Chapter 6

Analysis of Developmental Expenditure

6.1 Growth of Developmental Expenditure:

In the preceding chapter, the non-development expenditure has been analysed by breaking its component parts. In this chapter we shall study the growth of developmental expenditure. We follow it up by analyzing the pattern of distribution of developmental expenditure. We also propose to examine the relation of developmental expenditure to national income and total government expenditure.

In modern times, provision of developmental services by the government is increasing day by day irrespective of the nature of the State , i.e. whether it is a welfare one or of any other type . The more the welfare measures are adopted by the govt. the higher will be their proportion of government expenditure on developmental services to national income.

The table 6.1 shows that the developmental expenditure in money terms recorded a percentage increase of 66652.25 however, in real terms (base 1993-94) it is only 2678.83 per cent during the period under study. Developmental expenditure per head of the population in money terms as well as in real terms also shows an increasing trend and shows a percentage increase of 23702.24 in money terms and 890.64 per cent only in real terms during the period of 1950-51 to 2000-01. Thus in real term both total expenditure and expenditure per head of the population on this head is much less than the money terms.

The above table shows that developmental expenditure as a per cent of total government expenditure increased from 36.56 per cent in 1950-51 to 43.00 per cent in 2000-01 with a fluctuating trend. It claimed about 44.46 per cent of total government expenditure during the period under study. During the same period, the non-developmental expenditure comprised about 30.09 per cent of total government

Table 6.1
Growth of Developmental Expenditure at Current & Constant prices (1950-51 to 2000-01)

Financial Year	At Current Prices		At 1993-94 Prices		Total Developmental expenditure as per cent of total government expenditure	Total Deve. exp.as per cent of NI
	Total Developmental expenditure (Rs. in crores)	Per Capita (in Rs)	Total Developmental expenditure (Rs. in crores)	Per Capita (in Rs.)		
1950-51	353.69	9.85	5118.52	142.58	36.56	3.86
1955-56	751.80	19.13	12145.40	309.04	54.34	7.69
1960-61	1234.72	28.45	15609.61	359.67	39.57	8.12
1965-66	2301.37	47.45	20959.65	432.16	35.73	9.68
1970-71	3537.26	65.38	24564.31	454.05	21.13	9.07
1975-76	8181.45	134.79	37188.41	612.66	44.09	11.85
1980-81	17715.52	260.91	54459.02	802.05	50.07	14.98
1985-86	38442.12	509.17	79722.36	1055.93	50.30	17.36
1990-91	74000.28	882.01	100969.14	1203.45	47.69	16.43
1995-96	126518.42	1364.82	105828.87	1141.63	43.16	13.43
2000-01	236096.04	2344.55	142235.10	1412.46	43.00	13.37

Source: Table 9 of Statistical Appendix

expenditure and increased from 35.97 per cent in 1950-51 to 45.67 per cent in 2000-01 with a fluctuating trend as well. During the period under review, developmental expenditure increased by 66652.25 % whereas non-developmental expenditure increased by 71954.34 per cent . In real terms however, developmental expenditure registered a growth rate of 2678.83 per cent whereas non-developmental expenditure registered a growth rate of only 2899.55 per cent during the same period.

The table also reveals that the proportion of NI devoted to developmental services has varied widely during the period under review. It roses continuously from 3.86 per cent in 1950-51 to 13.37 per cent in 2000-01. During the entire period of 1950-51 to 2000-01 the developmental expenditure averaged at about 11.31 per cent of NI where as non-developmental expenditure averaged at about 7.94 per cent

Growth of Social & Developmental Expenditure at Current and Constant Prices (1950-51 TO 2001)

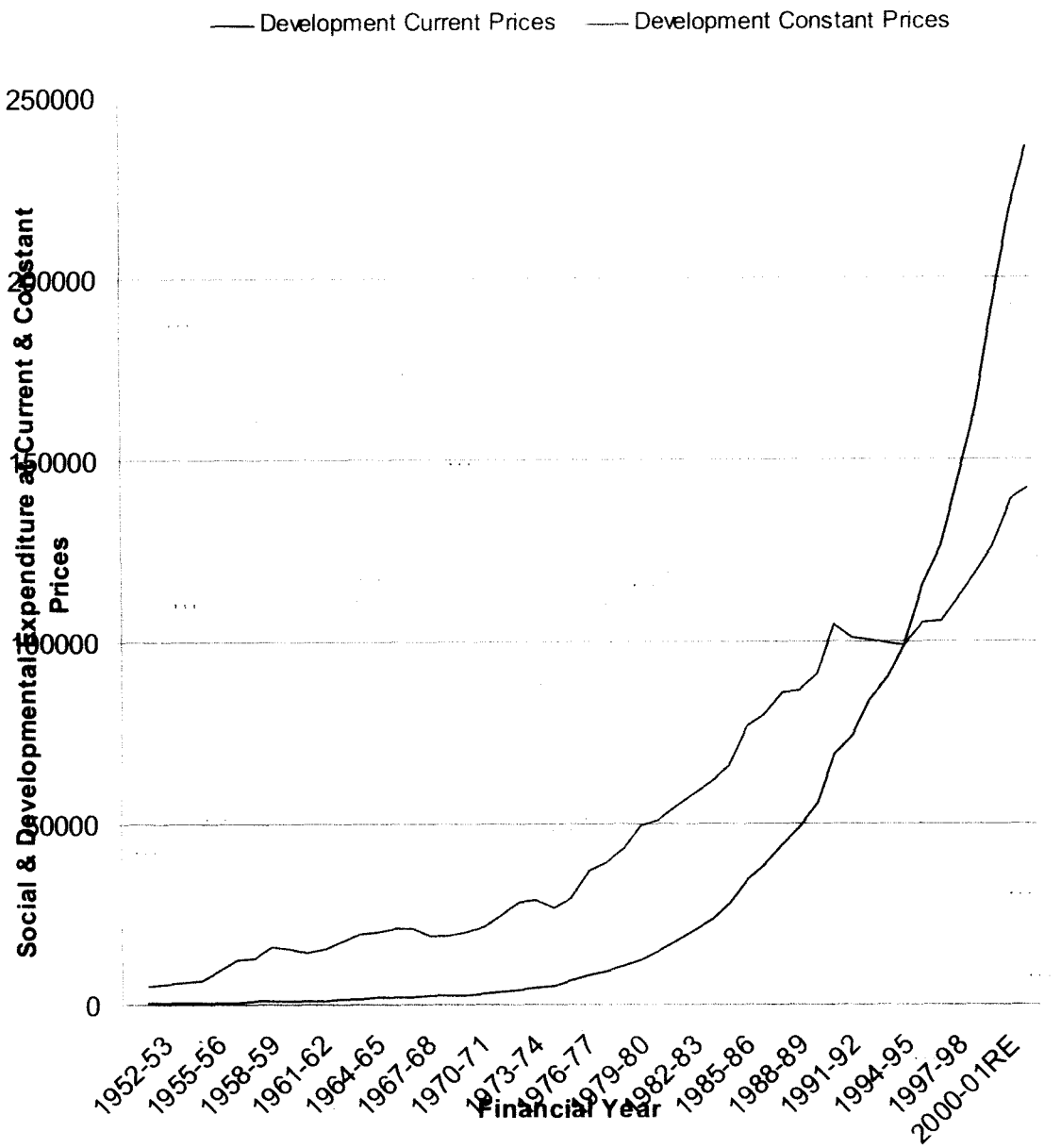
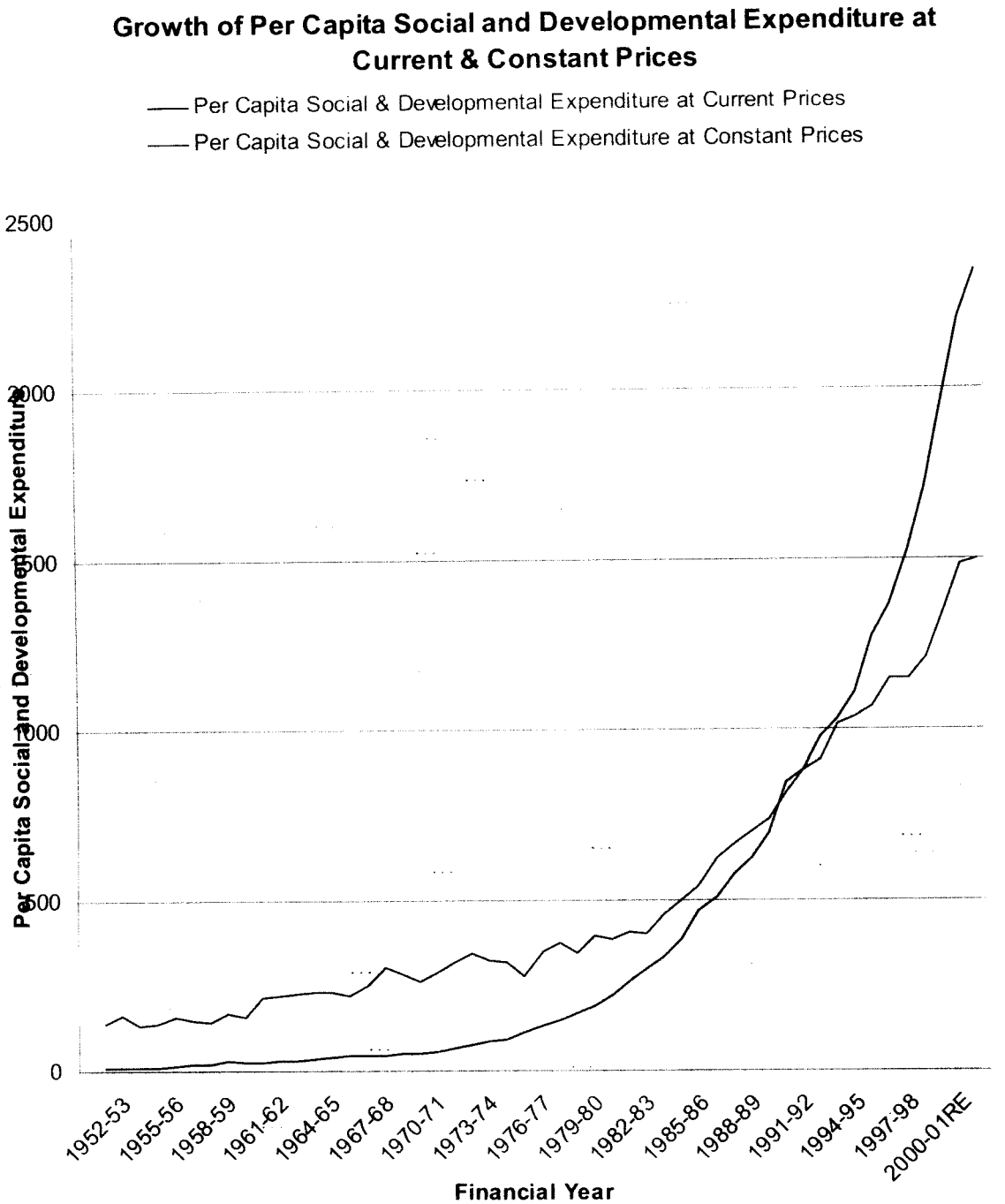


CHART 1

of NI. The proportion of NI devoted to the developmental services increased continuously till 1985-86, but there after it continued to decrease till 2000-01 and stood at 13.37 per cent of NI as compared to 7.69 per cent in 1950-51 and 17.36 per cent in 1985-86.



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6.2 Social and Community Services:

The expenditure on social and community services is socially desirable as it would help considerably in achieving the objective of reducing the income inequality in the country. The social and community services , which promotes the welfare of the community , consists of a large number of services like – i)

Education , Art & Culture , ii) Scientific services & research , iii) Medical , public health , water supply & sanitation , iv) family welfare , v) Housing , vi) Urban development , vii) Broadcasting ; viii) Labour & Employment ; ix) Relief on account of natural calamities ; x) social security & welfare and xi) Others . It should be noted that we have restricted our study to an analysis of two important social &community services, viz. education and medical & public health. The expenditure on these two head constitutes about 80 per cent of overall expenditure on social and community services.

6.2.1 Expenditure on Education

The importance of education was recognized by the Independent India from the very beginning, and the govt. of Independent India gave high priority to education for social development. This was very much reflected in the very first Five-Year Plan. The National Policy on Education (1968) considered education as an investment – an indeed a 'crucial' investment (National Policy on Education 1986).

Education has to be considered as the birth right of every citizen and hence should be the duty of the State to protect its people against ignorance and illiteracy just as protection against violence and aggression is provided. In 1948, the United Nations General Assembly unanimously declared in the 'Universal Declaration of Human Rights': "*Every one has the right to education. Education shall be free at least in the elementary and fundamental stages .Elementary education shall be made compulsory. Technical and professional education shall be made generally available and higher education shall be equally accessible to all on the basis of merit.* " (World Survey of Education, 1984, UNESCO)

All economic studies emphasized the role of physical capital in the early stages of industrialization in raising productivity, and many believed that economic growth, depended upon the amount of physical capital which at the same time depends on the rate of savings .But it is not especially in an under developed country where saving and investment are found to be very small, aliased that the govt. has to shoulder a bigger responsibility in fostering economic

growth. It has now been clearly realized that the Technological changes play an important role in increasing out put. Schumpeter pointed out, that while increased saving and investment are necessary for development, economic growth is greatly accelerated by using existing resources in a new and improved manner . So we can conclude from the above discussion that the growth of an economy depends on amount of physical capital and the level of technological development. Both these factors themselves depend to a large extent on the education of the people. It has increasingly now been recognized by the economist that human beings are also capital and education is an investment expenditure on human capital .It is also to be emphasized that a profitable return and rapid economic growth are not the only objectives of education . The success of the democratic system depends on a large extent on the education of the people.

Because of its social and private benefits. Education constitutes to be the important social services. It is also regarded as an economic service as it improves the quality of labour force and adds to the productivity of the economy in the long-run.

According to the constitutional division of powers in India, education is the responsibility of the State Governments. However, the central govt. has been increasing its outlay on education for coordination and determination of standards in institutions for higher education, research and scientific and technical institutions.

The expenditure in absolute term on education at national level during 1950-51 to 2000-01 has been constantly increasing. This is evident from the table 6.2. The educational expenditure increased by about 68288.54 per cent from Rs. 144.4 crores in 1950-51 to Rs. 78236.5 crores in 2000-01. But this impressive growth is depreciated by – a) rapid growth in population, b) increase in student numbers and c) rise in prices. As a result of growth of population, while total expenditure on education increased more than 680 times, in per capita terms the increase between 1950-51 to 2000-01 has been about 238 times only.

Table 6.2

Public Expenditure on Education in India at Current & Constant Prices (1950-51 to 2000-01)

Financial year	At Current Prices			At Constant (1993-94) Prices		
	Total (Rs. in crores)	Per capita (in Rs.)	Per pupil (in Rs.)	Total (Rs. in crores)	Per capita (in Rs.)	Per pupil (in Rs.)
1950-51	114.4	3.2	35.6	1683.8	46.6	524.0
1951-52	124.6	3.4	38.3	1778.7	48.5	546.8
1952-53	137.6	3.8	40.3	2047.4	56.5	599.6
1953-54	147.7	3.9	40.9	2140.5	56.5	592.7
1954-55	165.0	4.3	41.8	2654.7	69.2	672.5
1955-56	189.6	4.8	42.7	3077.4	77.9	693.1
1956-57	206.3	5.1	44.3	2964.7	73.3	636.7
1957-58	240.7	5.9	48.0	3341.0	81.9	666.3
1958-59	266.2	6.4	49.1	3555.2	85.5	655.8
1959-60	300.4	7.0	51.1	3902.1	90.9	663.8
1960-61	344.4	7.8	53.7	4376.4	99.6	682.4
1961-62	388.9	8.9	54.1	4828.4	110.5	671.7
1962-63	441.7	9.7	57.3	5234.2	114.9	679.0
1963-64	484.1	10.4	60.0	5272.3	113.3	653.5
1964-65	534.5	11.3	62.6	5357.4	113.3	627.4
1965-66	622.0	12.8	70.0	5734.9	118.0	645.4
1966-67	697.9	14.1	99.6	5720.9	115.6	816.5
1967-68	811.3	15.7	111.7	6110.8	118.3	841.3
1968-69	898.4	17.3	120.2	6585.3	126.8	881.1
1969-70	1010.4	19.1	132.0	7171.5	135.6	936.9
1970-71	1118.3	20.4	141.7	7837.9	143.0	993.1
1971-72	1237.5	23.2	157.9	8226.2	154.2	1049.6
1972-73	1373.8	24.3	159.8	8272.8	146.3	962.3
1973-74	1590.5	25.0	-	8184.2	128.6	-
1974-75	1807.3	30.5	200.6	8006.7	135.1	888.7
1975-76	2104.7	34.7	230.1	9572.4	157.8	1046.5
1976-77	2304.2	37.9	231.1	9868.1	162.3	989.7
1977-78	2602.0	41.0	284.4	10488.7	165.3	1146.4
1978-79	2853.1	44.1	278.0	11288.4	174.5	1099.9
1979-80	3157.3	47.9	290.7	10843.9	164.5	998.4
1980-81	3640.6	53.3	319.7	11211.9	164.1	984.6
1981-82	4685.8	67.5	426.7	13098.6	188.7	1192.8
1982-83	4912.2	69.3	424.0	12697.9	179.1	1096.0
1983-84	5523.8	76.4	446.2	13113.1	181.4	1059.2
1984-85	6353.8	86.1	491.1	14046.9	190.3	1085.7
1985-86	7456.9	98.9	564.6	15359.3	203.7	1162.9
1986-87	8450.3	109.6	604.1	16262.2	210.9	1162.6
1987-88	10439.2	132.5	723.4	18352.9	233.1	1272.9
1988-89	12408.7	154.5	824.7	20146.4	250.8	1339.0
1989-90	15044.2	183.5	960.4	22555.0	275.1	1439.9

Financial year	At Current Prices			At Constant (1993-94) Prices		
	Total (Rs. in crores)	Per capita (in Rs.)	Per pupil (in Rs.)	Total (Rs. in crores)	Per capita (in Rs.)	Per pupil (in Rs.)
1990-91	20491.2	243.0	1071.6	27828.7	330.0	1455.3
1991-92	22393.7	261.4	1144.7	26730.6	212.0	1366.4
1992-93	25030.3	237.2	1206.8	27481.9	260.4	1325.0
1993-94	28279.7	317.0	1308.0	28279.7	317.0	1308.0
1994-95	32606.2	295.4	1548.9	29751.0	269.5	1413.3
1995-96	38178.1	411.4	1710.8	31952.2	344.3	1431.8
1996-97	43896.5	382.9	1937.7	34224.9	298.5	1510.8
1997-98	48954.9	507.6	2639.5	35757.8	370.8	1927.9
1998-99	62019.5	631.1	3262.2	41937.5	426.8	2205.9
1999-2000[R]	77545.8	774.6	3990.5	50661.6	506.1	2607.0
2000-01[B]	78236.5	761.8	3957.1	49208.7	479.2	2488.9
Growth Rate (%)						
1950s	11.49	9.30	3.78	5.58	3.51	-1.72
1960s	12.77	10.26	11.97	4.78	2.44	4.03
1970s	12.64	10.30	8.98	4.37	2.20	0.98
1980s	16.21	13.84	11.68	7.47	5.28	3.28
1990s	15.61	13.78	15.91	6.57	4.89	6.84
1950-51 / 2000-01	13.65	11.32	9.67	6.84	4.67	3.10

Source: PUBLIC EXPENDITURE ON EDUCATION IN INDIA: A Review of Trend and Emerging Issues , Jandhyala B.G.Tilak , Financing Education in India, Edited by B.G Tilak.
R=Revised estimate
B=Budget estimate

On the other hand the expenditure per pupil increased only by 111 times during the same period, from Rs. 35.6 in 1950-51 to Rs. 3957.1 in 2000-01. These figures are at current prices and the impressive picture remains no more impressive, if they are converted into constant prices (1993-94 prices). After adjusting these figures with the help of national income deflator, it can be seen that the real rate of growth in total, per capita and per pupil expenditure on education are very small. For example, as compared to a rate of growth of 13.65 per cent in current prices, total expenditure on education increased at a rate of 6.84 per cent only in terms of real prices during the period 1950-51 to 2000-01. The real rate of growth of per capita expenditure on education was about 4.67 per cent and in per pupil terms the real growth was less than one third of the growth at current prices during the same period.

