

INFRASTRUCTURE

The infrastructure sector covers a wide spectrum of services such as transportation (railways, roads and road transport, civil aviation, ports and shipping), power generation, transmission and distribution, telecommunications, postal facilities, and urban infrastructure. Provision and maintenance of adequate infrastructure facilities at reasonable cost are absolutely necessary if rapid economic growth is to be achieved and sustained.

2. In the past, the responsibility for providing infrastructure services was vested with the Government. This was due to a number of reasons including lumpiness of capital investments, long gestation periods, externalities, high risks and low rates of return. But the old paradigm of infrastructure being a public sector monopoly has been challenged by fiscal constraints and technological innovations. Limits on budgetary allocations and public debt, and the dismantling of the allocated system of credit have catalysed encouragement of private entry in infrastructure provision. Technological and organisational innovations have also made it possible to unbundle different segments of infrastructure services and reduce the level of public monopoly which was intrinsic to its supply. Furthermore, the traditional organisational framework for the delivery of infrastructure has shown serious weaknesses in the planning and implementation of projects. Non-availability of funds on a timely basis and lack of proper evaluation and implementation of projects have led to major time and cost over-runs. As on December 31, 1996 there has been an average time overrun of 18 months and an average cost escalation of 29 per cent leading to an additional burden of Rs. 31000 crore in 189 Central Sector Projects costing Rs.100 crore and above.

3. The Government's development strategy attaches high priority to the development of efficient infrastructure and towards creating an enabling environment for private participation in the infrastructure sector. A variety of options available

for public-private partnership can also encourage better risk sharing, accountability, cost recovery and management of infrastructure. Continuing its emphasis on the development of infrastructure, the Budget for 1996-97 announced several proposals to promote infrastructure. (Box 9.1)

BOX 9.1

1996-97 Budget Proposals on Infrastructure

- To provide long-term finance for the infrastructure sector the Budget announced establishment of an Infrastructure Development Finance Company (IDFC) with an authorised share capital of Rs. 5000 crore. A budgetary provision of Rs. 500 crore has been made for the current year. The IDFC has since been incorporated under the Companies Act on 30.1.97 with an authorised share capital of Rs. 5000 crore.
- 5 year tax holiday available to companies developing, maintaining and operating infrastructure facilities such as roads, bridges, new airports, ports and railway projects, was extended to cover water supply, sanitation and sewerage projects.
- Income tax exemption on dividend, interest or long-term capital gains earned by funds or companies set up to develop, maintain and operate an infrastructure facility.
- The corpus of the National Highways Authority of India (NHAI) increased by Rs. 200 crore to enable it to leverage funds from the market, domestic as well as international.
- Enhancement of tax rebate limits to help channelise domestic savings into debentures and shares offered by infrastructure companies in specified sectors. For this purpose such investments in public offerings would be eligible for the tax rebate.

4. Infrastructure investments are, by their very nature, for long gestation activities. This implies that there is a continuing mismatch between the required debt maturities and the availability of funding. Steps are being taken for dealing with this mismatch and entail developing our domestic capital markets. Financial innovation is also necessary to facilitate the replacement of original financiers once the project has been commissioned and cash flows are assured. The Asian Development Bank has provided a loan of \$300 million for the Public Sector Infrastructure Facility (PSIF) in order to support private sector infrastructure projects through the development of the long-term debt market. The details of the loan and its objectives are indicated in Box 9.2.

5. Given the competing demands on limited resources available with the government, the creation of quality infrastructure will need infusion of private capital, including foreign investment. The procedures relating to foreign investment in the infrastructure sector have been further liberalised. Since December, 1996 the Government has allowed automatic approval for foreign equity participation upto 74 per cent in key infrastructure industries such as electricity generation and transmission, non-conventional energy generation and distribution, and construction activities in the area of roads, bridges, railbeds, ports and harbours. The list of industries in respect of which automatic approval is being given for foreign equity upto 51 per cent has

been expanded to include support services to land transport, like operation of highway bridges, toll roads and vehicular tunnels; support services to water transport like operation and maintenance of piers, loading and discharging of vessels; and miscellaneous services for transport such as cargo handling for land, water and air transport; renting and leasing of transport equipment and vehicles without operator.

6. Sector-specific reform measures have also been undertaken recently. Telecom projects will be treated as infrastructure and will now receive fiscal incentives currently being extended to infrastructure projects like tax holiday and concessional project import duty. An assignability agreement between the Department of Telecommunications and the financial institutions has been reached and this would facilitate funding of cellular and basic telecom projects. The Government has promulgated an ordinance to facilitate private investments in the transmission of electricity. The ordinance provides for an amendment of the Indian Electricity Act 1910 and the Electricity Supply Act of 1948. Earlier, transmission was treated as an activity in conjunction with either generation or distribution.

7. The Government has recently announced guidelines for private investment in highway development through the Build Operate Transfer (BOT) route. Besides simplifying procedures and providing more financial concessions, these measures would facilitate

BOX 9.2

Public Sector Infrastructure Facility (PSIF)

- A loan of \$ 300 million has been tied up with ADB to support private sector infrastructure projects through long term debt. The money will be borrowed by ICICI, IFCI and SCICI for onlending to infrastructure companies through long term debt instruments for a minimum of 15 year maturity. This loan operation would support introduction of long-term debt instruments in our capital markets for financing infrastructure projects that require long maturity debt for their viability. The funds would be on-lent to project entities against creation of bonds/debentures, which could be traded in the secondary market after project commissioning. The funds received by the FIs from such secondary transactions would again be deployed for creating fresh 15 year debentures for other project entities.
- The PSIF is aimed at promoting private sector participation in the development of infrastructure by facilitating the growth of private financing for infrastructure projects through the development of a long-term debt market which is critically needed for mobilizing the desired level of infrastructure financing. The PSIF will catalyze the flow of resources into the infrastructure sector and raise institutional capacities to accelerate infrastructure development. To achieve these objectives, the PSIF will also focus on building capacities of the FIs for raising long-term debt financing from domestic as well as foreign financial markets and for designing appropriate financing mechanisms for funding infrastructure projects in the private sector.
- The PSIF has several components : (i) three separate bank loans totalling \$300 million, on essentially identical terms and conditions, to the following three FIs, viz. \$150 million to ICICI, \$100 million to the IFCI, and \$50 million to the SCICI Ltd. for onlending to private sector sponsored infrastructure projects in four sub-sectors, viz., power, telecommunications, roads, and ports, and (ii) a project development facility, which will constitute a portion of the loan to each FI, and which may be utilized for (a) capacity building, and (b) project preparation and implementation.
- In most of the infrastructure projects, equity contribution is expected to fund between 30 to 50 per cent of the project costs leaving the balance 50 to 70 per cent for debt financing. Under PSIF, upto 30 per cent of the project costs would be funded out of ADB loan assistance while the remaining would be covered out of other debt sources.

TABLE 9.1
Trends in the Performance of Infrastructure Sectors

	Unit	April-November*				Change over previous year								
		1994-95	1995-96	1995	1996	1995-96 Average	1990-91	1991-92	1992-93	1993-94	1994-95	1995-96	1996-97@	
<i>(per cent)</i>														
Energy														
1	Coal Production	Mn.tonnes	253.8	270.1	155.1	169.6	6.4	5.4	8.3	3.9	3.3	3.2	6.4	9.4
2	Electricity generated (Utilities only)	Bn. kwh	351.0	380.1	248.7	257.2	9.4	7.8	8.5	5.0	7.4	8.5	8.3	3.4
	(a) Hydro	"	82.5	72.5	53.0	48.9	3.5	15.2	1.4	-4.0	0.8	17.2	-12.1	-7.7
	(b) Thermal (incl.nuclear)	"	268.5	307.6	195.7	208.3	12.3	5.1	11.1	8.1	9.5	6.1	14.6	6.4
3	Petroleum													
	(a) Crude oil production	Mn.tonnes	32.2	35.2	23.4	21.0	3.3	-3.1	-8.1	-11.2	0.3	19.3	9.0	-10.0
	(b) Refinery throughput	"	56.5	58.6	39.0	41.4	8.0	-0.3	-0.7	4.0	1.5	3.8	3.6	6.3
Transport and communications														
1	Railway revenue-earning goods traffic	"	365.0	390.7	245.3	260.7	5.6	2.7	6.2	3.6	2.5	1.7	7.0	6.3
2	Cargo handled at major ports	"	197.3	215.3	137.3	143.8	6.9	3.0	3.3	5.7	7.6	10.0	9.1	4.7
3	Telecommunications-new telephone connections provided (DELs)	'000Nos.	1770.0	2183.0	805.3	872.5	16.6	14.7	51.5	34.2	24.5	44.0	23.3	8.3
	Cement	Mn.tonnes	62.4	69.3	43.8	48.8	8.7	6.6	5.9	5.0	6.8	7.6	11.2	11.4

* Provisional. @ April-November.

preparation of detailed feasibility reports, clearance for the right of way of land, relocation of utility services, resettlement and relocation of the affected establishments, environmental clearance and equity participation in the highway sector. The Government has also approved clear and transparent guidelines for encouraging private sector participation in ports and is in the process of setting up a tariff regulatory authority in 11 major ports.

8. The overall performance of the infrastructure sector during the first eight months of the current financial year 1996-97 (April-November) has not been satisfactory. Six infrastructural and core industries, namely, electricity generation, coal, steel, crude oil, petroleum products and cement with a combined weight of 28.8 per cent in the Index of Industrial Production (IIP) recorded an average growth rate of 4.1 per cent in April-November, 1996 compared with a growth rate of 8.9 per cent in April-November, 1995. A sectoral profile of the performance of different infrastructure sectors during 1996-97 along with their corresponding trend growth rates are summarised in Table 9.1. The deceleration in the growth rate of infrastructure industries is mainly due to a decline in crude oil production and hydro power generation. There was also a marked slowdown in thermal power generation which grew by only 6.4 per cent in (April-

November) 1996 as compared to 14.6 per cent in the preceding year (April-March) 1995-96.

Power

9. Power generation during 1995-96 at 380.1 billion kwh recorded a growth of 8.3 per cent over 1994-95. Total generation of power during April - November, 1996 at 257.2 billion kwh, compared to 248.7 billion kwh during April-November, 1995 recorded a growth of 3.4 per cent. While thermal and nuclear generation went up by 6.5 per cent and 4.1 per cent respectively, hydro generation declined by 7.7 per cent (Table 9.2). Owing to the low Plant Load Factor (PLF) of thermal plants, heavy Transmission and Distribution (T&D) losses and other operational and technical inefficiencies, full benefits are not being derived even from existing capacities.

10. Thermal plants at present account for 74 per cent of total power generation and hydro electricity plants 24 per cent, with the balance 2 per cent being generated by nuclear plants. The installed capacity of power generation as on March 31, 1996 was 83,288 MW. During the first 4 years of the 8th plan (1992-1997) capacity addition has been 14,799 MW as against the 8th Plan target of 30,858 MW. About 12 per cent of the total capacity addition during

TABLE 9.2
Trends in the Power Sector (utilities only)

	1994-95	1995-96*	April-November*		Change over previous year	
			1995	1996	1995-96	1996-97@
			(Billion KWH)		(per cent)	
1 Power generation	351.0	380.1	248.7	257.2	8.3	3.4
(i) Hydro-electric	82.5	72.5	53.0	48.9	-12.1	-7.7
(ii) Thermal	262.9	299.6	190.5	202.9	14.0	6.5
(iii) Nuclear	5.6	8.0	5.2	5.4	42.9	4.1
2 Plant load factor of thermal plants (per cent)	60.0	63.0	60.4	62.0	-	-

* Provisional.

@ April-November.

Note: These figures relate to power generated from utilities only and exclude captive power.

the first four years has been accounted for by hydro and the remaining by thermal units (Table 9.3). Nearly half of the addition to capacity occurred in the Central Sector. 42.5 per cent was accounted for by the State Sector and the rest in the Private Sector. While the Central Sector has achieved 57.0 per cent of the 8th Plan target in the four years of the 8th Plan, the State and Private Sectors achieved 42.3 per cent and 41.9 per cent respectively. During the period (April-November) of the current year (1996-97) there has been a capacity addition of 534.60 MW of which 105.60 MW is in the private sector.

