

# Infrastructure

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The importance of infrastructure for sustained economic development is well recognized. High transactions costs arising from inadequate and inefficient infrastructure can prevent the economy from realising its full growth potential regardless of the progress on other fronts. Physical infrastructure covering transportation, power and communication through its backward and forward linkages facilitates growth; social infrastructure including water supply, sanitation, sewage disposal, education and health, which are in the nature of primary services, has a direct impact on the quality of life.

9.2 There has been considerable progress in the last ten years in attracting private investment into the infrastructure sectors; first in telecommunications, then in ports and roads, and in individual projects in other sectors. There is a potential for public private partnerships (PPPs) to contribute more and help bridge the infrastructure gap in India. The total investment, at 2001-02 prices, required in infrastructure during the Tenth Five Year Plan, initially projected at Rs.1,089,400 crore, has been revised to Rs.1,108,800 crore in the Mid-Term Appraisal of the Tenth Plan. The Committee on Infrastructure, headed by the Prime Minister, has estimated the investment requirements as: Rs. 1,72,000 crore in the National Highways sector by 2012; Rs. 40,000 crore for Airports by 2010; and Rs. 50,000 crore for Ports by 2012. A substantial share of this investment is expected to come from the private sector. It has been estimated that India has the potential to absorb US\$150 billion of FDI in the next five years in the infrastructure sector alone.

## Review of 2005-06

9.3 During 2005-2006, so far, the infrastructure sector experienced mixed outcomes (Table 9.1). The overall index of six core industries having a direct bearing on infrastructure and accounting for 27 per cent weight in the Index of Industrial Production (IIP), in April-December, 2005, registered a growth of 4.5 per cent, which was lower than the 6.4 per cent registered during April-December, 2004. In the first nine months of 2005-06, crude oil production registered a decline, and there was deceleration in growth of coal, electricity, refinery throughput and steel sectors. Growth of cement production, however, accelerated during this period.

## Power

9.4 Electricity generation by power utilities during 2005-06 was targeted at 621.5 billion Kwh, up 5.8 per cent from the previous year. The growth of power generation in April-December 2005 at 4.7 per cent (Table 9.2), however, was lower than not only the 6.5 per cent achieved in the same period of the previous year but also the annual target. While nuclear generation showed a sharp turnaround for the better, thermal generation dipped during this period.

9.5 The Plant Load Factor (PLF) is an important measure of the operational efficiency of thermal power plants. During April-December 2005, the PLF of Central power plants was higher than that of State Electricity Boards (SEBs) put together, while PLF of private plants was higher than that of the public sector. The PLF of SEBs declined

<b>Table 9.1 : Trends in growth of physical output in infrastructure sectors (in per cent)</b>						
Items	2001-02	2002-03	2003-04	2004-05*	April-December*	
					2004*	2005*
<b>I. Energy</b>						
1. Coal production	4.5	4.2	5.8	3.9	7.3	5.7
2. Electricity generated by utilities	3.1	3.2	5.0	5.2	6.5	4.7
(a) Hydel	-0.7	-13.7	15.6	14.5	18.1	19.1
(b) Thermal (including nuclear)	2.5	6.2	3.5	3.8	4.6	1.6
3. Petroleum						
(a) Crude oil production	-1.2	3.2	1.0	1.8	2.8	-5.9
(b) Refinery throughput	3.7	4.9	8.2	4.3	6.6	0.4
<b>II. Steel</b>	4.6	9.9	9.8	6.5	7.5	7.1
<b>III. Cement</b>	7.4	8.8	6.1	6.6	6.9	10.9
<b>Average growth of I to III</b>	<b>3.5</b>	<b>5.5</b>	<b>6.2</b>	<b>5.1</b>	<b>6.4</b>	<b>4.5</b>
<b>IV. Transport and Communications</b>						
1. Railway revenue-earning goods traffic	4.0	5.3	7.5	8.0	7.7	9.8
2. Cargo handled at major ports	2.3	9.0	10.0	11.3	10.9	12.4
3. Telecom: New telephone connections <sup>1</sup>	23.9	21.5	40.1	28.5	21.4	27.9
4. Civil Aviation						
a. Cargo handled						
i. Export cargo handled	4.1	13.3	1.0	12.6	11.8	13.1
ii. Import cargo handled	-1.0	18.6	13.4	24.4	30.1	12.7
b. Passengers handled at						
i. International Terminals	-5.0	4.8	6.5	14.0	15.7	12.7
ii. Domestic Terminals	-5.7	9.6	13.1	23.6	25.9	21.9
* Provisional						
<sup>1</sup> WLL, fixed and cellular.						
Source: I-III Ministry of Commerce and Industry, IV.1 Ministry of Railways, IV.2 Department of Shipping, IV.3 Ministry of Communications, and IV.4 Ministry of Statistics and Programme Implementation						

<b>Table 9.2 : Trends in the power sector (utilities only)<sup>1</sup></b>						
	2003-04	2004-05	April-December*		Change over previous year @	
			2004	2005	2004	2005
			( In billions of units)		(per cent )	
1. Power generation <sup>1</sup>	558.3	587.4	438.0	458.6	6.5	4.7
(i) Hydro-electric	73.8	84.5	67.7	80.6	18.1	19.1
(ii) Thermal	466.8	486.1	357.9	363.0	5.1	1.4
(iii) Nuclear	17.7	16.8	12.3	13.2	-7.2	7.2
Memorandum item: Plant load factor (PLF), in per cent	72.7	74.8	73.1	71.5	N.A.	N.A.
*Provisional; @ April-December						
<sup>1</sup> Excludes generation from captive and non-conventional power plants, and less than 20 MW thermal plants.						
N.A.: Not applicable						

	2000-01	2001-02	2002-03	2003-04	2004-05	April-December	
						2004	2005
I. State Electricity Boards	65.6	67.0	68.7	68.4	69.6	68.1	64.8
II. Central Sector	74.3	74.3	77.1	78.7	81.7	79.5	79.8
III. Private Sector	73.1	74.7	78.9	80.5	85.1	85.4	86.6
IV. Regions							
Northern	73.1	75.1	75.4	76.3	77.1	76.1	74.9
Western	73.4	74.1	75.8	75.1	78.6	77.1	74.5
Southern	82.0	82.4	86.4	83.4	84.1	81.5	75.1
Eastern	47.9	48.7	52.1	56.9	60.4	58.5	62.4
North Eastern	18.5	16.7	14.8	14.0	15.0	14.4	16.2
<b>All-India</b>	<b>69.0</b>	<b>69.9</b>	<b>72.2</b>	<b>72.7</b>	<b>74.8</b>	<b>73.1</b>	<b>71.5</b>

during April-December, 2005 to 65 per cent. The drop in PLF in southern and western States was due to a good monsoon boosting hydro-generation and reducing the demand from thermal plants. The average for SEBs as a whole, however, masks substantial

variation across States. The PLF for the eastern and north-eastern states was relatively lower.

9.6 The rate of return of SEBs improved to –26 per cent in 2005-06 (RE) from –32 per

	1991-92	2004-05 Provisional	2005-06 (RE)	2006-07 Plan projection
Gross subsidy on sales to:				
(a) Agriculture	5,938	25,240	25,043	25,013
(b) Domestic consumers	1,310	10,432	10,179	10,967
(c) Other States	201	516	410	136
A. Gross subsidy (a+b+c)	<b>7,449</b>	<b>36,187</b>	<b>35,632</b>	<b>36,115</b>
B. Subventions received from State Governments	2,045	10,478	11,562	10,254
C. Net Subsidy (A-B)	5,404	25,709	24,070	25,861
D. Surplus from sale to other sectors	2,173	6,391	8,083	7,389
E. Uncovered subsidy (C-D)	3,231	19,319	15,987	18,472
F. Commercial Losses				
i. Excluding subsidy	4,117	23,558	22,569	23,924
ii. Including subsidy	NA	13,080	11,007	13,670
G. Rate of return (in per cent)	-12.70	-31.94	-26.13	-25.12
H. Additional revenue				
Additional Revenue Mobilisation:				
(a) Required for mandatory 3 per cent return	4,959	26,513	25,929	27,578
(b) From charging 50 paise per unit from Agriculture/Irrigation	2,176	1,042	1,441	1,105
# for losses without subsidy.				
<b>Note:- (i) The information regarding commercial losses in case of Orissa and Delhi pertains to GRIDCO of Orissa and transmission company of Delhi only. (ii) Information in case of Andhra, Haryana, Karnataka, Maharashtra, Rajasthan, Uttar Pradesh and Uttaranchal States is relating to distribution companies set up after the reforms. In case of other States, the information pertains to power sector as a whole.</b>				
<b>Source : Planning Commission.</b>				

### Box 9.1 : Partnership in Excellence

To improve generation in the short term, Ministry of Power has launched the programme: “**Partnership in Excellence**”. Priority is being given to restoration of units to an operating level by enhancing performance through short- and medium-term measures. Central Electricity Authority (CEA) has identified 26 thermal power stations operating at a PLF of less than 60 per cent. The concept of Partnership in Excellence, to be forged between these 26 stations and the better performing utilities, is to utilize the expertise of the latter to improve the performance of these 26 stations.

#### *Modus operandi*

- Team of engineers from the better performing partners to visit the identified power stations to diagnose the problems behind the low performance.
- The team to formulate a report for improving O&M practices and other measures for starting operation of the unit on a short term regular basis, with zero-based budgeting.
- On the recommendations of the team, needed funds, as subsidized loans or grants, to be provided by Power Finance Corporation (PFC).
- A team of 8 to 10 engineers to be posted at low performing thermal power stations, which will strive to implement the improved O&M practices and formulate the need based Renovation and Modernisation (R&M) scheme.
- R&M programme so identified to be implemented under the supervision of partner in excellence.

The programme has received a positive response, and these low performing power stations are expected to attain 60 per cent PLF or more during the period December, 2005 to March, 2006.

cent in 2004-05 (Table 9.4). The resources forgone through such poor return continue to be very large. In 2005-06, while the direct transfers from State Governments to SEBs was Rs.11,562 crore, an uncovered subsidy

of Rs.15,987 crore remained, indicating the large potential that reforms have in improving not only the electricity sector itself but also the fiscal position of the States.

9.7 Out of the total power generated in the country, around 66 per cent comes from the coal-fired power stations. Domestic coal production is not keeping pace with the growing demand for coal in the power sector (Table 9.5). The demand-supply imbalance has been a matter of concern for the last two years. Non-availability of the desired level of coal has resulted in generation loss of 1512 Million Units during 2004-05, and hampered the growth of thermal generation.

