

## INFRASTRUCTURE

Infrastructural enterprises in India have been developed largely in the public sector. In the emerging scenario of increasing integration of domestic economy with global markets, a modern and efficient infrastructural support is vital for achieving a high rate of growth of exports. The plan target of over five per cent rate of economic growth will require that infrastructure achieves a rate of growth of eight per cent per annum. In 1993-94, upto December, the performance of these sectors has been a mixed one. The continuing decline in domestic crude oil production is a matter of grave concern. In order to make infrastructure sectors fully responsive to the needs of the present day economy, structural changes in the organisation, operation and management of the public sector enterprises are urgently required.

2 International competitiveness of Indian industry and the future success of India's exports depend critically on efficient performance of the infrastructural sectors. To induce greater efficiency and accountability, the monopolistic nature of these sectors will need to be replaced by a competitive environment. Costs could then be minimised and globally comparable quality of service achieved. This will typically involve induction of private sector, wherever possible, and greater decentralisation of functional autonomy within public sector enterprises. With reduced budgetary support, the public sector entities will have to operate on commercial principles. The pricing and distribution strategies of public sector organisations will have to be more market-oriented. Such a shift in focus will require new procedures and legislative changes.

3 Some specific measures have already been taken during the current year to bring about structural reforms in the key infrastructural sectors. In the power sector, the policy package for inviting private investment was finalised. This included: reduction of import duties on power equipment to 20 per cent; a five-year tax holiday for new power

projects; a guaranteed 16 per cent rate of return on paid-up and subscribed capital; and handing over of distribution networks to private companies as in the case of Greater NOIDA in UP. In the petroleum sector, the major reform was the corporatisation of Oil and Natural Gas Commission (ONGC). The newly established company, Oil and Natural Gas Corporation Ltd, will be able to raise financial resources both in domestic and foreign capital markets; a programme of disinvestment of its equity by 20 per cent would be completed during 1994. The Government is now introducing a system of continuous bidding for exploration contracts both for off-shore and on-shore fields. Private companies have also been invited for exploratory services to improve the prospectivity of our reserves. During 1993-94 contracts were also finalised with private companies, both foreign and domestic, for the development of medium and small sized oil fields. The price increase announced in February 1994, seeks to reduce the level of deficits in the Oil Pool Account while at the same time improving the financial condition of the oil producing and refining companies. The Telecom Commission has approved the draft of a new Telecom Policy. This is now under consideration of the Government. The new policy seeks to introduce a more competitive structure for telecom services. As a part of the process to separate the policy formulation, operation and regulatory functions in this sector, an independent Telecom Regulatory Authority is proposed to be set up. The Videsh Sanchar Nigam Ltd. has finalised its programme to mobilise a large Euro-equity issue. Private sector participation in respect of value-added services has been further expanded this year. The Air Corporations (Transfer of Undertakings and Repeal) Ordinance, 1994 has been promulgated to enable the operation of private air transport companies in the domestic sector. This will effectively end the monopoly of public sector corporations in the civil aviation sector. Further, the repeal of the Air Corporations Act, 1953 will enable the re-struct-

**TABLE 8.1**  
**Trends in the Performance of Infrastructure Sectors**

1	Unit	1991-92	1992-93*	April-December*		Change over previous year	
				1992	1993	1992-93	1993-94@
		3	4	5	6	7	8
( per cent )							
<b>Energy</b>							
<b>1 Coal</b>							
(a) Production	Mn.tonnes	229.28	238.25	158.24	165.63	3.9	4.7
(b) Pithead stocks(year end)	"	48.73	51.30	37.21	39.16	5.3	5.2
(c) Despatches	"	218.85	231.03	166.14	174.45	5.6	5.0
<b>2 Electricity generated</b>							
(Utilities only)	Bn. kwh	287.00	301.40	221.42	237.77	5.0	7.4
(a) Hydel	"	72.80	69.90	54.26	55.07	-4.0	1.5
(b) Thermal (incl. nuclear)	"	214.20	231.50	167.17	182.70	8.1	9.3
<b>3 Petroleum</b>							
(a) Crude oil production	Mn.tonnes	30.35	26.95	20.45	19.99	-11.2	-2.2
(b) Refinery throughput	"	51.42	53.48	40.38	40.41	4.0	0.1
<b>Transport and communications</b>							
1 Railway revenue-earning goods traffic	"	337.98	350.04	254.63	258.62	3.6	1.6
2 Cargo handled at major ports	"	156.60	166.61	121.91	130.23	5.7	6.8
3 Telecommunications- new telephone connections provided (DELS)	'000Nos.	735.66	986.81	376.84	417.57	34.1	10.8

\* Provisional. @ April-December.

turing of Air India and Indian Airlines as companies. This will enable the re-structuring of the financial and organisational systems of these two companies in the coming year. In the road transport sector, octroi has been abolished by many State Governments to facilitate free and unhindered domestic trade. Multimodal Transport Operators Act has come into force. The Motor Vehicle Act has been amended; this will remove ceilings on the number of stage carriage permits that can be held by an individual or company. Cabotage laws have been relaxed for container ships/lash barges. Freight and passenger fares have been decontrolled to promote coastal shipping. All these measures reflect Government's concern for improving the performance and promoting the expansion of capacities in these critical sectors.

4 The basic infrastructure is required to grow at a higher rate to help the economy attain a growth rate of over five per cent in national output and 20 per cent in exports. During 1992-93 sectoral growth rates of infrastructure were relatively lower than the warranted levels (Table 8.1). While production of coal and electricity generation registered lower growth, that of crude oil declined significantly during 1992-93.

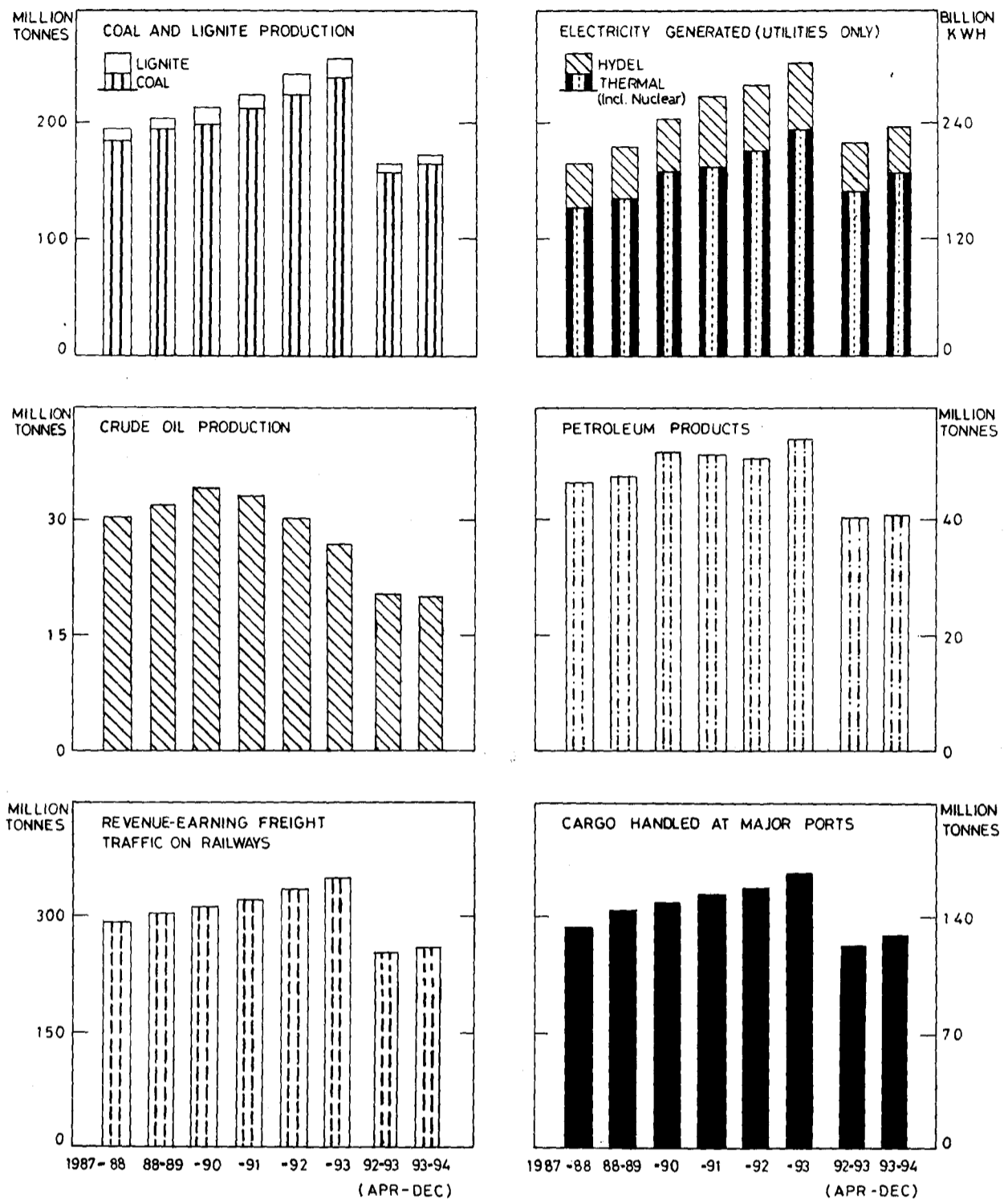
5 Performance of infrastructure sector during April-December 1993 has been mixed. While power generation has risen by 7.4 per cent and coal production, by 4.7 per cent over the corresponding period last year, crude oil production is still on the decline and the growth in railways revenue earning traffic has been marginal.