11. Several reasons have been identified for slippages in capacity creation in the Central and State sector. These include paucity of funds, delay in placement of order for main plant and equipment, delay in supply of equipment by suppliers, procedural delays in land acquisition, non-resolution of inter-state disputes, problems due to disturbed site conditions at some of the projects, unresolved issues in fuel linkages, suspension of work due to contract failures and resettlement and rehabilitation problems. Another important reason for slippages, particularly in State sector projects has been that the States saw the announcement of policy for private

participation as an opportunity to cut back on their involvement in generation projects. As a result many projects that were scheduled for commissioning through the State sector resources have not been provided adequate funds for timely completion.

12. The PLF is an important indicator of operational efficiency of thermal power plants. The average PLF in the Central PSUs in 1995-96 and in April-November, 1996 was appreciably higher than that achieved by the State Electricity Boards (SEBs). The low capacity utilisation of thermal power plants of the SEBs is largely due to deficiencies in management and operation, lack of proper maintenance and non-availability of coal of appropriate quality. There were wide inter state variations in the average PLF of thermal plants and the average PLF in the case of Eastern and North Eastern regions continued to be much lower than the all India average during 1996-97. (Table 9.4)

13. An action plan has been drawn up to improve the performance of the power sector in a phased manner. This involves short term, medium-term and long-term measures and covers both the physical and financial aspects of generation, transmission and distribution of power. Short term measures

TABLE 9.3
Addition to Generating Capacity

(MW)

Sector	1994-95		1995-96*		1996-97* (up to November 1996)	
	Target	Actual	Target	Actual	Target	Actual
Thermal	4125.5	3928.5	1740.0	1976.5	710.5	349.1
Hydro	473.3	450.0	421.6	147.1	76.5	185.5
Nuclear	220.0	220.0	0.0	0.0	0.0	0.0
Total	4818.8	4598.5	2161.6	2123.6	787.0	534.6

* Provisional.

Figure 9.1

PERFORMANCE OF INFRASTRUCTURE SECTORS

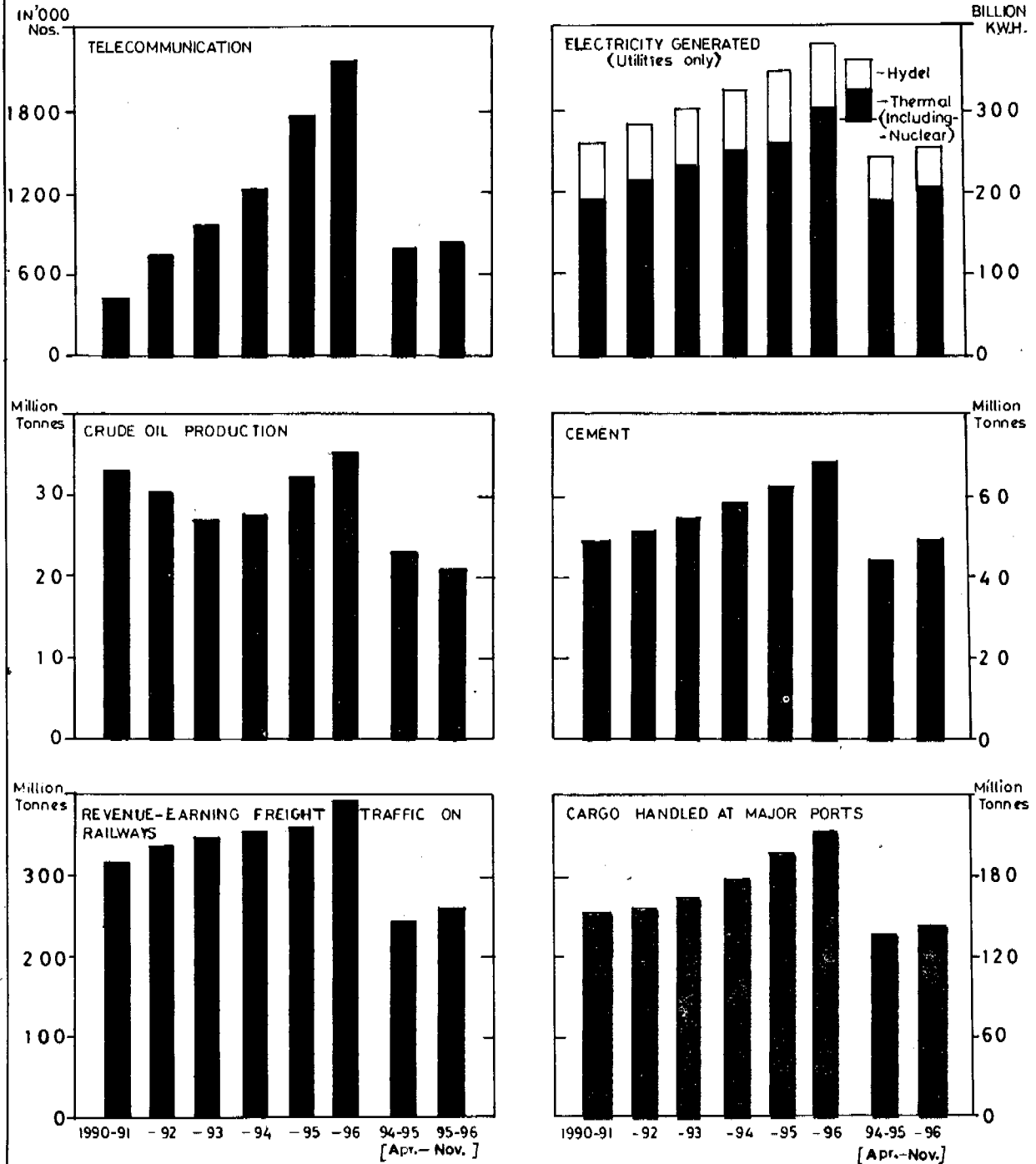


TABLE 9.4
Thermal Plant Load Factor

	1992-93	1993-94	1994-95	1995-96*	April-November*		
					1995 Actual	1996 Target	1996 Actual
	(per cent)						
I State Electricity Boards	54.1	56.6	55.0	58.0	51.9	51.6	43.9
Delhi (DESU)	54.0	49.0	53.9	51.7	51.9	51.6	43.9
Haryana	49.9	40.3	44.7	42.9	41.1	44.9	45.6
Rajasthan	77.0	81.1	75.6	73.7	65.7	64.1	75.7
Punjab	58.3	63.5	56.7	55.0	56.6	58.9	61.9
Uttar Pradesh	50.5	50.1	43.9	47.3	45.3	49.4	45.1
Gujarat	61.6	60.4	60.5	65.3	63.6	61.6	59.7
Maharashtra	59.7	64.1	61.2	64.9	61.5	66.3	65.9
Madhya Pradesh	52.5	56.0	58.2	58.7	52.6	56.5	55.3
Andhra Pradesh	65.0	68.7	70.2	77.4	72.5	72.5	73.7
Tamil Nadu	65.2	69.1	68.4	76.1	74.7	67.0	71.8
Karnataka	49.4	66.9	64.9	67.7	64.0	66.6	65.6
Bihar	25.2	24.4	20.0	17.4	16.2	28.7	14.3
Orissa	34.5	35.6	29.0	21.2	56.9	59.4	68.8
West Bengal	31.1	40.5	41.2	34.6	35.4	43.6	37.2
West Bengal Power Dev. Corporation	58.1	68.2	60.4	57.6	59.3	65.3	57.4
Durgapur Projects Limited.	28.7	26.3	26.6	26.5	21.4	24.9	27.4
Assam	24.3	19.9	26.7	28.6	28.8	29.3	27.0
II Central Sector	62.7	69.8	69.2	70.9	67.7	65.9	69.7
National Thermal Power Corporation	68.8	76.9	76.2	76.7	73.1	70.3	74.4
Neyveli Lignite Corporation	56.4	55.5	60.4	67.6	65.4	59.2	72.9
Damodar Valley Corporation	32.3	42.3	38.2	37.8	36.2	42.1	35.0
III Private Sector	58.8	57.0	65.8	72.3	78.4	65.6	72.8
All India	57.1	61.0	60.0	63.0	60.4	61.2	62.0
IV Region							
Northern	62.0	64.0	59.1	62.0	60.0	61.9	62.0
Western	59.7	62.4	63.8	68.1	65.4	65.5	66.3
Southern	62.6	68.3	69.1	74.7	71.1	68.2	73.8
Eastern	39.8	44.8	43.7	42.7	41.0	46.7	41.7
North Eastern	24.3	19.9	26.7	28.6	28.8	29.3	27.0
* Provisional							

include overhaul and maintenance (O & M) of boilers and optimal operation of the regional grids. Significant improvements in the PLF of thermal power stations can be effected through medium term measures like proper maintenance planning. In the long term, the availability factor of the older thermal power plants can be improved by appropriate renovation and modernisation (R & M) programmes.

14. In the power sector, SEBs are responsible for distribution to all end users other than a small segment under the purview of private distribution companies. As a result, in principle, all the electricity generated is to be sold to SEBs. But the financial condition of SEBs, though it differs from one state to the other, is fragile in most cases. The magnitude of losses incurred by SEBs over the period 1990-91 to 1994-95 is indicated in Table 9.5. The industry and agriculture sectors continued to be the two most

important categories of consumers in terms of their relative shares, with SEB electricity charges set at much below the unit cost for the agricultural sector and above the unit cost for the industrial sector (Table 9.6). In none of the SEBs does unit revenue realisation from the agricultural sector cover even a reasonable fraction of the unit average cost for the SEB, and this is leading to heavy financial losses. The commercial losses of SEBs which, in absolute terms, were a little over Rs. 4,000 crore in 1991-92, have shot up over a five year period to Rs. 10,941 crore in 1996-97 (RE). The hidden subsidy for the agriculture and domestic sectors has increased from Rs. 7,248 crore in 1991-92 to Rs. 19,227 crore in 1996-97 (RE) and is projected to further go up to Rs. 21,580 crore in 1997-98 (Table 9.7). Introduction of proposed national minimum agricultural tariff of 50 paise/kwh, even if implemented, will leave uncovered

TABLE 9.5
Statement of Profit and loss (without subsidy) of State Electricity boards
(Figures in Rupees Crores)

State Electricity Board	1990-91	1991-92	1992-93	1993-94	1994-95
Rajasthan State Electricity Board	-100.4	-100.9	-221.3	-354.8	-412.8
Gujarat Electricity Board	-444.6	-607.1	-538.0	-492.4	-550.9
Madhya Pradesh Electricity Board	-141.9	-180.0	-279.0	-297.0	-382.4
Mahatashtra State Electricity Board	65.5	-74.3	272.1	288.9	320.8
Andhra Pradesh State Electricity Board	42.4	141.9	79.4	86.9	-829.0
Tamil Nadu Electricity Board	-410.5	-97.1	-232.0	-301.6	-2.3
Orissa State Electricity Board	18.7	-51.5	-85.0	-196.0	-136.1
Punjab State Electricity Board	-394.9	-266.6	-459.7	-499.3	-427.5
Uttar Pradesh State Electricity Board	-681.7	-675.8	-691.4	-1099.4	-978.3
Himachal Pradesh State Electricity Board	6.2	2.7	11.8	14.6	17.6
Karnataka Electricity Board	-65.1	-64.9	-19.5	-1.9	-164.2
Haryana State Electricity Board	-127.8	-246.9	-371.0	-482.7	-448.9
Bihar State Electricity Board	-317.8	-294.3	-242.5	-280.6	-300.1
West Bengal State Electricity Board	157.7	147.2	70.4	55.4	70.6
Kerala State Electricity Board	-21.7	-37.3	18.4	24.1	13.3
Meghalaya State Electricity Board	n.a.	2.8	-12.5	-13.0	-17.6
Assam State Electricity Board	n.a.	-291.3	-134.8	-329.6	-269.9
TOTAL	-2719.2	-3116.8	-3001.2	-3428.0	-4646.6

Note: Figures preceded by a minus (-) sign indicate losses.