9.8 The power generation capacity based on gas/liquid fuel in October 2005 was 12,530.62 MW (10,513.62 MW gas & 2,017 MW liquid

**Table 9.5 : All India coal requirement, availability and likely shortfall**

(In million tonnes)

Particulars	2005-06	2006-07
Coal requirement	338*	365**
Availability	316.66	334
Shortfall from indigenous sources	21.34	31

\* Including 28 million tonnes for captive power plants.

\*\* Including 33 million tonnes for captive power plants

**Table 9.6 : Trends in requirement, allocation, supply and shortfall of gas**

(In MMSCMD)

Year	Requirement at 90% PLF	Allocation	Supplied	Demand-Supply gap	Estimated Generation Loss *(BU)
2000-01	44.54	36.67	24.40	20.14	33.0
2001-02	46.31	38.76	24.33	21.98	36.1
2002-03	48.26	39.47	25.12	23.14	38.0
2003-04	49.25	39.47	25.62	23.63	38.9
2004-05	49.73	40.95	30.70	19.03	31.2

\* Considering the demand-supply gap of gas at 90 per cent PLF, station heat rate of 2000 Kcal/KW/hr and no generation made using liquid fuel

Note: 1. MMSCMD—Million metric standards cubic metre per day. 2. BU—Billion Units

fuel). Demand for gas is outstripping supply in India and the power stations are not getting the required allocation of gas (Table 9.6). The actual supply has fallen substantially short of allocation, resulting in a huge loss of power generation. The gas-based stations (with dual-fuel facility) sometimes have to resort to liquid fuel like Naphtha, resulting in very high cost of generation.

9.9 It has not been possible to harness the advantages of gas/LNG as a fuel for power generation effectively, primarily because of its limited availability and lack of price competitiveness vis-à-vis coal. Fuel price, constituting about 60 per cent of the total cost of thermal power generation, is a critical determinant of long-term sustainability of a thermal plant.

### Capacity addition programme

9.10 The Tenth Plan capacity addition target of 41,110 MW was revised down to 36,956 MW at the time of the Mid-Term Appraisal (Tables 9.7 and 9.8). The likely achievement is expected to be around 34,000 MW, which

is about 83 per cent of the original target and 92 per cent of Mid-Term Appraisal target.

9.11 While there is a shortfall vis-à-vis the targets, the shortfalls are limited compared to earlier Plans. It may be recalled that in the Eighth and Ninth Plans, achievements were less than 50 per cent of the target. By type of ownership, the anticipated shortfall (13 per cent) is the highest in the Central sector, while by type of plants, it is the highest (9 per cent) in thermal plants.

9.12 Revival of the Dabhol Power Project, which was shut down from June, 2001 following disputes between the Dabhol Power Company and Maharashtra SEB (MSEB), was initiated in 2005. A joint venture company by the name of Ratnagiri Gas and Power Private Limited (RGPPL), with shareholding of National Thermal Power Corporation (NTPC), Gas Authority of India Limited (GAIL), Indian Financial Institutions (IFIs) and MSEB has been constituted to restart the power plant and complete the construction of Phase II and the associated LNG terminal. The Project's assets have been taken over by RGPPL with the

**Table 9.7 : Tenth Plan targets and achievements in power sector (by ownership)**

(in MW)

	Target		Additional Capacity : Status		
	Original	Mid-Term Appraisal	Commissioned	Under execution	Overall anticipated
Central	22832	19817*	8325	8900	17225*
State	11157	12240	3946	7955	11901
Private	7121	4899	1145	3753	4898
Total	41110	36956	13416	20608	34024

\* Including 2520 MW nuclear projects under construction

**Table 9.8 : Tenth Plan targets and achievements in power sector (by type)**

(in MW)

	Target		Additional Capacity : Status		
	Original	Mid-Term Appraisal	Commissioned	Under execution	Overall anticipated
Thermal	25417	23261	7446	13784	21230
Hydro	14393	11125	5380	4794	10174
Nuclear	1300	2570	590	2030	2620
Total	41110	36956	13416	20608	34024

approval of Maharashtra High Court. The project is expected to start generating power by the middle of 2006, subject to the availability of LNG.

9.13 Power plants using super critical technology have greater efficiency of about 40.3 per cent compared to 38.6 per cent of normal 500 MW units. Presently six units of 660 MW super critical power plants of NTPC are under construction in India. Bharat Heavy Electricals Limited (BHEL) has recently tied up the technology for making super critical units. 25 probable sites/ projects have been identified for 800 MW super critical units.

9.14 Government is encouraging the use of hydel and wind energy sources which do not rely on fossil fuels and avoid carbon emissions. India has an estimated unutilized hydro-power potential of more than 1,50,000 MW. A study by the Central Electricity Authority (CEA) has identified 399 potential hydel projects with an aggregate capacity of 1,07,000 MW. Preparation of pre feasibility Reports (PFRs) of 162 schemes with aggregate installed capacity of 47,930 MW has already been completed by CEA.

9.15 Five sites including three coastal sites, one each in Karnataka, Gujarat and Maharashtra are being identified for development of Ultra-Mega Power plants with capacity of 4,000 MW each, through the competitive bidding route to meet the needs of the States on a regional basis. The initial groundwork such as land acquisition, coal-linkage/allotment of coal blocks, water linkage, Environment Impact Assessment (EIA) studies and the preparation of Feasibility Reports (FRs)/ Detailed Project Reports (DPRs) is to be done by the shell companies being formed in the name of the project through initial funding by PFC. After the projects are brought to the take-off stage by the shell companies, bids would be invited from the prospective investors to take over the shell company by bidding the lowest tariff and developing the project thereafter. In such large projects, which would supply power to a number of States, it has been suggested that necessary coordination may be done at the apex level. It is expected that in view of their size, they would deliver power at rates between Re.1.60-1.80/KWh.

9.16 Electricity Act, 2003 has helped enhance investment in the power sector. An Inter-Institutional Group (IIG), comprising of senior representatives from the financial institutions and Ministry of Power, has been constituted to especially focus on fast-track power projects, which could be taken up for early commissioning and could achieve early financial closure. 13 private sector power projects having a total capacity of about 5000 MW involving an investment of about Rs.18,127 crore achieved financial closure and another 10 projects with a total capacity of 11,432 MW involving an investment of Rs. 40,000 crore approximately are being monitored by the IIG for facilitating early financial closure.

### **Power transmission**

9.17 An All-India power grid, also called the "National Grid", is envisaged to be developed in a phased manner – first by integrating a cluster of regions, and subsequently all the regions by the year 2012. The total inter-regional transmission capacity is planned to increase from its present 9,450 MW to about 37,150 MW by 2012. Strong regional grids presently exist in all the five regions.

9.18 In the Central transmission sector, an additional 60,000 circuit kms of transmission network with a capital investment of over Rs. 71,000 crore, including investment from the private sector, is to be implemented under the Tenth and Eleventh five year plans (2002-12). With a view to facilitate and encourage private participation in transmission, Ministry of Power is in the process of finalizing the "Policy Guidelines for Private Investment in Transmission" and tariff-based competitive bidding guidelines for transmission services.

### *Distribution reforms and success of Accelerated Power Development and Reform Programme (APDRP)*

9.19 Considering the increasing commercial losses of the state power utilities, distribution reforms have been identified as the key area to infuse efficiency and commercial viability into the power sector. The 2002 privatisation experience of Delhi has been encouraging so far (Box 9.2).

### Box 9.2 : Privatisation of the power sector in NCT of Delhi

The power sector in Delhi was unbundled in July, 2002 when the erstwhile Delhi Vidyut Board (DVB) was unbundled into one holding company, one generation company, one transmission company and three distribution companies. The three distribution companies were created each having 51 per cent equity participation from the private sector, the remaining equity participation coming from the Government of NCT of Delhi. The privatization was undertaken on the basis of bids in terms of reduction in Aggregate Technical and Commercial (AT&C) losses. Each distribution Company has to reduce the AT&C loss levels by at least 17 per cent over a five year period i.e. from 2002-07. The AT&C loss levels at the beginning of the privatisation process, the targets set for each year and the actual performance — in per cent — were as follows:

Opening levels			2002-03	2003-04	2004-05
BSES Yamuna Power Limited	57.2	Target	56.45	54.7	50.7
		Achievement	61.89	54.29	50.12
BSES Rajdhani Power Limited	48.1	Target	47.55	46.0	42.7
		Achievement	47.4	45.06	40.64
North Delhi Power Limited	48.1	Target	47.6	45.35	40.85
		Achievement	47.79	44.86	33.79

As is evident from the above table, the actual AT&C levels for each distribution company has been better than the respective target. Further, there have been several other benefits from privatisation of the power sector in Delhi as given below:

- i) The Government was spending more than Rs.1,000 crore each year for the power sector in Delhi before privatisation which has now been reduced to about Rs.200 crore which is spent on the capital expenditure schemes of the Delhi Transco Ltd. and the generation companies.
- ii) There has been considerable improvement in the quality of power given the fact that load shedding has come down from 2.32 per cent of the energy input in 2002-03 to only 0.85 per cent in 2004-05.
- iii) 100 per cent payment is being made to central power sector utilities for power purchased.
- iv) About Rs.1250 crore invested by the distribution companies for capital schemes during the period 2002-03 to 2004-05.
- v) The average response time for attending to break downs has improved considerably.
- vi) The number of options available to consumers for payment of bills have increased manifold.

9.20 Government is implementing APDRP to undertake distribution reforms in a time-bound manner, which include setting up of State Electricity Regulatory Commission (SERC), unbundling of State power utilities, metering of feeders & consumers, starting energy accounting & auditing, and grid discipline. As on date, 24 States have constituted SERCs. Also notified are a Joint Electricity Regulatory Commission for UTs other than NCT of Delhi and one Joint Commission for Manipur and Mizoram. Government of Nagaland is in the process of setting up a SERC. Twenty States have issued tariff orders rationalising tariffs.

### Rural electricity initiatives under Rajiv Gandhi Grameen Vidyutikaran Yojna (RGGVY)

9.21 This Scheme of Rural Electricity Infrastructure and Household Electrification was introduced in April, 2005 for achieving the NCMP objective of providing access to electricity to all rural households over a period of four years. At present, only 44 per cent of the rural households have access to electricity. Rural Electrification Corporation (REC) is the nodal agency for the programme. Under the scheme, projects can be financed with 90 per cent capital subsidy for provision

of Rural Electricity Distribution Backbone (REDB), creation of Village Electrification Infrastructure (VEI) and Decentralized Distributed Generation (DDG) and supply. REDB, VEI and DDG will cater to the requirements of agriculture and other activities, including irrigation pumpsets, small and medium industries, khadi and village industries, cold storage chains, healthcare, education and IT. Under this scheme un-electrified BPL households will get electricity connection free of charge, as per norms of Kutir Jyoti Programme in all rural habitations.

