CHAPTER 8

INFRASTRUCTURE DEVELOPMENT

8.1 ENERGY

8.1.1 POWER

The Ninth Plan envisages a power generation target of 606.70 BKwh (Billion Kilowatt-hours) in utilities by the end of terminal year 2001-02, as against the energy generation of 394.5 BU at the end of Eighth plan.

2. A capacity addition of 40245 MW is envisaged during the Ninth Plan period comprising 11909 MW in the Central Sector, 10748 MW in the State Sector and the balance 17588 MW in the Private Sector. The proposed capacity addition from the Private Sector constitutes about 43.7 per cent of the total capacity addition during the Ninth Plan.

3. At the beginning of Ninth Plan (1997-2002), the energy deficit was 11.5 per cent and peak deficit was 18 per cent. With the targeted capacity addition of 40245 MW during the Ninth Plan period, the power supply position at the end of Ninth Plan, as assessed by CEA, indicates energy deficit of 1.4 per cent and peak deficit of 11.6 per cent. However, with the capacity addition of 11976 MW during first three years i.e. 1997-2000, the energy deficit was restricted to 6.2 per cent and peak deficit to 12.4 per cent. The improvement in the power supply position was partly due to the marked improvement in PLF, which was 55.3 per cent at the beginning of Eighth Plan in 1991-92 and increased to 67.3 per cent at the end of 1999-2000.

Review For 1999-2000

Generation Of Electricity (Utilities)

4. Against a target of 469 BKwh, actual generation during the year was 480.011 BKwh, representing a marginal improvement of 2.3 per cent. In the case of the hydel generation the achievement was 99.4 per cent. However, the nuclear and thermal generation exceeded the target by 20.5 per cent and 2.4 per cent respectively. The total generation during 1999-2000 was higher than that in 1998-99 by 7.1 per cent.

5. In addition to the above, about 1.33 Bkwh of electricity also became available from Chukha Hydel project in Bhutan.

6. The source-wise generation targets and achievements for 1999-2000 with actuals for 1998-99 and projections for 2000-2001 in respect of utilities are given in Table 8.1.1.

TABLE 8.1.1
Source-Wise Electricity Generation

(Million Units)

	1998-99	1999-2000		2000-2001
	Actual	Target	Actual	Target
Hydro	82690	81000	80533	83407
Thermal	353662	377000	386226	402000
Nuclear	12015	11000	13252	13593
Total	**448367**	**469000**	**480011**	**499000**

7. The region-wise break-up of actual generation in 1999-2000 is given in Annexure 8.1.1.

8. During 1999-2000, the target for All India Plant Load Factor (PLF) was 63.8 per cent for thermal stations. The actual PLF achieved was 67.3 per cent. Table 8.1.2 gives the sectorwise break-up of PLFs for the year 1998-99 (Actual), 1999-2000 (Target) & (Actual) and 2000-2001 (Target). The target and achievement in regard to PLF for all State Electricity Boards, Central Power Organisations and Private Sector are indicated in Annexture 8.1.2.

TABLE 8.1.2
Sector-Wise Plant Load Factor (Per Cent)

	1998-99	1999-2000		2000-2001
	Actual	Target	Achievement	Target
Central Sector	71.1	66.1	73.6	68.4
State Sector	60.7	62.7	63.7	65.8
Private Sector	68.3	62.2	68.9	67.0
All India	64.6	63.8	67.3	66.7

Addition In Capacity

9. The target for addition to generating capacity during 1999-2000 was 4685 MW against which the achievement was 4507.5 MW (96.2 per cent) as given in the Table 8.1.3. This includes a capacity of 623 MW which was advanced from 2000-01 and not included in the original programme.

TABLE 8.1.3
Addition In Capacity (MW)

	1998-99	1999-2000		2000-2001
	Actual	Target	Achievement	Target
Hydel	542.50	1563.00	1371.50	1297.00
Thermal	3699.50	2682.00	2696.00	2263.30
Nuclear	--	440.00	440.00	440.00
Total	4242.00	4685.00	4507.50	4000.30

10. The project-wise details of achievements are given in Annexure 8.1.3. There were 19 number of generating units totalling 800.5 MW which has slipped from 1999-2000 generating capacity addition programme. This comprised 516.5 MW of hydro (11 generating units) and 284 MW of thermal (8 generating units). The complete list is at Annexure 8.1.4. The slippages were mainly due to delays in equipment supplies and delays in construction work.

Transmission & Distribution

11. The programme and achievement in respect of construction/energisation of HVDC/800 KV/400 KV/220 KV transmission lines is given in Table 8.1.4.

TABLE 8.1.4
Transmission Lines Additions

(Ckt. kms)

	1998-99	1999-2000		2000-2001
	Actual	Target	Achievement	Target
HVDC	1132			
800 KV	318	416	416	335
400 KV	3262	3128	3336	1635
220 KV	3330	3553	3932	5466

Renovation & Modernisation (R&M)

12. In order to improve the performance of existing thermal power plants, the R&M (Phase I) Programme was started in 1984 for completion during the Seventh Plan period. The programme was anticipated to give an additional generation of 7000 MU per annum by improving the over all PLF of units. All the schemes under Phase-I have been completed. On an average, additional generation of about 10,000 MU per annum has been achieved which is equivalent to 1900 MW of additional capacity at 60 per cent PLF.