6 A radical overhauling of the existing structures and a substantial investment for expansion and modernisation of capacities in the infrastructure sector is today required. While the declining trend of crude oil production may be arrested and reversed because of additional capacities being created, sectors such as power, coal, telecommunications and transport require massive investments to augment their capacities. This investment may have to be attracted from both private domestic and foreign sources. A commercial orientation in their approach has to be inculcated to meet the expectations of a growing economy.

#### Coal

7 The share of coal in the total commercial energy is presently about 67 per cent. Coal production at 238.26 million tonnes in 1992-93 has increased by 3.9 per cent. The non-coking coal production increased by 5.4 per cent, whereas coking coal production declined by two per cent. The Output per Man Shift (OMS) of Coal India Limited (CIL) mines was 1.46 tonnes in 1992-93. There has been an increasing trend in pithead stocks of coal in recent years from a level of 28.78 million tonnes in 1986-87 to 51.3 million tonnes in 1992-93. The pithead stock as percentage of total coal production has gone up from 20.3 per cent in 1990-91 to 21.5 per cent in 1992-93. Coking coal import at 6.71 million tonnes in 1992-93 was about 15 per cent of domestic coking coal production and 10.4 per cent higher than the imports of the previous year. At the beginning of December 1993, out of 51 projects under implementation in the coal sector, 21 projects are having time and cost over-

## PERFORMANCE OF INFRASTRUCTURE SECTORS



1	1991-92	1992-93*	April-December*		Change over previous year	
	2	3	1992	1993	1992-93	1993-94@
	( Million tonnes)				( per cent)	
1 Production						
(a) Opencast	155.79	163.36	105.07	111.02	4.9	5.7
(b) Underground	73.49	74.89	53.17	54.61	1.9	2.7
Total	229.28	238.25	158.24	165.63	3.9	4.7
2 Production (By coal grades)						
(a) Coking coal	46.28	45.36	29.97	28.04	-2.0	-6.4
(b) Non-coking coal	183.00	192.90	128.27	137.59	5.4	7.3
(c) Washed coal	12.88	12.16	8.85	8.63	-5.6	-2.5
(d) Middlings	4.94	5.03	3.68	3.73	1.8	1.4
3 Pithead stocks (year-end)	48.73	51.30	37.21	39.16	5.3	5.2
4 Despatches	218.85	231.03	166.14	174.45	5.6	5.0
5 Lignite production \$	12.54	13.31	9.28	9.43	6.1	1.6
6 Output per man-shift (OMS)						
(i) CIL	1.40	1.46	1.33	1.39	4.3	4.5
(ii) SCCL	0.98	1.04	0.94	0.98	6.1	4.3

\* Provisional. @ April-December. \$ By NLC only.

runs. On an average, the cost over-run per project is about Rs.80 crore and time over-run per project is about 32 to 40 months compared with original and revised date of sanction respectively. The borrowings of CIL from the Central Government were Rs. 3947 crore at the end of March 1993.

8 Coal production during April-December 1993, has increased by 4.7 per cent over April-December 1992 (Table 8.2). Most of the production has come from open cast mines which have registered a growth of 5.7 per cent compared to 2.7 per cent increase in production from underground mines. During April-December 1993, production of coking coal and washed coal has declined by 6.4 and 2.5 per cent respectively compared to the corresponding period of the previous year. Pithead stocks of coal at the end of December, 1993, stood at 39.16 million tonnes, an increase of 5.2 per cent over end-December 1992. The OMS at 1.39 tonnes during April-December 1993, for CIL was 4.5 per cent more than the corresponding period of last year.

9 Indian coal is predominantly of high ash content. The ash content is about 20 to 30 per cent in power grade coal. To transport non-beneficiated coal implies carrying inert material over long distances. This is wasteful of transport capacity and energy. Huge ash deposits near thermal plants also cause damage to the environment. It is important to establish pithead washing capacity for non-coking coal washing. This may push up costs and may make coal prices uncompetitive vis-a-vis other fuels. This issue needs a careful examination. Simultaneously new technological options like the Fluidised Bed Combustion (FBC) at pithead for power generation from poor quality coal may also be explored.

10 The objective of importing coking coal has been to reduce the average ash content of coal charged to coke ovens through proper blending of imported coal with domestic coking coal. Given the high ash content of Indian coking coal, a more rapid increase in coal beneficiation capacity is required to meet domestic demand and to keep imports in check. The decline in coking coal production during 1993 needs to be reversed so that imports do not increase. Investment in modernisation of existing washing capacity and in overall capacity expansion in the washery sector would also serve as efficient import substitution.

11 The productivity levels of both men and machinery are low in the coal sector. OMS in underground (UG) mines has remained almost stagnant since the mid-seventies, whereas OMS in open cast (OC) mines has improved to some extent. The OMS of UG mines at 0.55 tonnes in 1992-93 compares poorly to those in the developed countries such as U.S.A (7.5), U.K (2.60) and Australia (10.03). The productivity levels can be improved by better utilisation of existing stock of machinery and equipments, both in OC and UG mines, greater flexibility in manpower deployment and rationalisation of the work force.

12 There has been an overall improvement in project implementation in the coal sector, but the delays continue. Unless the time and cost over-run are arrested, it will be difficult to finance new coal projects.

13 The coal sector was identified as the primary energy source for the economy. The organisational structure and operational practices in this sector require a thorough review with a view to change them in a manner that the sec-

1	1991-92	1992-93*	April-December*		Change over previous year	
			1992	1993	1992-93	1993-94@
	( Billion KWH)				(per cent)	
1 Power generation	287.00	301.40	221.42	237.77	5.0	7.4
(i) Hydro-electric	72.80	69.90	54.26	55.07	-4.0	1.5
(ii) Thermal	208.70	224.80	162.38	178.46	7.7	9.9
(iii) Nuclear	5.50	6.80	4.79	4.24	23.6	-11.5
2 Plant load factor of thermal plants ( per cent )	55.30	57.10	54.90	58.80	-	-

\* Provisional. @ April-December.

tor can play its assigned role in the expansion of energy supplies in the country.

### Power

14 Power generation in 1992-93 at 301.4 billion KWH recorded a growth of five per cent over the previous year although it fell short of the target by 0.6 per cent. Thermal and nuclear generation went up by 7.7 per cent and 23.6 per cent respectively while hydro generation declined by four per cent due to below normal rainfall in the catchment areas of the hydel power projects.

15 Plant Load Factor (PLF) is an important indicator of the operational efficiency of the power plants during periods of excess demand. The all India average PLF of thermal plants improved significantly from 55.3 per cent in 1991-92 to 57.1 per cent in 1992-93. The demand and supply gap which was 8.5 per cent at the end of Seventh Plan remained almost the same in 1992-93. Peak shortages went up from 17.7 per cent to about 19 per cent by the end of 1992-93. There has been a steady growth in installed capacity from 63636 MW in 1989-90 to 72319 MW in 1992-93. An actual capacity of 3537 MW was installed during 1992-93. Thermal and Hydro capacity constituted around 97 per cent of the total with nuclear providing the rest.