9.22 The services of Central Public Sector Undertakings (CPSUs) have been offered to the States for assisting them in the execution of rural electrification projects as per their willingness and requirement. The management of rural distribution has been envisaged through franchisees who could be Non-Governmental organisations (NGOs), Users' Association, cooperatives or individual entrepreneurs. Panchayat institutions would be associated with the management. The franchisee arrangement could be for systems beyond and including feeders from substation or from and including distribution transformer(s).

*Progress of implementation of RGGVY (till Dec. 2005)*

- 27 States and their utilities have signed Memorandum of Agreement (MoA) agreeing to the conditionalities for implementation of the programme as envisaged under RGGVY.
- So far 187 projects for 191 districts have been sanctioned covering 22 States at the cost of Rs.6,241.86 crore covering 51,284 un-electrified villages and 69.29 lakh rural households, of which 45.15 lakh are BPL households.
- Notice Inviting Tenders (NITs) have been issued for projects covering 163 districts.
- Contracts have been placed for projects covering 95 districts covering 41,461 un-electrified villages and 9,379 electrified villages.
- CPSUs are working in 131 districts.

- 1,941 villages have been electrified till December, 2005

## Policy initiatives

### *Competitive bidding guidelines*

9.23 The Electricity Act, 2003 provides that the SERCs shall adopt the tariffs through a transparent process of bidding in accordance with the guidelines issued by the Central Government. A move away from the cost plus approach, this approach to tariff determination is expected to encourage private sector investment. Government issued the guidelines for competitive bidding for determination of tariff for procurement of power by distribution licensees on January 19, 2005. The main objectives of these guidelines are promoting competitive procurement, facilitating transparency and fairness, reducing information asymmetry, protecting consumers' interests, enhancing standardization and reducing time for procurement, and finally providing flexibility to suppliers on availability of power while ensuring certainty on tariffs for buyers. The guidelines provide both for long-term procurement for a period of 7 years or more and also for medium-term procurement for a period of one to seven years.

### *Amendment to the Electricity Act 2003*

9.24 The NCMP, *inter-alia*, states that: "The review of the Electricity Act 2003 will be undertaken in view of the concern expressed by a number of States. The mandatory date of June 10, 2004 for unbundling and replacing the state electricity boards will be extended. The UPA government also reiterates its commitment to an increased role for private generation of power and more importantly power distribution." A review of the Act has been carried out and it has been proposed to bring the following amendments:

- (i) Amendment to Section 6 to clarify that both the concerned State Governments and the Central Government would jointly endeavour to provide access to electricity to all areas including villages and hamlets



through rural electricity infrastructure and electrification of households.

- (ii) Amendment to relevant sections to delete the provision for 'elimination' of cross subsidies. Provision for 'reduction' of cross subsidies will continue.
- (iii) Amendment to Section 151 to clarify that the police would be able to investigate cognizable offences under the Act.

9.25 The Electricity (Amendment) Bill, 2005 on the above proposed amendments has been introduced in the Lok Sabha on December 23, 2005. Electricity Rules, 2005, notified on June 8, 2005, which among other things describe the requirement of captive generating plant, have brought clarity for implementation of the provisions of the Act. Under the provisions of the Electricity Act, 2003, the Appellate Tribunal for Electricity became operational from July 21, 2005 and started hearing appeals against decisions of various Electricity Regulatory Commissions.

#### Tariff policy

9.26 Under the provisions of Electricity Act 2003, Central Government has notified the tariff policy, evolved in consultation with the State Governments, CERC and various stakeholders. To promote competition, the policy provides that all future requirements of power should be procured competitively, except in the case of one-time expansion of existing projects, or where a State-controlled publicly owned company has been identified

as the developer. A transition period of five years has been indicated for achieving the goal of developing generation and transmission projects in the public sector also through competitive bidding only. The policy lays down a timeframe for rationalization of electricity tariffs and mandates reduction of the cross-subsidies to within a band of  $\pm 20\%$  by the end of year 2010-11. The policy clearly says that provision of free electricity is not desirable, as it encourages wasteful consumption of electricity and, in most of the cases, depletion of the water table. To facilitate choice of supply to the consumers through open access in distribution, the policy provides unambiguous methodology for calculating cross-subsidy surcharge and its time bound reduction. It also lays down mechanism for arranging back-up supply for such consumers.

#### Telecommunications

9.27 Under the New Telecom Policy, 1999, with provision of affordable and effective communication as its core vision and goal, the telecommunication sector in India has achieved a lot in recent years. With rapid growth, tele-density levels have surpassed the targets set. The total number of telephones (basic and mobile) rose from 22.8 million in 1999 to more than 125 million at the end of December 2005 (Table 9.9). While 21.83 million telephones were added during 12 months of 2004-05, the first nine months of 2005-06 saw an addition of 27.47 million phones. Overall, tele-density has risen from a mere 2.32 in 1999 to 11.32 in December, 2005.

**Table 9.9 : Growth of telephones over the years**

Sl. No.	Year	Fixed, in million			Per cent of PSUs	Mobile (including WLL), in million			Per cent of PSUs
		PSUs	Pvt.	Total		PSUs	Pvt.	Total	
1.	2001-02	37.90	0.52	38.42	98.65	0.26	6.28	6.54	3.98
2.	2002-03	40.53	1.10	41.63	97.36	2.64	10.35	12.99	20.32
3.	2003-04	40.49	2.36	42.85	94.49	5.99	27.70	33.69	17.78
4.	2004-05	41.11	5.09	46.20	88.98	10.97	41.20	52.17	21.03
5.	2005-06 (first 9 months)	40.70	7.01	47.71	85.31	16.48	61.60	78.08	21.11

9.28 Although India's 125 million strong telephone network, including mobile phones, is one of the largest in the world, the telephone penetration rate continues to be low at about 11.32 phones per hundred population. The country offers vast avenues for growth, and by the end of 2007 the total number of phones are targeted to reach 250 million. Some of the major policy initiatives in the telecom section are listed in Box 9.3.

9.29 The drivers of telecom growth have undergone a significant change in terms of mobile versus fixed phones, as well as public versus private service providers. During 1999, both mobile phones and the private sector separately accounted for only 5 per cent of the total number of phones. However, in December 2005, the shares of mobile phones and the private sector in total phones were

61.97 per cent and 54.45 per cent, respectively. Mobile phones are increasingly being regarded as an effective tool of empowerment of the common man. It is no longer considered a luxury item and, in recent years, with lower capital expenses of mobile technology, it has become the technology of choice for low-priced telephony.

9.30 The two PSUs in the telecom sector — Bharat Sanchar Nigam Limited (BSNL) and Mahanagar Telephone Nigam Ltd. (MTNL) — have been losing their market shares in fixed telephony. From 98.65 per cent in 2001-02, their combined share declined to 85.31 per cent in December 2005 (Table 9.9). In the past two years, PSUs have actually seen a decline in the number of fixed lines, while such lines have grown in the private sector. However, they have improved their share in

#### Box 9.3 : Major policy initiatives

- BSNL announced 33 per cent reduction in call charges for all the countries for international calls.
- Annual licence fee for National Long Distance (NLD) as well as International Long Distance (ILD) licences reduced to 6 per cent of Adjusted Gross Revenue (AGR) with effect from January 1, 2006.
- Entry fee for NLD licences reduced to Rs.2.5 crore from Rs.100 crore prospectively, i.e. date of issue of amendment to the existing guidelines to that effect.
- Entry fee for ILD reduced to Rs.2.5 crore from Rs. 25 crore.
- NLD service provider shall be permitted to carry intra-circle traffic with mutual agreement of originating service provider. Agreement with terminating service provider shall not be required.
- Mandatory roll out obligations for future NLD licensees as well as existing NLD licensees waived off.
- No more mandatory roll out obligations for ILD service licensees except for having at least one switch in India. Roll out obligations for existing ILD service licensee stands waive off from the date of issue of orders.
- Networth and paid up capital of the applicant company for NLD as well ILD service licence shall be Rs.2.5 crore only and while counting the networth, the networth of promoters shall not be counted.
- NLD service providers can access the subscribers directly for provision of leased circuits/closed user groups and can provide last mile connectivity. The ILD service providers can access the subscriber directly only for provision of leased circuits/closed user groups.
- Access service provider can provide internet telephony, internet services and broadband services. If required, access service provider can use the network of NLD/ILD service licensee.
- No more IP-II and IP VPN licences to be issued with immediate effect as these licensees are allowed to migrate to NLD/ILD service licence.
- Internet service provider (ISP) with internet telephony (restricted) to be charged licence fee at 6 per cent of AGR with effect from January 1, 2006.
- Annual licence fee in respect of VSAT commercial to be charged at 6 per cent of AGR with effect from January 1, 2006.
- FDI Ceilings raised from 49 per cent to 74 per cent. 100 per cent FDI is permitted in the area of telecom equipment manufacturing and provision of IT enabled services.

mobile telephony from 3.98 per cent to 21.11 per cent of the market.

9.31 One of the important sources of the substantial financial investment required for the growth of tele-density has been FDI. In pursuance of the Government's commitment to liberalise, the FDI ceiling in telecom sector was enhanced from 49 per cent to 74 per cent in certain areas (such as basic, cellular, unified access services, national/international long distance, Very Small Aperture Terminal (VSAT), Public Mobile Radio Trunk Services (PMRTS), Global Mobile Personal Communication Services (GMPCS) and other value added services). The total 74 per cent FDI ceiling includes direct and indirect foreign holding in the licensee company. The formal guidelines enhancing the ceiling was issued by Department of Industrial Policy and Promotion on November 3, 2005. FDI up to 74 per cent, subject to licensing and security requirements, is also allowed in the areas of internet services with Gateways, Infrastructure providers (Category II) and Radio Paging Services. 100 per cent FDI is allowed in respect of Internet services without Gateways, Infrastructure Providers (Category I), Electronic Mail and Voice Mail services subject to condition that companies providing such services would divest 26 per cent of the equity in favour of Indian public in 5 years, if these companies are listed in other parts of the world. 100 per cent FDI is also permitted in the area of telecom equipment manufacturing and provision of IT enabled services.