13. With the main objective to achieve optimum performance results from the old thermal units, the Phase-II of the R&M programme has been started in the year 1990-91. The total sanctioned cost of the R&M programme (Phase-II) covering 44 old thermal power stations comprising 198 generating units aggregating to 20869 MW is Rs.2383.00 crore. The implementation of scheme under Phase-II is in progress. The total expenditure incurred upto November 1999 is Rs.1147 crore. This includes Rs.207.67 crore through PFC loan, Rs.222.33 crore through World Bank/OECF loan and remaining Rs.717 crore under State Plan Own Resources. Out of a total 1629 activities, 914 (56.1 per cent) have been completed. The balance activities are proposed to be completed during the Ninth plan period. On completion of the Phase II programme, it is expected to get additional generation of 7864 MU/year which is equivalent to 1600 MW new capacity addition. In addition, it is expected to get life extension for another 24 nos. (1402 MW) by 15-20 years.

14. The CEA has also identified 55 hydro power stations with an aggregate capacity of 9653 MW (210 nos. generating units) for coverage under renovation, modernisation and uprating (RM&U) of Hydro Power Stations. The total estimated cost of the programme is Rs.1493 crore and expected benefit is 2531 MW/7181 MU. Out of 55 schemes, work on 24

schemes having an aggregate capacity of 5230 MW at an estimated cost of Rs.437 crore and an expected benefit of 1033 MW/1899 MU have been completed till 31.3.1999. There are 23 ongoing schemes with aggregate installed capacity of 3335 MW where RM&U works at an estimated cost of Rs.796 crore with an expected benefit of 951 MW/2694 MU are under different stages of implementation. It is expected that out of these 23 schemes, 11 schemes would be completed during the Ninth Plan.

Financial Performance Of SEBs

15. The internal resources of the SEBs continued to be negative. As per the latest information available based on the resources discussion for the Annual Plan 2000-2001, the net internal resources of the SEBs which were Rs.(-)161.5 crore in 1992-93 increased to Rs.(-)7056.90 crore in 1998-99 (RE). In the year 1999-2000, it was expected to be Rs.(-)6479.70 crore. The commercial losses of the SEBs without subsidy increased from Rs.8474 crore during 1996-97 to Rs.(-)20706.6 crore at the end of the Annual Plan 1999-2000 (RE). The Rate of Return (ROR) on the net fixed assets of the SEBs was at the level of (-) 17.15 per cent in 1996-97. It was expected to be (-) 31.0 per cent in 1999-2000 (RE).

16. In case the SEBs are to achieve break-even rate of return, i.e. 0 per cent ROR in 1999-2000, they would have to raise average tariff on an All-India basis by 66.1 paise/unit over the current average tariff. This would yield additional revenue of as much as Rs.13816.6 crore. For achieving 3 per cent ROR, the average tariff on All-India basis has to be increased by 72.8 paise/unit and it would yield additional revenue of Rs.22709.9 crore. If the minimum rate of 50 paise/unit of agriculture tariff is levied by the SEBs, they could mobilise additional revenue of the order of Rs.2912.7 crore in 1999-2000.

Annual Plan 2000-2001

Generation Of Electricity (Utilities)

17. The total electricity generation in utilities in 1999-2000 is estimated at 499 BKwh (Table 8.1.1). Region-wise details are given in Annexure 8.1.1.

18. The total generation envisaged for 2000-2001 is 6.4 per cent higher than the target for the preceding year. The overall Plant Load Factor envisaged is 66.7 per cent. Additional Energy of about 1.33 BKwh is also expected to become available from the Chukha hydel project in Bhutan.

Addition In Capacity

19. The target for addition to installed capacity during 2000-2001 is 4000.3 MW (Table 8.1.3). This includes the projects aggregating to 800.5 MW capacity slipped over from 1999-2000.

20. Of the total additional generating capacity targeted for 2000-2001, a capacity of 659 MW in the Central Sector, 2415 MW in the State Sector and 926.3 MW in the Private Sector is expected to be commissioned. The scheme-wise details of additions to installed capacity during 2000-2001 are indicated in Annexure 8.1.5.

Plan Outlay

21. The total expenditure in the power sector (including Rural Electrification) during 1999-2000 is estimated around Rs.21845.96 crore against the Approved outlay of Rs.26825 crore, as shown in Table 8.1.5.

TABLE 8.1.5
Annual Plan Outlays

(Rs. crore)

	1998-99	1999-2000		2000-2001
	Revised Estimates	Approved Outlay	Revised Estimates	Approved Outlay
States & UTs @	13243.61	15594.09	12479.18	**
Central Sector @	*8157.08	11230.91	9366.78	11610.83
Total	21400.69	26825.00	21845.96	

@ The details are given in Annexure 8.1.6.
* Actual
** Yet to be finalised.

22. The utilisation of other provisions excluding Rural Electrification (RE) component, available for development programme in the power sector, is given in Table 8.1.6.