As a percentage of total government expenditure, educational expenditure increased from 11.82 per cent in 1950-51 to 14.25 per cent in 2000-01. Thus its shares have increased by 2.43 percentage point only whereas in most developing countries spend between 15 to 20 per cent of their total public expenditure on education. As a percentage of NNP educational expenditure Constituted 1.25 per cent in 1950-51 and 4.43 per cent in 2000-01 indicating an increase of 254.4 per cent. In general most developing countries spend between 3 and 6 per cent of national income. In India the rate of increase of educational expenditure (68288.54 % from 1950-51 to 2000-01) is higher than that of total government expenditure (56650.51 %) which is also higher than the rate of increase in NNP (19209.1) . As a result expenditure on education as a per cent of total government expenditure and NNP continues to increase at a steady rate.

Share of education in GNP is the most standard indicator of national efforts on the development of education in a given society. This would reflect the relative priority being given to education in the national economy. On the recommendation of the Education Commission (1966), the govt. of India in 1968 fixed a target of investing six per cent of national income in education from the public exchequer by 1986. The table 6.4 shows that over the year it has increase remarkably. At the inception of Planning (1950-51) India was spending 1.2 per cent of GNP and by 2000-01 , it increased to 4.2 per cent even though the growth is not Smooth , it is indeed a remarkable increase.

Table 6.3
Expenditure on Education at current prices

Financial year	Total exp. on education (Rs. in crores)	Total exp. on education as % of total developmental exp.	Total exp. on education as % of total Govt. Exp.	Total exp. On education as % 0f NI (NNP at factor cost)
1950-51	114.4	32.34	11.82	1.25
1955-56	189.6	25.21	13.70	1.93
1960-61	344.4	27.89	11.03	2.26
1965-66	622.0	27.02	9.65	2.61
1970-71	1118.3	31.61	6.68	2.86
1975-76	2104.7	25.72	11.34	3.05

Financial year	Total exp. on education (Rs. in crores)	Total exp. on education as % of total developmental exp.	Total exp. on education as % of total Govt. Exp.	Total exp. On education as % 0f NI (NNP at factor cost)
1980-81	3640.6	20.55	10.29	3.07
1985-86	7456.9	19.39	9.75	3.36
1990-91	20491.2	27.69	13.20	4.55
1995-96	38178.1	30.17	13.02	4.05
2000-01	78236.5	33.13	14.25	4.43

Source: Data of 2nd column has been taken from table 6.2 and data of other colmn Has been computed on the basis of table 3, 5 and 9 of Statistical Appendix

Table 6.4
Share of Education in GNP (%)
(1950-51 to 2000-01)

Year	Per cnt	Year	Per cnt	Year	Per cnt
1950-51	1.2	1967-68	2.4	1984-85	2.9
1951-52	1.2	1968-69	2.5	1985-86	3.0
1952-53	1.4	1969-70	2.6	1986-87	3.1
1953-54	1.4	1970-71	2.7	1987-88	3.3
1954-55	1.6	1971-72	2.8	1988-89	3.3
1955-56	1.8	1972-73	2.8	1989-90	3.5
1956-57	1.7	1973-74	2.6	1990-91	4.1
1957-58	1.9	1974-75	2.5	1991-92	3.9
1958-59	1.9	1975-76	2.8	1992-93	3.8
1959-60	2.0	1976-77	2.8	1993-94	3.7
1960-61	2.1	1977-78	2.8	1994-95	3.6
1961-62	2.3	1978-79	2.9	1995-96	3.6
1962-63	2.4	1979-80	2.9	1996-97	3.6
1963-64	2.3	1980-81	2.8	1997-98	3.6
1964-65	2.2	1981-82	3.1	1998-99	3.9
1965-66	2.4	1982-83	2.9	1999-2000	4.5
1966-67	2.4	1983-84	2.8	2000-01	4.2

Source :PUBLIC EXPENDITURE ON EDUCATION IN INDIA : A Review of Trend and Emerging Issues , Jandhyala B.G.Tilak

Cause of Growth of Educational Expenditure:

There are many factors which are responsible for the phenomenal growth in educational expenditure. These are as follows-

i) India's population has been growing at fast rate and this adds to the phenomenal increase in educational expenditure i.e. this expenditure is governed by demographic changes.

ii) Proportion of students in the different age groups and at different levels of education has increased due to growing population.

iii) It is generally found that the demand for education is income elastic. The community wishes to spend an increasing proportion of income on education as it becomes economically better off.

iv) From sixties onwards it has been recognized that education is an important instrument for economic growth. This recognition results in a high growth in educational expenditure.

v) The expenditure on education is regarded as an essential tool for achieving political socialization, occupational status, modernization and other social objectives.

vi) Education expenditure has been continuously increasing with the acceptance of the recommendations of the Education Commission (1966) regarding minimum salaries of school-teachers and UGC's pay scale for College and University teachers on the recommendation of the Sen. Committee (1973). The same has been the case with the govt.'s implementation of the recommendations of various committees . Further, in recent years, the policy of free and compulsory education is being extended to cover children beyond the primary stages and tuition fees are being exempted on a large scale along with provision of free mid-day meals to school students.

Education in Five-Year Plans :

Five-Year Plans are an important instrument of development strategy adopted by the independent India. Hence, it is important to examine the priority given to education in the Five-Year Plans. Expenditure on education in the First Five-Year Plan has shown a rapid rise since the inception of the first five year plan. The absolute outlays for education have increased by more than 350 times between First Five-Year Plan to the ninth Five-Year Plan. The First Five-Year Plan invested Rs. 153 crores on education. The expenditure rose to Rs. 7700 crores in the seventh Five-Year Plan. The allocation for the eighth Five-Year Plan was more than doubled further to reach a level of Rs. 25000 crores , which again doubled in the ninth Plan . Thus increasingly larger resources are being allocated to education as shown from the table below.

Table 6.5
Expenditure on Education in the Five-Year Plans

(Rs. in crores)

Five-Year Plan Period	In Current Prices	In 1993-94 Prices *	Real Increase(%)	%o of Total Plan Expenditure
First Five-Year Plan (1951-56)	153	2325	-	7.86
Second Five-Year Plan (1956-61)	273	2966	27.57	5.83
Third Five-Year Plan (1961-66)	589	6408	116.05	6.87
Fourth Five-Year Plan (1966-74)	786	5018	-21.69	5.17
Fifth Five-Year Plan (1974-79)	912	3876	-22.76	3.27
Sixth Five-Year Plan (1980-85)	2619	6833	76.26	2.70
Seventh Five-Year Plan (1985-90)	8540	15144	121.63	3.55
Eighth Five-Year Plan (1992-97)	27458	25410	67.79	4.50
Ninth Five-Year Plan (1997-2002)	52173	34215	34.65	6.23

Note : * based on National income deflators
Source: Five-Year Plan(s) , Annual Plan(s) , Economic Survey(s) ; Annual Financial Statistics of Education Sector, 1997-98, New Delhi.

But when we look at the figures in real prices, expenditure on education declined from the third five-year plan onwards up to the fifth five-year plan. The expenditure on education in real prices in the fourth five-year plan was less than four-fifths of the expenditure in the third five-year plan and the expenditure in the fifth five-year plan was about three-fourths of the expenditure in the fourth five-year plan. It is only in the sixth five-year plan this trend was reversed and the expenditure in the sixth five-year plan was about double the expenditure in the fifth five-year plan and is slightly above the expenditure in the third five-year plan in real terms ; and the expenditure seventh five-year was about 1.8 times the expenditure in the sixth five-year plan .

The relative importance given to education in the five-year plans has declined gradually over the years, from 7.9 per cent in the first five-year plan, to 2.7 per cent in the sixth five-year plan . It is only during seventh five-year plan, and later in the eighth and the ninth five-year plans this declining trend was reversed.

Not only has the relative importance given to education in the plan expenditure gradually declined until the sixth five-year plan , but also the relative share of education in any five-year plan , including the seventh , the eighth , and the ninth five-year plans ,has been the lowest. The closest figure is three per cent allocated to health in the seventh five-year plans. Several major sectors received much higher than the allocation made to the education sector.

It is also seen from the table 6.5 that there are three important phases in the allocation of resources to education in the five-year plans. During the first three five-year plan-period, the allocation to education as a proportion of total five-year plan expenditure has been more than five per cent. Even though it declined in the second five-year plan, the decline was immediately checked in the third five-year plan. The second phase, consisting of the fourth, fifth and the sixth five-year plans, was characterized by a consistent decline in the relative share of education. The Seventh, the eighth and the ninth five-year plans forms the Third Phase when efforts are made to check the declining trend and to substantially increase the allocation to education. This Phase refers to the post-1986 policies period , and the positive effort of the Policy could be noted .

6.2.1.1 Critical Appraisal: With the recognition given to education as an integral part of social and economic development and the outlay provided in the every sphere of educational activity, there has been a considerable increase in the number of educational institutions, pupils and teachers. The number of the primary / junior basic schools alone has increased from 209671 in 1950-51 to 528872 in 1985-86 and to 603646 in 1996-97 showing an increase of 187.9 per cent. The number of students in primary junior basic level of education (I – V) was 19154457 in 1950-51 and it increased to 108288142 in 1996-97 showing an increase of 465.3 per cent . The number of students in primary junior basic level of education increased by 465.3 per cent during the period 1950-51 to 1996-97 whereas percentage increase of primary or junior basic schools is about 187 per cent which is lower than the former . The percentage of school-going children of the total population in the age-group 6 – 11 years was 43.1 per cent in 1950-51, it

rose to 99.6 per cent in 1988-89 . The number of middle schools / senior basic schools (VI – VIII) increased from 13596 in 1950-51 to 134846 in 1085-86 and further to 180293 in 1996-97 showing a per cent increase of 1226.0 (13.2 times) . The number of pupils in middle school /senior basic schools was 3119958 in 1950-51 and it increased to 27309855 in 1985-86 and further increased to 38153808 in the year 1996-97 (1122.8 %). The percentage of school-going children of the total population in the age-group 11 – 14 years was 56.9 per cent in 1988-89 as compared to only 12.9 per cent in 1950-51 . The number of students in high / higher Secondary level of education was 1441254 in 1950-51 and it increased to 23987892 in 1996-97 . On the other hand the no. of high / higher Secondary school was 100212 in 1996-97 as compared to 7416 in 1950-51. In 1984-85, 23.5 per cent in the age-group 14 – 17 years (IX – XI / XII) used to go to school as compared to 5.3 per cent in 1950-51 . The number of universities was 193 in 2000-01 as compared to 28 in 1950-51 . The number of institutions deemed to be universities were only 3 in 1960-61 , and it increased to 52 in 2000-01 . The number of institutions of national importance which were established under State Legislative Act, increased from 3 to only 11 during the period 1950-51 to 2000-01 . The number of degree colleges also increased by a considerable amount, though not sufficient.

The number of arts, science & commerce colleges increased from 540 in 1950-51 to 8640 in 2000-01. Agriculture degree college increased from 16 in 1950-51 to 102 in 2000-01 . The number of law colleges increased from 22 in 1950-51 to 335 in 2000-01.

The number of medical college was only 34 in 1950-51 and it increased to 1069 in 1994-95. The no. of veterinary science college was 50 in 2000-01 as compared to only 7 in 1950-51 . The no. of Teachers' Training College was 694 in 2000-01 as compared to only 36 in 1950-51 . The no. of Engineering /Technical / Arch. College increased from from 31 in 1950-51 to 678 in 2000-01 . The number of other colleges offering degree in music / fine arts and physical education was 412 in 2000-01 as compared to only 1 in 1950-51.

Table 6.6
Achievement at different levels of education:

Primary Level (I – V) , Age Group : 6 – 11						
1	2	3	4	5	6	7
Year	**No. of pupils**	**No. of schools**	**% of (2) to total population in the age group**	**No. of teachers**	**No. of trained teachers**	**% of trained teachers to total teachers**
1950-51	19154457	209671	43.1	538784	316678	58.8
1960-61	34993829	330399		745521	477791	64.1
1970-71	57045441	408378		1376176	1124587	81.7
1980-81	74194739	494503		1372734	1186464	86.4
1985-86	87440514	528872		1516144	1285335	84.8
1987-88	90459726	539002	97.8	-	-	-
1988-89	91271161	542647	99.6	-	-	-
1989-90	92351058	548131		1602774	1370120	85.5
1990-91	97375300	560935		1639357	1395642	85.1
1991-92	100939202	566744		1643701	1402227	85.3
1993-94	97029235	570455		1623379	1396267	86.0
1995-96	107095049	593410		1774143	1525200	86.0
1996-97	108288142	603646		1796638	1538528	85.6
Middle / Sr. Basic (VI – VIII) , Age Group : 11 – 14						
1950-51	3119958	13596	12.9	85000	45475	53.5
1960-61	6704810	49663		243145	152716	62.8
1970-71	13315170	90621		463063	384309	83.0
1980-81	20724364	118555		851537	758767	89.1
1985-86	27309855	134846		968348	863415	89.2
1987-88	29286948	142565	55.1	-	-	-
1988-89	29949987	144715	56.9	-	-	-
1989-90	30888821	147159		1044791	926728	88.7
1990-91	34025987	151456		1072911	944327	88.0
1991-92	35647631	155926		1079034	952213	88.2
1993-94	34071058	162805		1129747	992032	87.8
1995-96	37520440	174145		1181541	1024482	86.7
1996-97	38153808	180293		1200480	1039769	86.6
High / Higher Secondary (IX – XI / XII) , Age Group: 14 -17 *						
1950-51	1441254	7416	5.3	212000	113549	53.6
1960-61	3345197	17329		296056	189829	64.1
1970-71	7600543	37051	In	629200	473724	75.3
1980-81	11871161	51573	1984-85=	912112	809420	88.7
1985-86	16497525	65837	23.5%	1112589	1003137	90.2
1987-88	15837280	70997		-	-	-
1988-89	16254960	72602		-	-	-
1989-90	17366177	74654		1234068	1115812	90.4
1990-91	19057399	79803		1311564	1170748	89.3
1991-92	20338186	82576		1356978	1207608	90.0
1993-94	20684546	89226		1444429	1282851	88.8
1995-96	22856731	99274		1531852	1360581	88.8
1996-97	23987892	100212		1540887	1370324	88.9

Source: Statistical Abstract 1997 and 2002, Central Statisrical Organisation, Ministry of Statistics and Programme Implimentation , GOI , New Delhi .

Table 6.7
Number of Recognised Educational Institutions

Year	No. of Universities	Institute deemed to be University	Institute of National importance *	DEGREE COLLEGES		
				Arts , Sc. , & Com. Colleges	Agriculture Colleges	Law Colleges
1950-51	28	-	3	540	16	22
1960-61	44	3	8	1161	37	40
1970-71	84	9	9	2587	57	91
1980-81	112	11	10	3393	54	163
1985-86	132	17	10	4132	63	199
1989-90	146	28	10	4755	74	228
1990-91	147	29	10	4877	79	241
1991-92	151	31	10	5162	82	274
1992-93	155	31	10	5325	83	279
1994-95	159	38**	10	5885	83	298
1995-96	167	41**	11	6171	90	319
1996-97	172	42**	11	6770	90	324
2000-01	193	52**	11	8640	102	335

* Includes Library Science and Social Work Colleges
** It includes four institutions Established under the State Legislative Act .
Source: Statistical Abstract 1997 and 2002, Central Statistical Organisation, Ministry of Statistics and Programme Implementation , GOI , New Delhi .

Table 6.8
Number of Recognised Educational Institutions
(Degree Colleges)

Year	Medical Colleges	Veterinary Science Colleges	Teachers Training Colleges	Engineering /Technical/Arch. Colleges	Other Colleges *
1950-51	34	7	36	31	1
1960-61	80	20	125	76	5
1970-71	176	23	258	107	79
1980-81	262	25	331	149	71
1985-86	320	30	403	242	106
1989-90	425	37	450	285	135
1990-91	441	37	506	289	153
1991-92	482	38	526	298	169
1992-93	518	39	531	300	187
1994-95	621	51	535	323	267
1995-96	643	45	565	355	305
2000-01	1069	50	694	678	412

*Other Colleges includes Music/Fine Arts & Physical Education
Source:Statistical Abstract 1997 and 2002, Central Statisrical Organisation, Ministry of Statistics and Programme Implementation , GOI , New Delhi

Table 6.9
Number of Teachers in Education Institutes
(Colleges & Universities)

Year	Technical and Special School *	College for General Education	Technical and Special College
1950-51	28284	16512	4752
1960-61	58851	40311	15149
1970-71	33454	98329	30547
1975-76	39544	126567	41056
1980-81	30055	143184	50157
1985-86	40524	168035	61601
1989-90	256934	186976	68189
1990-91	252374	193046	70773
1991-92	214278	199566	73098
Year	**Technical and Special School ***	**College for General Education**	**Technical and Special College**
1992-93	272957	206693	75099
1993-94	579737	213454	77594

Source: Statistical Abstract 1997 and 2002, Central Statistical Organization, Ministry of Statistics and Programme Implementation , GOI , New Delhi .