TABLE 9.6
Consumer Categorywise Sale of Electricity and Average Tariff

Consumer	1993-94		1994-95	
	Sale (%)	Tariff (paise/kwh)	Sale (%)	Tariff (paise/kwh)
Domestic	16.5	85.0	15.7	92.1
Commercial	4.7	134.3	4.5	228.7
Agriculture	28.4	20.1	32.5	19.4
Industrial	37.3	185.8	34.1	221.4
Rly. Traction	2.1	227.8	4.9	254.3
Outside State	1.5	77.9	8.3	109.7
Overall	9.5	120.7	-	-
All Consumer	100.0	112.7	100	134.5

a substantial proportion of the subsidy provided to the sector.

15. In addition, the SEBs have continued to suffer from high T & D losses. T & D losses, which stood at 21.8 per cent in 1992-93, have come down marginally to 20.9 per cent in 1994-95. These figures are very high when compared with the international average of less than 10 per cent for the advanced

countries of the world. A reduction in T&D losses by 1 per cent would result in saving of capacity of about 800 MW at present day consumption. These T&D losses are due to the sparsely distributed loads over large rural areas, substantial amounts of energy sold at low voltage level, under - investment in the power distribution systems, inadequate billing and high pilferage. Inherent losses in conductors and equipment can be brought down through system improvement schemes and the pilferage and theft of energy can be reduced through appropriate administrative measures.

16. Restoration of the financial health of SEBs and improvement in their operational performance continue to remain the most crucial issues in the power sector. In terms of Section 59 of the Electricity (Supply) Act, 1948, SEBs are required to earn a minimum rate of return (ROR) of 3 per cent on their net fixed assets in service, after providing for depreciation and interest charges. This provision was to become operative from the accounting year of 1985. However the SEBs are yet to comply with this statutory stipulation. Whereas in 1992-93, the number of SEBs with a positive ROR were 11, there were only 6 such SEBs in 1994-95. Similarly, as against 5 SEBs with a negative ROR in 1992-93, the number of

TABLE 9.7
Financial Performance of the State Power Sector

	(Rs. Crore)			
	1991-92	1995-96*	1996-97	1997-98
			(RE)	(AP)
A. Gross Subsidy Involved				
(i) On account of sale of Electricity to:				
(a) Agriculture	5938	13794	15329	17285
(b) Domestic	1310	3158	3898	4295
(c) Inter-State Sales	201	330	267	274
Total	7449	17282	19494	21854
(ii) Subventions Received from State Govts.	2045	7229	4000	4340
(iii) Net Subsidy	5404	10053	15494	17514
(iv) Surplus Generated by sale to other sectors	2173	6660	7494	10643
(v) Uncovered Subsidy	3231	3393	8000	6871
B. Commercial Losses @	4117	8324	10491	9959
C. Revenue Mobilisation				
(i) Rate of Return (ROR) #	-12.7	-15.1	-17.7	-16.0
(ii) Additional Revenue Mobilisable from Achieving				
(a) 3 per cent ROR	4959	9980	12269	11823
(b) From Introducing 50 paise/unit from Agriculture/Irrigation	2176	2677	2432	2418
RE: Revised Estimates. AP: Annual Plan Projections. @ Commercial losses are different from uncovered subsidy because they include financial results of other activities undertaken by the SEBs. (These are excluding Subsidy/Subvention). # In per cent. Note: Information in Item (A) and (C) (ii) (b) is excluding the Delhi Electricity Supply Undertaking (DESU). * Excluding DESU for all items.				

such SEBs have increased to 9 in 1994-95. There were only 3 SEBs with a ROR Return of more than 3 per cent in 1994-95. The managerial and financial inefficiencies in the state sector utilities have in turn adversely affected future capacity addition and system improvement programme. On the one hand, the SEBs do not have enough resources to finance future programmes and, on the other, their ability to raise investible funds from alternate sources is limited due to their poor financial and commercial performance.

17. Diagnostic studies aimed at reform and restructuring of the State power sector with a view to improving its physical and financial performance have been initiated in several States namely, Haryana, Uttar Pradesh, Rajasthan, Gujarat and Andhra Pradesh. Similar studies are being considered in Kerala and Karnataka. The State of Orissa has provided the framework for reform envisaged through the enactment of a reform legislation, namely "The Orissa Reform Act, 1995" made effective from 1.4.95. (Box 9.3) A few other states are also considering similar steps.

BOX 9.3
Restructuring of Orissa State Electricity Board

The Government of Orissa have initiated reform of the State Power Sector, with substantial restructuring of the State Electricity Board to make the operation of the sector more efficient and financially viable. Orissa is the first State in the country to take up such an exercise. Under the Reform programme, which is also being assisted by the World Bank through a US\$ 350 Million loan, the erstwhile Orissa State Electricity Board (OSEB), operating as a state monopoly combining functions relating to generation, transmission and distribution of electricity, has been replaced by separate corporate entities - Grid Corporation of Orissa (GRIDCO), Orissa Hydro Power Corporation (OHPC) and Orissa Power Generation Corporation (OPGC). This restructuring has been effected through legislative changes made through the Orissa Electricity Reforms Act, 1995. A State Power Regulatory Commission with jurisdiction over issues relating to tariffs as well as licensing has also been set up under the Act. The Reform effort envisages increasing private participation in the state power sector along with a phased privatisation of the existing publicly owned entities. Special emphasis has been placed on the reform of electricity distribution, with management of one zone (out of a total of four in the State), being privatised as an initial measure. Eventually all electricity distribution zones are proposed to be privatised on the basis of competitive bidding.

18. The net budgetary support to the Central PSUs under the Ministry of Power as a proportion of the approved plan outlay has been declining steadily over the years. It stood at about Rs. 719.5 crore in 1996-97 and this amounted to only 10.6 per cent of total plan outlay. Owing to the decline in budgetary support, the central PSUs have to mobilise resources through internal and extra budgetary resources (IEBR). During 1995-96, the PSUs were able to mobilise resources amounting to Rs.3,593.8 crore as against the approved allocation of Rs.4,326.9 crore under IEBR. Against the total plan outlay of Rs.6,923.5 crore for the year 1995-96, the actual utilisation (Provisional) is of the order of Rs.5,760.3 crore. During 1996-97, the IEBR component constitutes Rs.4,565.5 crore (67 per cent) of the total approved plan outlay of Rs.6,790.3 crore.

19. In view of the paucity of resources with Central/ State PSUs as well as the SEBs and the need to bridge the gap between the rapidly growing demand for and supply of electricity, there is a policy to encourage greater investments by private enterprises

in the power sector. This policy, which has the objective of mobilising additional resources for capacity addition in power generation and distribution had been formulated in 1991, and is currently under implementation. The policy to invite private participation in the power sector also covers areas of transmission and distribution besides generation. The response to the policy has been encouraging. As on date, interest has been expressed in putting up more than 124 power projects (requiring clearance of the Central Electricity Authority) for a total capacity of 67281 MW and involving an investment of about Rs. 2,46,472 crore. In addition, there are several projects (MOU/LOI projects costing up to Rs.100 crore and Projects awarded through competitive bidding and costing up to Rs.1000 crore) which are being set up by the private sector with the approval of the concerned State Government itself.

20. In order to make the policy more attractive, the tariff notification has been amended twice to offer an assortment of incentives to investors. The Government has revised the hydro tariff guidelines

TABLE 9.8
Status of Eight Fast Track IPPs approved for GOI Counter Guarantees

S. No.	Name of Project/State/Promoters	Capacity (MW)	Provisional Cost (Rs. Crore)	Latest Position (as on January 30, 1997)
1.	Dabhol CCGT, Phase-I/ Maharashtra (M/s Dabhol Power Company-promoted by Enron, Bechtel and General Electric)	740	2912	Project under construction.
2.	Jegurupadu CCGT/ Andhra Pradesh (M/s GVK Reddy)	216	816	Project under construction. First three units of the project commissioned.
3.	Godavari CCGT/ Andhra Pradesh (M/s Spectrum Power Generation)	208	748	Project under construction. One unit commissioned.
4.	Ib Valley TPS, Units 3 & 4/ Orissa (AES Transpower, USA)	420	1994	Counter Guarantee issued. Project being renegotiated by Government of Orissa/OSEB.
5.	Neyveli (Zero Unit)/ Tamil Nadu (ST-CMS Electric Co.)	250	1200	Power Purchase Agreement (PPA) finalised.
6.	Mangalore TPS/ Karnataka, Mangalore Power Co. (a subsidiary of Cogentrix Inc., USA.)	1000	3948	PPA being finalised.
7.	Visakhapatnam TPS/ Andhra Pradesh (Ashok Leyland and M/s National Power Plc., U.K)	1040	4797	PPA being finalised.
8.	Bhadravati TPS/ Maharashtra (M/s Nippon Denro Ispat Ltd.)	1072	4362	PPA being finalised.

to boost private investment in hydro-electric projects. To bring about private investment in the renovation, modernisation and upgradation of old power plants, the Government has finalised the policy and the guidelines have been issued. The Government has also taken steps to encourage captive/co-generation plants by industries. In order to encourage short gestation period projects, the Government has decided to permit setting up of power projects based on heavy fuel oils such as naphtha, heavy petroleum stock (HPS), low sulphur heavy stock (LSHS), heavy furnace oil (HFO), furnace oil (FO) and natural gas, wherever available, as primary fuel.

21. Under the current structure, the Independent Power Producers (IPPs) generally sell power to SEBs which distribute power. Since most SEBs are financially distressed, the security package for an IPP is crucial to the success of a power project. As an initial measure to attract private capital into the power sector, the Government of India had agreed to extend counter-guarantees to State-guarantees for the SEB's payment obligations to generating companies in respect eight fast track private power projects. This was a confidence building measure necessary for the initial batch of projects. Though these guarantees

increase the comfort-levels of lenders in the initial phases, extensive use of these measures can lead to large contingent liabilities that would over-expose the concerned governments. Other options for securing the revenue stream of IPPs include Escrow Accounts, Guarantees from Multilateral Development Banks and Direct sale to high tension customers. The status of these eight fast track IPPs for which counter-guarantees have been or will be extended are indicated in Table 9.8. Most of these projects are expecting financial and technical closure soon.

22. To facilitate the setting up of large sized thermal/hydel power plants in the country, and to derive economies of scale, projects having a capacity of 1000 MW or above and supplying power to more than one state are being considered as Mega projects. The SEBs and the State Governments have been advised to introduce a more competitive element in the process of selection of developers and award of projects. A notification was issued in October, 1995 enhancing the limit of capital expenditure of schemes requiring concurrence of the Central Electricity Authority from Rs.100 crore to Rs.400 crore in the case of generating companies. The limit has been further enhanced to Rs.1000 crore in September, 1996.

BOX 9.4

Common Minimum National Action Plan for Power, 1996

- The Government would soon finalise a National Energy Policy. Each State/Union Territory shall set up an independent State Electricity Regulatory Commission (SERC). To start with such SERCs will undertake only tariff fixation.
- The Union Government will set up a Central Electricity Regulatory Commission (CERC) which will set the bulk tariffs for all Central generating and transmission utilities.
- Determination of retail tariffs, including wheeling charges etc., will be decided by SERCs which will ensure a minimum overall 3 per cent rate of return to each utility.
- Cross-subsidisation between categories of consumers may be allowed by SERCs. No sector shall, however, pay less than 50 per cent of the average cost of supply (cost of generation plus transmission and distribution). Tariffs for agricultural sector will not be less than fifty paise per Kwh to be brought to 50 per cent of the average cost in not more than three years.
- The Central Government would make a comprehensive review of the role of the CEA. Techno-economic approval of competitively bid power projects will be simplified and CEA shall not be concerned with capital cost, tariff and other commercial aspects of the project. However, CEA's appraisal will continue in respect of planning and other related matters.
- States will allow maximum possible autonomy to the SEBs. SEBs would professionalise their technical inventory manpower and project management practices.
- State Governments agree to a gradual programme of private sector participation in distribution of electricity.
- State Governments will encourage co-generation/captive power plants. To facilitate evacuation of power from these plants to the grids, States shall formulate clear and transparent policies for purchase of power and wheeling charges which provide fair returns to the Cogeneration/Captive power plant owners.
- The role of FIPB will be minimised by putting as many projects on the automatic clearance route as feasible.
- Government of India will carry out necessary amendments in the relevant Acts/Rules to allow private participation in transmission.
- A national policy on hydro power development will be evolved by the Central Government.