16 Power generation in April-December 1993 at 237.77

billion units was 7.4 per cent higher than the levels achieved in the corresponding period of the previous year and 0.7 per cent higher than the target set for the period. Thermal and Hydro power generation was up by 9.9 per cent and 1.5 per cent respectively, while Nuclear generation was down by 11.5 per cent (Table 8.3). Overall PLF in April-December 1993 was still better at 58.8 per cent. The PLF for the Central Sector and State Electricity Boards (SEBs) was 67.6 per cent and 54.1 per cent respectively. During April-October 1993 the energy shortage was 7.6 per cent and peaking shortage, 14.7 per cent. During April-November 1993, 960 MW of additional thermal and 14 MW of hydel capacity was commissioned (Table 8.4). There has been no change in the installed capacity over the past four years in Delhi, Goa, Kerala, Assam, Punjab, Gujarat, Madhya Pradesh, Karnataka, Orissa, West Bengal, Sikkim and Arunachal Pradesh. The DVC system and the Central Sector have recorded a steady increase in installed capacity during the period, 1989-90 to 1992-93.

17 An assessment of the ongoing projects indicates that capacity addition of the order of 30538 MW could have been feasible during the Eighth Plan period. However, taking into account the current state of project implementation in both the public and private sectors and resource constraints, it is anticipated that about 20000 MW of thermal capacity is likely to become available. With this mag-

Sector	1991-92		1992-93		April-November 1993*	
	Target	Actual	Target	Actual	Target	Actual
1	2	3	4	5	6	7
Thermal	2587	2371	3359	2944	903	960
Hydro	754	436	879	373	690	14
Nuclear	470	220	220	220	nil	nil
Total	3811	3027	4458	3537	1593	974

\* Provisional.

nitude of capacity addition, the power supply position would be critical and it may not be possible to meet the overall economic growth targets for the Eighth Plan unless bold steps are taken to rectify the existing situation.

18 The low capacity utilisation of thermal power plants is largely due to deficiencies in the operation and maintenance of the plant and other factors including poor quality of coal received by the power plants, deficiencies in the generating equipment and inadequate hydel support for meeting the peak demand of the system. Better utilisation of existing capacity can greatly mitigate the prevailing shortage condition. Every one per cent improvement in PLF by SEBs makes available an additional amount of about 390 MW of power at current PLF. Thus, if the SEBs were to reach the same PLF levels as in the Central power generating segment, an additional amount of about 5400 MW of power will become available. This will effectively eliminate the supply shortage.

19 Currently, thermal plants account for 70 per cent of total power generation and hydro electricity plants for 27.5 per cent and the balance being made by nuclear. Over the years, our dependence on thermal generation has increased, while the optimal mix of hydro and thermal is targetted at 40:60 by the year 2000 AD.

20 The problem area in the electricity sector has been the performance of the SEBs, which generate and distribute power, set tariffs and collect revenues. The average price of power has been only marginally increased since 1981-82 in real terms and today constitutes about 50 per cent of the long run marginal cost (LRMC). Both the agriculture and domestic sectors are highly subsidised. Agriculture's share has increased from 17 percent in early 1980s to 27 percent in 1991-92. SEBs incurred heavy losses in the sale of power to agricultural and domestic users. This is brought out by Table 8.5. Part of these losses were covered by cross-subsidising them from the surpluses generated from sale to industrial, commercial and other sectors. State Governments also shared a part of the subsidy by providing a subvention, mainly for rural electrification. The SEBs were left with an uncovered subsidy of Rs. 4700 crore in 1992-93. This is likely to increase to Rs. 4935 crore in 1993-94. These uncovered subsidies more or less explain the commercial losses incurred by the SEBs.

21 Table 8.5 also reveals that SEBs losses will continue to increase in the coming years. This is unsustainable for the States' financial position. On the other hand, if the SEBs were to earn the stipulated three per cent rate of return, they would generate an additional revenue of more than Rs. 6000 crore in 1993-94. Similarly, if the tariff in agriculture sector were raised to 50 paise/KWH, as was agreed to in the Power Ministers' conference in 1991, the overall

<b>TABLE 8.5</b>				
<b>Financial Performance of the State Power Sector</b>				
	1991-92	1992-93	1993-94	1994-95
			(RE)	(AP)
<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>
<b>(Rs. Crore)</b>				
<b>A. Gross Subsidy involved</b>				
(i) On account of sale of Electricity to:				
(a) Agriculture	5938	7411	8304	9590
(b) Domestic	1310	1609	2126	2683
(c) Inter-State Sales	201	198	233	276
<b>Total</b>	<b>7449</b>	<b>9218</b>	<b>10663</b>	<b>12549</b>
(ii) Subventions Received from State Governments	2045	1928	2059	2051
(iii) <b>Net Subsidy</b>	<b>5404</b>	<b>7290</b>	<b>8604</b>	<b>10498</b>
(iv) Surplus Generated by Sale to other sectors <sup>\$</sup>	2173	2590	3669	4396
(v) <b>Uncovered Subsidy</b>	<b>3231</b>	<b>4700</b>	<b>4935</b>	<b>6102</b>
<b>B. Commercial Losses<sup>@</sup></b>	<b>4117</b>	<b>4363</b>	<b>4875</b>	<b>5547</b>
<b>C. Revenue Mobilisation</b>				
(i) Rate of Return (ROR) <sup>#</sup>	-12.7	-11.4	-12.6	-12.6
(ii) Additional Revenue Mobilisable from Achieving:				
(a) 3 per cent ROR	4959	5411	6071	7235
(b) From introducing 50 paise/unit for Agriculture/Irrigation	2176	2137	1924	1943
RE- Revised Estimates. AP - Annual Plan Projections.				
<sup>\$</sup> Other sectors include commercial, industrial and railway traction				
<sup>@</sup> Commercial losses are different from uncovered subsidy because they include financial results of other activities undertaken by the SEBs.				
<sup>#</sup> in per cent.				

rate of return of the SEBs would have substantially improved. This measure alone could have yielded an additional revenue of Rs. 1924 crore in 1993-94.

22 Apart from the extensive cross-subsidies involved in the prevailing power tariff structures, the SEBs have continued to suffer from sub-optimal capacity utilisation of the thermal generation units and high transmission distribution (T&D) losses. A programme of Ren and Modernisation will help improve its PLF. The losses have remained above 22 per cent against an tional average of less than ten per cent. These are sparsely distributed loads over a large area particu the rural sector; under-investment in the transmiss tem; inadequate billing; and substantial pilferage of These losses can be brought down through syst provement schemes to be undertaken by the SE vestments for improving the transmission system be highly productive. The cost of adding one MW o to the grid through reduction of T&D losses is fi economical than adding one MW by setting up hydro or thermal generating capacities. Recently t Government has handed over the power distribut tem in Greater NOIDA to a private company. The c

is also expected to install a thermal power plant of 400 MW capacity. This may also improve operational efficiency and check pilferage and overcome the problem of inadequate billing. It is expected that some other utilities would also be handing over their distribution system in designated areas to private companies. The utilities will be assured of a regular income and investment into the transmission system may also increase as a result of such a decision.

23 Restoration of financial health of the SEBs and improvement in their operational performance are the most crucial issues today in the power sector. In addition to the investment in the sector, immediate restructuring of the tariff rates is necessary. The rates should be such that they cover a substantial part of the long run marginal cost of generation. This will involve an overhaul of the existing tariff structure and substantial reduction in cross-subsidies. Structural reforms of the State sector power utilities may include separation of generation, distribution and transmission functions. The SEBs may concentrate on generation only, with transmission and distribution left to different corporate bodies.

24 The net budgetary support to central PSUs under the Department of Power was about Rs. 1200 crore in 1989-90; this came down to Rs. 292 crore in the revised estimate for 1992-93 from Rs. 410 crore in 1991-92. The proposed net budgetary support for 1993-94, is Rs. 640 crore. As per the approved plan allocation, the Central PSUs in the power sector were required to mobilise an amount of Rs. 2347 crore through issue of bonds, against which the realisation so far has been Rs. 218 crore. This short fall in resource mobilisation has created serious resource shortage, adversely affecting the implementation of the ongoing projects and expansion programmes. A review of the existing external assistance portfolio reveals that the total undisbursed balance of external assistance in the power sector by the end of March 1993, stood at Rs. 26842 crore, which constituted about 40 per cent of the total unutilised external assistance. Therefore, any significant improvement in the financial performance of the power sector would also help to improve the overall utilisation of external assistance.