* Professional and Special education include institutions imparting instructions in Diploma/Certificate Courses at school level in Agriculture/Forestry, Medicine(Nursing & Midwifery), Teachers' Training, Industrial(Arts & Crafts), Music and Fine Arts, for Handicapped, Certified & Reformatory, Oriental Studies, Social and Adult Education and other institutions imparting such courses in Diploma and Certificate .

Table 6.10
Enrollment According to Faculty and Stage

Year	B.A /B.Sc/B.Com	M.A/M.Sc/M.Com	Research	Diploma/Certificate
1950-51	100687	18484	2434	1199
1960-61	348496	52836	4674	3632
1970-71	1435909	144023	11177	18788
1980-81	1913126	238916	27398	23089
1985-86	2596097	293794	33819	25644
1989-90	3332813	370088	39412	32954
1990-91	3566107	395994	42175	35265
1991-92	3813042	423416	45090	37705
1992-93	4012104	443071	46801	39208
1993-94	4191182	476681	52486	43382

Source: Statistical Abstract 1997 and 2002, Central Statistical Organization, Ministry of Statistics and Programme Implementation, GOI , New Delhi .

The no. of students enrolled in B.A, B.Sc and B.Com increased from 100687 in 1950-51 to 4191182 in 1993-94 . The no. of students enrolled at the university stage (M.A, M.Sc & M.Com) was 476681 in 1993-94 as compared to 18484 in 1950-51. The number of researchers at different branch was only 1434 in 1950-

51 and it increased to 52486 in 1993-94 . The number of students enrolled for diploma / certificate course was 43382 in 1993-94 as compared to 1199 in 1950-51 . The number of primary / junior basic (I – V) teachers increase from 538784 in 1950-51 to 1796638 in 1996-97 . In 1950-51 only 58.8 per cent of the total primary teachers was trained whereas in 1996-97 , 85.6 per cent of the total primary teachers was trained . The number of teachers in middle school was 85000 in 1950-51 and it increased to 1200480 in 1991-92 . In 1950-51 , 53.5 per cent of the middle school teachers was trained where as in 1996-97 , 86.6 per cent of the teachers was trained . At high / higher Secondary level of education the number of teachers was 212000 in 1950-51 and it increased to 1540887 in 1996-97 . In 1996-97 , 88.9 per cent of the teachers in high / higher secondary level (IX-XI / XII) was trained as compared to 53.6 per cent in 1950-51 . The number of teachers in technical & special school was 28284 in 1950-51 and it increased to 579737 in 1993-94 . The number of teachers in colleges for general education increased from 16512 in 1950-51 to 213454 in 1993-94 . The number of teachers in technical & special colleges also increased from 4752 in 1950-51 to 77594 in 1993-94

Share of education in gross nation product is the most standard indicator of national efforts on the development of education in a given society. This reflects the relative priority being accorded to education in the national economy. On the recommendation of the Education Commission (1966), the government of India (1968) quantitatively fixed a target of investing six per cent of national income in education from the public exchequer by 1986 . A glance at the figures of expenditure on education as a proportion of GNP given in Table 6.4 shows that over the years it has increased remarkably. However, it needs to be underlined that this proportion is less than

i) the requirements of the education system to provide reasonable levels of quality education to all the students enrolled presently ,

ii) the requirements of the system to provide universal elementary education of eight years for every child of the age-group 6 -14 , and consequent growth in secondary and higher education , as universalisation of elementary education in a comprehensive sense ,

includes universal provision of resources universal enrolment , and universal retention (Tilak and Varghese ,1990) ,

iii) the recommendations of the Education Commission (1966) , the resolve made in the National Policy on Education 1968 , reiterated in the National Policy on Education 1986 (govt. of India) , and the revised Policy (1992) to invest six per cent of GNP in education , and

iv) the proportion of GNP invested in education in many other developing , leave alone developed , countries of the world , including Africa (Table No.11)

According to the Human Development Report 2001, India ranks 104th with respect to share of public expenditure on education in GNP , among the 143 countries for which such data are available . India was devoting 3.2 per cent of her GNP to education (1995-97). In comparison a large number of countries spend more than six per cent, some more than eight per cent and a few more than ten per cent . Some of the countries, which sped more than four per cent of GNP on education, include countries, which are economically poorer than India. India had set a long time ago a target of six per cent of GNP to be spent on education. This target still eludes, and may continue to elude in the near future. The need to raise this proportion considerably needs no overemphasis.

Universalisation of elementary education has been a Constitutional Directive, and the two national policy statements on education in 1968 and 1986 and the revised 1992 laid special emphasis on the fulfillment of this objective .Five-year plans repeatedly promised to take the nation towards achieving this goal. Elementary education was also included in the 'National Programme of Minimum Needs' in the five-year plans, and this inclusion has significant implications for allocation of resources, and for diversion of resources away from elementary education .But even after five decades of development planning, and four decades after the deadline stipulated by the Constitution, the goal of universal elementary education is still elusive. It is strongly felt that elementary

Table 6.11
Public Expenditure on Education, Selected Countries

	As per cent of GNP				Per inhabitant at current prices (US $)			
	1980	1985	1990	1994	1980	1985	1990	1994
World	4.8	4.8	4.8	4.9	126	124	202	252
Africa	5.3	5.7	5.6	5.9	48	40	41	41
America	4.9	4.9	5.2	5.3	307	375	521	623
Asia	4.0	3.9	3.7	3.6	37	39	66	93
Europe	5.1	5.1	5.1	5.4	418	340	741	982
Oceania	5.6	5.6	5.6	6.o	467	439	715	878
Developing Countries	3.8	4.0	4.0	3.9	31	28	40	48
Sub-Saharan Africa	5.1	4.8	5.1	5.6	41	26	29	32
Arab States	4.1	5.8	5.2	5.2	109	122	110	110
Latin America and the Caribbean	3.8	3.9	4.1	4.5	93	70	102	153
Eastern Asia and Oceania	2.8	3.1	3.0	3.0	12	14	20	36
Southern Asia	4.1	3.3	3.9	3.4	13	14	30	14
Less Developed countries	2.9	3.0	2.7	2.5	9	7	9	9
Developed countries	5.1	5.0	5.0	5.1	487	520	914	1211
India	2.9	3.1	2.5	3.4	319.7	564.6	1071	1549

Source: UNESCO Report (1997)

education suffered in India, due to, apart from several factors, insufficient allocation of financial resources .While finances are an important constraint, they are however, not the only constraint, but one among many. Resources provide a necessary, but not a sufficient condition in achieving universal elementary education.

It is clear from the above review of educational development programmes based on various short and long term social and economic objectives during the Five-Year Plans that, the educational system has not been able fully to gear itself to meeting the need of our growing economy. Inspite of several achievements , as noted above , we can see that 56.9 per cent of the children between the age-group 11 to 14 years in 1988-89 and 23.5 per cent of children of the age-group 14 -17 years in 1984-85 went to school , which is certainly not a high figure for this age group . Thus the State has yet to go a long

way to achieve the goal of free and compulsory education for all children as set by the constitution.

The main barrier to a scheme of compulsory primary education in India is economic. At very early age the children / boys assist their family in earning small bits of money because people are poor and can not afford to pay for education of their children. Most of the boys and girls in spite of attending a school they work to supplement the income of their families. It is impossible for boy and girl to study on an empty stomach. An unhealthy or ill fed child who is made to attend school has to be paid the cost of medicines. Mid-day meal has to be assured for them. Children in the slum areas who have no clothes to wear, leave alone money books, have to be provided with school uniforms. Thus, a very large number of children join the ranks of the illiterate every year.

According to some economists literacy is the one of broad indicators of development. In 1951, 16.6 per cent of the population in India could read and write . The per centage go up to 29.4 per cent in 1971 and to 36.1 per cent in 1981 and to 52.2 per cent in 1991 and 65.4 per cent in 2001. Thus 34.6 per cent of India's population is still illiterate. Schooling was inadequate under British rule .Thus development of primary education was certainly an urgent necessity at the time of Independence. National Literacy Mission campaign had taken to fight illiteracy. But the condition had not improved a lot. Still the condition of primary schools in villages is bad. There are many schools running without any infrastructure and adequate number of teachers. If teachers are there, then at many places, still there is no provision of classrooms. Recently, Sarba Siksha Aviyan campaign has been taken to fight illiteracy. Let us see what it achieves in near future.

Although at higher level and professional education level India has made very significant progress by allowing private Entrepreneur to establish private Institutions, a large number of graduates and post graduates go with out suitable employment. Those who continue their education are not sure what sort of studies it would be best for them to engage in.

In spite of all progress in the field of education, Indian educations need a drastic reconstruction.

6.2.2 Expenditure on Medical and Public Health Services

Good health is essential for happiness and efficient work. Disease reduces efficiency and increases number of absentees from work. It is due to ill-health, earning capacity of the worker becomes lower which hinders the process of economic development. In a welfare state, it is the primary duty of the government to ensure adequate medical facilities to its people.

The main objective of the health and family planning programmes is to expand health services, to bring about progressive improvement in the health of the people, in general, and particularly, poor or low income people in the country whose low income can be supplemented in this way. A certain minimum physical well-being is to be ensured for - a) the lower-income group's earnings will be supplemented and, b) favourable conditions for greater efficiency and productivity will be created.

During the colonial period India's health situation was very poor. Mortality rate was among the highest in the world (27.4 in 1941-51) and major epidemics were very frequent. Medical services in the rural areas were totally inadequate and primitive . Infant mortality rate was very high. Expectation of life at birth was precariously low. The working capacity of the population was considerably reduced because of above factors.

It is seen from table 6.12 that the total expenditure on medical and health in money terms increased from Rs .28.22 crores in 1950-51 to Rs 24360.35 crores in 2000-01 showing an increase of 86223 per cent. In per capita computation , expenditure on medical and public health services in money terms was Rs. 241.91 as compared to only Rs. 0.78 in 1950-51 which registered an increased of 30914 per cent (310 times) . However, in real terms total expenditure on medical and health increased from Rs. 408.39 crores in 1950-51 to Rs. 14675.79 crores in 2000-01 showing an increase of 3493.57 per cent only during the same period.

Table 6.12

Expenditure on Medical and Public Health at current & constant Prices

Financial Year	At Current Prices		At 1993-94 Prices		Exp. on Medical & public Health as % of total develop pmental expenditure	Exp. on Medical & public Health as % of total govt. expenditure	Exp. on Medical & public Health as % of NI
	Total Expenditure on Medical & public health (Rs. in crores)	Per capita (Rs.)	Total Expenditure on Medical & public health (Rs. in crores	Per capita (Rs.)			
1950-51	28.22	0.78	408.39	11.38	7.97	2.91	0.30
1955-56	48.45	1.23	782.71	19.92	6.44	3.50	0.49
1960-61	97.65	2.25	1234.51	28.45	7.90	3.12	0.64
1965-66	179.66	3.70	1636.25	33.74	7.80	2.78	0.75
1970-71	349.81	6.46	2429.24	44.90	9.88	2.09	0.89
1975-76	702.66	11.51	3193.91	52.62	8.58	3.78	1.01
1980-81	1617.66	23.82	4972.82	73.24	9.13	4.57	1.36
1985-86	3469.93	45.95	7196.03	95.31	9.02	4.54	1.56
1990-91	6563.81	78.23	8955.94	106.75	8.86	4.23	1.45
1995-96	12452.80	134.33	10416.40	112.37	9.84	4.24	1.32
2000-01	24360.35	241.91	14675.79	145.73	10.31	4.43	1.38

Source :Expenditure on Medical and Public Health

(i) Indian Public Finance Statistics- 1990, 1996 and 2002-2003, Ministry of Finance, Department of Economic Affairs.

(ii) Data relating to 1950-51 to 1979-80 has been collected from Kumar, V (1986)

(iii) Data of other columns have been computed on the basis of table 1, 2, 3, 5, & 9 of Appendix Table

In per capita terms the figure deteriorated further to 1180.58 per cent from Rs. 11.38 in 1950-51 to Rs. 145.73 in 2000-01. The expenditure on medical and public health as percentage of total social and developmental expenditure increased from 7.97 per cent in 1950-51 to 10.31 per cent in 2000-01. The expenditure on the services as a proportion of total govt. expenditure increased from 2.91 per cent in 1950-51 to 4.43 per cent in 2000-01. In 1950-51 only 0.35 per cent of national income was devoted to medical and public health services and this proportion increased to 1.38 per cent in 2000-01. Total expenditure as proportion of total developmental .expenditure recorded an increase of 29.3 per cent during the period under study. During this period this expenditure as per cent of total govt. expenditure also shows an upward trend and increased by 52.20 per cent.

To build human capital, the public expenditure on both education and medical services play an important role. In improving the conditions of medical services in less developed countries , a large proportion of their NNP is required to be devoted to these services . According to the Constitution of India "the state

Table 6.13
Health expenditure in developed and less developed countries in 1973

Countries	Health budget as % of National budget .	Health budget as % of GNP	Per capita Govt . exp. on health(US$)
Burma	6.2	1.1	0.85
Malaysia	6.7.	2.5	7.18
Srilanka	8.1	3.6	3.76
Inadia	4.9	0.9	0.91
Iran	2.5	0.6	2.60
USSR	5.8	3.4	47.04
Japan	1.9	0.3	5.45
UK	9.5	4.3	105.16

Source: World Bank (1975), Health Sector Policy Paper (1974-75)

shall regard the raising of the level of nutrition and living of its people and the improvement of public health as among its primary duties ". To give effect to this directive, health has been given priority . It should be noted in this connection that the developed countries are spending more on medical and health services than the less developed countries which actually need larger expenditure on this count.

In 1973, India devoted 5.8 per cent of its total public expenditure and 0.9 per cent of its GNP to medical and health services. In per capita terms the health expenditure of India was far less than that of Malaysia, SriLanka , Iran ,USSR , UK and Japan . This comparatively low Per capita expenditure is due to India's large population.

6.2.2.1 Critical Appraisal: The expenditure on medical and health services have resulted in vastly improved health facilities. To promote medical education 1069 medical colleges in 2000-01 as against 34 medical colleges in 1950-51 are functioning in the country. The establishments of new medical colleges have

raised the numbers of beds from 117000 in 1951 to 904000 in 2001 . The doctor-population ratio, which was 1: 5840 in 1951 improved to 1: 1749 in 2001. In rural areas, there was 20537 primary health centre in 1989, which were none existed before in 1951. The no. of beds in hospitals and dispensaries increased from

Table 6.14

Number of Hospitals , Beds , Doctors , Nurses and patients treated

Iteam	1951	1961	1971	1976	1981	1986	1991	1996	2001
Hospitals	2694	3054	3862	5025	6804	8067	11571	15097	17952
Dispensaries	6515	9406	9087	12274	16751	25193	27994	28225	22306
Beds(all type) in thousand	117	230	349	487	569	694	806	870	904
Doctors	61480	80084	148523		268707		393640		575647
Nurses	16550	35584	80620	113455	150396	207430	340208	565696	776355

Source:

1 .CSO, Basic Statistics relating to Indian Economy, 1950-51 to 1972-73, December,1974
2. CSO, Basic Statistics relating to Indian Economy, 1950-51 to 1975-76, August,1977
3. CSO, Basic Statistics relating to Indian Economy, 1950-51 to 1978-79, July,1980
4. Statistical Abstract, CSO, GOI, Department of Statistics, Ministry of Planning and Programme implementation, New Delhi . 1997 and 2002.

1.17 lakhs in 1951 to 5.69 lakhs in 1981 and further it improved to 9.04 lakhs in 2001 . There are 17,952 hospitals and 22,306 dispensaries in 2001 as against 2,694 hospitals and 6,515 dispensaries in 1951 . Malaria , TB , and Cholera which used to take a heavy toll of life have been controlled to varying degrees . No case of plague has been reported in the country since 1967. Small-pox which was a dreaded disease , has been eradicated in a large extent . Death rate which stood at 18 per thousand in 1951-60 came down to 8.5 per thousand in 2000 . As against it , the birth rate showed a slight decline . As a consequence of the family planning derived birth rate also registered a decline to 25.8 per thousand in 2000 in comparison to 40 per thousand in 1951-60. Consequently , the gape between high birth rate and falling death rate widen with a passage of time and this was reflected in a high survival rate . Life expectancy at birth has increased from 41.2 years in 1951-61 to 65.3 years in 2001 . On the basis of these observations we can conclude that increasing public expenditure on health and medical services has considerably improved the survival rate . In 1970 , infant mortality rate per 1,000 live birth was 127; it has been brought down to 67 in 2001 . Similarly, under –five infant mortality rate has been reduced 202 per 1,000 live births to 93 in 2001 . These are healthy developments. Likewise, maternal mortality rate per

1,00,000 live births have been brought down to 540 during 1985-2001. Control of diseases and improvement in hospital facilities has contributed to improvements in survival rate.

The increasing public expenditure on public health and medical services has also provided both preventive and curative medical facilities. In the field of public health, the centre and the state governments are making serious efforts at providing drinking water facilities in many urban and rural areas. But it can be said that despite increase in expenditure on public health, not enough is spent to cope with the present situation. In rural areas where major portion of the population lives, public health amenities are still hopelessly inadequate. Hospitals in cities are over crowded. About 40 to 50 per cent of our rural population goes without medical facilities.