23. Captive power generation units in industry are used to supplement the power drawn from the grid and as a stand-by in case of power cuts. As of now, the country has an installed captive generation capacity of more than 10,000 MW. The policies relating to captive generation have also been liberalised. A 50 per cent threshold level has been prescribed for the industry's own consumption from the captive unit, and capacity in excess of this level can be sold to the grid.

24. In view of the widening gap between demand and supply and the huge capital cost involved in the installation of new power plants, a movement has been launched to make consumers aware of the need to save energy. Moreover, the Government is vigorously promoting energy accounting and monitoring systems. Energy audits have been carried out in a number of industrial units to identify energy saving opportunities and eliminate wastage and to ensure that industries adopt the recommendations of these energy audits. Steps have been taken to improve the efficiency of domestic electrical appliances and agricultural pump sets and to promote the usage of fuel efficient engines and motors in both agricultural and transport sectors. Efforts are also being made to encourage co-generation of electricity in such industries as sugar, paper, cement, petrochemicals and fertilisers.

25. The Government is working on a three-pronged strategy to overcome the existing structural constraints, technical inefficiencies and financial constraints. These include short and long-term measures to meet the power supply situation, encourage greater doses of private capital in power generation and facilitate reforms and restructuring in the state utilities. The Chief Ministers of different States met on 16th October, 1996 and 3rd December, 1996 to discuss and deliberate upon issues pertaining to the power sector. In the course of these deliberations a national consensus evolved for improving the performance of the power sector in a time bound manner and a Common Minimum National Action Plan for Power was adopted. Box 9.4 highlights some of the basic elements of this Action Plan.

Renewable Sources of Energy

26. India has a vast potential of renewable energy sources and a number of technologies have been developed to harness them. A sizeable industrial base has been created in the country in the various renewable energy technologies such as solar thermal, solar photovoltaics, wind, small hydro, biomass etc. An aggregate capacity of about 900 MW has been installed, based on these technologies.

27. The Indian Renewable Energy Development Agency Ltd. (IREDA) was established in March, 1987 as a public sector enterprise for the promotion,

development and financing of New and Renewable Sources of Energy (NRSE) technologies. During 1995-96, IREDA sanctioned loan assistance of Rs.602.22 crore in respect of 265 projects. Thus, the total number of projects financed by IREDA reached 728 with IREDA's loan commitment of Rs.1107.48 crore and cumulative disbursement of Rs.472.40 crore as on March 31, 1996.

28. National Project on Biogas Development (NPBD) was taken up in the Central Sector during 1981-82 on a country-wide basis. Against the potential of 120 lakh numbers of family type biogas plants the installation has reached 23.59 lakh by 1995-96. Against the target of 1.60 lakh family type biogas plants during 1995-96, achievement was at 1.71 lakh plants. Besides family size biogas plants, the Ministry of Non-Conventional Energy Sources is also promoting the setting up of community, institutional and nightsoil based biogas plants (CBP/IBP/NBP) in the country. About 1400 institutional CBP/IBP and NBP plants were installed up to 1994-95. Against the annual target of 200 plants during 1995-96, completion has been reported at 228 plants at a cost of Rs. 2.48 crore.

29. National Programme on Improved Chulha (NPIC) was taken up as a national programme since 1985 and also included in the 20-Point Programme of the Government. Against the potential of 1200 lakh chulhas in the country, 227.35 lakh nos. of chulhas have been installed upto the end of March, 1996. Over 26 lakh improved chulhas have been installed during 1995-96 against the target of 24 lakh chulhas with budget estimates of Rs.15 crore.

30. Biomass programmes offer an environmental advantage over conventional fuels for various applications as they are by and large ecofriendly. A number of technologies have been commercialised such as briquetting, gasification etc. Incentives are being given for gasifier systems developed from 5 HP to 10 HP for mechanical energy, 3 KW to 5 KW for electrical applications and 7,500 k cal/hr. to 12.5 lakh k.cal/hr for thermal application. Work is also in progress on 70 fast growing fuelwood tree species for raising yield and acreage in the country.

31. India has achieved considerable progress in the exploitation of wind energy during the last few years. A total capacity of 732 MW has been installed by the end of the year 1995-96 of which 684 MW has been installed by the private sector. It is expected to reach 1000 MW by the end of the Eighth Plan and that would place India in the second position in Wind Energy, after USA.

32. A total capacity of 121 MW has been constructed under the Small Hydro Power Projects (SHP) and 234 MW capacity is under construction. A number of

financial and fiscal incentives are provided for the speedy implementation of Small Hydro Projects based on water falls, canals, small rivers and streams. Portable mini hydel sets of 10-50 KW capacity have also been introduced by the Ministry. Under the World Bank line of credit, soft loans upto 15 MW capacity are available to private developers from IREDA.

33. The Solar Photovoltaic (SPV) programme has now progressed from projects of a few KW to hundreds of KW installation for power generation. Two grid connected projects of 100 KW each have been installed at Kalyan Pur in Aligarh and Sarai Saadi in Mau Districts of U.P. These plants, besides meeting the requirements of the concerned villages are also providing 25KW power each to the state grid. Three solar photovoltaic projects to generate electricity of higher ratings are under consideration for the State of Rajasthan.

34. For accelerated development of solar photovoltaic production, Government has introduced socially oriented and market oriented schemes. The socially oriented scheme is implemented through State Nodal Agencies and involves Central subsidy. The market oriented scheme is implemented through IREDA by providing soft loan assistance. In addition, IREDA is implementing the World Bank assisted SPV Market Development Project. Under the socially oriented scheme subsidy to the extent of 50% of the cost of the system is allowed to all categories of beneficiaries. The special category covers States/UTs with desert areas, islands, hilly regions, as well as Scheduled Castes, Scheduled Tribes, Fishermen, Handloom workers, village artisans and handicapped persons throughout the country. During the year 1995-96, 680 street lighting systems, 7,470 domestic lighting systems, 44,938 solar lanterns and power plants of an aggregate capacity of 89 Kwp were installed.

35. A National programme has been launched since June 1995 for proper treatment of urban and industrial wastes and the resultant recovery of energy from these sources. In order to speed up the various programmes, a National Bioenergy Board (NBB) has been set up for evolving policy guidance and direction. A number of State Government and Nodal Agencies have initiated projects for energy recovery from industrial and municipal wastes in the country. The Integrated Rural Energy Programme (IREP) is utilising locally available energy resources at the village level which has been extended to 108 blocks, taking the total number to 660 in 1995-96.

Telecommunications

36. India operates one of the largest telecom networks in Asia comprising over 21,328 Telephone exchanges with a capacity of 151.6 lakh lines and

126.1 lakh working connections as on 30th September, 1996. The network is growing at an annual rate of 21.6 per cent. A switching capacity of 26.0 lakh lines was added during 1995-96, 16.7 per cent more than 1994-95. One fourth of the total capacity was added in four metro cities, viz. Delhi, Mumbai, Calcutta and Chennai. A Trunk Automatic Exchange (TAX) capacity of 1.97 lakh lines, 442 Route Kilometers (RKMs) of coaxial cable, 3,050 RKMs of Microwave, 10,124 RKMs of UHF, and 13,315 RKMs of Optical Fibre were added during 1995-96. During 1994-95, it recorded a growth of 22 per cent reaching a level of 22.3 per cent in 1995-96. The number of new connections provided in 1995-96 was 21.8 lakh. The number of people waiting for new connections as on March 31, 1996 was 22.8 lakhs which is 5.8 per cent higher as compared to the previous year.

37. According to the National Telecom Policy (NTP), 1994 one Village Public Telephone (VPT) in every village of the country is to be provided by 1997. This target has now been revised to be completed in the Ninth Plan. This task has to be completed by both the Department of Telecommunications (DOT) as well as the licensed private operating companies. As per the terms of the licence agreement, private operating companies are to provide a minimum of 10 per cent Direct Exchange Lines (DELs) as Village Public Telephones (VPTs). Out of the total 6,03,906 villages in the country 2,16,332 villages have been provided with public telephones by March 31, 1996. During the year 1995-96, 31,496 villages were provided with telephone facilities. In the current year 1996-97 it has been proposed to provide 75,000 VPTs.

38. The Eighth Plan outlay approved for the Department of Telecommunication is Rs.23,946 crore. In the first four years of the plan (1992-96) the total plan expenditure incurred on developmental schemes was Rs.25,545.8 crore, 80.5 per cent of which was financed through internal resources and 19.03 per cent through market borrowings. The remaining 0.46 per cent is in the form of budgetary support. In the remaining annual plan 1996-97, the total investment envisaged would increase to Rs.35,525.9 crore. Of this, 78.7 per cent would be financed through internal resources.

39. With the deregulation of the economy since July 1991, the entire telecom equipment manufacturing industry has been delicensed and dereserved. Automatic approval of foreign equity upto 51 per cent has been allowed for foreign investors engaged in the manufacture of all telecommunication equipment. Telecom equipment production increased from Rs.7,000 crore in 1994-95 to a level of Rs.7,750 crores in 1995-96. During this period the exports from the Telecom Sector amounted to Rs.1,653 crore in 1995-

BOX 9.5**Reforms in Telecommunications**

- The Government has decided to set up a statutory Telecom Regulatory Authority of India (TRAI), to separate the regulatory functions from policy formulation and operational functions. The TRAI Bill, 1996 has been introduced in the Lok Sabha. The President has promulgated the TRAI Ordinance on the 25th January 1997.
- The Telecom equipment manufacturing industry has been deregulated in 1991 with automatic approval of foreign equity up to 51 per cent of total equity.
- Letters of Intent (LOIs) have been issued to eight selected bidders in twelve Telecom Circles for providing Basic Telecom Services.
- An assignability agreement between the DOT and the financial institutions has been reached.
- ECB limits for telecom projects have been made flexible with an increased share of ECB from 35 per cent to 50 per cent of total project cost.
- Value-added services (VAS) were opened for private sector participation in 1992 which include Cellular Mobile Telephones, Radio Paging, Electronic Mail, Voice mail/Audiotex services, Videotex services, Data services, Video-conferencing and Credit Card Authorisation Services. A number of private operators have since started these operations.
- The Government has permitted a maximum foreign equity of 49 per cent in the case of Basic services, Cellular mobile, Radio paging, VSAT and other Wireless Services.
- The Government has committed a maximum foreign equity of 51 per cent in the GATT Agreement in the case of other Value Added Services, viz. E-Mail, Voice Mail, On-line Information, data base retrieval & data processing, Enhanced/Value added facsimile services including store & forward, and store & retrieve.
- No outgo of Foreign Exchange is permitted on account of royalty in the case of basic, cellular mobile, radio paging and other wireless services.
- The Government has now allowed the setting up of investment companies/holding companies with majority ownership and management with the Indian shareholders for making investment in a licensee or operating company in respect of which there is a limit on foreign equity. Investments made by the investment/holding companies will be treated as a part of domestic equity and will not be counted towards the ceiling on foreign direct investment.

96 as compared to Rs. 936 crore in 1994-95.

40. With a view to supplement the efforts of the Department of Telecom in providing basic telephone services, companies registered in India are being licensed to install, operate and maintain these services. In January 1995, for the first time, open tenders were invited for the award of licenses for providing basic telecom services. The license would be valid for 15 years, with the provision of renewal for 10 years at a time on a mutually agreed basis. One private operator is proposed to be licensed in each of the telecom circles into which the country is divided. The maximum permissible foreign equity is 49 per cent. Letters of Intent have been awarded to eight selected bidders in twelve Telecom Circles for providing Basic Telecom Service. Some of the bidders are likely to sign the licence agreement shortly and may start providing the Basic Telephone Services by the end of 1997.

41. In the area of value added services like Radio Paging Service, Mobile Radio Trunking Service and Cellular Mobile Telephone Services, a policy of privatisation is being followed for grant of licenses to

the private operators through a system of tendering, because of limitations of the frequency spectrum.