9.32 Total FDI approved for the telecom sector up to September, 2005 was Rs. 41,551 crore. Hutchison, Singtel, AT&T and Distacom are the major investors in the telecom services sector. Telecom major Vodafone has announced its entry into the sector with acquisition of 10 per cent shares in Bharti Televentures for a consideration of Rs. 6,700 crore. The agenda for having world renowned Telecom and IT companies set up their R&D/manufacturing base in India has been aggressively pursued to ensure timely delivery, high quality, cost effective supplies and very good after sale services.

## **The next frontier : broadband**

9.33 There has been a significant growth in broadband subscribers from 0.49 lakh in December 2004 to 7.50 lakh in November 2005. These numbers would, however, need to increase substantially to look comparable with other Asian countries. Ability to emulate the success of many other Asian countries in the broadband area will have major implications for smoothing intra-India commerce and industry, knowledge flows into India, e-governance, greater integration into the world economy through international voice and videoconferencing traffic and lower prices for National Long Distance (NLD) and International Long Distance (ILD) traffic, and services exports such as software and "business process outsourcing".

9.34 With the increase in volume and competition of broadband services, the cost of these services has already decreased. BSNL and MTNL are offering broadband services at monthly rentals of Rs.250 and Rs.199, respectively. Internet bandwidth will become cheaper to the extent that domestic traffic is switched within the country and servers accessed by Indian users are located within the country. The National Internet Exchange of India (NIXI) has been set up by DIT to ensure that Internet traffic, originating and destined for India, is routed within India.

## **The electromagnetic spectrum**

9.35 The electromagnetic spectrum is a scarce natural resource which needs to be allocated efficiently to maximize its economic value. Radio frequency spectrum has become an essential ingredient in modern telecommunication with its emphasis on mobility; and the Government has adopted a technology-neutral policy in the telecom sector.

9.36 Efforts are being made to introduce newly emerging radio communication technologies, without unduly constraining the other existing operations. There has been an ongoing process of addressing bottlenecks in spectrum availability as and when they are encountered. Automated spectrum management system commenced from January, 2005.

## Trends in telecom tariff

9.37 There has been a dramatic fall in telecom tariffs with increased competition. The tariffs for local calls, particularly for cellular, have fallen considerably in recent months (Table 9.10). The peak long distance tariff between Delhi and Mumbai has come down from Rs. 30 per minute in 2000 to less than Rs. 2.40 per minute in 2004 (Table 9.11). In the same fashion, international call charges have also come down drastically from Rs. 61.20 per minute in 2000 to Rs. 7.20 per minute from April 2004 onwards for the American continent (Table 9.12). Mobile telephony prices have dropped from Rs. 16 per minute to Rs. 1.20 per minute. The public sector operators (BSNL

and MTNL) have launched the 'One-India Plan' with effect from March 1, 2006. This new plan will enable the customers of BSNL and MTNL to call from one end of India to other at the cost of Rs. 1.00 per minute, any time of the day to any phone.

## Rural telephony

9.38 As on December 31, 2005, 5,39,572 villages were connected using a Village Public Telephone (VPT). Under the Bharat Nirman Yojana, a total of 66,822 villages are to be provided with VPTs by November, 2007. Against this target, 17,182 villages have already been covered. In the rural areas, more than 2 lakh public call offices (PCOs) and 14.18 million phones have been provided.

**Table 9.10 : Minimum effective charge for local calls**

	June 2003	June 2004	Sept. 2004	Dec. 2004	March 2005	June 2005	Sept. 2005
Fixed (Re./min.)	1.39	1.00	1.00	1.00	1.00	0.85	0.85
Cellular (Re./min.)	2.37	1.90	1.90	1.20	1.20	1.20	1.20

**Note:** Minimum effective charge derived for an outgoing usage of 250 minutes/month.

**Table 9.11 : Tariff for national long distance (NLD) calls**

Distance	<i>(In Rupee per minute)</i>					
	1999-2000	2001	2002	March 2003 onwards	April 10, 2004 onwards	With effect from September 10, 2004
Up to 50 Kms	1.20	1.20	1.20	1.20	1.20	1.20
50 to 200 Kms.	6.00	4.80	4.80	2.40	2.40	2.40
200 to 500 Kms.	15.60	12.00	4.80	4.80	3.60	2.40
500 to 1000 Kms.	21.60	18.00	9.60	4.80	3.60	2.40
Above 1000 Kms.	30.00	24.00	9.60	4.80	3.60	2.40

**Table 9.12 : Tariff for International Long Distance (ILD) calls**

Country	<i>(In Rupee per minute)</i>			
	October, 2003 to April 9, 2004	April 10, 2004 to October 20, 2004	October 21, 2004 to May 20, 2005	From May 21, 2005 onwards
United Kingdom	7.20	7.20	7.20	7.20
USA and Canada	9.60	7.20	7.20	7.20
Rest of Europe	9.60	9.60	9.60	9.60
South East Africa	12.00	9.60	9.60	9.60
SAARC countries	21.18	18.00	18.00	12.00
Sri Lanka	21.18	18.00	12.00	12.00
Rest of the World	24.00	18.00	18.00	12.00

## Posts

9.39 The services of the Indian Postal network, amongst the largest networks in the world in terms of area covered and population served (Table 9.13), can be broadly classified into four categories: communication services (letters, post cards, etc.), transportation services (parcel, logistic post), financial

redefining their roles, developing and expanding their core competencies and even harnessing the very technologies that have challenged them. Presently, 5232 post offices, which include all head post offices and major sub-post offices, are computerized for both counter and back office works. Process enhancement using IT is being continued on a large scale during the Tenth Five Year Plan.

**Table 9.13 : Postal network – international comparisons**

Country	Permanent post office	Population served	Average area served (sq.km)	Employee
China	63,555	20,521	151	0.49
<b>India</b>	<b>1,55,516*</b>	<b>6,615*</b>	<b>21.13*</b>	<b>0.53</b>
Indonesia	20,073	10,954	94.88	0.11
Malaysia	1,211	20,169	272.30	0.59
Sri Lanka	4,680	4,074	14.02	1.18
U.K.	15,868	3,734	15.31	3.24
USA	37,579	7,825	256.24	2.81

Source: Department of Posts.  
\* As on 31.3.2005.

services (savings bank, money order, international money transfer service, PPP for extending financial service outreach through post office network, Postal Life Insurance) and premium value-added services (speed post, business post, retail post, etc.). The Post Office Savings Bank is the largest savings bank in India in terms of network, accounts and annual deposits.

9.40 There is a significant subsidy element in postal services (Table 9.14) with user charges in the postal system roughly covering only 76 per cent of the cash costs. As per the latest indications, the deficit is likely to increase from Rs. 1,364.40 crore in 2002-03 to Rs. 1,449.64 crore in 2005-06(BE). Clarifying the rationale, the mechanism and the size of the subsidy constitutes an important policy question at this juncture.

9.41 The spread of computers and communication technology has had profound implications for the postal system. Postal systems the world over, including India Post, are responding to these challenges by

**Table 9.14 : Subsidy on postal services**

Service	Subsidy per unit (Rs.)	Traffic (in million)	Total subsidy (Rs. Crore)
Post card	6.56	229.00	150.13
Printed post card	1.57	39.16	6.16
Letter card	4.58	293.96	134.70
Registration	16.69	200.45	334.55
Money order	26.97	109.58	295.59
Reg. Newspaper :			
(a) (Single)	8.64	53.19	45.93
(b) (Bundle)	13.66	32.24	44.04
Printed books	10.70	22.79	24.38
Parcel	11.51	47.95	55.17
Others	NA	NA	273.75
Total	NA	NA	1364.40

Source : Department of Posts.

Automatic Mail Processing Centres (AMPC) have been set up at Mumbai and Chennai for faster processing of mails, especially business mails. Two more AMPCs are planned to be set up in Kolkata and Delhi. A National Data Centre (NDC) will also be set up in Delhi to connect all the computerized post offices by March 2007.

9.42 e-Post service has now been upgraded for multiple messaging to make it useful for corporate houses. Under e-Bill Post, customers are able to pay multiple utility bills at post office counters. The application software for e-Bill is being modified to make it useful for cash-on-delivery services and for e-commerce. Efforts are on to provide low priced services which will provide electronic information in respect of delivery of letter mail articles. Pick up of mail from the residence of the customers, which has commenced all over the country, is a major initiative to provide user-friendly services to its vast customer base. Direct Post, which comprises of unaddressed postal articles like promotional items has been introduced to provide the facility of direct advertising for increasing commercial activity in the country. 'Logistics Posts' has been introduced to complement the existing range of parcel services for the high-end customers. Retail Post Services, inter alia, offering sale of applications forms for entrance examinations and passport application forms are now widely available in post offices. The postal network is being used for helping the Election Commission in revising the electoral rolls.

9.43 It is proposed to meet the rising expectations of customers by providing dedicated offices rendering a basket of financial services including small savings in line with the international trend of the post office providing exclusive retailing outlets as a One-Stop-Post Shop (called Postal Finance Marts). There was an assessed need to improve the ambience in which Postal Financial Services are offered and bring under one roof a Financial Super Market, with networked and computerized facilities providing all postal financial products like Savings Bank and Savings Certificates,

Postal Life Insurance, non-life Insurance products (as a corporate agent of Oriental Insurance Co. Ltd.), International Money Transfer, Mutual Fund and Bonds, Government Securities, Domestic Money Transmission, etc. The Postal Finance Mart are to be manned by Association of Mutual Fund Institutions (AMFI) and insurance qualified staff who will provide value addition of advice and information to the customers. The Senior Citizen Savings Scheme (SCSS)-2004 (a special high yielding assured return scheme) mobilized Rs. 8,775 crore in 2004-05. India Post provided options to senior citizens for payment of interest by (i) cash, (ii) payment into POSB accounts and (iii) money order. Payment by post dated cheques and electronic clearing system (ECS) is also under finalisation. The Department, in September 2004, tied-up with the UTI Asset Management Co. Ltd., for retailing 17 mutual fund schemes from selected post offices. A new product called IMO, an on-line domestic money transmission service intended for a market clientele which desires assured time related money delivery, has been launched. Another Scheme where Post Office Savings Bank account holders can be covered with an accidental death insurance cover of Rs. 1 lakh on payment of a nominal premium of Rs.15/- per annum has been launched recently.

## Roads

9.44 The Indian road network, the largest in the world aggregating 3.32 million kilometers, consists of 65,569 km of National Highways, 1,28,000 km of State Highways, 4,70,000 km of Major District Roads and about 26,50,000 km of other District and Rural Roads.