Life expectancy at birth has shown a continuous improvement from 32.1 years in 1950-51 to 41.3 years in 1960-61, to 45.6 years in 1970-71, to 54.4 years in 1980-81, to 58.7 years in 1990-91 and further to 65.3 years in 2000-01 (Government of India, Economic Survey, 2002-2003) .One important factor depressing life expectancy was the high level of infant mortality. During the period under study, infant mortality has shown a significant decline from 180 per thousand live birth in 1950-51 to 129 per thousand live birth in 1970-71, to 110 per thousand live birth in 1980-81, to 80 per thousand live birth in 1990-91 and further to 63 per thousand live birth in 2003.(Dreze, and Sen, 1995). This is largely the result of an improvement of maternity services and large scale vaccination to control epidemics and improved hygiene and better care of the children. Therefore, India has to improve health facilities as well as nutrition levels so that it can reduce the probability at birth not surviving to the age 40 at the level of China (7.1 per cent) which is half that of India .Several medium human development countries (e.g. Philippines, Thailand, Malaysia and Srilanka) have much better survival rates. National Human Development Report (2001) also revealed that 47 per cent of the children under five years old were under weight in 2001. In absolute terms, 178 million children under five were under weight. Therefore, more is to be spend to support a programme of improving nutrition in poor families to reduce this massive number of underweight children.

In India, population not using improved water sources was 16 per cent in 2000. This is indeed a very healthy development, but in absolute terms 165 million persons are unable to make use of improved water sources and thus become victims of all kinds of water –brine diseases. Similarly, improved sanitation facilities were not available to 72 per cent of the population. In absolute terms, 740 million persons were living under unsanitary conditions. India's record in the sphere of sanitation is , to say the least , tragic . Even in medium human development countries, population using adequate sanitation facilities ranged from 70 per cent to 99 per cent, but the proportion in India is palpably low at 28 per cent in 2000. Therefore, India has a long way to go in this area of access to health services.

It is really distressing that 49 per cent of the Indian population did not have access to essential drugs in 1999. This implies that 527 million persons were without effective medical cover. This reduces the survival rate in India . The proportion of under-nourished people in India in 2000 was 24 per cent . This implies that 244 million people were under-nourished. This under-nourishment is primarily due to existence of poverty. This is a need to strengthen poverty eradication strategies to reduce under-nourishment.

The survival rate has considerably improved in India. In 1950-51, infant mortality rate per 1,000 live births was 180; it has been brought down to 110 in 1980-81, 80 in 1990-91 and 67 in 2001.(Dreze, and Sen, 1995). Similarly, under-five infant mortality rate has been reduced from 202 per 1,000 live births in 1970 to 93 in 2001. Likewise, maternal mortality rate per 1, 00,000 live births have been brought down to 540 during 1985-2001. Control of diseases and improvement in hospital facilities has contributed to improvements in survival rates.

The above observation is true, but it is not the mal-allocation of resources that attributed to the inadequacy of medical and health services in India. It is the lack of funds that limits access to the modern medical care and, as a result, a large number of cases escape the attention of medical services. It is also a fact

that services in government hospitals are of a poor quality in terms of both treatment and lack of concern for patients. It has been emphasized by the World Bank Paper , more resources need to be devoted to staffing the lower levels of health services in areas with very few facilities or none at all . The services should focus primarily on improving environmental and public health, personal health practices and nutrition . The demand for curative care, however should not be over looked. Thus, a more economical balance should be struck between measure to treat disease and measure to control its incidence.

On the basis of above observations it is significant to remember that the amount of money available for medical and public health services is an important determinant of the quality and quantity of such services . The State Governments have allocated their limited resources among many competing and different kinds of public health programmes. Thus, the absolute amount of public expenditure available for health services is quite low. Therefore, it would be very unrealistic to expect that a sharp increase in funds for medical and public health services would improved the entire situation.

6.3 Developmental Expenditure: Economic Services

The modern welfare state has to participate in the economic development of a country in more than one way. For this purpose the modern welfare state has to create and maintain basic infrastructural facilities like transport and communications network, as also canal irrigation system and power generation and distribution. Govt. would have also to develop such industries which have failed to attract sufficient private investment. India is a very backward agricultural economy. Therefore, the state is to make intensive effort for the transformation of the traditional sector . The economic services which are offered by the government in an agrarian economy, can be categorized as follows –

1. Agriculture and allied services (including minor irrigation) ,
2. Industries and minerals ,
3. Water and power resources development ,
4. Transport and communications ,and
5. Other economic services.

Separate analysis of each of the above categories of economic services is attempted in the following pages.

6.3.1 Expenditure on Agriculture and Allied Services

The importance of agriculture in Indian economy can never be overstated. It is the back bone of the Indian economy. Despite industrialization in the last five decades, agriculture continues to occupy a place of pride. Its role in the economy can be viewed from four separate but interrelated angles. First, for achieving a high overall growth rate, agriculture needs to grow strongly both to meet the growing requirements of food and to supply the necessary raw materials for industries. A strong industrial growth rests on agricultural growth through both demand and supply routes. Second, agriculture continues to contribute a significant proportion of the national income, though this proportion has come down at the all-India level from 52 per cent in 1950s to 26.5 per cent currently. However, in the case of several states, the contribution of agriculture to the state domestic product is close to 40 per cent . Therefore, in any programme of

balance regional development, agriculture has an important role to play. In fact, a high growth rate in agriculture in the long run can be sustained only by broadening the regional base of agriculture. Third, being the largest industry in the country, agriculture provides employment to around 65 per cent of the total work force in the country. To absorb the growing labour force and to reduce the backlog of unemployed, a strong growth in agriculture becomes almost imperative. Four, several studies show that a major factor contributing to the reduction of poverty ratio is agricultural growth. Latest estimates show that the overall poverty ratio in 1993-94 was 36 per cent with the rural ratio at 37.3 per cent and the urban ratio at 32.4 per cent. The number of poor people in rural areas was 244 million and 76.3 million in urban areas. A significant dent in the rural poverty ratio can be made only by a strong growth in rural incomes which can come only through a strong growth in agriculture. Expenditure on agriculture and allied service includes not only expenditure on agriculture but also those incurred on services like veterinary / animal husbandry , cooperation ; rural development , community development , and even forestry.

It is seen from the table 6.15 that the expenditure on agriculture and allied services in money terms increased from Rs. 32.78 crores in 1950-51 to Rs. 35140.39 crores in 2000-01 , showing an increase of 107100.70 per cent (1072 times) . The per capita expenditure on agriculture and allied services in money terms increased from Rs 0.91 in 1950-51 to Rs. 348.96 in 2000-01 an increase of 38247.25 per cent i.e. 384 times only during the period. These figures are no more impressive if they are converted into real terms. In real terms total expenditure in agriculture & allied services increased by only 4362.6 per cent and the figures depreciated further if we convert it in terms of per head of the population. In per capita terms it registered a percentage increased of 1491.44 only during the period. The proportion of total social and developmental expenditure devoted to agriculture and allied services went up from 9.26 percent in 1950-51 to 14.88 percent in 2000-01. In 2000-01, 6.40 percent of total government expenditure was devoted to agricultural and allied services. Where as it was only 3.38 percent of total government expenditure in 1950-51. The expenditure on agriculture and allied services as percentage of national

Table 6.15

Expenditure on Agriculture and Allied services of Centre, States and Union Territories: At Current Prices & Constant prices

(Rs. in crores)

Financial Year	At Current Prices		At Constant Prices		Exp. on Agri. & allied Services as % of total developm -ental exp.	Exp. on Agri. & allied Servic es as % of total govt. exp.	Exp. on Agri. & allied Service s as % of NI
	Exp. on Agri. & allied Services (Rs. in crores)	Per Capita	Exp. on Agri. & allied Services (Rs. in crores	Per Capita			
1950-51	32.78	0.91	474.39	13.21	9.26	3.38	0.35
1955-56	78.39	1.99	1266.40	32.22	10.42	5.66	0.80
1960-61	142.69	3.28	1803.92	41.57	11.55	4.57	0.93
1965-66	274.69	5.66	2501.73	51.58	11.93	4.26	1.15
1970-71	347.72	6.42	2414.72	44.63	09.83	2.07	0.89
1975-76	1484.42	24.45	6747.36	111.16	18.14	8.00	2.15
1980-81	2796.40	41.18	8596.37	126.60	15.78	7.90	2.36
1985-86	5422.15	71.81	11244.61	148.94	14.10	7.09	2.45
1990-91	11714.34	139.62	15983.54	190.51	15.83	7.55	2.60
1995-96	21635.85	233.39	18097.74	195.23	17.10	7.38	2.30
2000-01	35140.39	348.96	21170.18	210.23	14.88	6.40	1.99

Source: For total expenditure on Agriculture at current prices

(i) Indian Economic Statistics, Public Finance, December 1980 and December-1988, GOI, Ministry Of Finance, Economic Division

(ii) Indian Public Finance Statistics- 1990, 1996 and 2002-2003, Ministry of Finance, Department of Economic Affairs.

(iii) Data relating to 1950-51 to 1979-80 has been collected from Kumar, V (1986)

Figures of other column are computed on the basis of the data given in Table 1, 2, 3, 5 and 9 of Appendix

income increased by 468.57 per cent from 0.35 per cent in 1950-51 to 1.99 per cent of NI in 2000-01 . The first five-year plan accorded top priority to agriculture. And the second and the third plans also emphasized the need for agricultural development and hence allocated increasing amounts of outlay to agriculture and allied services.

6.3.1.1 Critical Appraisal:

Contribution of Agriculture Sector to the National Income: The table 6.16 provided by the Central Statistical Organisation reveal that between 1950-51 to 1960-61, the share of agriculture in GDP has been in the range of 55 to 52 per cent , though it was declining , but with the process of

industrialization and economic growth gathered momentum , the share of agriculture indicated a sharp decline and reached a level of 26 per cent in 2000-01 . On the basis of the above observation we can conclude that -

Table 6.16
Share of Agricultural Sector in Total Gross Domestic Product at Factor cost (At 1993-94 Prices)

(Rs. in crores)

Year	GDP at Factor Cost	Agriculture	% share of agriculture to the GDP at Factor Cost
1950-51	1,40,470	83,150	55.4
1970-71	2,96,280	1,42,580	44.5
1990-91	6,92,870	2,42,010	30.9
2000-01	11,93,920	3,16,690	26.5

Source: Economic Survey 2000-01

a) agriculture continues to contribute even now a major share of national income; b) the share of agriculture in national income, has been decreasing continuously and the shares of manufacturing and service sectors are increasing. In a rapidly developing country, this trend is quite natural.

Table 6.17
Contribution of Agriculture to Employment

(in million)

	1951	2001
Total population	361	1027
Rural Population	299(8.3)	742(72)
Cultivators	70(50)	128(32)
Agricultural Labourers	27(20)	107(27)
Other Workers	43(30)	167(41)
Total working population	140(100)	402(100)

NOTE :Figures in brackets are per centage to the total main workrs .
Source : Agricultural Statistics at a Glance (2002)

From the table 6.17, it is seen that , whereas in 1951 , about 70 per cent of the total main workers were engaged in agriculture and allied activities , during 2001 , the share of agriculture in total employment decline to 59 per cent . In absolute terms, agriculture provided employment to 97 million persons in 1995 , the number of people working on land (cultivators and agricultural labourers)

increased to 235 million . Interms of percentage however, people working on land came down from 70 to 59. It is really disturbing that the proportion of landless agricultureal labourers has increased from 20 to 27 percent between 1951 and 2001 but that of cultivators have indicated a decline from 50 per cent to 32 per cent.

In this context, it should be pointed out that in the United Kingdom and United States, only 2 to 3 per cent of the working population is engaged agriculture. In France, the proportion is about 7 per cent; and in Australia, this is about 6 per cent. It is only in backward and less developed countries that the working population engaged in agriculture is quite high . For instance, it is 35 per cent in Egypt, 59 per cent in Bangladesh, 50 per cent in Indonesia and 68 per cent in China in 1997, according to the FAO production Year-Book (1997).

Table 6.18

Growth in Area of Principal Crops Since 1949-50 to 2000-01

Item	In million hectares			Annual rate of growth	
	1949-50	1964-65	2001-02	1949-50 to 1964-65	1964-65 to 2001-02
1.All foodgrains	99	118	122	1.4	0.1
of which					
Rice	30	36	45	1.3	0.6
Wheat	10	13	27	1.7	2.0
Coarsecereals	39	44	28	0.9	-1.1
Pulses	20	24	18.14	1.2	-0.5
2. All Non- foodgrains					
of which	23	33	38	2.5	0.3
Oil seeds					
Sugarcane	10	15	23	2.6	1.1
Cotton	1.5	2.6	4.4	2.5	1.4
Patato	4.9	8.4	9.1	3.3	0.1
	0.2	0.4	1.2	4.4	3.5
3. All Crops	122	151	160	1.6	0.1

Source : Economic Survey, Ministry of Finance, 2002-03 .

The table 6.18 shows a broad growth trends in the area under cultivation. During the pre-green revolution period (1949-50 to 1964-65) , additional lands were brought under plough and there was extension of irrigation facilities to barren lands . The annual rate of growth in area under crops during this (1950-

65) period was impressive. For all crops it was 1.6 per cent, for foodgrains it was 1.4 per cent and non-foodgrains it was 2.5 per cent . The above table also reveals that the extension of cultivable area before 1964-65 was experienced by all crops , cultivation was extended to marginal and fallow lands and in many cases , even to waste lands and forest lands . Potato cultivation recorded the highest area-growth in this period (4.4 % per year). Among food crops, area under wheat had recorded annual growth rate of 1.7 per cent.

On the other hand during post-green revolution period (1965 to 2002) , the annual area growth rate was extremely low : For all crops it was 0.1 per cent , for foodgrains it was 0.1 per cent and for non-foodgrains it was only 0.3 per cent . During this period (1965-2002) the increase in area under rice was only by 22 per cent while the area under wheat rose by 92 per cent. As a result, the annual rate of growth of area under rice was a mare 0.6 per cent, while it was 2.0 per cent for wheat. The extension of area under wheat was due to the introduction of bio-chemical technology, but it was at the expense of coarse cereals and pulses. There has been a shift in cropping pattern between the two periods. The share of wheat in total cropped area had gone up from 8.5 per cent to 14 per cent; and the share of wheat in irrigated area had gone up from 15 per cent to 38 per cent (C .H . Hanumantha Rao, et al .Unstable Agriculture and Droughts, p. 44). Under non-food grains, potatoes recorded spectacular progress (200 per cent during the period 1964-65 to 2001-02 and annual rate of growth was 3.5 per cent.

With the introduction of planning in 1950-51 , and with the extension of irrigation and application of intensive methods of cultivation , and after introduction of modern agricultural practices including the adoption of hybrid seeds , there has a steady and continuous increase in yield per hectare of all crops . The table 6.19 illustrates the yield growth rate in India since 1949-50 .During the pre-green revolution period, rice recorded the most impressive growth rate in yield – from 7.1 quintals per hectare in 1949-50 to nearly 11 quintals by 1964-65 at the annual rate of growth of 2.1 per cent . The yield growth rate of wheat during this period was (1.3 per cent per year) modest as compared to rice .Among non-foodgrains cotton and sugarcane recorded modest growth rates during the period.

Table 6.19
Growth in Yield of principal crops since 1949-50 to 2001-02

Item	Yield per hectare			Annual rate of growth	
	1949-50	1964-65	2000-01	1949-50 to 1964-65	1964-65 to 2001-02
1.All foodgrains of which				1.4	2.4
Rice (Quintals)	7.1	10.8	20.9	2.1	1.8
Whea(Quintals)	6.6	9.1	27.7	1.3	3.2
Coarsecereals(Quintals)	4.3	5.1	10.8	1.3	2.2
Pulses(Quintals)	4.0	5.2	6.1	0.2	0.1
2. All Non- foodgrains of which				0.9	1.6
Oil seeds (Quintals)	5.2	5.6	8.6	0.1	1.2
Sugarcane (T0nes)	34	47	67	1.0	1.2
Cotton (Kgs)	95	122	189	2.0	1.5
Patato (Quintals)	66	84	180	1.6	3.1

Source : Economic Survey, Ministry of Finance, 2001-02 .

During 1964-65 to 2000-01, i.e. post green-revolution period however, the most spectacular growth rate was recorded by wheat (3.2 per cent per year) , potato too recorded an impressive growth rate of 3.1 per cent per year . Per hectare yield of wheat in 2000-01 was 27.7 quintals as compared to only 20.9 quintals in the case of rice. Rice registered a steady annual growth rate of 1.8 per cent per year during the period. The productivity of coarse cereals rose by 2.2 per cent per year. On the other hand, pulses recorded a growth rate of 0.1 per cent per year and oilseeds, a mere 1.2 per cent per year. This shows that the new biochemical technology was very much suitable for wheat production compared to other crops.

The total production of agricultural product since 1950 to 2002 reflects the combined of area and yield per hectare. During 1949-50 to 1964-65, food grain production had increased at an impressive annual rate of 3.2 per cent as shown in table 6.20 The major cereals, viz., rice and wheat recorded high rate of growth (3.5 and 4 per cent respectively) ,but coarse cereals and pulses recorded relatively lower growth rates . The output of non-foodgrains (3.5 per cent per

year) was also impressive. This growth rate in agricultural production was due partly to area growth rate and partly to yield growth rate, in this period.

Table 6.20
Growth in Production of Pricipal Crops since 1950 to 2002

(All crops in million tonnes except cotton which is in million bales of 175 kg)

Item	Production			Annual rate of growth	
	1949-50	1964-65	2000-01	1949-50 to 1964-65	1964-65 to 2001-02
1.All foodgrains of which	55	89	212	3.2	2.2
Rice	24	39	83	3.5	2.2
Wheat	6	12	72	4.0	5.0
Coarse cereals	17	25	44	2.2	O.6
Pulses	8	12	13	1.4	-0.2
2. All Non-foodgrains of which					
Oil seeds	5	9	20	3.3	1.9
Sugarcane	50	122	300	4.3	2.5
Cotton	3	6	10	4.6	1.4
Patato	2	4	22	4.3	4.9

Source : Economic Survey (2002-2003)

After, 1964-65, the Government introduced biochemical technology with the hope of improving agricultural productivity and through it, improves agricultural production. But the new technology did not realty bring about a break-through in agricultural production as it is clear from the table 6.20 , barring the production of wheat and potatoes (at an annual growth rate of around 5 per cent) ; the annual rate of growth in output has been low in almost all crops . The rate of increase in the case of coarse cereals and pluses has been marginal.

On the basis of above observation we can draw certain important conclusions:

1. While area expansion contributed significantly to pre-green revolution growth , grains in agriculture productivity was a major factor for realizing output growth in the post -1965 period .