42. For cellular mobile telephone services, licenses for four metro cities-Mumbai, Delhi, Calcutta and Chennai - were awarded in 1992 in a tender in which the license fee was announced beforehand and competition was in terms of the advantages to subscribers in terms of rental charges. However, the subsequent tender for cellular mobile services in all the Telecom Circles, barring the four metro cities, is largely on the same pattern as the Basic Service tender. In the case of Cellular Services, open tenders were invited from Indian companies for cellular mobile operations on a circle basis. Licenses would be issued for a 10-year period. The bidder should have a subscriber base of at least 100,000 cellular lines and a minimum three years experience of operating a cellular mobile network as on 1.1.95. On the basis of licences issued for the four metro cities, cellular mobile telephone services have already started on a commercial basis with two operators in each city. In the case of Cellular Mobile Services in Circles, 33

licences for 18 Territorial Telecom Circles have been issued to 13 companies since December 1995. Services are likely to start in some of the Circles by March, 1997.

43. A tender was invited for operating Radio Paging services in 27 major cities in 1992. Two to four operators were permitted depending on the size of the city. Recently after a Court judgement, one more operator has been added in 11 cities. All the licences have been issued against 106 slots. Tenders for radio paging services in 19 Territorial Telecom Circles were invited for 56 slots in 1994. The number of slots were later reduced to 41. 31 licences have been issued to 11 companies for 18 Territorial Telecom Circles excluding Bihar for which there were no bidders. Radio paging service is available in all the 27 major cities by one or more operators, and it is expected to be available in most of the cities throughout the country by March, 1997.

44. Tender enquiry was floated for franchise of Public Mobile Radio Trunked Service (PMRTS) in various cities all over the country in January, 1995. 262 Licences have been issued to 38 companies for operation of PMRTS in 86 cities in 400, 300, & 800 MHz band. The service is likely to start in some of the cities by March, 1997.

45. Value-added services such as E-Mail, Voice-Mail/Audio-tex, 64 kbps Domestic Data Service using VSAT, Videotex, Video-conferencing and Credit Card Authorisation have been opened to the private sector. An application for granting of operating licences for these services can be made at any time. For the operation of E-Mail, Voice Mail, and 64 kbps Data Service using VSAT, fifteen, twenty nine and thirteen licences have been issued respectively. These services have become operational on a commercial basis in many areas of the country.

46. Internet services have been provided in the country by DOT and VSNL. At present 10 cities have been covered. This network provides an opportunity for electronic commerce and exchange of valuable information with the rest of the world in the field of education, research and business. The public data network 'INET' has been expanded to 25 cities, out of a total of 89 major cities planned for the INET. Service is available as well from any STD telephone anywhere in the country. A high speed Satellite network called HVnet has started operating which provides 64 Kbps data and voice communication capability from any point in the country. This will ease the problem of remote area communication. Growth in data communication among business partners and within the organisations has given a boost to the culture of computer to computer communication.

47. Integrated Services Digital Network (ISDN) services, which offer high speed data transfer, desk top video conferencing, high speed fax and picture phone facilities, have been started in 9 cities viz., Delhi, Mumbai, Calcutta, Chennai, Bangalore, Ranchi, Lucknow, Jaipur and Hyderabad. Gradually these services will be extended to other parts of the country.

48. High speed national and international leased line services have made a significant impact on business activity. About 200 international leased circuits have been provided for software export. Other advanced services like Intelligent Network, High Speed VSAT network (HVnet) and INSAT based mobile telephone service are under implementation. These advances will completely transform the way people communicate and contribute to the growth of the economy.

49. The Government decided to set up a statutory Telecom Regulatory Authority of India (TRAI) to protect the interests of consumers, regulate telecom tariffs, settle disputes between service providers, ensure compliance of licence conditions, bring about technical compatibility and inter-connection between different service providers, regulate arrangements amongst service providers in respect of sharing of revenue, levy fees, facilitate competition, promote efficiency, provide a level playing field for fair competition among the public and private operators, and to give further content to universal service obligation. The establishment of the TRAI will promote an orderly and healthy growth of telecommunication infrastructure in both basic and value-added services. The Telecom Regulatory Authority of India Bill, 1996 after being introduced in the Lok Sabha on 23.7.1996 was referred to the Standing Committee on Communications for examination. The Report of the Standing Committee has since been laid on the Table of both the houses of Parliament. The Government has considered the recommendations of the Standing Committee and approved the setting up of the Telecom Regulatory Authority of India. The President has promulgated the TRAI Ordinance on the 25th January 1997.

Posts

50. In terms of the number of Post Offices, the National Postal Network with more than 1.5 lakh Post Offices by March 1996, ranks first in the world. For policies related to postal services the long-term objective is to provide basic postal facilities within 3 kms of every village and to extend the facility of letter boxes in every village with a population of over 500. As on 31st March 1996, it is estimated that there are approximately 1,09,800 Gram Panchayat villages which do not have counter services. During the first four years of the Eighth Five Year Plan, 1312 extra departmental post offices and 315 departmental sub post offices have been sanctioned. The Department of Post is accelerating its efforts to extend basic postal

facilities on a contractual basis by utilising the existing infrastructure of Panchayats in these areas. The Panchayat Sanchar Sewa Scheme, formulated in this regard, can reduce dependence on budgetary resources for expanding postal facilities to needy areas and generate employment opportunities in such areas. Upto 31st March, 1996, 497 Panchayat Sanchar Sewa Kendras have been set up.

51. In view of rapid socio-economic changes, the Department of Post has embarked on programmes of modernisation for extending new value added services to meet specific customer needs. The counter services in the post offices are being modernised with the use of computer based machines which are more customer-friendly, responsive and efficient. 2661 machines have been installed in postal counters in 800 selected post offices and another 1500 counter machines are to be installed by March 1997.

52. The Business Development Directorate, under the Department of Posts, has been set up on 1st February, 1996 to provide focussed attention for developing and marketing of premium services and traditional products. The various premium services that are being developed and marketed by the Business Development Directorate are Speed Post, Hybrid Mail, Corporate Money Order, Mass Mailing Services, Express Parcel Service, Commercial Publicity on postal stationery, Smart Card based Premium Savings Bank Services and Gift Services. The total revenue generated by these premium products was Rs.57 crore in 1995-96. The revenue from all these premium products rose to Rs.38.10 crore during April to September, 1996, indicating an increase of 52 per cent as compared to the revenue generated over the corresponding period of the previous year.

53. The Department of Post has also taken up projects for modernising activities with technology in the area of mail processing, savings bank accounts, postal life insurance and also inventory control and rationalised materials management. Specific programmes are continuing in these areas with the focus on providing adequate support to related front office functions so as to enhance customer satisfaction. A strategy of focussed management and segmentation of services in terms of benefits for customers is also helping to achieve greater responsiveness and efficiency. Suitable technology support is also being provided to enhance the quality of premium products like Speed Post.

54. The utility of money order services for cash transfer has been underlined with the VSAT network nearing the end of its first phase. 73 VSAT terminals now operational are extending the benefit of speedy transmission of money orders by linking more important post offices around each VSAT Centre through a dial-up modern link. The newly introduced

Hybrid Mail Service is also gaining in popularity with the increased number of VSAT Centres providing the service for a wider area in the country.

55. Postal Life Insurance (PLI) has continued to move from strength to strength and from 24th March, 1995, its coverage has been extended to rural areas also. In the first year itself Rural PLI has garnered Rs.733.561 crore (sum assured), bringing in 2,37,557 new policies. The Post Office Savings Bank (POSB) is also continuing to be the most important scheme for mobilising small savings, especially in the rural areas. The total outstanding balance during 1995-96 through various savings schemes was Rs.81,719 crore. POSB operations in the more important post offices are being computerised for even greater efficiency and customer satisfaction. 116 Post Offices have been covered by this project. Mahila Samridhhi Yojana introduced in October 1993, to empower adult rural women financially, has generated Rs.172.41 crore in 1.69 crore accounts as on 31.03.96.

56. The postal service in India is required to meet the growing market demand with more specialised services, and it also has to fulfil its community service obligations. Preponderance of social objectives over commercial considerations has resulted in the system operating on a deficit which in 1995-96 was Rs.659.39 crore. Being dependent on manual operations to a large extent, the cost of operations of postal services have risen steadily with the rising cost of manpower and other inputs. Infrequent and insufficient revision of rates of most of the services largely contribute to the deficit of the Department, and neutralise efforts made through redeployment and rationalisation of manpower to contain establishment expenses.

57. Induction of new technology for efficient and responsive customer services will require large capital investment and the maximum utilisation of these systems will call for a new management strategy with emphasis on productivity and appropriate marketing support. Participation of the private sector for modernisation of postal services may therefore be necessary to the extent that priorities of the national postal policy and the relevant statutory provisions can accommodate the role of the private sector in this area. Involvement of private agencies in specific segments of activity depending on service needs and the potential of the job for income generation will continue to be a key element in the Department's policy for upgrading and extending its services both in the rural and urban sectors

Railways

58. The Indian Railways consist of an extensive network spread over 62,915 km. comprising Broad Gauge (40,609 km.), Metre Gauge (18,501 km.) and Narrow Gauge (3,794 km.). Electrified networks with

TABLE 9.9
Performance of the Railways

	1994-95	1995-96*	April-November*		Change over previous year	
			1995	1996	1995-96	1996-97
Total revenue earning freight traffic (million tonnes)	365.0	390.7	245.3	260.7	7.0	6.3
(i) Coal	172.4	184.4	114.9	126.0	7.0	9.6
(ii) Raw Materials for steel plants (excl.coal)	36.6	38.9	25.0	25.3	6.3	1.0
(iii) Pig iron & finished steel from steel plants	12.0	12.1	7.6	7.7	0.8	1.6
(iv) Iron ore for export	9.8	10.2	6.5	7.1	4.1	9.2
(v) Cement	31.5	32.1	20.2	21.6	1.9	6.8
(vi) Foodgrains	20.7	24.9	16.4	18.6	20.3	13.6
(vii) Fertilizers	21.5	23.7	14.7	13.2	10.2	-10.2
(viii) POL	27.7	28.9	19.1	18.6	4.3	-2.8
(ix) Balance (other goods)	32.8	35.7	20.8	22.6	8.8	8.6
2 Net tonne kilometers (billion)	249.6	270.5	172.5	179.9	8.4	4.3
3 Net tonne kilometers per wagon per day (broad gauge)	1590.0	1754.0	1680.0	1719.0	10.3	2.3
4 Passenger traffic originating (million)**	3914.9	4018.0	1989.8	2062.9	2.6	3.7
5 Passenger kilometers (billion)**	319.4	342.0	163.8	173.0	7.0	5.6

* Provisional.

© April-November.

** April-September.

12,306 km. account for 19.6 per cent of the total route kilometrage. The thrust areas identified for the Eighth Plan period included replacement and renewal of overaged assets, augmentation of terminal and rolling stock capacities and gauge conversion and electrification. Indian Railways completed gauge conversion of 1,351 km. in 1992-93, 1,619 km. in 1993-94, 1,805 km. in 1994-95 and have set a target of 1,000 km. for 1995-96.

59. During 1995-96, the revenue earning freight traffic moved by the Railways was 390.7 million tonnes. This was 7 per cent higher than the performance in 1994-95. The freight traffic carried during April-November 1996-97 at 260.7 million tonnes, increased by 6.3 per cent over April-November, 1995. The growth has mainly been in coal, pig iron and finished steel from steel plants, cement, foodgrains, iron ore for export and other goods, etc. However, there is a decline in fertilizers and POL both of which showed negative growth rates (Table 9.9). The slow down in industrial production and economic activity in general in the current financial year has also, to some extent, affected freight demand from the railways in like manner. Moreover, for items such as cement, fertilizers and petroleum and petroleum products (POL), considerations of operational flexibility and continuity of arrangements already made have necessitated an increased dependence on road transport and also on pipelines in the case of petroleum.

60. The existing modal shares between rail and road do not conform to optimal shares as judged by the criterion of least economic cost. The Railways are trying to attract freight traffic in view of being a

more energy efficient and environment friendly mode of surface transport through the Container Corporation of India (CONCOR) and various other marketing schemes. The new marketing strategy of Railways is given in Box 9.6.