TABLE 8.1.6
Utilisation Of Other Provisions

(Rs. crore)

	1998-99	1999-2000		2000-2001
	Revised Estimates	Approved Outlay	Revised Estimates	Approved Outlay
Power component of Special Area Programme of North Eastern Council (NEC)	N.A.	198.01	214.50	208.52*

* Tentative

Captive Power

23. The addition to installed capacity in respect of Non-Utilities during 1997-98 was about 1087.6 MW. With this addition, the total installed capacity of such plants is estimated to have gone upto 13166 MW (including Railways) by the end of 1997-98. The generation from Non-Utilities in 1997-98 was placed at 44 BU (approx.).

Externally Aided Power Projects

24. The total amount of assistance during the Eighth Plan for power projects through bilateral and multilateral arrangements was Rs.16702.72 crore against which the actual utilisation has been only Rs.15493.52 crore i.e.92.8 per cent only. The year-wise allocation

and actual utilisation during the Eighth Plan, Annual Plans 1997-98, 1998-99 and 1999-2000 are indicated in Table 8.1.7.

TABLE 8.1.7
Year-Wise Allocation And Actual Utilisation During The Eighth Plan And Annual Plans 1997-98, 1998-99 & 1999-2000

(Rs. crore)

Year	Allocation	Utilisation	(per cent) utilisation
1992-93	2671.69	2530.72	94.72
1993-94	2532.47	2842.80	112.25
1994-95	3602.53	3338.82	92.67
1995-96	3078.18	2595.84	84.33
1996-97	4817.85	4185.34	86.00
Total (Ninth Plan)	16702.72	15493.52	92.76
1997-98			
Central Sector	2704.00	2309.14	85.40
State Sector	1363.58	1559.07	114.34
Total	4067.58	3868.21	95.10
1998-99			
Central Sector	2538.00	2179.64	85.88
State Sector	1859.06	1832.45	98.57
Total	4397.06	4012.09	91.24
1999-2000			
Central Sector	1724.69	1491.92	86.50
State Sector	1948.82	1751.05	89.85
Total	3673.51	3242.94	88.28

Some of the factors contributing to non-utilisation of external aid in the case of power projects are deficiency in project management and delays in construction work.

Private Participation In Power Sector

25. The policy for private Sector participation in Power was announced in October 1991 in order to bring in additionality of resources for the capacity addition programme. A number of incentives have been provided for private investment in Power Sector. The Indian Electricity Act, 1910 and the Electricity (Supply) Act, 1948 have been amended to bring about a new legal and financial environment for private enterprises in the electricity sector.

26. During Eighth Plan, 1430 MW has been added in the private sector by the existing licensees and new generating companies against the target of 2810 MW. With the capacity addition of 1217.5 MW in 1997-98, 1575 MW in 1998-99 and 563 MW in 1999-2000, the total capacity addition in private sector as on 31st March, 2000 works out to 4785.5 MW.

NEW AND RENEWABLE SOURCES OF ENERGY

An Overview

27. The Ministry of Non-Conventional Energy Sources (MNES) is promoting and developing various renewable energy technologies which include improved chulhas, biogas

plants, short rotation fuelwood tree species, biomass gasifies, solar thermal and solar photovoltaic systems, wind farms, wind mills, biomass based cogeneration, small and micro hydel systems, energy recovery from urban, municipal and industrial wastes, hydrogen energy, ocean energy, fuel-cell, electravans and gasohol. In each of these areas, there are programmes of resource assessment, R&D, technology development and demonstration. A four-fold strategy is being pursued by the MNES to achieve its objectives which include providing budgetary support for the promotion of New and Renewable Sources of Energy (NRSE), promoting private investment in non-conventional energy through fiscal and financial incentives, mobilizing internal resources through IREDA and other institutions for promotion of NRSE, involving private industries and mobilizing resources from external agencies such as World Bank, ADB etc.

Review Of Annual Plan 1999-2000

28. Under the National Project of Biogas Development (NPBD) a target to install 1.68 lakh family size biogas plants was set for 1999-2000 with a budget estimate of Rs.60.00 crore. Upto March, 2000, 1.65 lakh plants had already been installed and target is expected to be achieved. An amount of Rs.60.01 crore has been incurred as expenditure. During 1999-2000 against the target of 24 lakh improved chulhas, 18.00 lakh chulhas have been installed upto the end of February 2000 and the balance target is expected to be achieved during the year. An amount of Rs.19.60 crore has been incurred as expenditure under this programme during this year. Under Biomass Gasifier Programme 3.9 MW capacity has been installed during the year. Under the Solar Photovoltaic Lighting Programme 25341 home lights, 56,721 SPV lanterns and 3593 street lighting systems have been installed during 1999-2000. 22,692 sq.m. collector areas of solar water heating systems have been installed during the year. Under power generation programme, 125 MW of wind power, 33.52 MW of small hydro power and 51 MW of biomass power have been installed during the year. The achievements in the other programmes of MNES are also satisfactory. The physical and financial progress of the programmes were regularly reviewed in the quarterly review meetings held in the Ministry with the participation of Planning Commission, Ministry of Programme Implementation and other concerned Ministries. An expenditure of Rs.317.49 crore has been incurred against the revised Gross Budgetary Support of Rs.319.47 crore during 1999-2000, which constitute around 99 per cent of the revised estimate figures. The physical and financial progress during the year were consistent and also more than the achievements of the previous years.