25 Recognising the inadequacy of capacity augmentation in the current plan and given the severe strain on investible resources, the Government has decided to attract domestic and foreign private investment. The Indian Electricity Act, 1910 and Electricity (Supply) Act, 1948 have been suitably amended. The package offered to private sector includes: higher debt-equity ratio at 4:1 for financing new schemes; capitalisation of interest during construction period; 100 per cent equity participation by foreign agencies; a rate of return of 16 per cent on the paid-up and subscribed capital in the case of generating compa-

nies and a reasonable rate of return of five per cent above the bank rate in the case of licensees have been guaranteed; reduction of import duty on power projects to 20 per cent; and a five year tax holiday for new power projects. An additional capacity of more than 3000 MW is expected to be set up in the private sector during the Eighth Plan. So far, new proposals for capacity addition by private enterprises of 32661 MW with a total investment of more than Rs. 104151 crore have been received. Lack of access to the final market for electricity, the poor finances of the SEBs, their poor record in settling debts and hence their poor credibility, are some of the major obstacles in attracting private investment into this sector. Doubts regarding payment ability of the SEBs to the private power bodies can be taken care of, to some extent, by the mechanism of escrow accounts into which SEB earnings would flow on which private power suppliers would have first claim. Another modality could be to hand over the distribution rights also to the private generating companies so that they bypass the SEBs. These options will have to be carefully considered.

26 Any future strategy proposed in the power sector has to address the issues relating to financial and operational working of the SEBs. A minimum agricultural tariff of 50 paise has been accepted in the Power Ministers' conference in 1991. This has still not been implemented universally. Tariffs may be so fixed to enable the SEBs to generate the stipulated three per cent rate of return on capital employed. These measures alone in 1992-93 would have resulted in an estimated additional revenue of Rs. 7548 crore. On the operational side, SEBs need to improve their PLF and bring down T&D losses. More effective investment planning is also necessary for both ongoing and new projects to reduce the time and cost over-runs and to keep the project cost within reasonable limits.

#### **Petroleum Oil and Lubricants**

27 The production of crude oil during 1992-93 was 26.95 million tonnes which fell short of the target by 5.3 per cent and was 20.9 per cent lower than the peak of 34.09 million tonnes achieved in 1989-90. Oil and Natural Gas Commission (ONGC) produced 90.6 per cent of the total in 1992-93 while the rest was contributed by Oil India Limited (OIL).

28 The production of crude oil during April-December 1993 was 19.99 million tonnes as against the target of 20.34 million tonnes (Table 8.6). It was 2.2 per cent lower than the output produced during the same period in 1992-93. This decline in domestic crude oil production has to be reversed. The decline over the last four years has been due to technical and structural reasons. These are: reservoir constraints; rectificatory measures in the Bombay High fields; and disturbed law and order situation in Assam. ONGC

1	1991-92	1992-93*	April-December*		Change over previous year	
			1992	1993	1992-93	1993-94@
	2	3	4	5	6	7
	(Million tonnes)			(per cent)		
1 Crude oil production	30.35	26.95	20.45	19.99	-11.2	-2.2
(i) Onshore	11.38	11.20	8.45	8.66	-1.6	2.5
(a) ONGC	8.85	8.68	6.56	6.56	-1.9	0.0
(b) OIL	2.53	2.52	1.89	2.10	-0.4	11.1
(ii) Offshore (ONGC)	18.96	15.75	12.00	11.33	-16.9	-5.6
2 Refinery throughput	51.42	53.48	40.38	40.41	4.0	0.1
3 Production of petroleum products	48.35	50.36	37.86	37.70	4.2	-0.4
	(Billion cubic metres)					
4 Natural gas production	18.65	18.06	13.60	13.66	-3.2	0.4

\* Provisional. @ April-December.

and OIL have initiated several short-term and medium-term measures to arrest the decline and further augment oil production levels.

29 The total refinery crude throughput during 1992-93 was 53.48 million tonnes compared to 51.42 million tonnes achieved in 1991-92. The average capacity utilisation of the 12 refineries was 103.2 per cent as compared to 99.2 per cent during the previous year. The total refinery crude throughput during April-December 1993-94 at 40.41 million tonnes was higher than the target of 39.07 million tonnes.

30 The production of natural gas in 1992-93 was 18.06 billion cubic metres, lower by 3.2 per cent compared to last year. The utilisation of natural gas during 1992-93 was 16.12 billion cubic metres compared to 14.44 billion cubic metres in 1991-92. The production of natural gas during April-December 1993 was 13.66 billion cubic metres which was nearly the same as in the corresponding period of last year.

31 As against the target of 1325 Million Metric Tonnes (MMT) of recoverable reserves to be added in the Eighth Plan period, only about 43 MMT has been added in the first year. This is a situation which needs to be rectified soon so that production can be kept on an upward path beyond the current plan period. The production from existing fields is likely to peak by 1997-98 after which output will be stagnant. With rate of growth of consumption likely to accelerate in coming years, the supply-demand gap will become unacceptably large. So, exploration activities have to be encouraged. To supplement the oil exploration activities of the ONGC and the OIL, the Government has offered exploration opportunities to the private sector. The fields discovered by ONGC and OIL have also been offered to private companies for development. The Fourth Round of bidding announced by the Government in 1991 enabled

four contracts to be signed covering four blocks. With the floating of the Fifth Round of bidding for exploration in January 1993 the Government has also introduced the system of round the year bidding for exploration blocks. Under this round, the Government has offered 45 blocks for exploration by private companies. Under continuous bidding policy, the Sixth Round has been floated in August 1993 and the Seventh Round in January 1994. It is expected that the development of the discovered fields handed over to the joint ventures would yield crude production of 5 to 6 million tonnes per annum after a gestation period of three years. Companies have also been invited to carry out speculative surveys in selected blocks to upgrade and increase the data available in these blocks, so that the geological prospectivity can be enhanced. All these initiatives are designed to create an environment of continuous opportunities for investment in the exploration and production activities for the private sector.

32 The refinery capacity in the country, which was 51.85 million tonnes per annum (MTPA) in 1992-93 has increased to 53.25 MTPA now. The demand of petroleum products is expected to grow from a level of about 59 MTPA in 1992-93 to about 79 MTPA during 1996-97 and to about 102 MTPA by 2001-02. To meet the above consumption level, it is essential that additional capacity needs to be built up in the coming years. The refining capacity in the country is sought to be increased further by expansion/debottlenecking of existing refineries and by setting up new grassroot refineries in the joint sector/private sector. The progress of these grassroot refineries and of other capacity expansion measures require close monitoring so as to eliminate time overruns.

33 Natural gas is likely to play a major role in bridging the gap between the demand and supply of liquid hydrocar-



	1991-92	1992-93*	April-November*		Change over previous year	
			1992	1993	1992-93	1993-94@
	2	3	4	5	6	7
	(Million tonnes)				(per cent)	
1 Light distillates	10.12	10.31	NA	NA	1.9	NA
(a) Naphtha	3.46	3.38	2.21	2.13	-2.3	-3.6
(b) LPG	2.65	2.87	1.85	1.96	8.3	5.9
(c) Petrol	3.57	3.62	2.41	2.53	1.4	5.0
2 Middle distillates	34.40	36.44	NA	NA	5.9	NA
(a) Kerosene	8.38	8.58	5.55	5.65	2.4	1.8
(b) Diesel oil	22.68	24.45	15.96	16.66	7.8	4.4
3 Heavy ends	12.46	12.46	NA	NA	0.0	NA
(a) Fuel oil	9.20	9.28	6.10	5.93	0.9	-2.8
Total	56.97	59.21	38.87	39.18	3.9	0.8

\* Provisional. @ April-November. \*\* Excluding Refinery Boiler Fuel (RBF). NA - Not Available.

bons in the future. At present, natural gas is being used mainly as feedstock for the core sector industries like power and fertilizer. Presently, some quantity of natural gas is also being flared. However, the flaring of natural gas has come down from 11 million cubic metres per day during 1991-92 to 5.08 million cubic metres per day in 1992-93 and 4.78 million cubic metres per day currently. With the implementation of the Gas Flaring Reduction Project, the flaring of natural gas is expected to be eliminated, barring technical flaring.