2. Except for wheat , output growth rate could not be maintained despite the adoption of modern agricultural technology .
3. Although in rice , the productivity picked up a little later , but the extention of area under High yielding varieties did not help to boost production of rice after 1980-91.
4. The growth rate in foodgrains was , however , maintained at a level of 2.2 per cent per year mainly because of the high growth rate of 5.0 per cent in wheat .
5. With the introduction of modern technology to areas of assured rainfall or with good irrigation facilities, oilseeds, coarse foodgrains and pulses have been pushed inferior lands . Hence, these crops have not registered much increase in yield or in total production.
6. Even though there has been substantial growth in agricultural production , this has not been smooth ; there has been continuous fluctuations in crop output from year to year .

It will be now useful to make a comparison of yield per hectare in some selected crops in India with that in other countries of the world so as to show how much India lags behind or ahead of other countries of the world.

It is clear from the table 6.21 that against the actual yield of 29.3 quintals , per hectare in rice , India has the potential to produce between 40 to 58 quintals of rice per hectare . In the case of wheat, India can produce up to 60 to 68 quintals, but the average yield is around 26 quintals per hectare. Even if we assume that India could register the minimum of the potential yield, total output of rice in India would be 168 million tonnes per year. But actual production of rice between 1995-96 and 2000-01 ranged between 76.97 and 87.69 million tonnes . Likewise, the total output of wheat in India would be 156 million tones (26 million hectare X 609 quintals) however, the actual production of wheat ranged between 62.09 and 69.68 million tonnes between 1995-96 and 2000-01 . It would thus be clear that if India could achieve the minimum of potential yield of only these two cereals, total production would be around 324 million tonnes. The gap between the actual yield and potential yield in all our crops and the gap between

the average yield in India and the average yield in many other countries of the world --- these pose a challenge and an opportunity for India .

Table 6.21
Actual Yield per hectare in quintals during 1999

Quintal / hectare

	Potential of high-yielding Indian varieties	Actual yield in India	Actual yield of the world's largest producer	Country	World's highest yield	Country
Food Crops						
Rice (Paddy)	40 to 58	29.3	63.2	China	88.8	Egypt
Wheat	60 to 68	25.8	39.7	China	80.5	UK
Maize	60 to 68	16.7	83.9	USA	96.9	Italy
Non-food crops						
Sugarcane	-	680	686	Brazil	1,190	Egypt
Groundnut(pods)	20 to 30	9.1	27.9	China	30.4	USA
Cotton(Lint)	15 to 20	2.3	10.2	China	12.7	Australia
Jute	25 to 30	20.0	20.0	India	25.2	China

Source : FAO Production Year Book (1999); Agricultural Statistics at a Glance,(2002)

It should be pointed out in this connection that some agricultural economist have expressed their doubts about the possibility of India ever reaching the levels of yield attained in cold countries in respect of wheat ; there is no doubt that some scope of increasing yield exists , but to hope that it can be raised to 3 to 5 times is not feasible due to the fact that the semi-dwarf HYV varieties of wheat in India have a duration of 140 days , while in the cold countries long duration of wheat crop of 10 months duration helps to obtain higher yield .

Table 6.22 shows the per capita availability of cereals and pulses which indicates an over-all improvement in per capita availability of food grains from about 394.9 grams per day to 495.4 grams per day in 1995 and 414.1 grams per day in 2001. The per capita availability of cereals increased from 334.2 grams to 385.1 grams. This indicates nearly 15.23 per cent increase in per capita availability during the 50-year period. But in case of pulses, the per capita availability declined from 60.7 grams per day to 29.1 grams between 1951 and 2001. This indicates a declined of about 52.05 per cent in per capita availability of

pulses. Therefore, while moving towards foodgrains security, India has succeeded in terms of cereals, but has miserably failed ti increase the production of pulses consistent with the needs of a growing population.

Table 6.22
Per Capita Availability of Food gains

(Grams Per day)

Year	Cereals	Pulses	Total
1951	334.2	60.7	394.9
1955	372.9	71.1	444.0
1961	384.1	65.5	449.6
1965	418.5	61.6	480.1
1971	403.1	51.9	455.0
1975	365.83	39.7	405.5
1981	379.5	30.9	410.4
1985	415.6	38.4	454.0
1991	435.3	41.1	476.4
1995	457.6	37.8	495.4
2001	385.1	29.1	414.1

Source: Economic Survey 2003-04.

A new strategy of agricultural development was introduced in 1966-67. This new strategy popularly known as "Green Revolution" includes the high yielding varieties of seeds over large areas , development of irrigation facilities , adequate and balanced use of chemical fertilizers as well as pesticides , adoption of need-based plant protection measures and a well-organized and systematic supportive input supply like credit through institutional and other financial agencies . Futhermore, efforts have been made to bring science and technology closer to the farmers through education and training and strengthening the extension set up . Special emphasis was being laid on programmes for the upliftment of the weaker sections of the rural population, particularly the small and marginal farmers in drought-prone areas as well as tribal and hill areas, etc.

But this new agricultural strategy has not been very successful in increasing the over all agricultural production. It brings about dramatic change in the pattern of production in a few selected areas. The majority of Indian farmers are still using traditional inputs, like wooden ploughs inferior quality of seeds , insufficient quantity of fertilizer, etc. The most disheartening feature of the Green Revolution has been the fact that its impact has been limited to a few food grains

leaving the major crops outside its purview. The effects of Green Revolution have been the most spectacular in the case of wheat as it is seen from the table 6.20 The production of wheat which was 6.83 million tonnes in 1950-51, rose to about 36.31 million tonnes in 1980-81 showing an increase of 431.62 per cent.

But the impact of this 'new technology' has been much less dramatic for rice than it has been for wheat. Rice production increased from 20.07 million tonnes in 1950-51 to 53.63 million tonnes in 1980-81 signifying an increase of 167.21 per cent during the same period. Therefore, although the performance of the new technology has been impressive in respect of wheat which accounts for only 12 per cent of the country's agricultural production, it has not been so in the case of rice, which accounts for 34 per cent of India's agricultural production (the biggest crop of India).

In addition to the limited effect on production, the Green Revolution has been instrumental in fostering regional imbalances within the economy. This 'new technology' was initially confined to a few selected areas having assured water supply, these regions have been able to reap the benefits of the technology. The rise in food production , has been taken place in Punjab , Haryana , Western U.P and in some selected districts of M.P , A.P and Tamil Nadu because of well endow with resources and benefited most from the use of modern technology . A recent study based on 19 major crops during 1962-63 and 1972-73 has revealed that rapid agricultural growth is confined to only 17 per cent of the districts in India. Of be 282 districts only 48 (accounting for just 19 per cent of area) , recorded a growth rate exceeding 4.5 per cent ; another 102 districts had a growth rate between 1.5 per cent and 4.8 per cent and 62 districts between nil and 1.5 per cent .In addition to the above , there were 70 districts amounting to 27 per cent of area, that recorded negative rates of growth it was fount that 69 highly productive districts of India accounted for only 20 per of the national agricultural out put. With only 20 per cent of area, they consume 44 per cent of fertilizers, use 50 per cent of the tractors and accounted for 38 per cent of total gross irrigated area. On the basis of above observation we can conclude that a few developed regions swallow most of the resources invested by the government in the agricultural sector, leaving little for the poor regions. As a

result, large part of the country depends for its food supply on a few districts. Thus the 'new technology' has failed to show the initially visualized "spread effect" and has only created highly developed areas surrounded by area with low development and poverty .

Apart from accentuating regional disparities the 'new technology' creates disparities in income distribution. The new agricultural strategy consisting of Intensive Agricultural District Programme (I A D P), and High-Yielding Varieties Programme (HYVP) neccessited heavy investment in seeds, fertilizers, pesticides and water. These heavy investment are beyond the capacity of small and medium farmers. In India, there are about 81 million farm households, but only 6 per cent of the big farmers account for 40 per cent of the land; they alone are making heavy investment in the installation of tube wells, pumping sets, fertilizers and agricultural machineries required for the purpose. On the other hand the small and marginal farmers with low creditworthiness were unable to approach financial institutions for crop loan, which prevent them from adopting the technologies consequently, the new agricultural stategy has helped the growth of the capitalist farming in India and has led to concentration of wealth in the hands of the top 10 per cent of the rural population while major portion still uses outmoded techniques resulting in low productivity per hectare.

Lastly, the high yielding varieties of seeds are prone to diseases, and cultivation of such varieties involves a considerable amount of risk which the small farmer is unable to undertake because of loe resource position. Hence, Green Revolution has only served to improve the position of the already better off section of the farmer community.

In spite of the above short comings of the new technologies , there is no other way than to embrace the new technology to achieve improved agricultural productivity . To make the new technologies more productive, irrigation should be make more widespread so that the backward areas can avail themselves of the new technology, At the same time efforts should be made to direct scientific research towards the development of HYVs in those crops which have so far been left out-side the purview of the new technology; Research has

also to be initiated towards the disease-resistant and acclimatized seeds. On the other hand, to alleviate income disparities accentuated by the green revolution, apart from institutional reforms, adequate efforts have to be made by all concerned to strengthen the resource base of the farmers; provision of package credit in kind in the form of HYV seeds, pesticides and fertilizers can be provided to small and marginal farmers on a crop insurance basis. Lastly, the use of farm-yard and organic manures should be popularized to cut down fertilizer cost.

6.3.2 Expenditure on Water & Power Development

Agriculture holds the key to the success of India's effort at marching rapidly forward towards a sound economic base . One of the major impediments in the way of full exploitation of intensive agriculture is lack of assured and dependable water supply throughout the year. Over 80 per cent of the country's cropped area is dependent exclusively on rainfall. In about most of the cropped area, the rain fall is low and undependable to permit intensive cultivation even during the main crop season. Irrigation and power are very important for intensive cultivation. Water generates hydel power and the same electricity can be utilised for lifting water for the purpose of further expansion of irrigation. Irrigation can lead to multiple cropping, shift to superior, high-yielding and commercial crops which, in turn, will improve income, standard of living and employment.

Table 6.23

Expenditure on water and power development at current prices

Financial Year	At Current Prices		At 1993-94 Prices		Total exp. on water & power dev. as % of total developmental exp.	Total exp. on water & power dev. as % of total govt. exp.	Total exp. on water & power dev. as % of NI
	Total exp.on water & power dev.(Rs. in crores)	Per Capita (Rs.)	Total exp. on water & power dev. (Rs. in crores)	Per Capita (Rs.)			
1950-51	71.44	1.98	1033.86	28.80	20.19	7.38	0.78
1955-56	133.32	3.39	2153.80	54.80	17.73	9.63	1.36
1960-61	166.44	3.83	2104.17	48.48	13.47	5.33	1.09
1965-66	286.75	5.91	2611.57	53.85	12.45	4.45	1.20
1970-71	418.16	7.72	2903.89	53.68	11.82	2.49	1.07
1975-76	845.69	13.93	3844.05	63.33	10.33	4.55	1.22
1980-81	2290.77	33.73	7042.02	103.71	12.93	6.47	1.93
1985-86	4166.86	55.19	8641.35	114.45	10.83	5.45	1.88
1090-91	5346.26	63.72	7294.66	86.94	7.22	3.44	1.18
1995-96	9969.53	107.54	8339.21	89.96	7.87	3.40	1.05
2000-01	18838.95	187.07	11349.45	112.71	7.97	3.43	1.06

Source: For total expenditure on Water & Power Development at current prices

(i) Indian Economic Statistics, Public Finance, December 1980 and December-1988, GOI, Ministry Of Finance, Economic Division

(ii) Indian Public Finance Statistics- 1990, 1996 and 2002-2003, Ministry of Finance, Department of Economic Affairs.

(iii) Data relating to 1950-51 to 1979-80 has been collected from Kumar, V (1986)

Figures of other column are computed on the basis of the data given in Table 1, 2, 3, 5 and 9 of Statistical Appendix

The total expenditure in money terms on water and power development increased by about 26270 per cent during the period 1950-51 to 2000-01 and in real terms it registered a percentage increase of 997.77 per cent only during the same period. On the other hand the per capita expenditure on water and power development recorded a per cent increase of 9348.00 current prices however, at constant prices (1993-94) the same has registered a percentage increase of only 291.35 during the same period.

The proportion of total developmental expenditure devoted to water and power development decline by 60.52 per cent. The expenditure on water and power development as per cent of total government expenditure also show a declining tendency during the period . It registered a declined by 53.52 per cent. But the proportion of national income devoted to water & power development increased by 35.89 per cent during the period under review.

6.3.2.1 Critical Appraisal: India's national development plan accord a high priority on irrigation owing to the vagaries of monsoon. In areas where rain fall is plentiful and well distributed over the year, there is no problem of water. But rain fall in certain areas is very scanty as well as uncertain. In these areas, artificial irrigation is absolutely essential, for without it cultivation is almost impossible. In certain regions, rain fall may be abundant but it may be concentrated in a short period of the year, the rest of the year being dry. As a result cultivation may not be possible for whole year. In these regions, provision of irrigation will facilitates growing of more than one crop in the year. During the 50 years since independence, the govt. had spent about Rs. 231,400 crores (at 1996-97 prices) on major, medium and minor irrigation works. As a result, the country's irrigation potential has increased from 22.6 million hectares in pre-plan period (1950-51) to 89 million hectares at the end of 1996-97. With this, India has the largest irrigated area among all countries in the world. This has greatly contributed to the increase in food grains production from 51 million tonnes in 1950-51 to 203 million tonnes in 2001-02. The gross and net irrigated area in India is shown in the following table 6.24.

Table 6.24
Gross and net irrigated area in India

(Million hectare)

Year	Net Irrigated Area	Gross Irrigated Area	Total Croped Area	Gross irrigated area as % of sown area
1950-51	21	23	133	17
1970-71	31	38	166	23
1990-91	48	62	186	34
1999-2000	57	76	193	39

Source: Agricultural Statistics at a Glance (2002)

The table 6.24 shows that as a consequence of irrigation, about 17 per cent of the cropped area was irrigated in 1950-51 ; this has increased to 39 per cent in 1999-2000, Further , there has been a gradual improvement in area irrigated more than once .In 1950-51 , area irrigated more than once was 1.7 million hectares or 8.1 per cent of net irrigated area ; in 1998-99 , this has increased to 18.6 million hectares or 33 per cent of net irrigated area (Datta and Sundharam, 2003) . Area irrigated more than once is a kind of land augmentation and is, therefore , very crucial in raising agricultural output . It is clear from the above that the progress of irrigation has been quite slow despite the enormous importance given to it during the five-year plans.

By impounding a river's water so as to release it at a controlled rate , a dam acts as a buffer against floods . The so called multi-purpose river valley projects have been constructed to prevent floods in their respective regions. The National Flood Control Programme launched in 1954 has constructed many embarkments, drainage channels and town and village protection Schemes. In practice , flood control measures have failed miserably and over the years ,the area affected by floods and the damage to crops, cattle and to human beings has increased sharply despite the multi purpose projects, It is thus clear that the progress of irrigation has been quite slow, despite the enormous importance given to it during the plan period .

Power development was initiated in India as early as 1900 with the commissioning of the hydro-electric power station at Shivasamudram in Karnataka. In spite of this early beginning, the progress was not impressive till 1947. The installed capacity was low as 19 lakhs kws and the development was mainly concentrated around urban centers.

During the Second Plan , emphasis was on the development of basic and heavy industries , and related need to step up power generation . The installed capacity at the end of Second Plan reached 47 lakh kws mark (table 6.25).

Table 6.25
Electricity-Installed Capacity , Generation and Percapita Consumption (Utility only)

(Installed capacity: Million kws)
(Generation : Crore kwhs)
(Percapita consumption :kwh)

Financial Year	Installed capacity	Generation	Percapita consumption
1950-51	2.3	657.5	17.3
1955-56	3.4	1077.7	23.0
1960-61	4.6	1693.7	37.9
1965-66	10.2	3682.5	61.3
1970-71	14.7	5582.8	89.8
1975-76	22.2	8592.6	109.9
1980-81	30.2	11084.4	132.3
1985-86	-	-	-
1990-91	74.7	26432.9	252.8
1995-96	83.3	37987.7	336.4
1999-00	97.9	48105.5	364.5
2000-01	121.0	-	-

Source: 1. CSO, Basic Statistics relating to Indian Economy, 1950-51 to 1972-73, December,1974
2. . CSO, Basic Statistics relating to Indian Economy, 1950-51 to 1975-76, August,1977
3. . CSO, Basic Statistics relating to Indian Economy, 1950-51 to 1978-79, July,1980
4. Statistical Abstract, , CSO, GOI, Department of Statistics, Ministry of Planning and Programme implementation, New Delhi , 1997 and 2002 .

The emphasis in the Third Plan was on extending power supply to the rural areas. To realize this goal th country was divided into five regions to

promote power development on a regional basis (i.e. Power Grid System) and further a Regional Electricity Board was established in each region . The three Annual Plan that follow the Third Plan aimed at consolidating the programmes initiated during the Third Plan. As a result total installed capacity in 1970-71 stood at 147 lakh kws.

The Fourth Plan envisaged the need for central participation in the expansion of power generation programmes at strategic locations. During the Fifth Plan , the main emphasis was on the speeding up the construction and commissioning of power generation projects and improving the utilization of the available capacities . During this period , Power stations with a total installed capacity of 77.2 lakh kws were commissioned from April 1974 to March 1978 as a result of which total installed capacity in the country reached at about 302 lakh kws in 1980-81.

Power generation programmes , however , made phenomenal progress with the advent of the Five Year Plans . During the First Plan construction of a number of major river valley projects was taken up and these projects resulted in the stepping up of food production and also power generation. At the end of First Plan the generation capacity stood at 34 lakh kws .

During 1998-99 , the Govt. of India announced a policy on Hydro-Power Development with a view to exploiting the vast hydropower potential available in the country at a faster rate . Action has been initiated to add nearly 4,100 MW hydel capacities by 2004-05.

Thermal power which is generated by coal and oil has always been the major source of electric power in India. In absolute terms installed capacity of thermal power had increased from 1,150 MW in 1950-51 to 73,600 MW in 2000-01 ; but in relative terms the share of thermal power had increased from 67 per cent to 73 per cent during this period .