Annual Plan 2000-2001

29. The total outlay of MNES for 2000-2001 is approved for an amount of Rs.945.24 crore (Rs.440 crore of Gross Budgetary Support and Rs.505.24 crore of IEBR). The financial provision indicated above will cover the programmes of Rural Energy, Solar Energy, Power Generation from renewable sources of energy, energy from urban and industrial wastes and the equity support to IREDA, financial agency under MNES. Out of this, Rs.44.00 crore has been earmarked for the programmes to be implemented in north eastern region. It has been proposed to install 1.8 lakh family size biogas plants, 25 lakh improved chulhas, 70,000 solar lanterns, 50,000 home lighting systems, 3,000 street lighting systems, 700 SPV pumps, 200 MW of wind power, 60 MW of biomass power, 7 MW equivalent biomass gasifier systems, 40 MW small hydro power and 10 MW equivalent capacity of energy from urban and

industrial wastes. Approximate Renewable Energy Potential & Achievements are indicated in Table 8.1.8.

TABLE 8.1.8
Renewable Energy Potential & Achievements

Source/System	Approximate Potential	Achievements (Upto 31.3.2000)
Biogas Plant (No.)	12 million	2.98 million
Improved Chulha (No.)	120 million	32.00 million
Biomass	17,000 MW	35.00 MW
Solar Photovoltaic	20 MW/sq.m.	50 MW
Solar Thermal Systems Solar Water Heating	30 million sq.m. collector area	0.47 million sq.m.
Wind power	20,000 MW	1167.00 MW
Small Hydro Power	10,000 MW	216.97 MW
Urban and Municipal Wastes	1700 MW	15.74 MW

8.1.2 COAL AND LIGNITE

Annual Plan 2000-01

30. The Ninth Plan envisaged augmenting domestic coal production with a long-term perspective keeping in view the sharply increasing demand for the power sector vis-à-vis the long gestation periods of coal projects mainly through improved productivity, capacity utilisation, technology adaptation, project clearance and implementation, exploration, conservation, demand management etc. and making PSU's more independent for better resource generation, commercial operations etc. Facilitating private sector participation in commercial coal mining by means of necessary legislative amendments has been one of the important areas envisaged for supplementing the efforts of the public sector coal companies.

31. As against this, the coal demand and domestic production have suffered in the first two years of the Plan. However, during 1999-2000, there has been a slight improvement in the coal offtake and a marginal shortfall in coal production is anticipated, as indicated in Table 8.1.9 and Table 8.1.10.

32. The shortfall in the offtake in the first two years is mainly due to lower offtake by major consuming sectors like, power, steel, cement, etc. due to temporary sluggishness in the economy, as well as, non-materialisation of envisaged new coal-based generation capacity addition. Besides, thermal power stations regulated their offtake by consuming their stocks due to resource constraints, which has resulted in non-adhering to the agreed norm of 30 days stock position at load centers.

33. The prices of all grades of coal stand deregulated from January 2000 and the bill for permitting private sector in commercial coal mining has been approved by the Cabinet recently and placed in the house of Parliament for consideration.

Coal Demand

34. The target of coal demand for 2000-01 has been fixed at 333.85 mt excluding 5.02 mt of washery middlings, against the anticipated consumption of 315.32 mt excluding 4.95 mt of washery middlings in 1999-00, which is about 6per cent more than the anticipated consumption in 1999-00 and is mainly due to increase in demand by the power sector. The average annual compounded growth in the first three years of the Ninth Plan works out to 2.1 per cent against the revised targeted growth of 4.6 per cent during the Mid-Term. The sectoral details are given in Table 8.1.9.

TABLE 8.1.9
Coal And Demand/Off Take

S. No.	Sector	1997-98	1998-99	1999-2000		2000-01	2001-02
		Actual	Actual	Target	Anticipated	Target	Projections As per MTA
	Coking Coal						
1.	Steel	33.06	31.27	36.02	31.47	36.76	44.60
2.	Coke Ovens			0.81	0.71	0.74	2.00