34 During 1992-93 the consumption of petroleum products was 59.21 million tonnes showing a growth of 3.9 per cent over the previous year. Though the overall consumption of petroleum products witnessed moderate growth during 1992-93 the consumption of LPG and HSD showed substantially higher growth rates. During the period, April-November 1993, the consumption of petroleum products increased marginally by 0.8 per cent over the corresponding period last year (Table 8.7).

35 Due to the reduction in the production of crude oil within the country, the dependence on imports has increased. The gross imports of crude oil and petroleum products during 1992-93 at 40.53 million tonnes was 21.2 per cent higher than in 1991-92. The value of POL imports during 1992-93 was Rs. 17046 crore as against Rs. 13038 crore during the previous year. The gross import of POL during April-November 1993 was 28.10 million tonnes valued at Rs. 12067 crore as against the import of 26.21 million tonnes costing Rs. 10785 crore during the same period last year. The softening of international crude oil prices will yield a saving of more than \$ 500 million on our annual import bill.

36 To improve the supply conditions and to reduce the fiscal burden owing to sale of subsidised petroleum products and in line with the liberalised economic policies, the

Government has set up Parallel Marketing System (PMS) for three products viz., LPG, SKO and LSHS. Under this system, private parties are allowed to import LPG/SKO/LSHS and market the same through their own distribution network at market determined prices. The Government announced a reduction in import duties on LPG in January, 1994 from 85 per cent to 25 per cent to facilitate the operation of PMS. Safeguards have been incorporated into the system to prevent diversion of the kerosene and LPG marketed by the public sector companies.

37 Conservation of petroleum products is important to improve energy supply conditions and minimise the undue strain on the balance of payments position of the country. Conservation of hydrocarbon fuels is economical in terms of investment, shorter in terms of gestation period, quicker in terms of flow of results and environmentally benign. Energy conservation is an important component of sustainable development.

38 The major planks of oil conservation strategy are : increase in the oil use efficiency of equipments, appliances and vehicles; promotion of optimal and viable inter-fuel substitution, particularly by renewable forms of energy; education, training, and mass-media campaigns for creating awareness about the need for conserving petroleum products and drawing up definite action plans.

39 As a result of the efforts made by or through the Petroleum Conservation Research Association (PCRA), a cumulative saving of petroleum products valued at Rs. 495 crore approximately was estimated to have been achieved during the Seventh Plan period. The incremental saving during 1992-93 alone was Rs. 70 crore.

40 There are a few major areas of concern for the development of the hydrocarbon sector in India. Concrete steps

have to be taken to augment oil production. The Eighth Plan had targetted an annual production of 47.08 million tonnes in its terminal year. This required that annual production be increased by an average annual rate of 9.2 per cent over the actual level in 1991-92. Annual production in 1993-94 is expected to be less than 27 million tonnes. This implies that production now has to increase by 15 per cent per annum in the remaining years of the Eighth Plan to achieve plan targets. This demonstrates substantial slippage which needs to be quickly corrected. The Government approved an outlay of Rs. 24000 crore for the Eighth Plan. Approved outlays for the first two years of the Plan have already absorbed 70 per cent of the total Plan outlays. This gives an indication of the resource crunch facing this sector.

41 Restructuring of ONGC was suggested by the P.K. Kaul Committee to relieve the resource crunch and give greater autonomy. ONGC has now been converted into Oil and Natural Gas Corporation Limited and has commenced its operation under the new form of a public limited company. The disinvestment of 20 per cent of its equity will be completed during 1994. Half of the disinvestment will be in European capital markets and the other half will be sold domestically.

### Renewable Energy Sources

42 Programmes launched for the development and utilization of renewable energy sources have been revamped and greater emphasis has been laid on market development and commercialization. These programmes, which were dependent on subsidies have been redesigned, based on new and self supporting financing mechanisms.

43 Until the end of March 1993 a capacity of about 54 MW through wind power generation had been established. This included several private sector projects. Likewise, a capacity of 93 MW of small hydro power has also been commissioned. The State Electricity Boards have notified arrangements for buy-back of power from entrepreneurs using renewable energy sources to generate power.

44 Over 17.63 lakh biogas plants had been set up in the country till the end of March 1993 under the National Project on Biogas Development (NPBD). The target for 1993-94 is fixed at 1.75 lakh plants, of which over 44000 plants have already been installed upto August 1993. The emphasis has shifted to smaller size biogas plants of approximately 2 cu.m. capacity, consistent with the average cattle holding of rural families.

45 The Indian Renewable Energy Development Agency Ltd. (IREDA) which was set up in 1987 has expanded its activities substantially, with support from the World Bank and Global Environment Facility (GEF). The project titled

"India Renewable Resources Development Project" has been initiated consisting of 3 projects on Windfarm Development, Photovoltaic Market Development and Small Hydro Power Development, involving World Bank/GEF assistance to the tune of US \$ 195 million. IREDA has also organized several entrepreneur development programmes to attract entrepreneurs and project developers. Till the end of September 1993, IREDA had sanctioned 255 renewable energy projects for about Rs. 130.48 crore, for manufacture and installation of required New and Renewable Sources of Energy (NRSE) systems and devices. Efforts have also been made for signing a protocol in the area of NRSE with the USA. Various multilateral and bilateral donors have expressed interest in supporting projects in this area. Discussions with the Government of Netherlands are in progress regarding release of second tranche of assistance to IREDA.

### Telecommunications

46 Telecommunication is a vital input for global competition. It spells the difference between success and failure in international markets. Telecommunication is, thus, important not only because of its role in bringing the benefits of communication to every corner of India but also in serving the new policy objectives of improving the global competitiveness of the Indian economy and stimulating and attracting foreign direct investment.

47 India has a network comprising of over 17790 Exchanges with a capacity of 84.2 lakh lines and 71.4 lakh working telephones as on November 30, 1993. The network has been expanding at the rate of 15 to 17 per cent per annum for the last two years.

48 During the eighties, the number of telephone connections grew at 8.3 per cent annually. The number of new telephone connections provided in 1992-93 was 9.87 lakh direct exchange lines (DELs) 34.3 per cent more than in 1991-92. The four Metros accounted for 24.2 per cent of the increase. The number of people waiting for new connections on March 31, 1993 was 28.46 lakh, 24.3 per cent higher than a year earlier. The demand for telecommunication services has so far been ahead of the availability. The Eighth Plan endeavours at reducing the waiting period by installing additional switching capacity of 93 lakh lines in order to provide 75 lakh new telephone connections.

49 The increase in telex switching capacity during 1992-93 was 3274 lines, 38.73 per cent higher than in 1991-92. 331 telex connections were added during 1992-93, as compared to 1779 during 1991-92. Demand for telex connections is going down because of increased use of FAX.

50 During 1992-93, 107.35 lakh conductor kilometers (LCKMS) of cables were laid, 17.6 per cent more than 1991-

92. Cables laid in four Metros accounted for 25.5 per cent of the total. In the manufacture of telecom cables, private sector investment has been allowed. Competition is permitted in providing value-added services.

51 The Telecom Department has embarked upon a programme of providing public telephones in village panchayats. During 1992-93, 30072 villages were provided with telephone facilities, which was 38 per cent more than the level achieved in the previous year.

52 The outlay for the telecommunications sector in the Eighth Plan is Rs.25137 crore. During 1992-93 plan expenditure for Department of Telecommunications (DOT) and Mahanagar Telephone Nigam Ltd. (MTNL) was Rs.4627 crore, of which 68.4 per cent was financed through internal resources. For 1993-94 the revised plan outlay is Rs.5879 crore, 68.4 per cent of which will be financed through internal resources. With restricted budgetary support and limited options of market borrowings, there is a need to draw up additional resources by rationalising the tariff structure, issuing subscriber bonds, market borrowings from international financial institutions through MTNL and disinvestment of VSNL equity through Euro issues, etc.

53 It has been decided to expand the supply of value-added services (telematics) with participation of the private sector. Accordingly, these services are being given to the private sector on a franchise or licence basis, consisting of cellular mobile services, voice and electronic mail services, audio and video conferencing services, radio paging and videotex. This will relieve the DOT of the financial costs of providing these services, and will give it additional revenues from licence fees and additional tariffs. Network operations in specified areas and industrial estates may also be opened to private sector participation in certain circumstances.