61. The Railways employ about 16 lakh workers, the largest number for any undertaking in the country. A comprehensive plan for human resource development is required to upgrade skills, retrain workers and achieve higher productivity. While staff productivity in terms of the number of traffic units per employee, asset productivity in terms of net tonne kilometre per wagon day, wagon turn-around time, loco-utilisation, etc. have improved over the year, there is still scope for further improvement.

62. The budgetary support to the Railways has declined sharply from 75 per cent of the Railway's Plan outlay in the Fifth Plan to 42 per cent of the outlay in the Seventh Plan and further to 19 per cent during the Eighth Plan. This has forced the railways to reprioritise ongoing projects of line expansion, renewals, gauge conversion and electrification of key routes and has adversely affected procurement of rolling stock.

63. The Railways have so far met the challenge by relying less on budgetary support and more on internal generation of resources which, in future, may have limitations with increased outlay on account of the Pay Commission recommendations and growing lease rentals, etc. Alternative sources of funding based on market borrowings are also being looked at although the servicing costs would be higher.

BOX 9.6**Features of Railways' New Marketing Strategies**

- The Container Corporation of India (CONCOR), a public sector undertaking, will provide door to door services for domestic users, transportation in bulk for small customers and international transport in International Standards Organisation (ISO) containers.
- Introduction of trains connecting Tughlakabad with Mumbai, Jawahar Lal Nehru Port Trust and Madras for the movement of export containers on scheduled time.
- Leasing out brake vans space to customers so that they can have assured transportation between fixed points.
- Introduction of long distance special parcel services between Mumbai-Delhi, Delhi-Mughalsarai and Wadi Bunder- Shalimar.
- Introduction of Own Your Wagon Scheme to invite private sector investment for the ownership of Railway wagons and thereby supplement the resources available with the Railways for meeting the transport requirements of various sectors of the economy.
- Introduction of a long distance parcel service between Mumbai and Delhi, Delhi-Mughalsarai and Wadi Bunder-Shalimar.
- Simplification of rules in key areas like free acceptance of indents, supply of wagons, single window booking system and faxing of invoices to the destination.
- Rebate of freight for utilisation of wagons in the empty flow direction.
- Closure of yards to facilitate faster movement.

Private sector participation through schemes like Build-Own-Lease-Transfer (BOLT) and Own-Your-Wagon-Scheme (OYWS) are also being explored. However, only limited success has been achieved in these areas till now.

Civil Aviation

64. The activities of Civil Aviation are broadly divided into three areas; operational, infrastructural and regulatory-cum-developmental. On the operational side, Indian Airlines Ltd. and private airlines (scheduled and non-scheduled) provide domestic air services. Air India Ltd. provides international air services. Indian Airlines Ltd. also provides air services to neighbouring countries. Pawan Hans Helicopters Ltd. provides helicopter support services primarily to the petroleum sector. Infrastructural facilities are provided by the Airports Authority of India (AAI). The two authorities viz. International Airports Authority of India (IAAI) and the National Airports Authority (NAA) were merged on April 1, 1995 to form a single authority viz. Airports Authority of India (AAI) as a result of enactment of Airport Authority of India Act, 1994. The regulatory and developmental functions are looked after by the Ministry of Civil Aviation and the Directorate General of Civil Aviation.

65. With the repealing of the Air Corporation Act, 1953, on March 1, 1994, the monopoly of Indian Airlines, Air India and Vayudoot over scheduled air

transport services came to an end. Seven private operators, who were hitherto operating as air taxis, have been granted the status of scheduled airlines. In addition, 21 air taxi operators have been given the permit for charter/non-schedule air transport services. A new policy for private investment in civil aviation has been announced allowing for 40 per cent foreign equity in domestic airlines.

66. Domestic air services are operating in a competitive environment and this has effectively been in existence since April, 1993. By September, 1996, 34 aircrafts in the 120 plus category belonging to the private airlines were in operation. The natural consequence of creating a competitive environment in this sector was that, by March 1996, 41.1 per cent of the domestic air transport was being catered to by private air services. The number of passengers carried by private operators has increased from 15,000 in 1990 to 4.1 lakh in 1992, 29.2 lakh in 1993, 36 lakh in 1994 and 48.9 lakh during 1995. The ushering in of competition in domestic services had two major implications for Indian Airlines. First, it had to share the market on its profitable trunk routes with private operators. Second, it had to contend with the loss of critically skilled personnel to private operators who offered much higher emoluments. This affected its ability to optimally deploy its existing aircraft capacity. Indian Airlines has since geared itself towards coping with the challenges brought forth by competition.

67. Several measures which have been taken by the public carriers mainly centered on making the organisation adopt a market oriented approach to decision making and to considerably improve the quality of its product. It has improved its passenger facilities both on board and on the ground, on time performance, flight safety measures and has also increased employee participation to provide better services.

68. For Indian Airlines Ltd, the year 1995-96 has been considerably better than the last few years. The Company made an operating profit of Rs. 156.51 crore in 1995-96 as against Rs. 36.24 crore in 1994-95 i.e. an increase of 332 per cent. The Company has laid stress on passenger facilitation by increasing the seat pitch on the Boeing-737. It has also increased the number of seats in the Executive class of A-320. Other measures include improvement of flight service, adoption of convenient time schedules and agreements with Global CRS companies to enable passengers to have access to flight schedules globally. These measures taken by the Company have started yielding positive results, and the seat load factor increased to 73.4 per cent in 1995-96 as against 69.7 per cent in 1994-95.

69. Indian Airlines laid stress on cargo promotion in association with M/s. GATI and its earnings from cargo have increased from Rs. 89.7 crores in 1994-95 to Rs. 112.7 crore in 1995-96. The company also provided the ground handling services to various foreign and domestic carriers. As a result, the company's profitability increased and the net loss came down from Rs. 188.7 crore in 1994-95 to Rs. 110 crore in 1995-96. The Company carried 7.7 million passengers and performed 722.8 Revenue Tonne Kilometers in 1995-96.

70. Indian Airlines still incurred losses due to the heavy incidence of depreciation, interest and financing charges associated with its A-320 fleet. It has also had to contend with increases in overhead costs, increases in exchange rates, etc. During 1995-96, the company increased its domestic fares effective from 1.10.1995 on an average by 20 per cent and dollar fares with effect from 1, January 1996. But this was not sufficient to meet the increasing costs of operations.

71. The price of ATF was revised from 3rd July, 1996 and the annual impact of this has been estimated to be Rs. 60 crore in 1996-97. Consequently the company has increased its domestic fares effective from 22nd September, 1996 and proposes to increase dollar fares effective from 1st March, 1997 to offset some of its losses. Constant efforts are being made to monitor the uneconomical routes and to improve its market share by aggressive marketing strategies.

72. Air India Ltd. incurred a net loss of Rs.271.8 crore in 1995-96 as against profit of Rs. 40.8 crores in 1994-95. According to provisional estimates the company also incurred a net loss of Rs.195 crore during April-September, 1996. While the total operating revenue of the company increased by 14.6 per cent from Rs.2989 crore in 1994-95 to Rs.3,426.5 crore in 1995-96, the total operating expenditure of the company increased by 24.9 per cent from Rs.2,920 crore in 1994-95 to Rs.3,647.5 crore in 1995-96. The resumption of losses was due to factors such as frequent industrial unrest leading to cancellation of flights and disruption of flight schedules; the incidence of depreciation and interest on account of acquisition of four Boeing 747-400 aircraft; increase in expenditure by 24.9 per cent due to insurance, fuel and oil, landing lease, rental and hire charges; increase in allowances payable to the employees and payment of additional perquisites as per the Memorandum of Understanding reached with the Unions, associations, guilds; and the drop in its yield. Air India's overall load factor of 62 per cent is also low compared to other international airlines. Air India's share of international traffic originating from India came down from 42 per cent in 1981 to 35 per cent in 1991 and 20.4 per cent in 1994. However, in 1995 Air India's market share had improved marginally to 22 per cent.

73. In addition to four B-747-400 aircraft which were acquired recently, Air India acquired two more B-747-400 aircraft in December 1996. To provide for growth in the short term, Air India wet-leased a few aircraft. Five new stations were added in 1995 i.e. Manchester, Amsterdam, Tel-Aviv, Entebbe and Perth. With the acquisition of two new aircraft, new destinations like Chicago and Zurich are being introduced. Air India has formulated a four pronged revitalisation strategy comprising the following: (i) growth in fleet, capacity, passenger carriage and market share, (ii) improvement in product and service quality, (iii) increase in efficiency and greater productivity, and (iv) development of human resources. There has been an improvement in on time performance of Air India which is over 85 per cent as compared to an average of 46.5 per cent in 1994-95. While profits have declined, most of the physical parameters have improved in 1995-96 as compared to 1994-95.

74. Pawan Hans Helicopters Limited (PHL) basically provides helicopter support services to the petroleum sector i.e. ONGC and Oil India Limited and connects remote and inaccessible areas. It also provides air support services to several customers which include the Governments of Punjab, Madhya Pradesh and Arunachal Pradesh, Lakshadweep Administration, GAIL, BSF, and the Revenue Department. The total revenue flying hours during

1995-96 were 18,562, as compared to 18,458 during 1994-95. The revenue earnings and net profits during 1995-96 were Rs. 156.68 crore and Rs. 37.26 crore respectively, compared to Rs. 134.15 crore and Rs. 39.97 crore respectively in 1994-95. The flying hours during April-September, 1996 were 10470 and revenue and net profit were Rs. 87.72 crore and Rs. 26.50 crore respectively.

75. The International Airports Division (IAD) of Airports Authority of India (AAI) manages, operates and develops five international airports at Mumbai, Calcutta, Delhi, Chennai and Thiruvananthapuram. IAD earned a net profit of Rs. 113.59 crore in 1995-96 as compared to a net profit of Rs. 97.7 crore during 1994-95. During 1995-96, expenditure grew by 35 per cent whereas revenue increased by 27 per cent. Passenger and Cargo traffic at 256.4 lakh and 561582 tonnes during 1995-96 were higher by 12 per cent and 14.2 per cent respectively than in 1994-95. IAD has declared a dividend of Rs. 22.72 crore (20 per cent of post tax profit) for 1995-96 as against Rs. 15.28 crore (25 per cent of paid up capital as on 31.3.1995) for 1994-95.

76. A number of projects like modernisation of air traffic services at Mumbai and Delhi airports, installation of Airport Surveillance Radar/Monopulse Secondary Surveillance Radar at Ahmedabad, Guwahati, Hyderabad and Thiruvananthapuram, development of 12 model airports for upgradation of facilities and improvement in the quality of the services at the airports have been taken up. Although investments in airports of the North Eastern region are not economical, a large number of operations have been taken up there. Sixty per cent of investment on projects which have the prior approval of NEC is borne by the North Eastern Council. Development work in other areas like Jammu & Kashmir, Lakshadweep, Himachal Pradesh, Andaman & Nicobar are also under way.

Road and Road Transport

77. India has a road network covering 2.7 million kilometres which makes it the third largest road network in the world. However, this network is not adequate for speedy and efficient transportation. Half of this is made up of unsurfaced roads. The National Highways which are arterial routes have currently a network of 34,298 km. Although they carry nearly 40 per cent of the goods and passenger traffic, the national highway network constitutes less than 2 per cent of the total road network.

78. Road transport is the dominant form of transport for people and goods in India. Over 80 per cent of passengers and over 60 per cent of freight move by roads. It is estimated that by the year 2000 road traffic will account for 87 and 65 per cent

of passenger and goods traffic, respectively. The quality and capacity of national highways have to be enhanced consistent with the traffic expansion and overall economic growth of the country. Traffic movement on the highways is suffering from frequent stopovers and congestion as almost 15 per cent of national highways and 75 per cent of state highways are single lane roads. The problem is further compounded by inadequate road pavement thickness, poor riding quality, existence of a number of railway level crossings that need replacement, weak and distressed bridges/culverts, congested city sections, lack of wayside amenities and inadequate road safety measures. The deficiencies in the road network have contributed to safety hazards, besides entailing higher transportation cost. These highways will, therefore, require major augmentation of capacity as well as structural upgradation. About 20 per cent of national highways need widening from single to double lanes and about 50 per cent of two lane roads have to be strengthened. 30 per cent of existing two lane roads need to be four laned apart from developing expressways on selected corridors. The maintenance of roads is no less important than their expansion and the vast network of roads built over the years needs to be preserved.