9.45 National Highways account for only about 2 per cent of the total length of roads, but carry about 40 per cent of the total traffic across the length and breadth of the country. Out of the total length of National Highways, about 35 per cent is of single lane/intermediate lane width, about 53 per cent is 2-lane standard and balance about 12 per cent is 4-lane standard or more. Considering the importance of the National Highways and the

rapid increase in traffic, Government has taken up the National Highways Development Project (NHDP), which consists of the following components:

- (i) NHDP Phase-I: The Golden Quadrilateral (GQ; 5,846 km) connecting the four major cities of Delhi, Mumbai, Chennai and Kolkatta.
- (ii) NHDP Phase-II: The North-South and East-West Corridors (NS-EW; 7,300 km) connecting Srinagar in the north to Kanyakumari in the south, including spur from Salem to Kochi, and Silchar in the east to Porbandar in the west;
- (iii) Port connectivity and other projects— 1,157 kms. and
- (iv) NHDP Phase III-A (4,015 km): 4-laning of over 4000 km of BOT in the year 2005 approved at an estimated cost of Rs.22,000 crore.

National Highways Authority of India (NHAI) is the implementing agency for NHDP programme. NHAI is also to implement four laning of 603 km of National Highways as a part of Special Accelerated Road Development Programme in the North Eastern Region (SARDP-NE).

9.46 On November 30, 2005, 6271 km of roads under NHDP – with the bulk (5,097 km) lying on the GQ – was complete; another 6,179 km was under construction; and cumulative expenditure was Rs.29,486 crore (Table 9.15). The award of contracts of the

entire Phase-II, except for stretches in Jammu and Kashmir and West Bengal where there are difficulties of terrain, alignment and environmental clearance, is likely to be completed by March, 2006. It is expected that the GQ would be substantially completed by June 2006, and the NS and EW corridors would be completed by December, 2008. Thirty-one BOT contracts covering 1,600 km under Phase II and Phase IIIA have been awarded. Phase-IIIA is targeted to be completed by December, 2009.

9.47 The constraints faced in the timely completion of NHDP are: (i) delays in land acquisition and removal of structures; (ii) law and order problem in some States; and (iii) poor performance of some contractors.

### Corridor management

9.48 The substantial completion of NHDP Phase-I, namely GQ, calls for a shift in emphasis to corridor management — the technique of managing the highways to deliver maximum throughput in terms of speed and traffic volume, while minimizing operational cost and enhancing road safety. The concept of corridor management is being applied on the completed sections of NHDP through operation and maintenance (O&M) contracts. The scope of work, inter-alia includes road maintenance, road property management, incident management, traffic management and engineering improvements. The various safety measures being adopted as a part of corridor management are :

**Table 9.15 : Progress of NHDP – status at end-November, 2005**

	NHDP				Port connectivity	Other NHs	Total by NHAI
	GQ	NS&EW Phase I & II	NHDP Phase III	Total			
1. Total length (km)	5846	7300	4015	17161	356	801	18318
2. 4-laned till date (km)	5097	788 (87.2%)	- -	5885 (34.3%)	99	287	6271
3. Under implementation (km)	749	3962	926	5637	251	291	6179
4. Financial - cumulative till date (Rs. crore)	23559	3151	11	26722	2764		29486
5. Length (km) to be awarded	-	2441	3089	5530	7	223	5760

- (i) Timely maintenance of roads.
- (ii) Usage of road safety furniture like crash barriers, road signages, delineators, road studs, median railing, thermoplastic road marking, and plantation of shrubs in the central median to reduce glare of light of vehicles from the opposite direction.
- (iii) Deployment of round the clock route patrol vehicles, ambulances for immediate rescue of accident victims and tow-away cranes for rapid clearance of the highway.
- (iv) Development of wayside amenities to reduce the fatigue of long-distance driving.
- (v) Involvement of NGOs for dissemination of road safety principles among the rural masses living along the high-speed corridors.
- (vi) Conduct of road safety audits and studies for identification and improvement of black spots on the highways.
- (vii) Development of pavement management system for timely and appropriate maintenance and improvement.

## Financing of NHDP

9.49 For implementation of NHDP Phase I and Phase II, the main source of finance of NHAI is the fuel cess (Table 9.16). The present rate of cess is Re.2.00 per litre on both petrol and diesel. A part of this cess is allocated to NHAI to fund the NHDP. The share of NHDP is leveraged to borrow additional funds from the domestic market through bonds that qualify for capital gains tax exemption. Besides, Government has also negotiated loans from World Bank (US\$1,965 million), Asian Development Bank (US\$1,605 million) and Japan Bank of International Cooperation (JBIC) (Jap. Yen 32,060 million) for financing various projects under NHDP. These loans from the multilateral institutions are passed on to NHAI by the Government partly in the form of grants and partly as loans. NHAI also negotiated a direct loan of US\$165 million from Asian Development Bank for one of its projects. The funds provided to NHAI, including the borrowings from the market, are utilized for meeting the expenditure on the projects as well as for servicing and repayment of borrowings from the domestic market.

**Table 9.16: Financing of NHAI**

Year	Cess funds	External assistance		Borrowings
		Grant	Loan	
		<i>(Rs. crore)</i>		
1999-2000	1032	492	0	0
2000-01	1800	461	120	657
2001-02	2100	887	113	804
2002-03	2000	1202	301	5593
2003-04	1993	1159	290	0
2004-05	1848	1239	361	0
2005-06 (up to November, 2005)	2400	1800	450	10

**Note:** 1. The receipt of fuel cess and external assistance during 2005-06 (up to November, 2005) is against the approved outlay of Rs. 3,269.7 crore and Rs. 3,000 crore, respectively.  
 2. The government has also allocated Rs. 1,400 crore in the year 2005-06 for meeting the viability gap funding of projects under NHDP III which is mainly on BOT (toll) basis. The amount received up to November, 2005 is Rs. 700 crore.



### **Public-private partnership (PPP)**

9.50 NHA has exploited a variety of contractual structures in moving towards PPP. Projects in Phase I involving expenditure of over Rs.5,797 crore being implemented through PPP include Rs.2,354 crore in the BOT–annuity mode and Rs. 3,443 crore in the BOT-toll mode. In Phase II, PPP projects would account for an expenditure of around Rs.11,600 crore.

9.51 NHDP Phase III-A covering 4,000 km at an estimated cost of Rs.22,000 crore has already been approved. Projects under this phase are being taken up only on BOT (Toll) basis and Government is providing the required viability gap funding limited to 40% of the project cost of each sub-project. Additional 6,000 km at an estimated cost of Rs.33,000 crore are proposed to be covered under NHDP Phase-IIIB for which approval to prepare the Detailed Projects Roads has already been given. This Phase generally comprises stretches of National Highways carrying a high volume of traffic, connecting State capitals with the network developed under NHDP Phase I & II and providing connectivity to places of economic, commercial and tourist importance.

### **Special Accelerated Road Development Programme in the North Eastern Region (SARDP-NE)**

9.52 SARDP-NE, framed for improving road connectivity to remote places of NE region, envisages 2/4 laning of about 3,251 km of National Highways, and 2 laning/improvement of about 2,500 km of State Roads and of 1,888 km of roads of strategic importance. This will also ensure the connectivity of 34 district headquarters, out of a total of 85 which are still not connected, to the National Highways in the eight North-Eastern States.

9.53 The estimated cost of SARDP-NE is Rs.12,123 crore, with proposed budgetary support of Rs.9,952 crore and Rs.2,171 crore mobilized through private sector participation. The programme will be implemented in three phases:

- Phase A: Consisting of 1,110 km of National Highways and 200 km State/

General Staff (GS) roads at an estimated cost of Rs.4,618 crore.

- Phase B: Involving improvement of 2,141 km of National Highways and 2,981 km State/General Staff (GS) roads at an estimated cost of Rs.5,920 crore.
- Phase C: Envisaging construction and improvement of 1,027 km of State roads at an estimated cost of Rs.1,585 crore.

Government has recently approved implementation of Phase-A and given approval for preparation of DPRs of roads in Phase-B.

### **Future plans**

9.54 Government has set ambitious plans for upgradation of National Highways in a phased manner in the years to come. The details are as under:

- 4-laning of 10,000 km (NHDP Phase-III) including 4,000 km already approved.
- Accelerated road development programme for the North Eastern region.
- 2-laning with paved shoulders of 20,000 km of National Highways under NHDP Phase-IV.
- 6-laning of GQ and some other selected stretches covering 6,500 km under NHDP Phase-V.
- Development of 1,000 km of express ways under NHDP Phase-VI.
- Development of ring roads, bypasses, grade separators, service roads, etc. under NHDP Phase-VII.

9.55 As a matter of policy, Government has decided to take-up future phases of NHDP proposals mainly on a PPP basis. Implementation of projects through construction contracts will be only in exceptional cases, where private sector participation is not possible at all. Preparatory work has begun in consultation with Planning Commission for seeking Government approvals for the enhanced scope of NHDP.

## Ports

9.56 The total traffic carried by both the Indian major and minor ports during 2004-05 was estimated to be well over 500 million tonnes. India, with an extensive coastline of 7,517 km. (including the Andaman & Nicobar islands), has 12 major ports and 187 minor ports. The 12 major ports carry about three-fourths of the total traffic, with Vishakapatnam as the top traffic handler in each of the last five years.

9.57 An efficient multimodal system, which uses the most efficient mode of transport from origin to destination, is a prerequisite for the smooth functioning of any port. A multimodal system involves coordinating rail and road networks to ensure good connectivity between port and hinterland. There are over 300 multimodal transport operators in India. India is one of the few countries that have a separate law for multimodal transportation. Under the Multimodal Transportation of Goods Act, 1993, the Directorate-General of Shipping is the nodal agency for registering multimodal transport operators in India.

9.58 Traditionally, all over the world, the ownership of ports has been dominated by

the public sector. But privatisation of port facilities and services has now gathered momentum and India is also following the trend. Depending on the nature of facility/service, private operators can enter into a service contract, a management contract, a concession agreement or a divestiture to operate port services.

9.59 In 2005-06 up to December, 2005, cargo handled by major ports registered a 12.4 per cent growth, compared to 11.3 per cent observed in 2004-05 (Table 9.17). About 80 per cent of total volume of ports traffic handled was in the form of dry and liquid bulk, with the residual consisting of general cargo, including containerised cargo.

9.60 There has been an impressive growth of container traffic of 14.2 per cent per annum during the five years ending in 2004-05. Half of the world's traded goods are containerised, and this proportion is expected to increase further. The largest container port in the world in 2004, Hong Kong, processed 21.93 million TEUs (twenty foot equivalent units). The 10th largest port, Dubai, processed 6.43 million TEUs. In contrast, Jawaharlal Nehru Port (JNPT), India's largest container port, handled roughly 2.37 million TEUs in 2004-05.