54 The Draft National Telecom Policy has been approved by the full Telecom Commission and is likely to be announced soon. It envisages a more competitive structure for telecom services. It also seeks a separation of the policy formulation, operation and regulatory functions. The Telecom Regulatory Authority is proposed to be established in the coming year.

### The Post

55 India has the largest network of post offices in the world. By the end of March 1993 the national postal network had over 1.5 lakh post offices in the country. The long term objective is to locate a post office within three Kms. of every village. During 1992-93 a total of 635 additional departmental branch post offices and 116 departmental sub post offices were sanctioned.

56 To speed up money order transmission to remote, hilly,

tribal and rural areas, a proposal has been drawn up for utilising satellite network through micro-earth stations. To expedite sorting of mail, especially in the metropolitan cities, automation has been considered necessary. Two letter sorting machines with 30 coding disks have been installed in Bombay which went into operation in April 1993.

57 Speed Post traffic is growing at a rate of 38 per cent. During 1992-93, the domestic revenue was Rs.32 crore and the traffic generated was 73 lakh articles. Postal Life Insurance (PLI) consists of over 1.5 lakh policies with an assured sum of Rs. 576.6 crore.

58 The Post Office Savings Bank operates through the wide net work of post offices of which 89 per cent are located in rural areas. The gross collection during 1992-93 through Savings Bank account were Rs. 7121 crore and net collections were Rs. 1149 crore. Operations of Post Office Savings Bank is now being computerised by the postal department.

59 Country's postal service has come to be viewed essentially as a social service. Consequently, strict commercial viability norms have not been followed and the system is now operating on a deficit. The postal department has been able to bring down the deficit from Rs. 214 crore in 1991-92 to Rs. 92 crore in 1992-93. Establishment expenses account for 80 per cent of the total expenditure. Redeployment of manpower is being undertaken to contain the establishment expenses. Measures are also being taken to improve staff productivity and improve cost recovery by rationalisation of the rate structure of the postal articles and services.

### Railways

60 India's railways systems, the most extensive in the world, had a route kilometer of 62486 by 1992-93. Electrified network at 11288 route kilometers constituted 18.1 per cent of the total route kilometer. Electrified railway track recorded a growth of 4.4 per cent in 1992-93 over the previous year. Electrification programme has been accorded the highest priority to cut down on energy costs which constitutes 21 per cent of total working expenses of the Railways.

61 Revenue earning freight traffic moved by railways during 1992-93 was 350.04 million tonnes, exceeding the previous year level by 3.6 per cent. The freight traffic carried during April-December 1993 at 258.62 million tonnes increased by 1.6 per cent over April-December 1992 (Table 8.8). However, there has been negative growth in traffic in all commodities, except for coal and cement, mainly due to sluggish growth of the industrial sector. User preference is shifting in favour of transportation by road which is more costly but more demand responsive. The National Transport Policy Committee in the early 1980s had envis-

aged a modal split in which Railways was expected to carry 72 per cent of the long distance freight traffic and the balance 28 per cent going to road. But the actual trends of modal shares by rail and road have moved in opposite directions. The decline in the share of freight traffic by railways, inspite of it being energy efficient and environment-friendly, is not a healthy trend. It is mainly due to shortage of capacities on railways and very high traffic density on major routes. There is need, therefore, for expansion of track and rolling stock capacity. Development of an inter-modal transportation system envisaging co-operation specially between road and railways will also improve railways share in freight movement and lower overall transport costs in the economy.

62 In the wake of declining budgetary support, it becomes imperative that railways function as a commercial undertaking and not merely as a public utility service. Railways must also meet the challenge by eliminating non-essential expenditure, increasing operational efficiency, conserving energy and raising manpower productivity. The railways employ 16 lakh workers, the largest number for any undertaking in the country. While staff productivity in terms of number of traffic units per employee, asset productivity in terms of net tonne Kms per wagon day, wagon turnaround time, loco utilisation, etc. have improved over the years, there is scope for further improvement.

### Civil Aviation

63 The civil aviation sector has two functional divisions: operational, and infrastructural. On the operational side, Indian Airlines, Vayudoot and private air taxis provide do-

mestic air services, and Air India provides international air services. Pawan Hans provides helicopter services to ONGC in its offshore operations and to inaccessible areas and difficult terrains. Infrastructural facilities are provided by the International Airports Authority of India (IAAI) and the National Airports Authority (NAA).

64 The total revenue of Indian Airlines increased by 27.3 per cent in 1991-92 and by 6.2 per cent in 1992-93, while expenses increased by 36.7 per cent in 1991-92 and 5.2 per cent in 1992-93. The net loss at Rs. 195.2 crore in 1992-93 was marginally less than that in 1991-92. The load factor in 1992-93 was 70.9 per cent compared to 69.8 per cent in 1991-92.

65 The financial performance of the domestic carrier during the current year is very poor. The net loss at the end of April-December 1993 was Rs. 226.9 crore, thus marking a 111.84 per cent increase in losses over the corresponding period of the previous year. Revenues were 5.7 per cent lower but expenses were 14.46 per cent higher than in the corresponding period last year. The load factor has further deteriorated to 65.9 per cent from 71.4 per cent.

66 Indian Airlines need to rationalise its fare structures on short routes. The trunk routes, however, are over-priced and profitable. The private air services have concentrated on these routes and have grabbed a big share of the trunk routes by offering better services while maintaining the fare structures established by Indian Airlines.

67 The losses incurred by Vayudoot Limited during

**TABLE 8.8**  
Performance of the Railways

1	1991-92	1992-93*	April-December*		Change over previous year	
			1992	1993	1992-93	1993-94@
	2	3	4	5	6	7
					( per cent )	
Total revenue earning freight traffic (million tonnes)	337.98	350.04	254.63	258.62	3.6	1.6
(i) Coal	146.43	157.72	113.87	121.40	7.7	6.6
(ii) Raw Materials for steel plants (excl.coal)	29.56	32.76	24.47	23.88	10.8	-2.4
(iii) Pig iron and finished steel from steel plants	11.44	12.04	8.79	8.67	5.2	-1.4
(iv) Iron ore for export	12.76	10.48	7.76	7.71	-17.9	-0.6
(v) Cement	30.51	30.21	21.80	22.86	-1.0	4.9
(vi) Foodgrains	27.38	27.30	19.38	18.75	-0.3	-3.3
(vii) Fertilizers	18.59	18.93	14.48	12.81	1.8	-11.5
(viii) POL	25.63	26.41	19.73	19.02	3.0	-3.6
(ix) Balance (other goods)	35.68	34.19	24.35	23.52	-4.2	-3.4
Net tonne kilometers (million)	250.24	251.49	184.82	183.89	0.5	-0.5
Net tonne kilometers per wagon per day (broad gauge)**	1439.00	1458.00	1383.00	1402.00	1.3	1.4
Passenger traffic originating (million)**	4048.62	3749.37	1836.00	1776.00	-7.4	-3.3
Passenger kilometers (billion)**	314.56	300.10	156.00	147.00	-4.6	-5.8

\* Provisional. @April-December. \*\* April-September

1991-92 and 1992-93 were Rs. 30.6 crore and Rs. 24.2 crore respectively. During April-December 1993 the loss incurred was Rs. 16.4 crore as against Rs. 17.2 crore during April-December 1992. After years of poor financial performance, it has been decided to merge Vayudoot with Indian Airlines.

68 Pawan Hans Limited (PHL) basically provides helicopter support service to the oil sector. The total number of flying hours during 1992-93 was about 17 thousand and the revenue earnings and net profit during the year were Rs. 123.6 crore and Rs. 27.5 crore respectively. The flying hours during April-December 1993 were 14013 and revenue and net profit were Rs. 96.41 crore and Rs. 26.11 crore respectively.

69 The number of passengers carried by air taxi operators has increased from 15 thousand passengers in 1990 to 4.12 lakh in 1992. During the calendar year 1993, the number of passengers carried by air taxis increased by 407.77 per cent compared to 1992. There is a marked shift of traffic from the Indian Airlines to the private air taxis. As this erosion of market share of Indian Airlines is concentrated in the profitable trunk routes, the public sector carrier will need to exert all its energies to improve its financial performance.

