban infrastructure. The deluge in Mumbai was a reminder that decisions made by authorities without due regard for consequences can prove painful later on. The government is putting in place a policy framework under JNNURM, which would allow large infrastructure projects to come up in PPP.

With the economy growing at 8 per cent plus rate, business confidence in the economy is at a ten year high and the government is targeting an economic growth rate of 8 per cent during the Eleventh Plan (2008–12). The picture is one of brimming optimism; the need of the hour is to ensure that the irrational measures of the polity do not take a toll on the pace of the acceleration of reforms!

ANNEXE TABLES

Table A1.1
List of Identified Cities

Sl. No.	City	Name of the State	Population (in million)	Sl. No.	City	Name of the State	Population (in million)
a) Mega Cities				25.	Vijayawada	Andhra Pradesh	1.0
1.	Delhi	Delhi	12.9	26.	Rajkot	Gujarat	1.0
2.	Greater Mumbai	Maharashtra	16.4	27.	Dhanbad	Jharkhand	1.1
3.	Ahmedabad	Gujarat	4.5	28.	Indore	Madhya Pradesh	1.6
4.	Bangalore	Karnataka	5.7	c) Identified cities with less than one million population ^a			
5.	Chennai	Tamil Nadu	6.5	1.	Guwahati	Assam	0.82
6.	Kolkata	West Bengal	13.2	2.	Itanagar	Arunachal Pradesh	0.035
7.	Hyderabad	Andhra Pradesh	5.7	3.	Jammu	Jammu & Kashmir	0.61
b) Million-plus Cities				4.	Raipur	Chhattisgarh	0.7
1.	Patna	Bihar	1.7	5.	Panaji	Goa	0.099
2.	Faridabad	Haryana	1.1	6.	Shimla	Himachal Pradesh	0.15
3.	Bhopal	Madhya Pradesh	1.5	7.	Ranchi	Jharkhand	0.86
4.	Ludhiana	Punjab	1.4	8.	Thiruvananthapuram	Kerala	0.89
5.	Jaipur	Rajasthan	2.3	9.	Imphal	Manipur	0.25
6.	Lucknow	Uttar Pradesh	2.3	10.	Shillong	Meghalaya	0.27
7.	Madurai	Tamil Nadu	1.2	11.	Aizawal	Mizoram	0.23
8.	Nashik	Maharashtra	1.2	12.	Kohima	Nagaland	0.077
9.	Pune	Maharashtra	3.8	13.	Bhubaneswar	Orissa	0.66
10.	Cochin	Kerala	1.4	14.	Gangtok	Sikkim	0.029
11.	Varanasi	Uttar Pradesh	1.2	15.	Agartala	Tripura	0.19
12.	Agra	Uttar Pradesh	1.3	16.	Dehradun	Uttaranchal	0.53
13.	Amritsar	Punjab	1.0	17.	Bodh Gaya	Bihar	0.39
14.	Visakhapatnam	Andhra Pradesh	1.4	18.	Ujjain	Madhya Pradesh	0.43
15.	Vadodara	Gujarat	1.5	19.	Puri	Orissa	0.12
16.	Surat	Gujarat	2.8	20.	Ajmer-Pushkar	Rajasthan	0.50
17.	Kanpur	Uttar Pradesh	2.7	21.	Nainital	Uttaranchal	0.22
18.	Nagpur	Maharashtra	2.1	22.	Mysore	Karnataka	0.8
19.	Coimbatore	Tamil Nadu	1.5	23.	Pondicherry	Pondicherry	0.51
20.	Meerut	Uttar Pradesh	1.2	24.	Chandigarh	Punjab & Haryana	0.81
21.	Jabalpur	Madhya Pradesh	1.1	25.	Srinagar	Jammu & Kashmir	0.99
22.	Jamshedpur	Jharkhand	1.1	26.	Mathura	Uttar Pradesh	0.23
23.	Asansol	West Bengal	1.1	27.	Haridwar	Uttaranchal	0.19
24.	Allahabad	Uttar Pradesh	1.0	28.	Nanded	Maharashtra	0.44

Note: ^aStates will have the option to replace cities other than state capitals in place of cities/towns included in category C. All state capitals and capitals of two union territories with legislatures are proposed to be covered.

Source: <http://urbanindia.nic.in/mud-final-site/programs/urbandevelopment/nurm.htm>

Table A1.2
List of Mandatory and Optional Reforms

MANDATORY REFORMS	<p>There will be two sets of mandatory reforms. Core reforms at ULB level aims at process re-engineering through deployment of technology to enable more efficient, reliable, timely services in a transparent manner. The other set of reforms is framework related at the state level.</p>
Urban Local Body Reforms	<ul style="list-style-type: none"> • Adoption of modern, accrual-based double entry system of accounting in Urban Local Bodies • Introduction of system of e-governance using IT applications like, GIS and MIS for various services provided by ULBs. • Reform of property tax with GIS, so that it becomes major source of revenue for Urban Local Bodies (ULBs). • Levy of reasonable user charges by ULBs with the objective that full cost of operation and maintenance is collected within next five years. • Internal earmarking within local body budgets for basic services to the urban poor. • Provision of basic services to urban poor including security of tenure at affordable prices, improved housing, water supply, sanitation, and ensuring delivery of other already existing universal services of the government for education, health and social security.
State Level Reforms	<ul style="list-style-type: none"> • Implementation of decentralization measures as envisaged in 74th Constitution Amendment Act • Repeal of Urban Land Ceiling and Regulation Act. • Reform of Rent Control Laws so as to stimulate private investment in rental housing schemes. • Rationalization of Stamp Duty to bring it down to no more than 5 per cent within next five years. • Introduction of independent regulators for urban services. • Passage of Public Disclosure Law to ensure preparation of medium-term fiscal plan of ULBs and release of quarterly performance information to all stakeholders. • Passage of community participation law to institutionalize citizen participation and introducing the concept of the Area Sabha in urban areas. • Assigning or associating elected ULBs as with 'city planning function'. Over a period of five years, transferring all special agencies that deliver civic services in urban areas to ULBs and creating accountability platforms for all urban civic service providers in transition.
OPTIONAL REFORMS (Common to State and ULBs)	<ul style="list-style-type: none"> • Revision of bye-laws to streamline the approval process for construction of buildings, development of sites, etc. • Simplification of legal and procedural frameworks for conversion of agricultural land for non-agricultural purposes. • Introduction of Property Title Certification System in ULBs. • Earmarking at least 20–25 per cent of developed land in all housing projects (both public and private agencies) for EWS/LIG category with a system of cross subsidization. • Introduction of computerized process of registration of land and property. • Revision of bye-laws to make rain water harvesting mandatory in all buildings to come up in future and for adoption of water conservation measures. • Bye-laws on reuse of reclaimed water. • Administrative reforms that is, reduction in establishment by bringing out voluntary retirement schemes, non-filling up of posts falling vacant due to retirement etc., and achieving specified milestones in this regard. • Structural reforms • Encouraging Public–Private Partnership

Source: <http://urbanindia.nic.in/mud-final-site/programs/urbandevelopment/nurm.htm>

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