**Table 9.17 Trends in traffic at major ports**

	2003-04	2004-05*	April – December		Change over previous year.	
			2004	2005*	2004-05	2005-06**
			In million tonnes		In per cent	
1 P.O.L.	122.2	126.4	91.3	102.4	3.4	12.2
2 Iron ore	58.8	76.2	51.0	56.5	29.6	10.8
3 Fertiliser and raw materials	7.5	9.7	7.2	9.3	29.3	29.2
4 Food grains	6.8	3.8	3.1	1.4	44.1	(-)-54.8
5 Coal	48.8	52.8	39.4	43.5	8.2	10.4
6 Vegetable oil	3.8	3.7	2.8	3.1	2.6	10.7
7 Other liquids	8.9	10.3	7.7	8.0	15.7	3.9
8 Containerised cargo	51.0	54.8	40.9	45.8	7.5	12.0
9 Others	37.0	46.1	33.1	40.8	24.6	23.3
<b>TOTAL</b>	<b>344.8</b>	<b>383.8</b>	<b>276.5</b>	<b>310.8</b>	<b>11.3</b>	<b>12.4</b>
* Provisional						
** April-December, 2005						
Source : Department of Shipping						

9.61 The annual aggregate cargo handling capacity of major ports increased from 389.5 million tonnes per annum (MTPA) in 2003-04 to 397.5 MTPA during 2004-05, with the average turnaround time coming down from 3.45 days to 3.41 days in 2004-05 (Figure 9.2). The average output per ship

berth-day went up from 9,079 tonnes in 2003-04 to 9,298 tonnes in 2004-05. The pre-berthing time at major ports on port account, however, increased from 4.9 hours in 2003-04 to 6.0 hours in 2004-05. But inter-port variations in pre-berthing persist. (Table 9.18)

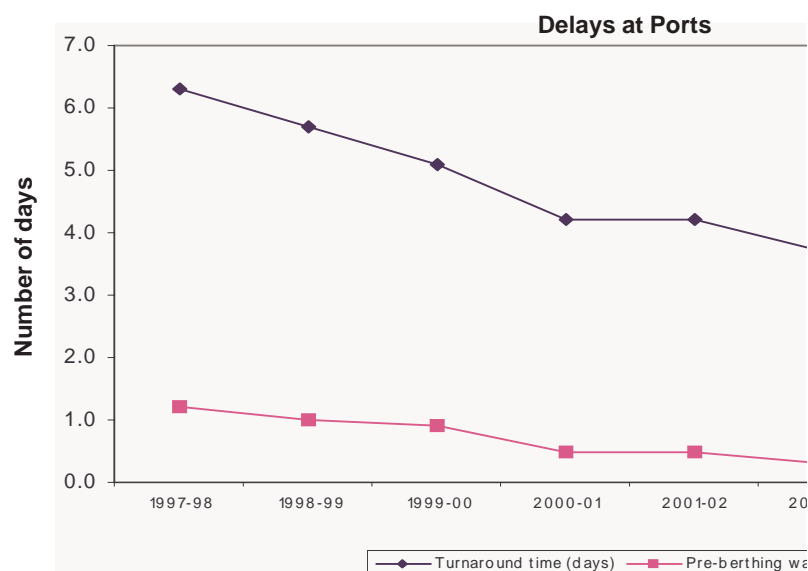
**Table 9.18 : Selected performance indicators for major ports**

Sl. No.	Name of the Port	Average pre-berthing waiting time (hours) – on Port A/c			Average turnaround time (days)		
		2003-04	2004-05	April-December 2005	2003-04	2004-05	April-December 2005
1.	(a) Kolkata (Kolkata Dock Systems)	0.07	-	0.08	4.29	4.17	4.13
1.	(b) Kolkata (Haldia Dock Complex)	3.36	7.42	30.48	2.87	3.00	4.01
2.	Mumbai	3.60	6.00	5.40	4.10	4.21	4.26
3.	Jawaharlal Nehru	9.36	8.35	8.88 @	2.04	1.84	1.98 @
4.	Chennai	0.90	0.90	0.90	4.60	3.80	3.50
5.	Cochin	4.04	4.16	2.88	2.22	2.33	2.20
6.	Vizag	1.18	1.11	1.68	3.33	3.20	4.04
7.	Kandla	10.80	16.56	21.12	5.06	4.62	4.54
8.	Mormugao	26.64	25.25	16.59	4.47	4.35	4.28
9.	Paradip	5.14	1.62	1.68	3.42	3.41	3.90
10.	New Mangalore	3.12	2.64	1.20	2.35	2.96	3.14
11.	Tuticorin	1.64	1.68	3.60s	2.59	2.66	2.88
12.	Ennore	1.66	0.42	0.28	1.94	1.68	2.13
<b>All Major Ports</b>		<b>4.86</b>	<b>6.03</b>	<b>9.16</b>	<b>3.45</b>	<b>3.41</b>	<b>3.53</b>

@ Note: Including Nhava Sheva International Container Terminal (NSICT)

**Fig 9.2**

**Average turnaround time and pre-berth waiting time**



9.62 Investments in the ports sector continued to take place at a substantial scale. These will be further spurred by institutional reforms in coming years. As at present, 13 private or captive projects with a capacity addition of about 47.60 MTPA and an investment of about Rs.2,662 crore have been completed/operationalised, while 24 others with a capacity addition of around 100.68 MTPA and an investment of Rs.7,910 crore are at various stages of evaluation and implementation.

## **Civil Aviation**

### **Airports**

9.63 The international airport in Delhi and Mumbai are being modernized and upgraded through private sector participation. In the Joint Venture (JV), AAI and other Government PSU will be holding 26 per cent equity. The balance 74 per cent will be held by the strategic partner. FDI in this transaction has been capped at 49 per cent. Towards this end, Expressions of Interest (EOI) were invited and bidders were short listed. AAI had issued Request for Proposal (RFP) to selected Pre-Qualified Bidders (PQBs) on April 1, 2005. On the basis of the evaluation of Technical and Financial Bids, the private partners for modernization and development of Delhi and Mumbai airports have been selected. The two separate JV companies for Delhi and Mumbai airports would be handed over to the JVCs. The process is likely to be finalized by the second half of 2005-06. It has been estimated on preliminary basis that the capital investment to the extent of Rs. 7,961 crore and Rs. 6,131 crore will be required, for Delhi and Mumbai airports, respectively over a period of 20 years in 4 stages of 5 years each. These estimates do not include cost of likely relocation of some of the assets and removal of encroachments. An 'in-principle' decision has been taken to modernize Chennai airport through JV route.

9.64 Construction work at greenfield airports of international standards at Hyderabad and Bangalore has commenced. The two airports are likely to be operational by the middle of

the year 2008. 'In-principle' approval has already been granted to set up a similar greenfield airport in Goa. In-principle approval has been obtained to build new international terminals at Ahmedabad and Trivandrum airports. State Governments are encouraged to set up greenfield airports with private sector participation. Proposals to set up greenfield airports in Navi Mumbai, Kannur in Kerala, Ladhawal near Ludhiana and Pakyong near Gangtok in Sikkim are in the pipeline. An international greenfield airport has already been built and is operational in Kochi.

9.65 Airport Authority of India (AAI) is also considering development of non-metro airports. Indian Financial Consultants (IFC) and Global Technical Advisers have been appointed for ten airports, namely Ahmedabad, Amritsar, Goa, Guwahati, Lucknow, Madurai, Jaipur, Mangalore, Trivandrum and Udaipur. The techno-economic feasibility study (TEFS) have been received for all the 10 non-metro airports from GTA and IFC. The works pertaining to these 10 non-metro airports are being taken up by AAI in a phased manner. The terminal building and associated infrastructure like car park/roads and air side work, with an estimated cost of Rs. 1,437 crore for Phase – I (2006-08), will be taken up by AAI. The land use plans recommended by GTA/IFC for enhancement of non-aeronautical revenue will be restricted to passenger-related services or related to Aircraft Services or Air Traffic Services as per provisions of the AAI Act and State Government/Local body bye laws.

9.66 In addition to these 10 non-metro airports, AAI has identified 15 more non-metro airports, namely, Agatti, Aurangabad, Bhopal, Bhubaneswar, Coimbatore, Indore, Khajuraho, Nagpur, Patna, Port Blair, Rajkot, Trichy, Vadodra, Varanasi and Vizag, for development. For carrying out TEFS for each of these 15 airports, the process for appointment of GTA and IFC is nearing completion. Five more airports, namely Agartala, Dehradun, Imphal, Ranchi, and Raipur, have been identified for carrying out the TEFS, and for which process for appointment of GTA is being initiated. The

consultants will identify the viable development works, specific to each airport. The approximate cost of development of these non-metro airports is estimated to be of the order of Rs. 5,000 crore.

### **Regulatory framework governing the airline industry**

9.67 Due to the monopoly nature of the airports and their economic importance, efforts are afoot to set up an independent Airport Economic Regulator for tariff setting and monitoring of performance standards. Government has adopted a liberal approach in the matter of grant of traffic rights under bilateral agreements with various foreign countries. A revised air services agreement signed with USA has led to increased co-operation in the aviation sector. Under this agreement, both sides can designate any number of services to any point in the territory of the other country with full intermediate and beyond traffic rights. Similarly, traffic rights were enhanced with 18 other countries, including Australia, Belgium, Canada, China, France, Germany, Mauritius, Netherlands, New Zealand, Singapore and UK to provide for more flights and better connectivity from these countries to India and also more commercial opportunity to all operating carriers.

9.68 Non-availability of seats to and from India during the peak winter season has been one of the major constraints faced by international passengers. A limited open sky policy was adopted by Government for the year 2005-06, under which designated foreign airlines were permitted to mount as many services as they desire to the available points of call, subject to the terms and conditions of the existing commercial arrangements between the airlines of both sides for the period December 1, 2005 to January 31, 2006. Foreign airlines have also been permitted to upgrade their equipment at their existing frequencies during the period November 1, 2005 to March 31, 2006.

### **Augmentation of fleet by airlines**

9.69 Major fleet acquisition is underway by the national carriers Indian Airlines, Air India and Air India Charters Limited. The project of Indian Airlines for acquisition of 43 Airbus aircraft has been approved by the Government. Government has accorded "in principle" approval to the project of Air India for acquisition of 50 long range aircraft and that of Air India Charters Limited for acquisition of 18 B737-800 aircraft. During the past one year, airlines in the private sector, namely, Air Sahara, Air Deccan, Jet Airways, Kingfisher Airlines, Spice Jet, Go Airlines and Paramount have been permitted to acquire 51 aircraft.