S. No.	Sector	1997-98	1998-99	1999-2000		2000-01	2001-02
	Sub-Total Coking	33.06	31.27	36.83	32.18	37.50	46.60
	Non-Coking						
3.	Power Utilities	212.92	205.38	214.00	216.53	223.63	235.00
		(3.62)	(3.02)	(3.00)	(3.56)	(3.37)	(5.00)
4.	Cement	10.13	13.23	10.00	14.63	15.42	21.40
5.	Steel DR	2.62	2.42	3.58	2.55	3.26	4.20
6.	Railways	0.05	0.03	-	-	-	-
7.	Fertilisers	4.64	4.10	4.30	3.21	3.70	3.80
8.	LTC/Soft Coke	0.04	0.04	0.04	0.04	-	3.00
9.	Export	0.06	0.04	0.07	0.04	0.07	1.00
10.	Captive Power	16.19	16.15	16.42	17.27	18.51	25.80
		(1.58)	(1.40)	(-)	(1.30)	(1.56)	(2.70)
11.	BRK & Others	23.64	25.75	23.34	26.06	27.85	26.00
		(0.60)	(0.59)	(-)	(0.09)	(0.09)	(-)
12.	Colly. Consumption	3.06	2.88	3.25	2.81	3.91	4.00
	Sub-Total Non Coking	273.35	270.02	275.00	283.14	296.35	324.20
		(5.80)	(5.01)	(3.00)	(4.95)	(5.02)	(7.70)
	Grand Total:	306.41	301.29	311.83	315.32	333.85	370.80
		(5.80)	(5.01)	(3.00)	(4.95)	(5.02)	(7.70)

Note.1 Figures in brackets are washery middlings and are not included in totals.

2. Steel demand includes imported coking coal of 9.77 mt. in 1997-98; 8.37 mt. in 1998-99; 8.09 mt. in 1999-2000 anticipated and 11.6 mt. in 2000-01.

35. Coal offtake has been affected as the major consuming sectors have not been lifting the linked quantities and consuming from their stocks mainly due to resource constraints of SEBs and quality problems of coking coal for steel sector and some duty free imports against exports of cement. Consequently, the coal companies have resorted to regulation of coal production to avoid piling up of pithead stocks. However, in the current year slight improvement is anticipated in the offtake of these sectors, if the power sector would maintain the stipulated norm of 30 days stock position at load centers and draw the linked quantities of coal to avoid crisis situation.

Coal Production

35. The target of coal production for the year 2000-01 has been fixed at 308.07 mt against the anticipated production of 297.86 mt in 1999-00. The target of production in 2000-01 is 3.4per cent more than the anticipated production in 1999-00. The production targets in the first three years of the plan could not be met mainly due to regulation of production by the coal companies as a result of lesser offtake by the major consumers like power and cement. As a result the average annual compounded growth in the first three years of the Ninth Plan has been only 1.4per cent against the envisaged growth of 2.86per cent during the Mid-Term review of the Ninth Plan. The company wise coal production details are given in Table 8.1.10.

TABLE 8.1.10
Coal Production

Company	1997-98	1998-99	1999-2000		2000-01	2001-02
	Actual	Actual	Target	Anticipated	Target	Proj. as per MTA
ECL	27.42	27.16	29.00	28.00	28.00	29.50
BCCL	30.92	27.17	27.50	29.00	29.50	30.00
CCL	33.08	32.18	33.50	32.00	34.00	36.00
NCL	37.12	36.52	37.50	37.50	39.00	41.00
WCL	32.52	31.75	32.00	32.00	33.00	34.60
SECL	56.63	57.56	59.50	58.00	60.00	66.00
MCL	42.17	43.51	42.40	42.00	43.00	47.40
NEC	0.69	0.64	0.60	0.50	0.50	0.50
CIL:	260.55	256.49	262.00	259.00	267.00	285.00
SCCL	28.94	27.33	31.00	30.06	31.67	34.00
TISCO/IISCO/DVC	6.31	6.34	6.80	6.80	7.40	7.60
Captive		2.00	2.00	2.00	2.00	2.26
Total:	295.80	292.16	301.80	297.86	308.07	328.86

37. In view of sluggish off-take by major consuming sectors, coal sector is compelled to regulate the production targets to avoid mounting of pithead stocks. As a result, the internal resources of the coal companies are adversely affected and they are reluctant to make new investments for capacity creation. CIL has expressed that any surge in demand is not likely to be met from the ongoing projects in the short term. New capacity creation would have to be linked with commercial contracts through fuel supply agreements. Thus, taking up of new projects is getting delayed which may lead to shortfall in coal availability in medium and long-term. Further, the proposed private sector participation in commercial coal mining is getting delayed. Also the longer gestation periods of coal projects when compared to that of power projects underscore the need for taking up of Ninth Plan identified projects to meet the requirements of power sector during the early Tenth Plan period.

Washed Coking Coal Production

38. The target for washed coking coal production in 2000-01 has been set at 6.71 mt including 0.90 mt of direct feed from CIL sources against the anticipated achievement of 6.45 mt including 0.90 mt of direct feed, in 1999-00. The overall yield of the washeries has come down from about 44 per cent to 42 per cent in 1999-00 mainly due to the deteriorating quality of the raw coal feed. Further it has been reported that three coking coal washeries in CIL have been converted to non-coking coal washeries in the recent past. This area needs immediate attention as the domestic supplies of washed coking coal are decreasing year after year. Also the coking coal imports by the steel sector are expected to be about 8.1 mt in 1999-00 and 11.6 mt in 2000-01.

Supply Plan

39. The targeted raw coal demand of 333.85 mt in 2000-01is proposed to be met from a domestic coal production of 308.07 mt, a stock draw down of 1.5 mt from CIL and an import of 11.6 mt of coking coal for steel. This would still leave a gap of 12.68 mt, which would need to be met from CIL sources.