Table 6.26
Power Generation and Achievements

(in MW)

Item	Addition to the installed capacity		Percentage shortfall
	Target	Achievement	
First Plan	1,300	1,100	15
Second Plan	3,500	2,300	36
Third Plan	7,000	4,500	36
Fourth Plan	9,300	4,600	50
Sixth Plan	19,670	14,230	28
Seventh Plan	22,250	21,500	4
Eighth Plan	30,540	16,420	46
Ninth Plan	40,250	19,015	53

Source : Various Five Year Plans

The table 6.26 shows that the targets of power generation were not reached in any of the plans completed so far. In every Five Year Plan there was a shortfall in achievements – 15 per cent in the 1st plan and as much as 50 per cent in the 4th Plan and 53 per cent in the 9th Plan. The cumulative result of slackness in this basic area of planning is that power crisis threatens to choke the growth process of Indian economy. In fact, it seriously damaged the targets of the Fourth and Fifth Plans. Accordingly, the Sixth Plan (1980-85) put maximum emphasis on power generation; even then, there was a shortfall of 28 per cent in the power generation targets.

In the Seventh Plan period, the generation capacity added was about 21,500 MW, as against the targeted figure of 22,250 MW. The shortfall of 4 per cent during the Seventh Plan period was the lowest.

The Working Group on Power of the Planning Commission had initially estimated that, even to maintain the then current level of shortages in power sector – around 20 per cent of demand shortage- the existing capacities would have to be increased by at least 48000 MW during the Eighth Plan . This was latter scaled down to 30,560 MW owing to lack of funds. The actual capacity addition in Eighth Plan was only around 16,420 MW. The main reason for this huge shortfall was the govt. withdrawal of budgetary support for power projects in the expectation that Independent Power Producers (IPP) would come up with the necessary investments.

The Working Group envisaged a capacity addition of 46,820 MW during the Ninth plan (1997-02). However, considering the status of on going projects and other sanctioned ones, the Planning Commission targeted a capacity addition of only 40,250 MW in Central, State and private sector. The whole exercise was indeed farcical.

During the Tenth Plan the Working Group initially estimated a feasible capacity addition of about 46,940 MW. The government has proposed to enhance public funding for the power sector and also encourage public sector undertaking to take up power projects in joint ventures with private Investors and State Governments.

With the setting up of the Rural Electrification Corporation (REC) in 1969 , electrification of villages , and energisation of agricultural pump-sets have considerably increased as shown in the following table 6.27. In 1950-51, only 3 thousand villages were electrified. This number goes up to 250 thousand in

Table 6.27
Progress of Rural Electrification

Year	Number of villages electrified (in thousand)	Number of pumpsets energized (in millions)	Percentage of total villages electrified
1950-51	3	0.02	--
1960-61	22	0.19	--
1979-80	250	4	--
1984-85	370	6	--
2001-02	507	12	--
According to 1981 census	497.745	--	85.9
According to 1991 census	508.035	--	86.76

Source: (i) Statistical Abstruct- 1997 & 2002 ,
(ii) Planning Commission, Tenth Five-Year Plan, (2002-07),Vol. II
(iii) Census Report- 1981 & 1991

1979-80 and 307 thousand in1984-85 and 507 thousand in 2001-02. As per 1981 census, out of total 579132 villages, 497745 villages , constituting 85.9 per cent were electrified . The report of 1991 census revealed that out of total 587258 villages in India 508035 villages, constituting 86.76 per cent were electrified.

In early stages, emphasis was on village electrification. However, the serious famines of mid sixties focused attention on the need to stabilize agriculture through exploitation of ground water resources. For this purpose, the energisation of pump sets was considered important and hence the emphasis shifted from village electrification to energisation of pump sets. The number of pump sets energised in 1950-51 was only 0.02 million where as in2001-02 it increased to 12 millions.

According to the Tenth Five-Year Plan (2002-2007), around 80,000 villages in the country are yet to be electrified. 13 States have declared 100 per cent electrification of their villages.

Power development during the last 50 years has been significant. However, there has been chronic power shortage for the last 50 years. The commissioning of new capacity has considerably fallen short of targets. Power cuts and load-shedding have been frequent and have had adverse effect on production and employment. Power cuts have also been due to sub-optimal performance of considerable number of thermal units. The installed turbines and other vital plant parts have often shown a tendency towards breakdown due to manufacturing deficiencies or insufficient handling. The chronic power shortfall

Table 6.28
Gross Irrigated Area in India

(in million hectares)

Year	Gross Irrigated Area	Total cropped area	Gross Irrigated Area as % of sown area
1950-51	23	133	17
1970-71	38	166	23
1990-91	62	186	34
1999-2000	76	193	39

Source : Agricultural Statistics at a Glance (2002)

calls for urgent remedial action. Furthermore, equally important is the better utilization of the irrigation and power facilities already created. So far we have failed hopelessly in getting the maximum benefit out of our investment in irrigation and power development, because irrigated land has not been contributed its maximum to agricultural output. The above table no.6 shows a very painful picture that , even after more than 50 years of independence only 39 per cent of the sown area was irrigated in 1999-2000 . Theoretically, irrigation should make double cropping possible, if not multiple cropping. But the bulk of the irrigated area in India still continues to be single crop area. In 1950-51, only 1.7 million hectares or 8.1 per cent of net irrigated area was sown more than once; the percentage rose to 13.5 in 1960-61 and 23.7 in 1973-74. In 1998-99 this figure had increased to 18.6 million hectares or 33 per cent of the net irrigated area. The full utilization of existing irrigation resources alone can boost food grain production.

6.3.3 Expenditure on Industry and Minerals

Industry has a major role to play in economic development of the underdeveloped countries. The gap in per capita incomes between the developed and under developed countries is largely reflected in the disparity in the structure of their economies; the former are largely industrial economies, while in the latter production is confined predominantly to agriculture. On the other hand minerals are in many ways the foundation of economic progress, because they provide raw materials for heavy industries, engineering, chemical and other industries, the creation, and expansion of which constitute the very essence of economic development. The process of industrilisation was lunched by the government of India as a conscious and deliberate policy of economic growth in the early fifties.

Besides the trade gap, the underdeveloped countries are facing a relentless increase of population combined with a likelihood of diminishing return in agriculture which is instrumental in creating the trap of poverty. The net value of output per person is higher in industry than that of agriculture. In industry, the scope for internal as well as external economies is greater than that of other sectors and certainly greater than that of agriculture. Industrialization also leads to the creation of economic surplus in the hands of industrial producers for further investment.

Indian economy is characterized by surplus labour and growing population. To absorb all this surplus labour, as also to provide work/job at a rate commensurate with the addition to the labour force, it is essential to industrialize the country quickly.

The table 6.28 shows that in 1950-51 , the total expenditure on industries and minerals in money terms was Rs. 23.11 crores . It roses to Rs. 6762.24 crores in 2000-01, showing a per cent increase of 29161. On the other hand, in real terms (at 1993-94 prices) total expenditure on industries and minerals increased from Rs.334.44 crores in 1950-51 to Rs. 4073.88 crores. in 2000-01 showing an increase of 1118.12 per cent during the same period. The per capita expenditure in money terms on industries and minerals was Rs. 0.64 in

1950-51 and rose to Rs. 67.15 in 2000-01, showing a percentage increase of 10392 whereas in real terms the same has registered an increase of 334.12 per cent from Rs. 9.32 in 1950-51 to Rs. 40.46 in 2000-01. The proportion of total social and developmental expenditure devoted to industries and minerals shows that it increased from 6.53 per cent in 1950-51 to 12.38 per cent in 1985-86. But 1990-91 and onward it continued to decrease from 0.85 per cent in 1990-91 to 0.38 per cent in 2000-01.

Table 6.28
Expenditure on Industries and Minerals at current & Constant Prices (1950-51 to 2000-01)

Financial Year	At Current Prices		At 1993-94 Prices		Total exp. on Industries & Minerals as % of social & dev. expenditure	Total exp. on Industries & Minerals as % of total govt. expenditure	Total exp. on Industries & Minerals as % of NI
	Total exp. on Industries & Minerals (in Crores)	Per capita exp. on Industries & Minerals (In Rs.)	Total exp. on Industries & Minerals (in Crores)	Per capita exp. on Industries & Minerals (In Rs.)			
1950-51	23.11	0.64	334.44	9.32	6.53	2.38	0.25
1955-56	41.59	1.05	671.89	17.10	5.53	3.00	0.42
1960-61	141.77	3.26	1792.29	41.30	11.48	4.54	0.93
1965-66	250.78	5.17	2283.97	47.09	10.89	3.89	1.05
1970-71	462.93	8.55	3214.79	59.42	13.08	2.76	1.18
1975-76	1103.77	18.18	5017.14	82.65	13.49	5.94	1.59
1980-81	1772.99	26.11	5450.32	80.27	10.00	5.01	1.49
1985-86	4761.43	63.06	9874.39	130.80	12.38	6.32	2.15
1990-91	3846.58	45.84	5248.44	62.56	5.19	2.47	0.85
1995-96	5086.06	54.86	4254.34	45.89	4.02	1.73	0.54
2000-01	6762.24	67.15	4073.88	40.46	2.86	1.23	0.38

Source: For total expenditure on Industries and Mineral at current prices

(i) Indian Economic Statistics, Public Finance, December 1980 and December-1988, GOI, Ministry Of Finance, Economic Division
(ii) Indian Public Finance Statistics- 1990, 1996 and 2002-2003, Ministry of Finance, Department of Economic Affairs.
(iii) Data relating to 1950-51 to 1979-80 has been collected from Kumar, V (1986)

Figures of other column are computed on the basis of the data given in Table 1, 2, 3, 5 and 9 of Statistical Appendix

The proportion of total govt. expenditure devoted to industries and minerals also shows the same trend. In 1950-51 it was 2.38 per cent from where it rose to 6.23 per cent in 1985-86. After the adoption of new economic policy in

1991 , the same declined continuously from 2.47 per cent in 1990-91 to 1.23 per cent in 2000-01.The proportion of national income devoted to industries and minerals too shows the same trend . It rose from o.25 per cent in 1950-51 to 2.15 per cent in 1985-86, and thereafter it shows a continuous declining trend and finally it reached to 0.38 per cent in 2000-01.

6.3.3.1 Critical Appraisal: The process of industrialization during the last fifty years since 1951 has been striking feature of Indian economic development. The process of industrialization, lunched as a conscious and deliberate policy under Industrial Policy Resolution of 1956 and vigorously implemented under five year plans, involved heavy investments in building up capacity over a spectrum of industries. As a result, over the last 50 years, industrial production went up by 5 times, making India the tenth most industrial country of the world. While almost all groups of industries contributed to this increase, the growth has been particularly marked in the newer and more complex industries such as petroleum products, chemical and chemical products, metal products, electronics and other electrical machinery, transport equipment and power generation. The share of manufacturing sector in the GDP increased from 8.9 per cent in 1950-51 to 13.8 per cent in 1980-81 and further to 16.8 per cent in 2001-02 .Side by side, different Five-Year Plan periods saw the expansion and diversification of industrial structure with the establishment of new units in the existing fields as well as the setting up of new enterprises. As a result, the number of industrial units has increased significantly. In 1951, there were only two major units producing iron and steel. By 1990-91, iron and steel industry had six integrated plant with an installed capacity of 10 million tonnes of steel ingots, and it made a significant progress – from 1 million tonnes of finished steel in 1950-51 to 30.6 million tonnes in 2000-01.

Industrial Development During the Five-Year Plans:

On the eve of First plan, industrial development in India was confined largely to the consumer goods sectors. No big effort was contemplated to industrialize the economy. Rather the emphasis was to build basic services like power and irrigation so that the process of industrialization can be facilated. The

important consumer goods industries being cotton textiles, sugar salt, soap, leather goods and paper. Industries manufacturing intermediate goods like coal , cement, steel, power, alcohol , non-ferrous metals , chemicals , etc. were established but their production was small as production capacity was considerably below the requirement (except cement) .

The First Plan was not important as far as industrial development is concerned. Out of total expenditure of Rs. 1960 crores in the Plan, the industrial sector received just Rs. 55 crores which is meager 2.8 per cent . However, a number of industries were set up in the public sector during the First Plan and started production. Important projects in this category included Hindustan Shipyard, Hindistan Machine Tools, Sindri Fertilizer Factory (Ammonium Sulphate) Hindustan Autobiotics, Hindustan Cables, Hindustan Insecticides, Integral Coach Factory and U.P government Cement Factory etc. The rate of growth of output in the large-scale manufacturing sector in the First Plan was 6 per cent per annum against the target of 7 per cent per annum.

Despite the fact that the First Plan only aimed to utilize the existing capacity to the full, the general index of industrial production recorded on increase of 39 per cent during the plan.

The Second Plan (1956-61) accorded top priority to the programme of industrialization. Based on Mahalanobis model and Industrial Policy Resolution of 1956 , this plan set out the task of establishing basic and capital goods industries and expansion of public sector on a large scale so that a strong base for industrial development in the future could be built .

During the Second Plan a major task in industry was the building up of three steel plants in the public sector: Rourkela Steel Plant in Orissa, Bhilai Steel Plant in Madhya Pradesh and Durgapur Steel Plant in West Bengal. The other programmes of industrial development included the manufacturing of electrical equipment, expansion of Hindustan Machine Tools, expansion of Sindri Fertilizer factory and the establishment of Fertilizer plant at Nagal, and further expansion of Hindustan Shipyard and Chittaranjan Locomotive factory.

The Second plan also witnessed a major diversification of the industrial spectrum. It strengthened further the programmes of development in respect of oil exploitation and coal and made a beginning with the development of atomic energy.

Most of the investments in the Second Plan were in heavy and basic industries. There was also rapid expansion of machine-building industries for the use in agriculture and transport and for such industries as chemicals, textile, jute, cement, tea, sugar, flour and oil mills, paper, mining etc. Good progress was also recorded in modernization and re-equipment of important industries such as jute, cotton textiles, and sugar. A number of new industrial items like, industrial boilers, milling machines, tractors, motor cycles, scooters, etc. were also produced in large quantity.

In the sphere of village and small scale industries some progress was recorded. About 60 industrial estates comprising 1,000 small factories were set up. In small establishments like machine tools, sewing machines, electric motors, fans, bicycles, hand tools etc. production increased from 25 t 50 per cent during this five-year period . Khadi, handloom and power loom cotton production increased from 1,610 million metres to 2,150 million metres.

The overall objective for the industrial sector during the Third Plan (1961-66) was to lay the foundation for further rapid industrialization over the last 15 years. During this period it was considered essential to go ahead with the establishment of basic capital and producer goods industries – with special emphasis on machine building programmes – so that the growth of the economy in the subsequent plans could become self-sustaining and balanced with agriculture. Top most priority in this plan was accorded to the completion of projects started in the Second Plan. The second priority went to the programmes on expansion and diversification of capacity of the heavy engineering and machine building industries, castings and forgings, alloy tool and special steels, iron and steel and ferro-alloys and stepping up of output of fertilizers and petroleum products . Increased production of major basic raw materials and

producer goods like aluminium, mineral oils, basic organic and inorganic chemicals etc. and of commodities to meet essential needs like drugs, paper, cloth, sugar, vegetable oils and housing materials was also emphasized .An overall target of 70 per cent increase in industrial production was envisaged in this plan .

The Third Plan reflected the first stage of a decade or more of intensive development leading to a self-reliant and self-generating economy. Engineering industries like automobiles, cotton textile machinery, diesel engines, electric transformers and machine tools, advanced according to set-targets as did industries such as petroleum products, heavy chemicals, cement, etc. Mining and extractive industries also showed considerable progress. It was during this period that a fairly sound base for future industrial growth was laid through the completion of projects of the HEC for manufacture of machinery and equipment for steel plants, the MAMC for the production of mining equipment and Bharat Heavy Electricals for power generation and transmission equipment.

Industrial progress was very much uneven during the eight years which comprised the Third Plan (1960-61 to 1968-69), and the subsequent Annual Plans (1966-67 to 1968-69). The index of increase of industrial output index (1969 as base) was 11.3 per cent in 1961-62 , 9.5 percent in 1962-63, 9.3 per cent in 1963-64 and 8.8 per cent in 1964-65.There after , there was a sharp deterioration in the rate of growth of output .It fell to 5.3 per cent in 1967-66, 0.6 per cent in 1966-67, and 1.6 per centin1967-68. The decline in these years was mainly due to low rates of growth in textiles and food industries, on the one hand, and metals and machinery industries, on the other. Industrial production, however showed a sharp recovery during 1968-69 with a rise of 6.8 per cent. In spite of this uneven performance, significant achievements contributing towards the realization of diversified industrial structure were made during this period. Substantial capacity was created in many new lines. Several of the large projects launched at the commencement of the Third Plan were completed and brought into stream.

In the Fourth Plan, the performance of industrial sector fell short of expectation. Industrial production during this Plan period increased only by 3.9 per cent per annum against the target growth rate of 8 to 10 per cent per annum. A number of factors were responsible for this sluggish growth during the Fourth Plan, the more important being: (i) sluggishness of demand; (ii) shortage of basic raw materials; (iii) labour problems; and (iv) traffic bottlenecks which affected the bulk industries like coal, cement, steel, limestone, iron ore, manganese; (v) low level of capacity utilization in a number of industries and lag in capacity creation. On the positive side, there was a substantial production increase in several industries like alloys and special steels aluminium, automobile tyres and heavy electrical equipment. The production in public sector undertakings also showed an encouraging rise towards the closing years of the Plan. These played a vital role in achieving sophistication and self-reliance in Indian industry.

The Fifth Plan laid emphasis on rapid growth of the core sector industries and increase in the production of export oriented goods and articles of mass consumption keeping in view the objective of self-reliance and growth with social justice. As against an average rate of growth of industrial production of 7 per cent envisaged during the Fifth Plan, the actual rate of growth achieved during 1974-75 was 2.6 per cent; during 1975-76 it was 6 per cent; during 1976-77 was 9.5 per cent and during 1978-79 it was 3.9 per cent.

The Sixth Plan laid emphasis on the structural diversification, modernization and self-reliance. During this plan period industrial production increased by about 5 times; industrial structure had been widely diversified covering broadly the entire range of consumer, intermediate and capital goods. This rapid industrialization was accompanied by a corresponding growth in technological and managerial skills. However, a review of the progress of the industrial growth during the Sixth plan reveals that as against the target of 7 per cent growth in industrial production, the growth rate achieved was 5.5 per cent. This was lower than the trend growth rate of 6 per cent witnessed in the earlier three decades.