70 Air India is amongst the top ten profit making airlines in the world. The net profit of Air India at Rs. 333.14 crore in 1992-93 was 128.4 per cent higher than that in 1991-92. However, the net profit during April-December 1993 at Rs. 164.93 crore was 39.1 per cent lower than that during April-December 1992. During 1992-93 revenue increased by 24.6 per cent while expenditure rose by 16.8 per cent. During April-December 1993 the revenues have decreased marginally by 0.15 per cent and expenditure increased by 5.99 per cent.

71 The share of air India in the international traffic originating from India has come down from 42 per cent in 1981 to 35 per cent in 1990-91 and 26 per cent in 1992-93. This represents a significant erosion of market share. Air India's load factor at 57.8 per cent during 1992-93, is still low compared to other international airlines. Air India has embarked upon rationalisation of routes and fleet. Loss making freighter services have been discontinued and capacity in marginally profitable sectors has been scaled down and redeployed on other routes.

72 IAAI manages, operates and develops the five international airports at Bombay, Calcutta, Delhi, Madras and Trivandrum. The IAAI has not been able to surpass its 1989-90 performance both in terms of passenger and cargo handled. Net profits of IAAI at Rs. 45.7 crore in 1992-93 were marginally less than that in 1991-92. Passenger traffic at IAAI at 188 lakh was one per cent less in 1992-93 than in

1991-92, while cargo traffic increased by about five per cent in 1992-93 over 1991-92.

73 In the current year, during April-December period, the net profit of IAAI was lower by 6.23 per cent than that in the corresponding period last year though the number of passengers and cargo handled by it during the period has increased by 4.71 per cent and 8.51 per cent, respectively. During this period while the revenue increased by 7.65 per cent the expenditure rose by 21.05 per cent.

74 The net profit of NAA at Rs. 16.87 crore in 1992-93 was 4.8 per cent less than that in 1991-92. During April-December 1993, NAA has earned a profit of Rs. 20.97 crore despite an increase in expenditure by 37.4 per cent. This makes an improvement in NAA's profitability as compared to the previous year.

75 A number of projects for upgradation of facilities and improvement in the quality of the services at the airports have been taken up along with modernisation of Air Traffic Control System at Delhi and Bombay airports. Since investments at airports of North Eastern region are not economical, 60 per cent of such investment is borne by the North Eastern Council.

76 Certain important policy initiatives have been taken to accelerate the development of civil aviation in the country. The tourist charter policy has been liberalised to facilitate foreign tourist visiting the country. An open sky policy for cargo has been introduced to facilitate exports.

77 The Air Corporations (Transfer of Undertakings and Repeal) Ordinance, 1994 was promulgated on 29 January, 1994 with the provisions for the repeal of the Air Corporations Act, 1953. The objective is to demonopolise scheduled domestic air transport service in the country and to restructure Air India and Indian Airlines as public limited companies. This would enable these two companies to operate more efficiently in a competitive environment and have easy access to the capital market.

### **Road and Road Transport**

78 The total road network in the country increased from 16.9 lakh Kms in 1985 to 20.4 lakh Kms at the end of 1990-91, half of which is made up of unsurfaced roads. The National Highways network of 3400 Kms, at the end of 1992-93, constitutes less than two per cent of the total road network but carries nearly 40 per cent of the total road traffic.

79 It is estimated that the road traffic would be more than doubled during 1990s. To meet the traffic expansion of such magnitude, the National Highways network is in need of considerable improvement. A large section has inadequate road pavement and surface thickness. Other defi-

ciencies are poor alignments, weak and narrow culverts and missing bridges. About 12 per cent of National Highways need widening from single to double lanes. About 56 per cent of the two-lane roads have to be strengthened, and selected corridors on the national railways need conversion into Express ways. This is clearly an enormous task and implies massive investment requirement.

80 Roads have always been financed from budgetary sources and constructed by Public Works Department. The budgetary allocation for the National Highways in 1993-94 is Rs. 559.7 crore, marking an increase of 16.5 per cent over 1992-93. These outlays are not adequate to meet the challenge as stated above. The National Highways Act has been amended in order to enable levy of a fee on selected sections of National Highways. This will permit the private sector to participate in construction, maintenance and operation of roads on Build, Operate and Transfer (BOT) basis. However, a lack of legal framework governing such schemes has so far delayed its progress.

81 Road transport accounts for about 80 per cent of passenger traffic and 60 per cent of freight traffic. This is in sharp contrast to the optimal modal distribution of freight traffic between railways and roads in the ratio of 72:28. The share of Public Sector in road transport has diminished to 33 per cent in 1989-90 compared to 45 per cent in 1980-81. Road freight transport is almost entirely owned and operated by the private sector.

82 The State Road Transport Undertakings operate a fleet of nearly 1.2 lakh buses employing about 9 lakh workers. The undertakings with a few exceptions face serious financial constraints. Major reasons for the losses have been the social commitment to operate even on uneconomic routes and absence of cost-based fare structure. Overmanning, poor management and widespread inefficiencies have also affected a majority of undertakings.

83 The number of goods vehicle registered at the end of March 1993 was 16 lakh. To reduce overall transit time, and to help free flow of freight traffic on road, octroi duty has been abolished by many State Governments. The Motor Vehicle Act has been amended, removing the ceilings on the number of stage carriage permits that can be held by an individual or company.

### Shipping

84 Indian vessels carried about 35 per cent of the total sea-borne cargo during 1992-93 against 36 per cent during 1991-92. The share of Indian vessels in POL was 57.3 per cent in 1992-93; in bulk carriers 23.3 per cent; and in liner traffic 15 per cent. Long term targets for Indian share in bulk carrier and liner traffic are 50 and 40 per cent respectively. The fleet strength at the end of December 1993 was

443 vessels of 6.27 million Gross Registered Tonnes (GRT) against 441 vessels of 6.29 million GRT in December 1992. Overseas trade during 1992-93 was 122.30 million tonnes against 111.80 million tonnes during 1991-92.

85 Shipping Corporation of India (SCI) showed a better financial performance although its gross tonnage came down to 2.91 million GRT (46.1 per cent of the fleet) by December 1993 from 3.02 million GRT (about 50 per cent of fleet) at the beginning of the Eighth Plan. SCI's gross internal resources rose to Rs.263 crore in 1992-93 against Rs.235 crore in the previous year. Its net profit after tax at Rs.143.18 crore in 1992-93 registered an increase of 31.5 per cent over the previous year. During April-September 1993 the net profit after tax has been provisionally estimated at Rs.78.33 crore which is about 66 per cent higher than the level achieved during the corresponding period of last year.

86 Shipping policy has been liberalised to facilitate automatic approval for acquisition of ships and permission to retain sale proceeds for re-investment. Cabotage laws have been relaxed for container ships/lash barges. Freight and passenger fares have been decontrolled to promote coastal shipping.

### Ports

87 During 1992-93 the cargo-handling capacity at major ports was 166.61 million tonnes registering a growth rate of 5.7 per cent over last year. This compares well with 4.5 per cent growth achieved during the second half of 1980s. During April-December 1993 the major ports handled 130.23 million tonnes compared with a target of 123.74 million tonnes, which was 6.8 per cent higher than the level achieved during the corresponding period of last year (Table 8.9). Major increases in traffic were observed in respect of iron ore (19.9 per cent) and vegetable oil (30 per cent). Containerised cargo maintained the trend of growth and registered an increase of 24 per cent during April-December 1993 over the corresponding period of last year.

88 The composition of traffic has undergone significant changes in recent years, making the item-wise capacities available at major ports unrealistic. There is an urgent need for an intensive review and restructuring of port capacities.

89 Port productivity has improved in recent years and there has been significant improvements in ship turnaround time and ship-berth output. In contrast to port productivity, labour and equipment productivity levels are still low mainly due to surplus labour in ports, outdated equipments and operational constraints. While there is expectedly considerable resistance from the labour federations to proposals for rationalisation of work force and review of norms, discussions are being held at the levels of ports and bipar-

**TABLE 8.9**  
**Trends in the Traffic at Major Ports**

1	1991-92	1992-93*	April-December*		Change over previous year	
			1992	1993	1992-93	1993-94@
2	3	4	5	6	7	
	(Million tonnes)				( per cent )	
1 POL	69.30	73.70	54.99	56.83	6.3	3.3
2 Iron Ore	32.10	29.79	20.25	24.27	-7.2	19.9
3 Fertilisers & raw materials	7.11	7.38	6.26	5.53	3.8	-11.7
4 Foodgrains	1.25	2.24	1.25	1.14	79.2	-8.8
5 Coal	22.47	24.37	18.14	19.45	8.5	7.2
6 Vegetable oil	0.39	0.24	0.20	0.26	-38.5	30.0
7 Other liquids	4.25	4.16	3.11	2.34	-2.1	-24.8
8 Containerised cargo	7.63	8.98	6.42	7.96	17.7	24.0
9 Others	12.10	15.75	11.29	12.45	30.2	10.3
Total	156.60	166.61	121.91	130.23	5.7	6.8

\* Provisional. @ April-December.

lite wage negotiation committee to resolve the issues. As a result, Voluntary Retirement Schemes (VRS) have been successfully offered to shed excess manpower. Till September 30, 1993 around 8600 employees have availed of the VRS.