Productivity

40. The target of OMS in 2000-01 for CIL has been set at 2.25 tonne (underground 0.66 t, opencast 6.04 t) and for SCCL 1.58 t (underground 0.83 t and opencast 8.18 t) against the anticipated OMS of 2.11 t for CIL (underground 0.63 t and opencast 5.66 t) and 1.53 t (underground 0.79 t and opencast 7.45 t) for SCCL. All concerted efforts are required to be made to improve the productivity of underground mines of the coal companies since the improvement in OMS has been mainly due to open-cast mines.

Lignite

41. The target of lignite production for Neyveli Lignite Corporation (NLC) for 2000-01 is fixed at 17.50 mt against the anticipated production of 16.90 mt in 1999-00. This is based on the requirements of its downstream units and 0.7 mt for open sale for Southern region industries, particularly cement sector.

Project Implementation

42. The constraints of land acquisition and related rehabilitation, environmental and forestry clearances, adverse geo-mining conditions, contract management problems etc. continue to effect the implementation of the projects in coal sector. Though these projects are under regular monitoring at different levels, the delays in implementation are not getting reduced as desired. Almost 43 per cent of the 67 ongoing projects which are being monitored, each costing Rs.20 crore and above, are delayed.

43. The co-operation of the concerned State Governments in the matters of acquisition of land, forest land clearance etc is very much desired. Similarly prioritisation of investments for avoiding resource problems in implementation needs serious consideration.

44. No major coal projects have been sanctioned by the Government during the year 1999-00. However, 4 new projects (CIL-2; SCCL-2) for a total capacity of 3.53 mtpa (CIL-2.75 mtpa; SCCL-0.78 mtpa) have been sanctioned by the coal companies under delegated power for total capital cost of Rs.191.11 crore (CIL- Rs.143.60 crore; SCCL- Rs.47.51 crore). This slow rate of capacity addition would affect the domestic coal availability in the Tenth Plan Period and beyond.

Exploration

45. The target of drilling for promotional exploration for coal and lignite has been set at 1,53,500 metres (m) in 2000-01, against the anticipated achievement of 1,65,000 m in 1999-00. The target of detailed drilling for coal & lignite by the coal companies in 2000-01 is 2,25,750 m (CIL-1,50,750 m, SCCL- 68,000 m & NLC-7000 m), against an anticipated achievement of 2,73,000 m in 1999-00 (CIL-2,10,000 m, SCCL- 57,000 m & NLC-6000 m).

The detailed drilling figures of CIL are exclusive of the targets under Non-CIL blocks, which are discussed below.

Private Sector Participation

46. The Ninth Plan has laid emphasis on private sector participation in commercial coal mining. Recently, the Cabinet has approved the proposal for suitable legislative amendments to the Coal Mines (Nationalisation) Act 1973, in this regard. The Bill is yet to be passed by the Parliament.

Other Programmes

Science &Technology

47. In the Ninth Plan, the emphasis has been laid on development of in-house R&D in coal companies. There are two major ongoing projects under coal S&T programme namely, Coalbed methane extraction under UNDP/GEF collaboration and washing of Low Volatile Medium Coking (LVMC) coal at Golukdih.

Environmental Measures & Subsidence Control (EMSC)

48. Under this scheme emphasis is laid on (i) control of mine fires in Jharia coalfields; and (ii) control of subsidence in old abandoned areas of Raniganj coalfield

Rehabilitation, Control Of Fire & Subsidence In Jharia And Raniganj Coalfields

49. The scheme envisages mitigating the problems of fire and subsidence and related rehabilitation of the affected people based on the recommendations of the High Level Committee on Control of Fire & Subsidence in Jharia and Raniganj Coalfields. This scheme is formulated by DOC under the Master Plan for all the unsafe areas in Jharia and Raniganj coalfields. The Schemes under this are proposed to be taken up for implementation after partial implementation of the two interim schemes sanctioned, one each for Jharia and Raniganj coalfields.

Regulatory Framework Review Project

50. This project is being implemented in compliance of the conditionalities for availing the World Bank loan for coal sector rehabilitation project of CIL. A credit of SDR 1.5 million from IDA has been made available for the purpose of implementation of this project. Under the project, a study of existing rules and regulations governing the coal industry in India and other major coal producing countries has been taken up. Based on the recommendation, action would be taken up to improve its regulatory framework. The study has just been concluded by the consultants and submitted for consideration.

Detailed Exploration In Non-CIL Blocks

51. Though the scheme was taken up as a onetime measure, based on the MTA discussions it was however felt necessary to extend the detailed drilling programme in Non-CIL blocks to upgrade the available reserves to 'proved' category by extending the budgetary support as national coal companies are not in a position to divert their resources for this activity in non-CIL blocks and at the same time private sector participation is not

forthcoming in near future. Thus, the DOC's proposal for undertaking detailed drilling in non-CIL blocks with an overall outlay of Rs.91.18 crore inclusive of the earlier sanction of Rs.9.38 crore for a total drilling programme of 3,63,900 metres has been agreed to. Accordingly, the target of drilling for AP 2000-01 has been fixed at 1,23,000 metres, against an anticipated achievement of 21,510 metres in 1999-2000.