In accordance with the guiding principles of the Seventh Plan, industrial production was targeted to grow at the rate of 8 per cent per annum. The actual average rate of growth during the Seventh Plan works out at 8.4 per cent per annum. This satisfactory performance was mainly due to manufacturing sector. The manufacturing sector registered an average growth rate of 8.8 per cent which is well above its target of 8 cent per. But, in electricity and mining and quarrying segment of industrial output lagged behind the Seventh Plan targets. However, the overall review of the progress of the seventh plan reveals that the annual rate of growth of industrial sector during the Seventh Plan period was 8.5 per cent which though marginally lower than the targeted 8.7 per cent was much higher than the 3.5 per cent achieved during the Sixth Plan.

The Eighth Plan was formulated under a new environment when a number of reforms in industrial, fiscal, trade and foreign investment policies were introduced in the economy which is commonly described as economic liberalization. Henceforth, private sector begins to play greater role in the process of development. During this plan period overall rate of industrial production increased from 2.3 per cent in 1992-93 to 6.0 per cent in 1993-94, and to 9.1 per cent in 1994-95 and a respectable 13.0 per cent in 1995-96. But year 1996-97 witnessed lower growth rate in almost all the sub-sectors of the industry. Thus industrial production slumped to 6.7 per cent in 1996-97, resulting in an average growth rate of 7.3 per cent against the target of 7.4 per cent in the plan.

The rate of growth of GDP during the Eighth plan was close to 6.7 per cent per annum which has dropped to 5.35 per cent during this plan. This was against the target of 6.5 per cent for the Ninth plan. This was because of short fall of sectoral gargeted growth rates. The Ninth Plan targeted a growth rate of 8 per cent for industry, but realized growth rate was only 5.0 per cent which was even lower than the growth rate of 7.3 per cent realized in the Eighth Plan. As against the target of 5.9 per cent for mining, the realized growth rate was barely 2.5 per cent. Similarly achievement in manufacturing was 5.3 per cent as against the target of 8.2 per cent and in electricity; the realized growth rate was 5.5 per cent as against the target of 9.3 per cent. Agricultural sector experienced a growth rate of 2.06 per cent during this plan period as against 4.69 per cent in

the previous plan period. Since agriculture and manufacturing account for nearly half of the GDP, they together pulled gown the overall GDP growth to a level of 5.35 per cent. The reasons for the sluggishness were to some extent, Asian crisis in 1997 and subsequent reduction in growth rates in the other parts of the world. This coupled with lower than expected public investment as well as the relatively poor performance in agriculture sector led to reduction in the demand for the industrial goods and subsequent reduction in growth in the industrial sector. There were some natural calamities during this period like cyclone in Orissa, earthquake in Gujrat, Kargil war, etc. which resulted in diversion of resources from investment and consequent decline in the growth rates. In this way, it may be stated that the Ninth Plan was a failure

The post-independence industrial growth in India is characterized by the rapid expansion of the public sector up to 1990 .At the inception of the First Plan, there were only 5 industrial and commercial undertakings of the Central Government with an investment of Rs. 29 crores. In 1990 they numbered to 244 with an investment of Rs. 99,330.00 crores. But after opening up of the economy to the private sector and facilitating the entry of foreign investors and divest part of government holdings in selected PSEs as complemplated in the Industrial Policy of 1991 , the numbers of industrial and commercial under takings of the central government have slightly came down to 242 with an investment of Rs 2,74,198.00 crores . these enterprises produce diverse products such as steel , coal , aluminium , fertilizer , basic chemicals , drug , minerals , petroleum products , locomotives aircraft and ship . Overall performance of the Indian Economy in the post-reform period has been good. The average growth rate of the industrial sector during this period was 9.5 per cent, with the growth rate touching a high of 12.1 per cent in 1995-96. Within overall industrial production, the average growth rate of manufacturing was 10.6 per cent. This strong growth rate was reflected in all segments. The rate of growth of the capital goods sector was particularly strong, with the average for the three-year period being16.2 per cent. However, there has been a marked decline in the growth rate in industrial production in 1997-98 with the growth rate dropping to 4.2 per cent and during the ninth plan the rate of growth of the industry was 5.0 per cent per annum.

During the planning era significant progress has been made in the field of science & technology. India now ranks third in the world in respect of technology, talent and manpower. Indian scientists and technologists are working through out the world in many areas on the frontiers of todays knowledge in industry, nuclear power and space research and communication. Since independence, the major thrust of agricultural education, research and extension has been the development of techniques to improve agricultural productivity, the discovery and use of new seeds, control of pests etc. . However, Indian industry had spent very little on science and technology in modernizing technology of the established units, in adopting imported technology to Indian conditions, to develop competitive new technology etc. But credit must be given to the Government for promoting research design and development in industry through several measure like liberal incentives for setting up in-house research and development unit, free licensing of industries based on indigenous technology etc. Generally, India has to come to acquire as well develop infrastructure of research and development. Other major science and technological effort has been in such diverse fields as meteorology; space science and technology, mining, and mines safety, communications, shipping and transport, petroleum and petrochemicals , information and broadcasting , housing , health and family welfare etc. However, without underestimating the industrial expansion initiated during the plan period, it may be noted that much of the industrial growth is only apparent and not real because of the following reasons-

(i) the share of industrial sector to the GDP(at 1993-94 prices) was 14.8 per cent in 1950-51 and it rose to 23.7 per cent in 1980-81 and to 26.6 per cent in 2001-02 . But in terms of contribution to GDP, the share of industrial sector as against the share in most of the developed nations which ranged between 29 and 49n per cent continues to be low.

(ii) The process of industrialization has not been able to solve the problem of unemployment in India. It is evident that between 1960and 1965, the rate of growth of employment in factory sector was 6.6 per cent but during 1965-70, it slumped to a level of 1.3 per cent (Dutta .R and Sundhram , K.P.M, 2004) . This is less than the increase in labour force. The result is that in India, even in 1970 foctory employment

asorbed only 2 pert cent of labour force . The result did not however, improve even today. In industrial sector, employment growth rate was 2.90 per cent during 1983 to 1993-94 , the figure increased marginally to 3.14 per cent during 1993-94 to 1999-2000 (source: Indian Economy , Dutta .R and Sundhram , K.P.M, 2004) .

(iii) The process of industrialization has resulted in the rapid expansion of the large scale industrial sector in comparative neglect of the small and the medium sectors. The structure of factories on the basis of employment reveals that there are only 1,096 large factories (1.4 per cent) in 1966-67, which employed more than 1,000 persons. However, the contribution of these large factories was 45 per cent in terms of employment , 70 per cent in terms of fixed capital and 53 per cent in terms of value-added by manufacturer(source:Indian Economy , Dutta .R and Sundhram , K.P.M, 2004) . Therefore, there was a heavy concentration of economic power, in terms of productive capital , employment and output with the large-sector factories . As against this, the small factories contributed 79 per cent of the total number of factories and their contribution was little more than 5 per cent in fixed capital, 15 per cent in employment and 8.6 per cent in value added by manufacturer. The study of structural transformation of Indian industries reveals that there was a clear shift in favour of basic and capital goods sectors . This group accounted for about 50 per cent of productive capital in 1959 but in 1991-92 , its share in productive capital rose to nearly 79 . In total employment, its share rose from 25 per cent to 52 per cent between 1959 and 1991-92. Similarly, the contribution in value added improved from 37 per cent to 56 per cent during this period. Basic industries which include iron and steel, fertilizers, chemicals, cement, non-ferrous metals have thus improved their position significantly under the impact of industrialization. On the other hand , during the same period the share of consumer goods industries such as textiles , sugar , paper , tobacco etc. , declined in terms of productive capital , employment and value-added (source: Indian Economy , Dutta .R and Sundhram , K.P.M, 2004) .

(iv) Another disquieting feature of the industrial development in the last five decades reflects that an unduly large share of resources being absorbed in the production had directly or indirectly to maintained or improved the living standards of the higher income groups. Consumer durables like refrigerators , air conditions , TVs , cars and scooters ,etc. ,go to satisfy the wants of the richer sections of the community while the consumer non-durables like sugar , tea , cotton , cloth , vanaspati , matches , etc. , enter into mass consumption . Between 1961 and 1974 the industries producing non-durables recorded very slow growth rate (2.6 per cent) and this was an important factor for inflationary rise in price level. It resulted in wiping out the increase in real wages and, consequently, an era of strikes followed which in turn slowed down production. On the other hand, the capitalists were able to appropriate the gains of inflation and thus, could boosted the demand for consumer durables.

Table 6.29
Average Annual Growth Rate of Production

	1974-79 V Plan	1980-85 VI Plan	1985-90 VII Plan	1993-94 to 2000-01
Basic industries	8.4	8.3	7.4	5.8
Capital goods industries	5.7	7.1	15.7	7.5
Intermediate goods	4.3	6.2	5.5	8.5
Consumer goods	5.5	6.5	6.6	7.4
(a) Durables goods	6.8	15.2	12.1	12.4
(b) Non-durables goods	5.4	5.3	5.4	6.1

Source : Govt. of India , Ministry of Industry . Hand Book of Industrial Statistics(1987) and RBI , Hand book of Statistics on Indian Economy, 2001 .

The situation continued to be similar during 1974 to 2000-01. It appeared from the above table 6.29 that the deceleration in consumer goods industries output, more especially of non-durable consumer goods has been modest since 1980-81 except for consumer durables which has been zooming forward.

Table 6.29 (a)
Minaral Prodction- Quantity

Item	Unit	1950-51	1960-61	1970-71	1981	1990-91	1995-96	2000-01
Fiel								
Coal	th. Tonnes	32,826	52,593	71,499	123,104	211,616	273,415	313,696
Lignite	th. Tonnes	34	47	3,660	5,966	14,073	22,144	22,947
Natural Gas	mill.cu.mtr		17	76	200	12,869	20,916	27,860
Petroleum (crude)	th. Tonnes	269	454	7,185	14,925	33,021	34,517	32,426
Metalic Mineral								
Boxite	th. Tonnes	65	387	1,517	1,955	4,984	5,564	7,993
Chromite	th. Tonnes	17	107	273	343	939	1,699	1,971
Iron ore	th. Tonnes	3,013	16,609	34,261	41,618	55,591	67,423	80,762
Copper ore	th. Tonnes	366	448	666	2,109	5,255	4,737	
Manganese ore	th. Tonnes	897	1,452	1,841	1,532	1,492	1,837	1,595
Gold	Kg	6,125	4,995	3,656	2,495	2,207	2,036	2,615
Lread concentrates	Tonnes	2,008	6,245	4,262	19,951	44,237	61,583	54,493
Zinc concentrates	Tonnes	666	9,787	15,855	52,925	136,958	289,072	366,095
Non-metallic minerals								
Asbestos	Tonnes	212	1,711	11,139	27,521	37,639	23,844	15,397
Limestone	th. Tonnes	2,304	12,935	25,079	32,441	70,125	95,781	127,202
Gypsum	th. Tonnes	210	997	1,088	957	1,589	2,195	2,644
Barytes	th. Tonnes	12	17	59	405	509	442	845
Diomond	Carat	1,674	1,313	19,383	14,834	17,976	29,931	57,407
Magnesite	th. Tonnes	54	156	296	462	528	345	317
Mica- crude	Tonnes	9905	29,226	14,855	8,534	4,062	1,832	1,154

Source: i) CSO, Basic Statistics Relating to Indian Economy, December 1974, January 1979, July 1980
ii) CSO, Statistical Abstruct India, 1997 and 2002 Ministry of Statistics and Programme Implimentation, GOI.

6.3.4 Expenditure on Transport and Communication

If agriculture and industry are regarded as the body and the bones of he Indian economy, transport and communications constitute its nerves which help the circulation of men and materials i.e. makes trade possible. The transport system helps to broaden the market for goods and by doing so, it makes possible large-scale production through division of labour . It is also important for the movement of raw materials, fuel, machinery etc., to the production place.

Transport development helps to open up remote regions and resources for production. Regions may have abundant agricultural, forest and mineral resources but they can not be developed if they continued to be remote and inaccessible. By linking the backward regions with the relatively more advanced, transport development helps in the better and fuller utilization of resources. Further more, expansion of transport facilities, in turn helps industrialization directly. The demand for locomotives, motor vehicles, ships etc. leads to the start of industries which specialize in the production of these goods. Expansion of transport is thus of fundamental importance for a developing countries like India.

Indian planner gave high priority to the development of transport. According to them "*an efficient and well developed system of transport and communications is vital to the success of a plan of economic development which lays stress on rapid industrialization*" (Second Five Year Plan (1956-61), p.459).Accordingly the allocation on the transport sector was quite high during the first three plans and during this period it accounted between 25 and 28 per cent. The allocations in the next successive plans on transport sector declined gradually. The Eighth Plan outlay, for transport was only 13 per cent of the total outlay.

In the field of transport and communications, the Railways and Post and Telegraphs are a monopoly of the Central Government; it is only in the road transport and riverine navigation that the State can play a significant role. In India roads constitute one of he most important modes of transportation. Construction and maintenance of the national high ways is the responsibility of Central

Government. The State Governments are responsible for the development of the State Highways connecting the various district headquarters and the State capital with other important towns, while the construction of suburban roads is the responsibility of the local bodies.

Table 6.31

Expenditure on Transport & Communication at Current and Constant prices (1950-51 to 2000-01)

Financial Year	At Current Prices		At 1993-94 Prices		Total exp. on Transport & Communication as % of social & dev. expenditure	Total exp. on Transport & Communication as % of total govt. expenditure	Total exp. Transport & Communication as % of NI
	Total Expenditure (in Crores)	Per capita expenditure (In Rs.)	Total expenditure (in Crores)	Per capita expenditure (In Rs.)			
1950-51	37.75	1.05	546.58	15.23	10.67	3.90	0.41
1955-56	79.08	2.01	1278.10	32.52	10.52	5.71	0.81
1960-61	112.68	2.59	1424.69	32.83	9.12	3.61	0.74
1965-66	291.30	6.00	2652.07	54.68	12.66	4.52	1.22
1970-71	170.41	3.15	1183.34	21.87	4.81	1.02	0.44
1975-76	962.65	15.86	4375.46	72.08	11.76	5.18	1.39
1980-81	2423.68	35.69	7449.75	109.70	13.68	6.85	2.05
1985-86	4096.45	54.26	8496.06	112.50	10.65	5.36	1.85
1990-91	6597.93	78.64	9002.63	107.30	8.91	4.25	1.46
1995-96	9805.86	105.78	8202.00	88.48	7.75	3.34	1.04
2000-01	28529.83	283.32	17187.98	170.70	12.08	5.19	1.61

Source: For data relating to expenditure on Transport and Communication at current prices

(i) Indian Economic Statistics, Public Finance, December 1980 and December-1988, GOI, Ministry Of Finance, Economic Division.

(ii) Indian Public Finance Statistics- 1990, 1996 and 2002-2003, Ministry of Finance, Department of Economic Affairs.

(iii) Data relating to 1950-51 to 1979-80 has been collected from Kumar, V (1986).

Figures of other column are computed on the basis of the data given in Table 1, 2, 3, 5 and 9 of Appendix

Table 6.31 shows that the total expenditure on transport and communications in money terms was Rs. 37.75 crores in 1950-51, which has gone up to Rs. 28529.83 crores in 2000-01 showing a percentage increase of 75476.37. In real terms, total expenditure on this head increased from Rs. 546.58 crores in 1950-51 to Rs. 17187.98 crores in 2000-01 – an increase of 3044.64 per cent. The per capita expenditure on transport and communications increased

both in money as well in real terms. In money terms it increased from Rs. 1.05 in 1950-51 to Rs. 283.32 in 2000-01 – showing an increase of 270 times. In real terms it increased to only 11 times during the period from Rs. 15.23 in 1950-51 to Rs. 170.70 in 2000-01.The proportion of total social and developmental expenditure devoted to transport and communications increased from 10.67 per cent in 1950-51 to 12.08 per cent in 2000-01 with a fluctuating trend and the proportion of total government expenditure and national income devoted to transport and communications increased by 33.07 per cent and 292.68 per cent respectively during the period with a fluctuating trend as well.

6.3.4.1 Critical Appraisal: In the field of transport, railways constitute the largest transport agency and play a vital role in the development of national economy. And therefore, Government of India has attached the greatest emphasis to the planning of the railways, the main objective of which, was to expand railway traffic in such a way as to avoid bottlenecks in the production process and to ensure an efficient rail transport system.

The data given in table 6.32 reveal the trend towards modernization of Indian railway since 1950-51. In terms of route length, the railway network has grown by only 1.2 times between 1950-51 and 2001-02 but during the same period freight transport has increased by 5.2 times and passenger movement by 3.9 times. The increase in transport output has been brought about by more intensive utilization of the available assets, improvement in productivity and technological up gradation. The steam locomotives are being gradually replaced by diesel and electric locomotives. The number of steam locomotives has been drastically reduced from 8120 to 53 between 1950-51 and 2001-02. During 1950-51 and 2001-02 the number of diesel locomotive increased from 17 to 4815 and that of electric locomotive from 72 to 2871. Modernization and improvement of signaling and telecommunication are also going ahead.