90 In its efforts to provide multimodal logistics infrastructure for containerised cargo traffic, the Container Corporation of India (CONCOR) has since significantly diversified its operations. It handled a cargo capacity of 1.23 lakh twenty-foot equivalent Units (TEUs) in 1992-93 registering around 12 per cent growth over last year. The growth in container traffic is likely to increase at an exponential rate in coming years. CONCOR has major role to play in offering to Indian exporters globally competitive multimodal transport facility. Measures to grant greater financial and operational autonomy to the CONCOR is under active consideration of the Government.

#### Environment Issues

91 Environmental protection and ecological balance are essential to ensure that development is sustainable in the long run. Vast population along with widespread poverty in India lead to degradation of environment in many ways by putting pressures on scarce resources like land, water and energy. The total geographical area of India at 329 million hectares constitutes 2.4 per cent of the world land area, but India supports 16 per cent of the world population. Out of an estimated arable land of 166 million hectares, at present 141 million hectares are used for cultivation purposes. The per capita availability of land is declining at a very high rate. With the projected rate of population growth it would decline to 0.33 hectares by 2000 as against 0.89 hectares in 1950. Estimated per capita availability of land for animal population would go down from

0.51 hectares in 1950 to 0.24 hectares by 2000. Presently, rural and urban settlements, roads, railways, water supply, mines, defence and industrial installations use an estimated area of 21 million hectares. An additional area of two to three million hectares would be required for these diverse purposes by 2000.

92 Land abuse, water and air pollution, soil erosion, deforestation, siltation of rivers and loss of biological diversity over time pose threat to ecological security and human health. The growing demand for food, fuel wood and fodder is leading to an unsustainable use of forest resources. Loss of valuable top soils due to reckless deforestation is affecting the soil productivity and thereby the standard of living of millions of small and marginal farmers. In addition to traditional domestic pollutants, there is contamination by chemicals, heavy metals and other toxic substances due to careless practices in industry and agriculture and unplanned urban growth. The prevailing conditions of poverty also create a situation where people are forced to live in slums without basic services and further degrade their environment. During 1988, 21 per cent of the urban population and 27 per cent of the rural population did not have access to safe drinking water, and 60 per cent of the urban population and 96 per cent of the rural population did not have access to sanitation services. Overall degradation of nature makes our resources less productive leading to further impoverishment of the population.

93 The pressure of increasing urban population is bound to increase the gap between supply and demand for infrastructural services such as energy, housing, transport, communications, education, health and other institutions, water, sanitation and recreation amenities, etc. The result is the growing trend in the deterioration of air and water quality, proliferation of slums, illegal construction

and undesirable land-use changes, all of which contribute to urban poverty.

94 Transport is a major source of land, water, air and noise pollution. Land abuse is due mostly to the railways and road transport which need a vast dedicated corridor and occupy 3.1 per cent of India's total area and 4.6 per cent of urban land. Railways contribute to deforestation by using wooden sleepers. In the interest of preservation of forest wealth, railways have been directed to use only steel or concrete sleepers.

95 Sixty per cent of air pollution in India is due to emissions of vehicles moving on road network. Although traffic density and POL consumption are not high as compared with those in the developed countries, the rate of pollutant emission per vehicle in India is 35 per cent higher than that in the USA for various reasons such as poor maintenance of vehicles and roads, lack of traffic planning, high proportion of overaged vehicles, crowded highways and large proportion of two and three wheelers. Marine pollution is caused by oil spillage from ships and coastal refineries and discharge of domestic sewerage and industrial effluents.

96 Traffic noise and aircraft noise in large cities pose a threat to human health and hearing and cause both physical and mental stress. High population growth has driven the communities particularly in the metropolitan cities to expand towards the airports showing lack of proper land-use planning. There is a need for strengthening measures for controlling noise pollution of vehicles and curbing the ad lib extension of the habitations towards the airports.

97 Given these environmental problems, an integrated strategy has been adopted for better protection of environment. The strategy is based on strengthening of existing programmes for pollution control, ensuring better disposal of solid wastes and hazardous substances, and conserving forests and other biodiversity-rich ecosystems. All these measures form part of the National Conservation Strategy and the National Forest Policy. The National Policy for Abatement of Pollution stresses on utilising economic and policy instruments for introduction of pollution control measures in 17 environmentally critical and polluting industries. The Ganga Action Plan has been successful in controlling pollution load in the major segments of the river Ganga. Technologies for waste minimisation and environmentally safe production is being encouraged under the on-going World Bank assisted Industrial Pollution Control Project. The National Afforestation and Eco-Development Board (NAEB) has undertaken programmes for natural regeneration and stocking in degraded forest lands in India. The Government has laid down emission norms regarding vehicular pollution limits under the Motor Vehicles Rule 1989 and the State Transport Directorates have

been requested to enforce these standards. Lead control in petrol has been brought down to a national average of 0.18 grams per litre.

98 The Government has drawn up an Environment Action Programme (EAP) focussing on the following priority areas:

- (a) Conservation of biodiversity including forests, marine life and mountain ecosystems.
- (b) Conservation of soil and moisture and ensuring that water sources do not get polluted.
- (c) Control of industrial pollution and wastes.
- (d) Access to clean technologies.
- (e) Tackling urban environmental issues.
- (f) Strengthening environmental education, training, awareness and resource management.
- (g) Alternative energy plan.

99 The underlying thrust of the EAP is to strengthen environment impact assessment of these areas through an organised system of natural resource accounting and environmental statistics. The programmes identified in the EAP would help in implementing the projects and thrust areas identified in the Agenda 21 adopted at the Earth Summit in June 1992.

### Outlook

100 Infrastructure sectors have recently been opened up for private investment as part of the new industrial policy announced in July 1991. In some of these sectors entry of private enterprises has taken place. Such entry is beginning to bring about a competitive environment in these sectors. The most notable example perhaps is the civil aviation sector where private air taxis have captured substantial share of the traffic on trunk routes. Similarly, the private couriers have obtained a growing share of the business. It is expected that in power generation and oil exploration and development, the share of private sector will increase in coming years. These trends need to be carried to other infrastructure sectors like roads, ports, telecommunications, etc. This is necessary not only to create a competitive environment in these sectors which promotes efficiency but also to bring in the large volumes of capital investment which is required for capacity expansion in these sectors.

101 The dominant presence of Public Sector Enterprises (PSEs) in infrastructure sector, however, still continues. These enterprises are responsible for providing the critical non-tradable inputs in the economy. It will be some time before their dominant position is effectively challenged by private sector entrants. In the meantime, it is important to take the necessary steps to improve the performance of



PSEs in these sectors. Some of these public sector enterprises are saddled with surplus workforce and others have suffered on account of extensive Government intervention in their day-to-day working. It is expected that these PSEs will make the best use of the National Renewal Fund to redeploy, to the extent possible, their surplus labour force so as to bring down costs and improve their productivity levels. The system of MOUs, suitably strengthened, will also help to establish an arms-length relationship between the Government and the PSEs. Pricing policies must be recast to ensure cost recovery and garner resources for necessary expansions. The PSEs need to

formulate their own long-term corporate plans to include strategic alliances with private domestic or foreign partners which could improve their financial position and also provide them access to latest technology. With increasing domestic competition and greater openness for imports, the quality of goods and services provided by the infrastructure PSEs will be under intense scrutiny in coming years. They will be required to provide globally comparable goods and services for their users. It is, therefore, imperative that the PSEs and their parent Ministries take the necessary steps to make these PSEs globally competitive in terms of prices and quality of their output.