Information Technology

52. This is a new scheme under the head of IT for defining DOC's systems information needs in order to achieve its objectives and administer its responsibilities using IT as an enabler. The IT plan envisages procurement and maintenance of hardware/software, connectivity within the department and among constituent units of DOC. The estimated cost of the scheme is Rs.1.94 crore spread over five years.

Voluntary Retirement Scheme (VRS)

53. The capital restructuring of CIL approved by the Government on 17.7.1996, envisaged reduction in manpower in ECL & BCCL for improving the financial health of the companies through VRS in 1996-97 and 1997-98 with Rs.60 crore each per annum from the Government (NRF) for these two years. Also, as per the World Bank loan conditions for Coal Sector Rehabilitation Project (CSRP) a sum of Rs.400 crore was earmarked in the Ninth Plan from the National Renewal Fund (NRF) to implement VRS in two coal companies namely BCCL and ECL during three year period 1997-98 to 1999-2000 for retiring 9500 employees in each company, totaling to 19000. Later on DOC has proposed to extend the scheme to cover CCL as well and increased the number of employees to be covered in ECL and BCCL. Now, the envisaged number of employees to be retired, in addition to the earlier 19,000 (ECL 9,500; BCCL 9,500) is 25,400 (9,700 in ECL, 9,700 in BCCL and 6,000 in CCL) by 2001-02, totaling to 44,400 (ECL-19,200; BCCL-19,200; CCL-6,000) with an additional fund of Rs.480 crore from budgetary support in addition to the Ninth Plan approved outlay of Rs.400 crore through NRF, totaling to Rs.880 crore.

54. In view of urgent need to rationalise manpower in the coal companies to improve their financial health, the MTA of Ninth Plan agreed in principle to support the proposal of DOC. However, the required additional amount was to be provided from the overall budgetary support available to the DOC during the Ninth Plan period for implementing VRS in addition to the fund identified through NRF since the coal sector has been separated from the NRF. Alongwith VRS, appropriate revival packages for the rehabilitation of the companies should be formulated and implemented on priority basis. DOC has indicated that one such revival package for ECL prepared by ICICI is under consideration of CIL/DOC.

Safety & Welfare

55. The safety and welfare of coal mine workers continues to be a thrust area in the Ninth Plan. Taking up of safety audits, environmental monitoring of underground mines in particular, measures against inundation, scientific methods of roof support, training and retraining of workers etc. are some of the important areas in this regard. Similarly, thrust on improving the basic necessities like housing, water supply, educational and medical care continues.

Plan Outlay

56. The company-wise/scheme-wise approved outlays and anticipated expenditure for the Annual Plan 1999-2000, (BE & RE) and approved outlays for Annual Plan 2000-01 are given in Table 8.1.11.

TABLE 8.1.11
Company-Wise/Scheme-Wise Financial Outlays

(Rs. crore)

Company/Scheme	1999-00		2000-01
	BE	RE	BE
Coal India Ltd.	2556.00	2676.19	2790.32
Singareni Coll. Co. Ltd.	227.19	217.20	327.82
Neyveli Lig.Corp.	575.98	561.30	609.80
Science & Tech.	20.71	7.57	13.50
Regl./Proml.Expl.	32.56	32.56	30.37
EMSC	20.00	11.63	13.52
Detailed drilling	5.38	5.38	29.51
Reg.Fr.Rev.Proj.	3.89	6.00	-
Rehab.Proj.	-	-	6.69
Information Tech.	-	0.22	0.33
Total Coal & Lig.	3441.71	3518.05	3821.86
Neyveli Lignite	296.64	260.56	558.65
VRS	160.00	165.00	180.00
NEC	-	-	87.30
Total DOC	3898.35	3943.61	4647.81

57. The BE provision of Rs.4647.81 crore in Annual Plan 2000-01 including NLC (Power), VRS and NEC component is about 18 per cent more than the RE 1999-00. For the purpose of NEC, 10 per cent of the budgetary support of DOC has been earmarked in Annual Plan 2000-01. The outlay for 2000-01 comprises an IEBR of Rs.3774.81 crore and a GBS of Rs.873.00 crore. There has been an increase of about 60 per cent in the GBS over the revised estimates of 1999-00. This has been mainly due to the increase in the budgetary support for NLC for implementing Mine-1A project, which is linked to an IPP and for providing for implementation of VRS in CIL.

Externally Aided Projects

58. There are two components of External Aid. One is direct and the other is indirect. The direct component is made available to the beneficiary mostly in the form of Suppliers' Credit, a component reflected under IEBR of PSUs. The indirect component is routed through Budget, which gets reflected under GBS.

59. There are different projects being implemented under Bilateral Credit. The EAP component in BE 1999-2000 for the coal and lignite sector has been Rs.84.64 crore (CIL Rs.54.50 crore; SCCL Rs.16.80 crore; NLC Mines Rs.9.45 crore; and Regulatory Framework Review Project Rs.3.89 crore). The main project under EAP has been Coal Sector

Environmental and Social Mitigation Project (CSESMP) of CIL under IDA credit. The details of these projects are given in Annexure 8.1.7. As against this, the RE provision has been Rs.166.61 crore in the current year. The EAP component for Annual Plan 2000-01 is Rs.107.15 crore. Most of the Externally Aided projects in coal sector have almost been completed and new projects need to be identified for such assistance.