### **Commencement of new air services**

9.70 Air India Express has commenced operations on low cost pattern effective April 2005. Air India and Air India Express have started services to Dacca, Dubai, Hongkong, Kuala Lumpur, Los Angeles, Seoul, Sharjah Singapore and Toronto, in order to improve connectivity. Also, Indian Airlines have commenced new services to Bangkok, Kabul, Kuala Lumpur, Sharjah, Singapore and Yangon from various points in India.

### **Air traffic**

9.71 Policy initiatives have had a marked impact upon airline traffic. The entry of low cost carriers (LCCs), offering no-frills flights which are 30 to 35 per cent cheaper than the regular flights, has changed the profile of the air passengers. Domestic and international traffic grew by 24.2 per cent and 18 per cent, respectively, in April-December, 2005. Private airlines now account for 68.9 per cent of domestic traffic. During April-December 2005, international and domestic cargo recorded a growth of 11.7 per cent and 6.6 per cent, respectively. This growth is the second highest in the world, next to China, for the second consecutive year.

### **Railways**

9.72 Indian railways, world's second largest rail network under a single management, has been contributing to the industrial and

**Table 9.19 : Performance of the Indian Railways**

	2003-04	2004-05**	April-December*		Change over previous year	
			2004	2005	2004-05	2005-06@
					( per cent )	
1. Revenue earning freight traffic (million tonnes)						
Total	557.39	602.10	438.36	481.09	8.02	9.75
(i) Coal	251.75	271.40	198.00	213.61	7.81	7.88
(ii) Raw Materials for steel plants (excluding coal)	43.65	44.26	31.83	38.77	1.40	21.80
(iii) Pig iron and finished steel from steel plants	14.66	15.24	1067	11.90	3.96	11.53
(iv) Iron ore for export	26.64	36.41	26.73	31.11	36.67	16.39
(v) Cement	49.25	53.77	39.45	41.46	9.18	5.10
(vi) Foodgrains	44.32	46.52	34.41	29.67	4.96	-13.78
(vii) Fertilisers	23.73	28.75	21.52	24.50	21.15	13.85
(viii) POL	32.02	32.00	23.43	25.04	-0.06	6.87
(ix) Balance (other goods)	71.37	73.75	52.32	65.03	3.33	24.29
2. Net tonne kilometres in billion	381.24	407.40	301.22	317.26	6.86	5.33
3. Net tonne kilometres per wagon per day (broad gauge)	2570	2763	2670	2815	7.51	5.43
4. Passenger traffic originating (million)	5112	5416	4053	4315	5.95	6.50
5. Passenger kilometres (billion)	541*	576	423	460	6.50	8.70
* Revised      ** Provisional      @ April-December						
Source : Ministry of Railways.						

economic landscape for over 150 years (Table 9.19). Of the two main segments – freight and passenger – of the Indian railways, the freight segment accounts for roughly two-thirds of revenues. Within the freight segment, bulk traffic accounts for nearly 95 per cent, of which about 50 per cent is coal.

9.73 There were significant efforts at ‘tariff rebalancing’ and rationalisation of fare and freight structures in the Railway Budgets for 2002-03 to 2005-06. These include reducing the number of classes for freight tariff from 59 to 19, and introduction of three new special Classes namely 90W1, 90W2, and 90W3 below Class 90, for certain lightweight commodities in 2005-06. There has been no across-the-board increase in freight rates during the last four years. A major reform has been the regrouping of over 4,000 commodities in the extant goods tariff into 80

main commodity heads in the rationalised goods tariff.

9.74 The high-density network, connecting the four metro cities of Chennai, Delhi, Kolkata and Mumbai, including its diagonals, popularly called the Golden Quadrilateral, has got saturated at most locations. Mumbai-Delhi and Mumbai-Howrah routes have very high capacity utilization. Additional freight corridor, along with accelerated programme of containerization, could contribute towards increasing the share of Railways in non-bulk traffic and create capacities to meet the expected annual demand. Additional dedicated freight corridors are proposed in the first phase between Delhi-Mumbai (1,340 Kms.) and Delhi-Howrah (1,450 Kms.) routes. Indian Railways has commissioned a feasibility study. Various options on technical, structural and terminal models are under examination.

9.75 The reform programme embarked upon by Indian Railways to address various issues for business orientation of the organization includes development of fully-computerized cost accounting organized on business lines. The new accounting system would support existing government reporting requirements and provide activity/service based revenue and cost data. It would also be capable of providing both government accounts and commercial accounts. Policy initiatives for introduction of competition in certain sectors, like container business and concessioning of loss-making branch lines, have been taken up as a part of the programme. The programme also includes simplification of procedures to improve customer interface, provision of freight forwarders and private freight terminals.

9.76 Accident per million train kilometer, an important index of rail safety, came down from 0.55 in 2001-02 to 0.41 in 2003-04 and further to 0.31 in 2004-05 (Provisional). A non-lapsable Special Railway Safety Fund (SRSF) of Rs.17,000 crore was set up in 2001-02 to wipe out the arrears in renewal/replacement of over-aged assets of track, bridges, rolling stock, signaling gear and some safety enhancement works within a fixed time frame of six years. The expenditure under SRSF in the first three and half years was Rs. 10,182 crore. For the year 2005-06(BE), allocation (net) for the SRSF is Rs.3,522 crore, with Rs. 2,699 crore from the General Exchequer and Rs.823 crore from the Ministry of Railways.

9.77 The major challenge before Indian Railways is providing services matching with customers' expectations and in assimilating rapid changes in technology. This can be met effectively through continuous updation of knowledge, skills and attitude of railway staff. A comprehensive training needs analysis of all categories of staff has been done to suit the training requirements of staff besides conducting special courses on new technology and better work practices. Yoga and meditation classes have been introduced in training centers with the objective of helping railwaymen cope with the stress involved in

their job. Considering the cost of staff in the running of Indian Railways, a rightsizing approach has been adopted. Indian Railways has reduced about 1.45 lakh employees in a period of 5 years, through normal attrition and by controlling the fresh intake, without resorting to retrenchment. It is also following benchmarking principles, which will help in adopting best practices and improving efficiency.

## **Urban Infrastructure**

9.78 Urban infrastructure consists of drinking water, sanitation, sewage systems, electricity and gas distribution, urban transport, primary health services, and environmental regulation. The process of urbanization has gathered considerable momentum in recent times and this has put urban infrastructure and services under severe strain. Smaller cities, because of inadequate financial resources, have found it particularly difficult to cope with the increasing demands on services. Urban areas in India present a grim picture with regard to the availability of basic infrastructure. For example, although 89 per cent of the urban population is reported to have access to safe drinking water, there are severe deficiencies in equitable distribution of water.

### **Financing pattern**

9.79 In terms of financing patterns, the foundation of urban infrastructure has to be user charges. It is possible for urban institutions to access resources from the capital markets to finance a large portion of urban capital expenditure when it can be serviced by user charges in the future. While municipal bond issues have indeed taken place, the magnitude of resources involved is as yet insignificant. The user-charge financed approach can facilitate a massive increase in capital expenditure on urban infrastructure without worsening the fiscal problem. In addition, the tariff restructuring or subsidy design in the context of a restructuring process allows for more efficient and targeted impact on the poor.

## **Jawaharlal Nehru National Urban Renewal Mission (JNNURM)**

9.80 JNNURM was launched by the Prime Minister on December 3, 2005 to encourage cities to initiate steps to bring about improvement in the existing service levels in a financially sustainable manner. The objectives of the mission, *inter alia*, include planned development of identified cities including semi-urban areas, outgrowths and urban corridors and improved provision of, basic services to the urban poor. The duration of the mission would be seven years beginning from 2005-06. The mission has subsumed the following on-going schemes of the Ministry: Infrastructure Development in Mega Cities, Integrated Development of Small and Medium Towns and Accelerated Urban Water Supply Programme. Cities/Urban Agglomerations/Parastatals will be required to prepare detailed project reports for undertaking projects under identified areas. Funds for the identified cities would be released to the designated State Nodal Agency, which in turn would leverage, to the extent feasible, additional resources from the financial institutions/private sector/capital market. Private sector participation in development, management and financing of urban infrastructure would be clearly delineated.

9.81 The admissible components under the mission include urban renewal, water supply (including de-salination plants) and sanitation, sewerage and solid waste management, urban transport, development of heritage areas, preservation of water bodies etc. A provision of Rs.50,000 crore has been agreed to as Central Assistance for Jawaharlal Nehru National Urban Renewal Mission (JNNURM) for a period of 7 years beginning from 2005-06.

9.82 On completion of the mission period of seven years, it is expected that ULBs/Parastatals will achieve the following outcomes:

- (a) Modern and transparent budgeting, accounting, and financial management systems designed and adopted for all urban services and governance functions

- (b) City-wide framework for planning and governance will be established and become operational
- (c) All urban residents will be able to obtain access to a basic level of urban services
- (d) Financially self-sustaining agencies for urban governance and service delivery will be established, through reforms to major revenue instruments
- (e) Local services and governance will be conducted in a manner that is transparent and accountable to citizens
- (f) e-Governance applications will be introduced in core functions of ULBs/Parastatals resulting in reduced cost and time of service delivery processes.

## **Urban transport**

9.83 Urban transport is a key element of urban infrastructure. An effective urban transportation network not only enhances productivity and facilitates high growth of the economy, but also empowers the poor by increasing employment opportunities. Public transport is energy efficient and less polluting and helps in maximizing urban-rural linkage with improved access of the peripheral population to the city centres without proliferation of slums in and around cities.

9.84 Kolkata and Delhi have introduced Metro Rail System in their cities. Delhi Mass Rapid Transit System (MRTS), a joint venture between Government of India and Government of National Capital Territory of Delhi, is being implemented by the Delhi Metro Rail Corporation (DMRC) (Box 9.4).