Therefore, since independence, much has been done for rapid development of railway transport. However, the Indian Railways system is not an ideal one; still there are many drawbacks and defects. The Indian railway has

Table 6.32
Principal Characteristics of Railways

Year	Rout Length (in K.M)	Goods Originating (Mill. Tons)	Passenger originating (Million)	No. of locomotives in service(No.)				No. of coaches in service (No.)	No. of wagons in service (000)
				Steam	Diesel	Electric	Total		
1950-51	53,596	93.8	1,284	8120	17	72	8209	19,536	206
1955-56	55,011	115.9	1,275				9172	23,186	241
1960-61	56,247	157.6	1,594	10312	181	131	10,624	28,323	308
1965-66	58,399	203.0	2,082				11,743	32,832	371
1970-71	59,790	197.2	2,431	9387	1169	602	11,158	35,150	384
1975-76	60,216	223.3	2,945				11,095	36,738	396
1980-81	61,240	220.0	3,612	7469	2403	1036	10,908		401
1985-86	61,836	286.3	3,433	5571	3046	1302	9,919		360
1990-91	62,367	341.4	3,857	2915	3759	1743	8,417		346
1995-96	62,915	405.5	4,017	209	4313	2387	6,909		281
2001-02	63,140	489.0	5,000	53	4815	2871	7739	44,000	217

Source:(i) CSO, Basic Statistics relating to Indian Economy, 1950-51 to 1976-77, January, 1979
(ii) CSO, Basic Statistics relating to Indian Economy, 1950-51 to 1972-73, December, 1974
(iii) Statistical Abstruct India-1997 and 2002, CSO, Ministry of Statistics & Programme Implimentation,GOI, New Delhi

now become a unified State-enterprise. It is the country's biggest nationalized enterprise and one of the largest railway systems of the world with a capital base of about Rs. 55,000 crores, 63,000 KM route length, approximately 7,500 diesel and electric locomotives, 40,000 passenger coaches, 254,000 wagons and employing nearly 1.6 million staff . For long haul freight movement in the bulk and long distance passenger traffic, and for mass rapid transportation in suburban areas, railways occupy a unique position in the Indian economy. But taking the country as whole, the railway system is still highly inadequate and insufficient. There is a greater scope in India for the adoption of technical progress in railway which the western countries are constantly introducing. Electrification, dieselization, automatic signaling, etc., are important features of technological progress. It is important to note that the operational efficiency of the Indian railways is increased. It is evident from the fact that the number of accidents and casualties etc., have reduced significantly. 1414 persons were killed in 1995-96 on the railways as compared to 4117 persons in 1950-51. Still, there are many

scopes for making railway travel convenient and safe and therefore, replacement of old and overaged rolling stock, broadening of gauge and the problem of tickles travel are other problems which will have to be looked at urgently.

The road transport network is one of the largest of this kind in the world. Motor transport as well as road construction has contributed significantly to the growth of gross national product all over the world, but India have lagged behind in this regard. A large number of places are nit connected by railways. Therefore, the only means of transport in this area is the road transport. Furthermore, road transport provides door to door service within cities. It is more flexible as compare to other means of transport since it can change routes according to the requirements and convenience of the users. This means of transport is complementary to railways. Since it provides feeder services as goods arriving at the railway stations are dispatched to their destination through trucks or other means of road transport. Road transport is a better means of transport as compared to railways for carrying perishable product like milk and vegetable for moving quickly to the mandis and towns. Roads are highly significant for the defence of the country. Since railway tracks can not reach all nooks and corners of the country, it is the roads that enable the defence forces to move to areas inaccessible by railways in times of need. This is particularly so in the case of border area and hilly tracts.

Principal Characteristics of Road Transport

Table 6.33.a

Year	Road Length(KM.)			% Share of Surfaced Road	% Share of Unsurfaced Road
	Surface	Unsurface	Total		
1950-51	157019	242923	399942	-	-
1960-61	231152	246965	478117	-	-
1970-71	338815	346443	685258	43.35	56.65
1980-81	683676	801745	1485421	47.35	52.65
1990-91	1025215	976729	2001944	51.21	48.79
2000-01	1414547	1032120	2446667	57.82	42.18

Sourrce: (i) Statistical Abstract, India 1997 & 2002, Central Statistical Organization, Department of Statistics, Minister of Planning and Programme Implementation, Government of India, New Delhi
(ii) Economic Intelligence Service, CMIE, Infrastructure, May, 2006.

The table 6.33.a, b, c and d show the progress of road transport in India Since 1950-51. The total surface road length comprising national highways, State highways and other PWD roads. The total length of surface road was 157019 Km. in 1950-51, which has gone up to 1414547 Km. in 2000-01. Unsurfaced road length which were motorable was 1032120 Km. in 2000-01 as compared to 242923 Km. in 1950-51. Surfaced road length has increased by only 9 times during the period under study. In 1950-51, 39.26 per cent of total road length was surfaced which has increased by 18.56 percentage point to reach 57.82 per cent of total road length in 2000-01. Therefore, in 2000-01, still 42.18 per cent of total road length was unsurfaced. In terms of road density, we can say that in 1970-71, there was 121.06 km of surfaced, 158.17 km of unsurfaced road per thousand sq. km of total geographical area. These figures have increased to 430.31 km of surfaced road and 313.98 km of unsurfaced road of total geographical area in 2000-01. Total number of motor vehicles registrared was 306313 in 1950-51 which stood at 54991026 in 2000-01 i.e. increased by about 180 times during the period . Number of buses increased from 34411 in 1950-51 to 532508 (15 times) in 2000-01. The number of two wheelers which were amounted to 26860 in 1950-51 stood at 38556026 in 2000-01. The number of goods vehicles increased from 81888 in 1950-51 to 2948300 in 2000-01. The number of passenger car increased from 147712 in 1950-51 to 5297219 in 2000-01. The table 6.33.e shows that in 1980-81, 57.64 per cent of surfaced road length was double/multiple lane and 42.60 per cent of same was single lane. In 2000-01 however, despite the planned development the share of double/multiple lane in total surfaced road length have not increased too much. In 2000-01 only 61.09 per cent of total surfaced road length have double/multiple lane. In 1970-71, there were 203.22 number of vehicles per 100 km of road length. This figure has improved to 2372.78 numbers of vehicles per 100 km of road length (table 6.33.e). This shows an increase in vehicle density. This cause an increase in the number of accident per 100 km of road length (table 6.33.e). The increase in the number of motor vehicles playing on the road indicates the development of roads transport facilities. The expansion in road transport, however, has been restricted by high rate of taxation and the huge hike in oil prices. According to an unofficial

Principal Characteristics of Road Transport
Table 6.33.b

Year	Road Length(KM.)			Registration of Motor Vehicles by Type								
	Surface	Unsurface	Total	Two Wheelers	Auto Rickshaws	Jeeps	Cars	Taxis	Buses	Goods Vehicles	Miscellaneous	Total no. of Vehicles
1950-51	157019	242923	399942	26860	-	-	147712	11551	34411	81888	3891	306313
1960-61	231152	246965	478117	88360	6235	31670	256243	21663	56792	167649	35863	664475
1970-71	338815	346443	685258	575893	36765	82584	539475	60446	93907	342577	133668	1865315
1980-81	683676	801745	1485421	2530441	142073	120475	900221	100845	153909	565927	667503	5181394
1990-91	1025215	976729	2001944	14199858	617365	443734	2266506	243748	331100	1512884	1759005	21374200
2000-01	1414547	1032120	2446667	38556026	1777130	1126148	2944116	634357	532508	2948300	4119338	54991026

Sourrce: (i) CSO, Basic Statistics relating to Indian Economy, 1950-51 to 1970-71, 1974
(ii) Statistical Abstract, India 1997 & 2002, Central Statistical Organization, Department of Statistics, Minister of Planning and Programme Implementation, Government of India, New Delhi
(iii) Economic Intelligence Service, CMIE, Infrastructure, May, 2006

Principal Characteristics of Road Transport
Table 6.33.c

Year	Road Length(KM.)			% Share of Surface d Road	% Share of Unsurface d Road	Road Density (Km. per '000 sq. km. of Geographical area)		
	Surface	Unsurface	Total			Surface Road Density	Unsurfaced Road Density	All Road Density
1950-51	157019	242923	399942	39.26	60.74	-	-	-
1960-61	231152	246965	478117	48.35	51.65	-	-	-
1970-71	338815	346443	685258	49.44	50.56	121.06	158.17	279.22
1980-81	683676	801745	1485421	46.02	53.98	207.98	243.89	451.87
1990-91	1025215	976729	2001944	51.21	48.79	311.88	297.13	609.00
2000-01	1414547	1032120	2446667	57.82	42.18	430.31	313.98	744.29

Sourrce: (i) Statistical Abstract, India 1997 & 2002, Central Statistical Organization, Department of Statistics, Minister of Planning and Programme Implementation, Government of India, New Delhi.
(ii) Economic Intelligence Service, CMIE, Infrastructure, May, 2006.

Principal Characteristics of Road Transport
Table 6.33.d

Year	% share of single lane in total surfaced length	% share of double/multiple lane in total surfaced length	Accident/1000 vehicles	Accident/1000 Km. of Road	Vehicles density per 100 Km. of road length
1950-51	-	-	-	-	-
1960-61	-	-	-	-	-
1970-71	-	-	64.44	13.10	203.22
1980-81	42.60	57.64	31.11	10.85	348.82
1990-91	31.79	68.21	13.75	14.69	1067.67
2000-01	38.91	61.09	6.92	16.41	2372.78

Source: (i) Economic Intelligence Service, CMIE, Infrastructure, May, 2006.

estimate the burden of taxation on vehicles playing in India is perhaps the highest in the world today.

Though much has been achieved, a lot more, however, has to be done to improve the road system in India. If the same are compared with other developed countries, it will show that India is still far backward than the other developed countries. Only 50 per cent of the road length in the country is provided with a proper surface. Even in the case of national highways, 30 per cent of the road length has a single lane road pavement. About 36 per cent of the villages in the country do not have road connection and over 65 per cent of our villages are without an all-weather road. Out of the total length of 58,110 Km. of National Highway network, about 25,000 Km. is under severe strain due to high volume of traffic(Dutta and Sundhram , 2004).

One of the most ambitious projects lunched in independent India is the National Highway Development Project(NHDP) comprising 5,846 Km. Golden Quadrilateral(GQ) and the 7,300 Km. North-South, East-West corridors. The GQ connects Delhi, Mumbai, Chennai and Kolkata and North-South, East-West corridors links Kashmir to Kanyakumari and Silchar to Porbandar. The projects being implemented by National Highway Authority of India (NHAI). NHAI is expected to go a long way in promoting economic development of the county and integrating remote regions with the mainstream economic activity.

The another important means of transport in India is water transport – inland water transport or river transport and coastal or marine transport. Total navigable waterways comprising a variety of rivers, canals, backwaters etc. , extended to 14,500 Km. of which only about 5,200 Kms. of major rivers and 485 Km. of canals are suitable for operation of mechanized crafts of which only 331 Km. are being utilized . Inland water transport is important in Assam, West Bengal and Bihar.

Table 6.34
Shipping Cargo Handled At Major Ports

(In Thousand Tonnes)

Items	1950-51	1960-61	1970-71	1980-81	1990-91	2000-01
Imports	11,497	22,653	25,482	43,715	76,139	1,37,231
Exports	7,655	11,116	30,247	33,676	58,230	82,477
Total	19,152	33,769	55,729	77,391	134,369	219,708

Source:(i) CSO, Basic Statistics relating to Indian Economy, 1950-51 to 1976-77, January, 1979
(ii) CSO, Basic Statistics relating to Indian Economy, 1950-51 to 1972-73, December, 1974
(iii) Statistical Abstruct India-1997 and 2002, CSO, Ministry of Statistics & Programme Implimentation,GOI, New Delhi

India's merchant shipping fleet is the one of the largest in the developing countries. At the time of independence, there were only 42 ships with less than 1,00,000 tonnes of gross registered tonnage(GRT) . It is only after independence that the Indian shipping become predominant in India's coastal trade and got some share in foreign trade. Despite slow progress in the initial years, Indian shipping tonnage has grown significantly in the last five decades from 0.2 million GRT in 1950-51 to 2.2 million GRT in 1970-71 and 7 million GRT in 1998-99. Shipping cargo handled at major port increased from 19,152 thousand tones to 55,729 thousand tones in 1970-71 and further to 219,708 thousand tones in 2000-01. There has been a sharp decline in coastal shipping operations. The number of ships fell from 97 in 1961 to only 56 in 1980 while GRT fell from 3.1 lakhs to 2.5 lakhs over the same period. By the end of Sixth Plan this rose to about 3.5 lakhs GRT .Because of the importance of overseas shipping in international trade, considerable attention has been paid to increase the shipping tonnage in the planning period. As a sesult, the share of Indian shipping in the transportation of India's overseas trade has slowly and consistently increased in the planning period. From around 5 per cent in the First Plan, it increased to around 30.5 per cent at the enhd of 1978-79. As compared to 1.92 lakhs GRT at the time of Independence, shipping tonnage increased to 59.2 lakhs GRT in January 1990.

Air transport is the most modern, the quickest and the latest addition to the mode of transport. The scheduled air services are run by two public sector

corporations – Indian Airlines and Air India – both of which were formed in 1953. The development of civil aviation in India during the planning period is summarized in the table 6.34. The table shows that in 2000-01 Indian aircraft flew , on scheduled services, 2029 lakhs Kms. (340 thousand hrs.) , carried 17540 thousand passengers and 268 thousand tones mails and cargo as against 314 lakhs Kms(118 thousand hrs.), 449 thousand passengers and 40.1 thousand tones mails and cargo, respectively, in 1950-51.

Table 6.35
Principal Characteristics of Civil Aviation

Items	1950-51		1960-61		1970-71		1980-81		1990-91		2000-01	
	INT	DOM	INT	DOM	INT	DOM	INT	DOM	INT	DOM	INT	DOM
Hours flown (00)	31	87	37	96	40	90	64	98	73	124	98	250
Km flown (Lakh Km.)	94	220	166	278	259	334	437	444	511	587	660	1369
Passenger Carried (000 No)	148	301	229	745	491	2056	1938	5560	2430	7912	3828	13712
Freight tones Carried (000)	2.7	33.6	4.9	33.3	17.6	16.0	70	63	99	82	100	144
Mail Tonnes Carried (00)	0.5	3.3	1.2	5.6	1.2	10.5	4.0	17.0	2.0	15.0	1.0	23

Source:(i) CSO, Basic Statistics relating to Indian Economy, 1950-51 to 1976-77, January, 1979
(ii) CSO, Basic Statistics relating to Indian Economy, 1950-51 to 1972-73, December, 1974
(iii) Statistical Abstruct India-1997 and 2002, CSO, Ministry of Statistics & Programme Implimentation,GOI, New Delhi
Note: INT= International, Dom= Domestic

Air India and India Airlines have been able to meet, by and large, the rising pressure of passenger and freight traffic. Domestic air traffic has registered an annual growth of 10 per cent between 1960-85 and Air India traffic registered an average annual growth of 12.4 per cent during the same period. While Indian Airlines and Air India have grown at a rapid rate, infrastructure facilities have not kept pace. However, since the inception of International Airport Authority of India (IAAI), A number of schemes aimed at creating additional capacities have been taken up.

There was also policy changes in the field of civil aviation and the monopoly position of Indian Airlines were permitted to operate. Thus the air services within India become competitive and, therefore, more efficient. For the last few years, the Government of India has been going through notions of privatization of Air India, the national carrier. Till 1992-93, Air India was a successful profit-making public enterprise. Since then, it has been allowed to deteriorate and incur huge losses. The GOI has also invited domestic and foreign investor to participate in the development of new international airports and the expansion of infrastructural support at some other domestic airport.

The above brief survey of transport facilities in India indicates that despite continued expansion, transport development is not adequate to meet the growing needs of development.

6.3.4.2 Communication: Communications means the imparting or transmission of information. The conveyance of information is very necessary for the development of industries, commerce and trade in the country. The communication system in India comprises posts and telegraphs, telecommunication systems, broadcasting, television and information services. By providing necessary information about the markets, the communication system helps to bring buyers and sellers together effectively and helps to accelerate the growth of the economy.

The Table 6.36 reveals that Indian Postal Department has made a remarkable progress during the period under study. Between 1950-51 and 2000-01 the number of post-offices increased by more than four times; Indian telegraphs is one of the oldest government owned public utility organizations in the world. The number of telegraph offices has increased from 8,200 in 1951 to over 30,000 now. The number of post offices in 1950-51 was 36,094 and on the average each post office served near about 10,000 persons. In 2000-01 the number of post office increased to 154919 and on the average each post office served 6500 persons. In 1950-51, there were 507 telephone exchanges and on

Table 6.36
Postal Statistics

ITEMS	1950-51	1960-61	1970-71	1980-81	1990-91	2000-01
Number of P.O	36,094	76,839	109,059	139,224	148,719	154,919
Postal Articles(crores) Including money order	227	403	646	973	1468	1420
Regd. Articles(000)	73730	107214	168569	243304	310809	245195
Insured Articles(000)	3723	4103	6037	7764	8351	10174
Value of Indian money order (Rs. In crores)	5.31	7.65	9.46	11.20	10.58	10.96
No. of Indian money order (crores)	205.9	330.3	610.8	1265.2	2952.9	5871.9

Source:(i) CSO, Basic Statistics relating to Indian Economy, 1950-51 to 1976-77, January, 1979
(ii) CSO, Basic Statistics relating to Indian Economy, 1950-51 to 1972-73, December, 1974
(iii) Statistical Abstruct India-1997 and 2002, CSO, Ministry of Statistics & Programme Implimentation,GOI, New Delhi

Table 6.37
Telephone Statistics

ITEM	1950-51	1960-61	1970-71	1980-81	1990-91	2000-01
No of Telephone Exchange(No)	507	1374	3967	7871	15091	31952
No of Telephones(lakh)	1.68	4.63	13.00	27.85	60.21	

Source:(i) CSO, Basic Statistics relating to Indian Economy, 1950-51 to 1976-77, January, 1979
(ii) CSO, Basic Statistics relating to Indian Economy, 1950-51 to 1972-73, December, 1974
(iii) Statistical Abstruct India-1997 and 2002, CSO, Ministry of Statistics & Programme Implimentation,GOI, New Delhi

the average each exchange served more than 7 lakhs people. The same has increased to 15091 in 1990-91 and on the average each exchange served 56 thousand people. Table 6.37 shows that, there has been a phenomenal growth in the tele-communication sector after 1995. The telecommunications network of the public sector (BSNL & MTNL) is one of the largest telecommunication networks in Asia with a capacity of 50 million lines and over 40 million working connections comprising 35,510 telephone exchanges in the country(by end–December 2002). The annual growth rate of providing new telephone connections has been increasing steadily from about 10 per cent in 1988-89 to 30 per cent in 1999-00

and 17 per cent during 2001-02 . The number of new telephone connections provided during 2001-02 alone was 8.4 million as compared to 7.8 million in the previous year. As on March 2002, total telephone connections exceeded 45 million.

Recently, there has been a shift in importance towards the private sector and towards wireless telephone with falling tariff rates for cell phones , there has also been a phenomenal increase in the number of cellular subscribers. From a mere 0.3 million cellular subscribers in March 1997, the number increased to 6.4 millions as on end March 2002 and 10.4 million by end December 2002.The phenomenal increase in the number of cellular subscribers raised the share of cellular mobile subscribers from 6.6 per cent in March 2000 to nearly 14 per cent in January 2002.

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