60. The direct component is the World Bank loan for Coal Sector Rehabilitation Project for CIL. The BE provision in 1999-2000 has been Rs.1455.60 crore, against which the RE has been Rs.1595.49 crore and the component for Annual Plan 2000-01 is Rs.1379.24 crore.

8.1.3 PETROLEUM AND NATURAL GAS

Policy Initiatives

61. The exploration & production and refining sectors have been opened for private participation. Initially the interest shown by the private sector was not encouraging. However, the private sector has shown keen interest in these areas in the recent years.

62. As per the approved programme on dismantling of APM, the consumer prices for all petroleum products, except MS, HSD, ATF, Kerosene Oil (for PDS) and LPG (domestic) have been decontrolled. Further, the ex-storage price of HSD has also been linked to import price. However, the phasing of subsidies in respect of LPG and Kerosene has not been affected as envisaged. The subsidies should be phased out as per approved programme.

63. In pursuance of the announcement made by the Prime Minister, a Group was set up for working out specific framework for developing India Hydrocarbon Vision-2025. The Group has since submitted its report. The Group has suggested the Hydrocarbon Vision-2025 statement as given in Box 8.1.3.1 below:

BOX 8.1.3.1
Hydrocarbon Vision – 2025

- To assure energy security by achieving self-reliance through increased indigenous production and investment in equity oil abroad.
- To enhance the quality of life by progressively improving product standards to ensure a cleaner and greener India.
- To develop Hydrocarbon sector as a globally competitive industry which could be benchmarked against the best in the world through technology upgradation and capacity building in all facets of the industry.
- To have a free market and promote healthy competition among players and improve the customer service.
- To ensure oil security for the country keeping in view strategic and defence considerations.

Demand And Supply

64. The demand for petroleum products in 2000-01 is estimated to be 104.92 million tonnes (MMT) against the provisional consumption of 95.73 MMT during 1999-2000. At the current growth rate, the demand of petroleum products of 110 million tonnes set for the terminal year of the Ninth Plan is likely to be achieved.

65. The anticipated production of crude oil in 1999-2000 was 32.00 MMT against the target of 33.02 MMT including PVT/JVC productions. The production from ONGC’s onshore fields was marginally lower due to less than adequate response from thermal

Enhanced Oil Recovery (EOR) schemes & inadequate power supply at Mehsana, increase in water cut in Gandhar oil field and due to socio-economic problems in Assam. The crude oil production target for 2000-01 has been estimated at 31.99 MMT. The trend indicates that the crude oil production may fall short of Ninth Plan target of 180.82 million tonnes.

66. Against the natural gas production and dispatch targets of 27.45 billion cubic metres (BCM) (including production from PVT/ JVC) and 19.33 BCM for 1999-2000, the anticipated production and despatch were 27.97 BCM and 19.99 BCM respectively. The target for natural gas production and despatch for 2000-01 are set at 28.81 BCM and 19.42 BCM respectively. The trend indicates that the Ninth Plan target of natural gas production of 144.53 BCM is likely to be achieved.

67. The refining capacity as on 1.4.2000 is 112.54 million tonnes per annum (MMTPA). No addition to refining capacity is expected during 2000-01. As per the present estimates, the refining capacity may go up to 129.04 MMTPA against the target of 113.95 MMTPA by the end of the Ninth Plan. The anticipated refinery crude throughput in 1999-00 is 85.89 MMT against the installed capacity 112.54 MMT. The crude throughput target for 2000-01 is 112.00 MMT.

Seismic Surveys, Exploratory And Development Drilling

68. The actual achievements during 1998-99, targets and anticipated achievements 1999-2000, and targets for 2000-01 for seismic surveys are given in the Annexure 8.1.8. The anticipated achievement in exploratory drilling for 1999-2000 is about 46.7 per cent higher than the achievement in 1998-99. The anticipated achievement for development drilling is 334.2 thousand metres in 1999-2000. The targets for exploratory and development drilling for 2000-01 have been kept at 538.82 and 397.83 thousand metres respectively.

69. Details of surveys, drilling, crude oil, and natural gas, refining capacity are given at Annexures 8.1.8 to 8.1.13.

Environment Management

70. Supply of MS with low lead content (0.15 gm/l) was introduced in the whole country from January 1997 and effective from 1.2.2000 only unleaded MS is being sold all over the country. Diesel with 0.25 per cent sulphur is being supplied throughout the country since 1.1.2000.

Outlays

71. An outlay of Rs.13148.77 crore has been provided for 2000-01 in the Petroleum Sector (Rs.6769.15 crore for Exploration and Production, and Transportation of Oil and Gas, and Rs.6379.62 crore for Refining and Marketing). The entire Plan outlay will be funded by IEBR. The company-wise outlays are given at Annexure 8.1.13.