9.85 For better connectivity within the National Capital Region, a commuter rail system, namely, Integrated Rail-cum-Bus Transit (IRBT) system is contemplated. It comprises three corridors, namely (i) Shahdara – Ghaziabad (14.9 km.); (ii) Sahibabad – Shivaji Bridge (17.4 km); and (iii) Trinagar – Gurgaon (30.4 km). Two SPVs are to be formed, one for the UP corridor and another for the Haryana corridor with



#### Box 9.4 : Delhi Metro Rail Transit System

- The Delhi Mass Rapid Transit System (MRTS) contemplates Metro Rail System in Delhi. Phase-I of this project consists of the following corridors:-
  1. Shahdara – Rithala
  2. Vishwavidyalaya – Central Secretariat
  3. Indraprastha – Dwarka – Dwarka sub-city (i.e. Dwarka – Dwarka VI)
- Phase-I is scheduled to be completed by June, 2006. The Shahdara – Rithala corridor has been commissioned on 31st March, 2004 and is fully operational. The Vishwavidyalaya to Central Secretariat has been commissioned. The Barakhamba road-Dwarka sector has also been commissioned. The targeted completion date for other sections is:-
  1. Indraprastha – Barakhamba Road - June, 2006 - 2.27 km.
  2. Dwarka – Dwarka sub-city - 31.03.2006 - 6.50 km.
- Delhi MRTS Phase II has been approved by the Group of Ministers (GoM) on 30.08.2005. It consists of the following:-
  1. Vishwavidyalaya – Jahagir Puri
  2. Central Secretariat – Qutab Minar
  3. Shahdara – Dilshad Garden
  4. Indraprastha – New Ashok Nagar
  5. Yamuna Bank – Anand Vihar ISBT
  6. Kirti Nagar – Mundka (alongwith operational link to Shahdara – Rithala corridor)
- The proposals in respect of IIT – Qutab Minar portion (2.88 kms.) of the Central Secretariat to Qutab Minar line is to be reviewed and cost-benefit analysis of alternative proposals to be carried out in the context of its impact on the Qutab Minar, the possibility of covering high density areas in the vicinity like Malviya Nagar, Saket and Vasant Kunj as well as the possibility of further extension to connect Gurgaon. Revised proposals for this section of the Central Secretariat – Qutab Minar line to be brought back to the GoM for consideration/approval.

participation of the respective State Governments and the Government of India. The project proposal with an estimated cost of Rs.2,239 crore has been referred to the Planning Commission for “in principle” approval.

9.86 The Government of Karnataka proposed Bangalore MRTS with East-West (18.1 Km.) and North-South (14.9 km.) metro corridors. The project proposal was considered by the Public Investment Board (PIB) which cleared it for an estimated current cost of Rs.5,453 crore with a Government of India participation of 20 per cent. The matter is being placed before Cabinet Committee on Economic Affairs (CCEA). Meanwhile a Group of Ministers has been set up to decide upon

the gauge and legal issues for various Metro Railway projects.

9.87 The Government of Maharashtra has proposed a MRTS for Versova – Andheri – Ghatkopar (approximately 15 km.) corridor on the basis of the Mumbai Metro Master Plan at an estimated cost of Rs.1,500 crore (June-04 prices). The corridor is proposed to be executed on Build Operate Transfer (BOT) basis. The Government of Maharashtra is in the process of calling for bids for this project; the financial bids from the qualified technical bidders have been opened recently. Government of India’s contribution has been sought towards Viability Gap funding and equity but the exact requirement will be available only after the bidding process initiated by the State Government is finalized.

## Implementation of Central Sector Projects

9.88 At the end of September, 2005, there were 683 projects with an estimated investment of about Rs.2,81,890 crore spread over 16 sectors viz. Atomic Energy, Civil Aviation, Coal, Fertilizers, Mines, I&B, Steel, Petroleum, Power, Railway, Road Transport and Highways, Shipping and Ports, Telecommunications, Urban Development, Water Resources and Health and Family Welfare. Of these, 171 projects are having cost overrun to the tune of 38.87 per cent as compared to their latest approved estimates. There are 247 projects which have a time overrun, ranging from 1 to 168 months.

9.89 An analysis of the cost overrun of the Projects shows that it is 18.1 per cent of the overall cost of the projects. The main sectors accounting for the cost overrun are Railway, Health and Family Welfare, Fertilizers and Urban Development. Out of the total 683 projects, 218 projects account for nearly 64 per cent of the total cost overrun.

9.90 Time and cost overrun have declined because of close monitoring, policy changes and systemic improvement brought out by the ministries concerned, with support from the Ministry of Statistics and Programme Implementation (MOS&PI). An analysis of the trend in the last 14 years shows that the cost overrun has come down from 62 per cent in March, 1991 to 18.1 per cent in September, 2005. (Figure 9.3)

9.91 In the year 2004-05, 130 projects costing Rs.44,211 crore, spread over 16 sectors were completed. They belong to Atomic Energy, Civil Aviation, Coal, Fertilizers, I&B, Mines, Steel, Petroleum, Power, Railways, Road Transport & Highways, Shipping & Ports, Telecommunication and Urban Development. Road Transport and Highways is the highest contributor with 31 projects, to the total completed projects, followed by Railways (28), Telecommunication (15) and Shipping & Ports (14).

9.92 Up to the end of September, 2005, during the current financial year, 43 projects have been completed. The anticipated cost of these projects is of the order of Rs.14,868 crore. Of the 43 projects, 14 belong to Road Transport & Highways, 9 projects to Power Sector, and 6 projects pertain to Petroleum Sector.

## Public Private Partnerships in Infrastructure

9.93 Taking cognizance of the advantages that PPP offers in terms of cost saving

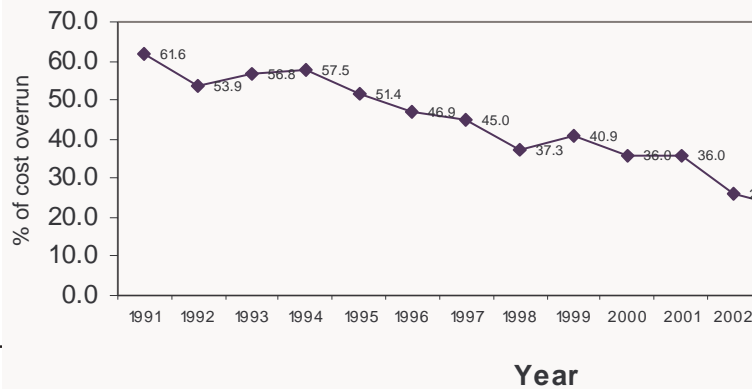


Fig 9.3

Trend of cost overrun

an appraisal mechanism has been notified including the setting up of the PPP Appraisal Committee that will be responsible for the appraisal of PPP projects in the Central sector. To accelerate and increase PPPs in infrastructure, two major initiatives have been taken by the Government: (a) provision of viability gap funding; and (b) setting up of a SPV, India Infrastructure Finance Company Limited (IIFCL) to meet the long term financing requirements of potential investors. The viability gap funding will normally be in the form

of a capital grant at the stage of project construction, not exceeding 20 per cent of the total project cost. In order to be eligible for funding under this viability gap support scheme, the PPP must be implemented by an entity with at least 51 per cent private equity. Although a provision of Rs.1,500 crore for 'viability gap' funding for infrastructure projects was made in the Budget, projects are yet to be sanctioned under the scheme. The operationalisation of the IIFCL is underway. (Box 9.5)

### **Box 9.5 : India Infrastructure Finance Company Limited**

IIFCL was incorporated on January 5, 2006 with a paid up capital of Rs.10 crore and an authorized capital of Rs. 1,000 crore. Apart from its equity, IIFCL will be funded through long term debt raised from the open market. To enable the company to do so, the Government may extend a guarantee for repayment of principal and interest. The extent of guarantee provided by Government of India in the first year of operations is expected at around Rs.10,000 crore.

The setting up of IIFCL as a wholly owned Government company redeems the promise made in the Budget Speech for 2005-06. There were many infrastructure projects which were financially viable but, in the current situation, faced difficulties in raising resources. It was proposed that such projects in specified sectors- roads, ports, airports and tourism be funded through a financial SPV. The SPV would lend funds, especially debt of longer term maturity, directly to the eligible projects to supplement other loans from banks and financial institutions Government will communicate the borrowing limit to the SPV at the beginning of each fiscal year. For 2005-06, the borrowing limit was fixed at Rs.10,000 crore.

IIFCL is the SPV created. In keeping with the Budget announcement, the company would render financial assistance through-

- Direct lending to eligible projects
- Refinance to banks and financial institutions (FIs) for loans with tenor of five years or more
- Any other method approved by GOI

The other salient features of infrastructure funding through the company are:

- Loan assistance from SPV shall not exceed 20 per cent of project cost.
- A project awarded to a private sector company for development, financing, construction through PPP shall have overriding priority under the scheme.
- Private sector companies will not be eligible for direct lending and only the refinancing option will be available in such cases. Further, the total lending to such projects will be kept within 20 per cent of the lending programme of the IIFCL.
- The rate of interest charged by IIFCL shall be such as to cover all fund costs including guarantee fee as well as administrative cost.

IIFCL is expected to be a very lean organization which would keep overheads to the minimum and thus keep the cost of funds for infrastructure at a competitive level. The company would fill the gap for long term infrastructure finance which the banks are not in a position to address owing to concerns relating to mismatches in assets and liabilities.

## Outlook

9.93 India's economic growth is intertwined with its infrastructure development and there is a strong positive association between the two. The infrastructure deficit continues to haunt India. Provision of quality infrastructure is vital for India to nudge its sustainable growth trajectory upwards.

9.94 A rapidly expanding telecom sector and intense competition amongst the various service providers have resulted in improvement in quality of the services and their affordability. Service providers have offered innovative and attractive value added packages in order to acquire, expand and retain their subscriber base. Increasingly, the mobile phone is being viewed as the instrument that will help bridge the digital divide. Competition and a growing economy will continue to raise the performance bar for the telecom sector in the medium term. The sector, however, would need to address and harness the challenges being posed to it by the internet and the convergence architecture.

9.95 The completion of substantial portions of the Golden Quadrilateral is fuelling demand and facilitating the growth of productivity in the country. The model concession agreement

(MCA), which has been finalised for the roads sector is expected to give a further impetus to the timely completion of the road projects. MCAs are also being developed in the ports and airports sectors to facilitate PPPs. Privatisation of designated services will further improve the productivity of these sectors. Port connectivity is still the soft underbelly of the port sector and the current efforts to bolster it will improve freight movement in the medium term. The benefits of these new projects and initiatives would be visible after a time lag of a few years, as long gestation periods are usually associated with these projects.

9.96 The power scenario in the country continues to be a matter of concern. Lack of reliable power supply dampens the growth impulses in different sectors of the economy. With the ongoing reforms and better management of the coal and gas supplies to the thermal plants, the situation could improve.

9.97 Urban infrastructure is a crucial element of the Indian infrastructure scenario. The JNNURM is a significant step to address the important issue of urban infrastructure, but detailed planning will be required to implement this scheme successfully throughout the country.