79. The magnitude of the task on hand and the volume of funds required for this purpose are clearly beyond the capacity of the public sector. In the past, roads have generally been financed from budgetary sources and constructed by the Public Works Departments. As the budgetary allocation is not adequate to meet the challenges stated above, the National Highways Act has been amended to enable the levy of a toll on selected improved sections of National Highways. The amendment of the National Highways Act to allow the private sector to construct and charge a fee or toll will permit the private sector to participate in construction, maintenance and operation of roads on Build, Operate and Transfer (BOT) basis. Several reforms/measures taken by the Government to attract private sector participation in Highway Development are summarised in Box 9.7. These measures are comprehensive and encompass land acquisition, environmental clearance, simplification of procedures, tolling of 4-lanes, by-passes and bridges, equity participation in the highway sector and sharing of force majeure risks.

80. After the amendment of National Highways Act in 1995 to allow private sector participation, steps have been taken to initiate national highway projects through private sector participation. Two projects of bypasses (Thane-Bhiwandi in Maharashtra and Udaipur in Rajasthan) and one project of Road Over Bridge (at Chalthan in Gujrat) involving an investment of Rs.42 crore have been awarded on BOT basis.

BOX 9.7**Major Initiatives for Highway Development**

- The government has promulgated a separate ordinance for land acquisition for development and maintenance of national highways. The ordinance provides that once the Government declares that the land is required for the purpose of development of National Highways, it would deem to have been vested in the Central Government. Only compensation can be settled through arbitration.
- Projects for widening of the existing National Highways have been exempted from environmental and forest clearances.
- Undertaking feasibility studies and detailed project reports for projects costing upto Rs.100 crore can be approved by the Ministry of Surface Transport. Several other procedures have been simplified.
- The Government had decided to levy a user fee (toll) on completed 4-lane sections including those which would be funded through the budget. The rate of fee will be fixed taking into account the savings in vehicle operating costs. The revenue generated from such user fees will be utilised for future road development.
- Some of the projects which have a high potential for economic return may not be commercially viable. The Government has decided to take up such projects on a build and lease basis where the enterprise initially invests the funds required for the project and is paid back at pre-agreed annual sums over a period of time.
- In order to encourage private sector participation, the National Highway authority of India has been permitted to participate in the equity of a company promoted by the private or the public sector.
- With a view to helping the entrepreneur to overcome problems of short-term repayment or servicing of debts, it has been decided to provide financial support/loans on suitable terms to keep the project going. The National Highway Authority will also consider providing cash support in projects as per the merits of the case.
- In the case of BOT projects, the financial liability of the government would be the least except in cases where continued collection of tolls is frustrated by changes in the policy of the government or by force majeure risks. In such cases, it has been decided to compensate the entrepreneur suitably and this would be consistent with international norms and practices.

81 The provisions relating to foreign investment in the road sector have been considerably liberalised. Automatic approval will be accorded for foreign equity participation upto 74 per cent in the construction of roads and bridges. In addition to this, automatic approval would be given for majority foreign equity upto 51 per cent in support services to land transport, like operation of highway bridges, toll roads and vehicles.

82 External assistance is being obtained for the improvement of National Highways through international agencies such as the World Bank, Asian Development Bank and Overseas Economic Cooperation of Japan. The Government of India has activated the National Highways Authority, which is an autonomous body created through an Act of Parliament and has been entrusted with the Asian Development Bank Project costing about Rs 800 crores in 5 states viz., Haryana, Rajasthan, Bihar, West Bengal and Andhra Pradesh.

83 The State Road Transport Undertakings operate a fleet of over one lakh buses employing 8.3 lakh workers. The undertakings, with a few exceptions, face serious financial constraints due to various

factors such as the social commitment to operate even on uneconomic routes, absence of cost-based fare structures, overmanning, poor management and widespread inefficiencies.

Shipping

84 Indian vessels carried about 29 per cent of the total sea-borne cargo during 1994-95. The share of Indian vessels in 1994-95 in Petroleum Oil and Lubricants (POL) was 54 per cent, in bulk carriers 17 per cent, and in liner traffic 9 per cent. Long term targets for Indian shares in bulk carriers and liner traffic are 50 and 40 per cent, respectively. The fleet strength at the end of October, 1996 was 481 vessels of 7.02 million Gross Registered Tonnage (GRT), against 468 vessels of 6.9 million GRT in October, 1995. Overseas trade during 1994-95 was 147 million tonnes against 137 million tonnes during 1993-94.

85 The Shipping Corporation of India (SCI) showed a better financial performance during 1995-96 as compared to 1994-95. It has earned a record net profit after tax of Rs 323 crore in 1995-96 registering an increase of 61 per cent over 1994-95. SCI's gross internal resources rose to Rs 554 crore in 1995-

BOX 9.8**Reforms in the Shipping Sector**

- Introduction of Automatic Approval Scheme for the Shipping Companies for,
 - (i) acquisition of all categories of ships, except crude oil tankers and OSV's by private shipping companies,
 - (ii) acquisition for replacement of tonnage, and
 - (iii) acquisition of ships from an Indian shipyard
- No approval is required for sale of ships
- Shipbuilding and ship-repairing units have been allowed to import items figuring in the restricted list of the 1992-97 EXIM policy subject to actual user condition. No licence will be required for this purpose
- The Committee for slotting of ship repair which used to decide about the yards where the ships are required to be repaired has been abolished
- Shipping companies have been permitted to retain sale proceeds of Indian ships abroad for utilising them for fresh acquisition
- There is freedom to time charter out Indian ships to foreign companies for employment in international cross trade.
- Shipping companies allowed to acquire vessels on charter-cum-demise method.
- Certain provisions of the Merchant Shipping (MS) Act, 1958 have been amended to facilitate Indian Shipping companies to raise foreign exchange loans abroad by mortgaging their vessels
- In order to attract foreign mainline vessels to the Indian Ports, Cabotage Laws have been relaxed for a period of 5 years up to 1997 for container vessels and lash barges
- Age norms for acquisition of second hand vessels have been further relaxed in 1995.
- Shipping rates for carriage of passengers or cargo by any ship engaged in coastal trade are no longer administered
- Section 21 of the MS Act has been amended, thereby doing away with the requirement that the Chairman of the Board of Directors and Managing Director should be a citizen of India. Similarly, the minimum percentage of share capital of the companies to be held by a citizen of India for owning a ship in India has also been deleted

96 as against Rs 395 crore in 1994-95. Its gross tonnage as on October 31, 1996 was 3.11 million GRT (about 45 per cent of the total Indian fleet)

86 There are two major public sector ship building yards, Hindustan Shipyards Limited, and Cochin Shipyards Limited. Due to various reasons i.e. high construction cost, heavy interest burden on borrowings, low order book position, excessive manpower etc. these yards had been incurring losses. However, as a result of revival measures initiated by the Government in September 1993 the two yards have shown an improved performance. Cochin Shipyard Limited has earned a net profit of Rs 18.46 crores in 1995-96 as against a profit of Rs 11.16 crores during the previous year. Hindustan Shipyards incurred a net loss of Rs 118 crores in 1995-96.

87 The International Safety Management (ISM) code, was adopted by the International Maritime Organisation (IMO) in November, 1993. This code is to come into force in 1998 for passenger ships and tankers and by 2000 for other vessels. The shipping companies are required to provide special training to on shore staff and crew on board in order to implement

this Code. The Directorate General of Shipping has constituted a Sub-Committee which is in dialogue with the shipping companies to implement the Code well before its due date.

88 In order to promote the development of Indian shipping, a new shipping policy was initiated in 1990-91 and several policy reforms have since been made in conformity with the liberalisation of the Indian economy (Box 9.8)

Ports

89 The long coastline of India is dotted with 11 major ports which are managed by the Port Trust of India under Central Government jurisdiction and 139 minor operable ports under the jurisdiction of the respective State Governments. The major ports handle 90 per cent of the all-India port throughput, and thus bear the brunt of sea borne trade. During 1995-96, the total cargo handled at major ports was 215.3 million tonnes, registering a growth of 9.1 per cent over 1994-95, constituting about 91 per cent of total traffic handled by the port sector. Dry and liquid bulk make up about 80 per cent of the port

TABLE 9.10
Trends In Traffic at Major Ports

	1994-95	1995-96*	April-November*		Change over previous year	
			1995	1996	1995-96	1996-97@
	(Million tonnes)				(per cent)	
1 POL	82.2	91.4	59.6	61.5	11.2	3.2
2 Iron Ore	34.8	34.5	21.4	20.5	-0.9	-4.2
3 Fertiliser & raw materials	8.5	9.6	6.7	4.8	12.9	-28.4
4 Foodgrains	0.9	2.8	1.5	1.9	211.1	26.7
5 Coal	29.9	31.1	20.0	22.9	4.0	14.5
6 Vegetable oil	0.6	1.5	1.2	1.2	150.0	0.0
7 Other liquids	4.9	5.2	2.7	3.6	6.1	33.3
8 Containerised cargo	15.4	17.6	11.0	13.1	14.3	19.1
9 Others	20.1	21.6	13.2	14.3	7.5	8.3
Total	197.3	215.3	137.3	143.8	9.1	4.7

* Provisional. @ April-November.

traffic in volume with general cargo, including the containerised cargo, constituting the remaining traffic. During April-November, 1996 major ports handled 143.8 million tonnes of cargo which was 4.7 per cent higher than the performance achieved in April-November, 1995 (Table 9.10). Major increases in traffic were observed in respect of foodgrains (26.7 per cent), other liquids (33.3 per cent) and containerised cargo (19.1 per cent). The composition of traffic has undergone significant changes in recent years.

90. Though the bulk of Indian trade (95 per cent) is now carried by sea routes, the existing port infrastructure is insufficient to handle trade flows effectively. The current capacity at major ports is overstretched. As against a total capacity of 177 million tonnes as on 31.3.96, the major ports handled 215.3 million tonnes in 1995-96. This results in overstretched berths leading to pre-berthing delays and longer ship turnaround time. The total capacity of Indian major ports has been estimated at 177 million tonnes as on 31.3.1996, which needs to be built up to meet the projected traffic requirements. In recent years, major investments in port construction have centred on container as well as bulk facilities. Modern equipment exists for container and bulk handling. The equipment-mix for handling general cargo has to be planned and provided in a manner that suits the needs of each port.

91. The productivity of ports in terms of Average Ship Turn Around (ASTA) and Average Ship Berth Output (ASBO) has been encouraging in recent years. Although the ASTA showed a minor increase from 8.1 days in 1990-91 to 8.5 days in 1995-96, the average ASBO increased from 3372 tonnes to

4030 tonnes during the same period. The marginal decline in performance in respect of ASTA may, however, be viewed against the substantial increase of more than 30 per cent in the number of vessels which sailed from major ports and the less than 10 per cent growth in port capacity during this period. The performance of Indian ports does not compare favourably with that of efficient ports in the Asian region. In international terms, labour and equipment productivity levels are still very low due to outdated equipment, poor training, low equipment handling levels by labour, un-economic labour practices, idle time at berth, time loss at shift change and high manning scales and low datums. In order to shed manpower and increase productivity of labour, a Voluntary Retirement Scheme (VRS) has been offered. Till November 30, 1995, around 9,750 employees have availed of the V.R.S.

92. In order to meet the huge gap between demand and availability of port capacity, private sector investment in ports is being encouraged and clear and transparent guidelines have been issued for the purpose. (Box 9.9) Ushering in the era of private investment in the development of the port sector, the Government has given clearance to the Jawaharlal Nehru Port, Navi Mumbai to award the license for the construction, management and maintenance of a Two-berth Container Terminal for a period of thirty years on a BOT basis to the P&O Ports, Australia led consortium. Other members of the Consortium are Konsortium Perkapalan Berhad (Malaysia), DBC Port Management Pvt. Ltd etc. The consortium would be investing approximately Rs. 700 crore on the project in a period of thirty six months. With commissioning of the new terminal, the capacity for handling

BOX 9.9**Guidelines for Private Sector Participation in Ports**

- Private sector participation in ports will cover areas which include.
 - Leasing out existing assets of the Port.
 - Construction and operation of additional assets such as container terminals and cargo berths.
 - Construction of warehousing, dry docking and ship repair facilities.
- The BOT model will generally be used for private sector participation with the assets reverting back to the Port after the concession period. The concession period would be decided upon by the respective Port Trusts in each case, with the maximum period not exceeding thirty years.
- Private sector participation will be on the basis of open competitive bidding. Evaluation will be made on the basis of criteria laid down clearly in the tender document and will be on the basis of maximum realisation to the port using Net Present Value (NPV) analyses.
- The Port will give no guarantee either for financial return or for the traffic which can be expected. Ports will continue to fix the ceiling of tariffs until an independent Regulatory Authority to fix and revise Port tariffs is established. However, the tariff will be revised suitably once every three years.

containers at JNPT will be more than doubled, increasing to over 1 million TEUs per annum. This is the first large project in the ports sector being implemented through private investment in the country. Other ports are also preparing for implementing various projects to augment capacity through private investment on the basis of these guidelines.

93. The major ports are governed by the Indian Ports Act, 1908 and the Major Port Trusts Act, 1963. These Acts have enough flexibility to permit private investment in the creation and operation of port facilities and so there is no need for fresh legislation in this regard. Recently, greater administrative and financial powers to the ports have been delegated. However, the increased private sector participation in ports implies a gradual change in the role of port authorities towards modernisation and mechanisation.

94. The guidelines for foreign investment in the ports sector have been further liberalised. Automatic approval will be accorded for foreign equity participation upto 74 per cent in construction activities in the area of ports and harbours. In addition to this, automatic approval will be given for majority foreign equity upto 51 per cent for support services like operation and maintenance of piers and loading and discharging of vessels.

Urban Infrastructure

95. The new economic policies aimed at stepping up economic growth, improving market efficiency and competitiveness, and integrating the Indian economy with global markets have already placed a heavy demand on all types of urban infrastructure services. The resulting bottlenecks are beginning to

pose serious impediments to enhancing productivity.

96. The organisation structure for the provision of urban infrastructure varies from State to State. However, most urban infrastructure services are provided by local level agencies, who fund their requirements largely by loans/grants from central and state governments.

97. Urban infrastructure includes water supply and sanitation which are important basic needs for improvement of the quality of life and enhancement of the productive efficiency of citizens. Schemes for providing safe and adequate drinking water and sanitation facilities are planned and executed by the State Governments/UT Administrations. The Government of India renders technical and financial assistance to these agencies and assists them in mobilising institutional finance. The outlay on the National Water Supply and Sanitation Programme, launched in the first Five Year Plan (1951-1956), increased from Rs.49 crore (1.5 per cent of total public sector outlay) to Rs.16,711 crore (3.8 per cent) in the 8th Five Year Plan.

98. The urban water supply and sanitation sector continued to receive its due importance upto the Fifth Plan. However, from the Sixth Plan onwards, there has been a gradual shift in priority from the urban to the rural sector. This has resulted in inadequate outlays (1.4 per cent of the public sector outlay) for the urban sector as compared to 2.5 per cent for the rural sector in the Eighth Plan. It is estimated that the coverage of the urban population with water supply and sanitation is about 85 per cent and 50 per cent respectively.

99. The magnitude of the water supply and sanitation problem is assuming a critical dimension in the background of depleting groundwater resources, environmental pollution, poor water supply and sanitation in slum areas and non-availability of proximate sources of water supply. All this has resulted in necessitating exorbitant increases in costs of water supply. Nonetheless, the Government has set targets to achieve a 100 per cent coverage of the urban population with water supply and 75 per cent with sanitation facilities by the end of the Ninth Five Year Plan, i.e. by March, 2002.

100. In order to supplement its efforts for urban development the Government has entrusted the task of urban infrastructure financing to the Housing and Urban Development Corporation Ltd., (HUDCO). The agencies eligible for taking up infrastructure loans from HUDCO include State Urban Finance Corporations, water supply and sewerage boards, New Town Development Agencies, NCR Planning Board, Municipal Corporation/Councils, Improvement Trusts and Private Companies/Agencies. The funds being released by HUDCO for urban infrastructure schemes have steadily increased from Rs. 125 crores during 1991-92 to Rs. 500 crores during 1995-96.

101. LIC has been investing in urban infrastructure projects as a part of its statutory requirements. Section 276 of the Insurance Act requires that 25 per cent of its investible surplus be invested in PSUs or for infrastructure services like water supply, drainage, housing, power and transport. LIC, on an average, invests Rs. 100 crore per annum for urban water supply and sewerage schemes. The Infrastructure Leasing & Financial Services Ltd. set up in 1988 is also in the business of financing urban infrastructure projects.

102. Many states in India have taken the initiative to invite private sector participation in the provision of infrastructure services on a more cost-effective basis. The range of arrangements include Contracting out the management of urban services, Build-Operate-Transfer (BOT) franchises and the provisions of services through voluntary organisations, community organisations and common interest groups. Management contracts for services such as construction and maintenance of toilets, garbage collection and disposal, solid waste conversion and maintenance of water supply systems are widely prevalent in various cities.

Urban Transport

103. There has been a steady increase in the urban population on account of rapid industrialisation, natural growth and migration from rural areas. Due to inadequacy of public transport facilities, the total

number of personalised vehicles has increased rapidly in urban areas during the last few decades. This is all the more evident in the metropolitan cities. The percentage share of personalised vehicles as a proportion of total vehicles has gone up to 85 per cent. In many cities, the vehicle population has reached alarming proportions in relation to the road and network available. Given the high density of population and scarcity of land, it is almost impossible to increase the road capacity in big cities. As a consequence, it is not possible to accommodate the growing vehicle population and meet the travel demand. This has prompted the working out of alternative ways of meeting the increasing transport demand given the constraints of land and capital, and the need to control energy consumption, pollution and accidents. There is a compelling need for attention to urban transport problems which could bring about the requisite augmentation of urban public transport and rail-based transport.

104. Considering the urgent need to develop a rail-based mass rapid transit system in Delhi, the Government of India has approved the Delhi rail-based Mass Rapid Transit System (MRTS) Project in principle with an indicative cost of at Rs. 3,401 crores at 1992-93 prices. The Government, inter-alia, also approved the preparation of a Detailed Project Report (DPR) by the Government of NCT of Delhi. This entails an Environment Assessment Study for the project; making available railway land to the project to the extent possible; posing the project for international assistance; constitution of an Empowered Committee and setting up of a company under the Companies Act to implement the project.

105. The cities of Bangalore, Hyderabad, Mumbai and Calcutta have proposed major improvements in their public transport systems through the introduction/augmentation of rail-based transit systems.

Outlook

106. The general picture which emerges from the above review is that not only has the demand for infrastructure facilities and services continued to outpace supply but also the quality of existing supply is poor. The visible signs of shortfalls in capacity and inefficiencies include increasingly congested roads, power failures, long-waiting lists for installation of telephones and shortages of drinking water. The widening gap between demand and supply of infrastructure also raises questions concerning the sustainability of economic growth in future.

107. In order to sustain a GDP growth rate of 7 per cent it is imperative to have an acceleration in the rate of investment in infrastructure. However, the

massive investment needs in infrastructure cannot be met within the financial resources of the government without crowding out other priority social and economic programmes. As a proportion of GDP, total investment in infrastructure ranged from about 4.5 per cent to 6 per cent, but broadly averaging about 5.5 per cent of GDP during the late 1980s and early 1990s. Future investment needs are projected to be much higher because of demands created by rapid urbanisation, and the need to make up for past inadequate investment. In order to satisfy the upwardly spiralling demand, it is necessary to evolve an organisational format where development of the sector is less dependent on government funds and where investment can be financed from the capital markets and internal resources on a self-sustaining basis.

108. The efficacy of private sector participation in infrastructure development would be contingent upon the capability to commercialise these projects whereby recovery of investments would be through a system of user charges. In fact, the potential for commercialisation and competition in infrastructure, is more widespread than is commonly perceived. Activities such as power generation and distribution, long distance telecommunications or solid waste collection are adaptable to market provision once they are unbundled from related activities.

109. In October 1994 the Ministry of Finance constituted an Expert Group on Commercialisation of Infrastructure Projects which submitted its report to the Government on 22nd June, 1996. The Expert Group estimated that total infrastructure investment requirements would be about Rs. 4,000 to Rs. 4,500 billion (US\$ 115 to \$ 130 billion) over the next five years and about Rs. 7,500 billion (US\$ 215 billion) during 2001-02 to 2005-06. The Expert Group has provided directions for policy reforms which can help in greater commercialisation of infrastructure along with the promotion of public-private partnerships. Its major recommendations are as follows:

- (i) For meaningful commercialisation of infrastructure projects, the Government must ensure that projects risks are clearly demarcated and allocated to different stakeholders. Clarity in this allocation is essential to avoid confusion in the financing and implementation of commercialised infrastructure projects as the tendency of each stakeholder is to shift the risk to others.
- (ii) During the period of transition from 100 per cent state investment in infrastructure towards increasing participation of the private sector, there will be continued need for state support in many infrastructure projects. In this regard, it is imperative to promote public-private

partnerships. The Government should also take significant equity positions in projects to crowd in commercial equity and debt, and once the project becomes viable, disinvest and reinvest in new projects in the nature of a venture capitalist.

- (iii) The contractual savings institutions (LIC, GIC, PFs, EPF) that have long-term liabilities make natural investors in private infrastructure projects. If infrastructure has to be financed through the capital markets, it is necessary to initiate major reform in the area of contractual savings institutions. The existing issuer-based guidelines for deployment of funds should be replaced with guidelines based on prudential norms which permit investment in securities with minimum specified credit rating.
- (iv) India needs an institution to specifically provide credit enhancements to projects and activate the debt market. Deepening and widening of the market in debt instruments through financial innovations are expected to go a long way in stepping up the overall domestic savings rate. A number of regulatory reforms are also required to remove the impediments that inhibit smooth trading in debt instruments, such as differential tax deduction at source for different instruments, inhibitive stamp duty, multiple regulatory authorities and the like. The debt market also requires a sovereign benchmark for aiding the pricing of other issues and in this regard a sovereign bond offering should be considered.
- (v) The existing sector-specific enactments should be unified into a single statute and an autonomous regulatory body should be set up for each infrastructure sector, on the lines of SEBI. The roles of the regulator and the operator must be separated in every sector. There is also need to set up a transparent regulatory framework so that BOT-type projects are easier to negotiate and implement.

110. For commercialisation of infrastructure projects there has to be an appropriate allocation of risks. There are development risks, construction risks and operating risks. There are also interest rate and exchange rate risks. Risk unbundling and assignment is, therefore, most critical. The sovereign guarantees, often sought by private investors, need to be given with the highest degree of caution. In fact, short-term guarantees can very easily be used as a substitute for longer-term sectoral reform. In view of high upfront costs and long pay back periods, infrastructure investments require matching long-term finance. To mobilise long-term finance, domestic capital markets will have to be reformed so as to

create a vibrant bond market. In many developed and developing countries, contractual savings in the form of pension and provident funds are being tapped for infrastructure financing since these savings are long term in nature and could act as a source of funds for debt instruments with long term maturities. There is also a need to introduce appropriate reforms in public provident funds, pension funds and insurance companies so that the private sector can have access to these funds for infrastructure development.

111. Although the private sector will play a growing role in additional capacity creation in future, the public sector enterprises will continue to shoulder the major

burden of providing critical infrastructural services. Credible public sector reforms are necessary to broaden their management, to upgrade technology, to improve their performance and quality of services and to generate adequate investible resources through rationalisation of service charges and better recovery of costs. The process of deregulation and privatisation of infrastructure services also needs to be supplemented by the establishment of statutory regulatory authorities for ensuring fair competition among public and private operators, and protecting consumer interests, public safety, internal and external security, needs of vulnerable and weaker sections and environmental sustainability.