2 Prospects for Economic Growth

2.1 Backdrop

- 1. Assam is the largest state among 'the seven sisters' in the North-East region of India. It was counted among the economically prosperous states of the country in the early 1950s. It has continuously slipped down since then in the process of economic growth compared to other states. The social and economic development process of Assam has been affected by the two wars in the eastern front of the country and large-scale migration of people from Bangladesh. While inadequate state income growth itself might be attributed as part of the causes of the social tension and movements during the seventies and eighties, the growth process itself got adversely affected due to the movements in the subsequent period. The economic, social and political environments are obviously inter-dependent. The stage now seems to be set for an accelerated growth of the state's economy. Given the natural and human resource potential of Assam, the need for higher growth has recently been felt by various sections of the people as well as the state and Central governments.
- 2. Assam accounts for about 2.4 per cent of total geographical area in the country and 2.6 per cent of India's population. The density of population at 340 per square kilometre is slightly higher than the all-India density of 324 as per 2001 census data. A noteworthy recent demographic feature is that the population growth rate has been 1.7 per cent per annum during 1991-2001 in Assam. This is a little lower than the national level growth and indicates migration to be under control in the 1990s. The rate of urbanization in Assam is low with urban areas accounting for only 12.8 per cent of the total population in 2001 compared to the all-India rate of 27.8 per cent. Social development indicators like literacy rate and infant mortality rates in Assam at 64 per cent and 71 per thousand respectively are just about the all-India rates in 2001. It is against this background that we make an assessment of the medium- and long-term growth prospects of Assam in this chapter.

2.2 Income Levels

- 3. It is only natural to start the discussion with income levels. The per capita income of Assam was a little higher than the all-India level in the early 1950s. It has not grown as fast as the per capita income in rest of India since then and consequently slipped down to remain substantially lower than the national average in recent decades. Further, the gap
 - 22

between the state's average level of living and that of the national average has been increasing in recent years. The average per capita income of Assam stood at Rs 1374 for the triennium 1980-81 to 1982-83 at 1980-81 prices. It was about 18 per cent lower than the corresponding national estimate of Rs 1672 for India as a whole. The difference widened to more than 45 per cent in recent years when average per capita income of Assam and all-India stood at Rs 1702 and Rs 3211 respectively at 1980-81 prices for the triennium 1999-00 to 2001-02. Both Table 2.1 and Figure 2.1 reveal comparisons of income at constant 1980-81 prices. Similar comparison at current prices shows a difference of about 40 per cent in recent years¹.

2.3 **GSDP** Growth Rates

- 4. The trend growth rates in the gross state domestic product (GSDP) in real terms since 1980-81 is shown in Table 2.2. As this table indicates GSDP has been growing at a trend rate of about 3.3 per cent per annum during the period 1980-2001. While the growth rate at the all-India level has picked up after the initiation of the economic reform process in 1991, the Assamese economy does not indicate any change in the trend growth rate in the post-liberalization period. Indeed, Assam's current growth rate is comparable to the 'Hindu' growth rate that Indian economy had prior to mid-1970s. This relative stagnancy in the state's economy for over two decades and specifically in the post-reform era is obviously a matter of deep concern.
- 5. Table 2.2 also shows the trend growth rates by three broad sectors: primary, secondary and tertiary. The primary sector has grown at around 2 per cent per annum during the 1980s as well as 1990s. The growth rates in the secondary and tertiary sectors too have remained the same at about 4 and 4.5 per cent respectively. There has been a marginal fall in growth rates of primary and secondary sectors that has been compensated by a marginal rise in service sector growth. But, overall it is again a picture of stagnancy in growth rates for the three sectors.

2.4 Poverty

6. This stagnancy in per capita income growth gets reflected in movement of poverty ratio in Assam. Table 2.3 gives the official estimates of percentage of people below poverty line in Assam and all-India. This too reveals that Assam had a lower incidence of poverty at 51 per cent in 1973-74 than the national average of 55 per cent. But, the fall in poverty ratio since then has been slower in Assam compared to the all-India level. Particularly after the liberalization process, extent of poverty has been reduced by about 5 per cent

¹ We might just clarify that the concern here is not that a state's per capita income remains below the national average for a particular year. By the very logic of the averaging process, some states would remain below the national mean and some above. The point of concern is the long run widening of inter-state income differential and a state like Assam not realizing its full growth potential.

²³

between 1993-94 and 1999-2000 in Assam as against about 10 per cent for India as a whole during the same period. These developments led to a situation where about 36 per cent of Assam's population remained below the poverty line in 1999-2000 as against 26 per cent for India as a whole. As we argue below, this is largely due to low growth in the state income. The stagnancy in growth must be broken for the social development process to take off in Assam.



24

Year	Income	Level (Rs)	Income Indices		
	Assam	All-India	Assam	All-India	
1980-81	1284	1625	100.0	100.0	
1981-82	1402	1692	109.2	104.1	
1982-83	1437	1699	111.9	104.6	
1983-84	1470	1804	114.5	111.0	
1984-85	1447	1827	112.7	112.4	
1985-86	1510	1857	117.6	114.3	
1986-87	1437	1893	111.9	116.5	
1987-88	1468	1929	114.3	118.7	
1988-89	1446	2099	112.6	129.2	
1989-90	1517	2198	118.1	135.3	
1990-91	1544	2267	120.2	139.5	
1991-92	1575	2226	122.7	137.0	
1992-93	1557	2298	121.3	141.4	
1993-94	1583	2394	123.3	147.3	
1994-95	1589	2512	123.8	154.6	
1995-96	1595	2643	124.3	162.6	
1996-97	1605	2804	125.0	172.6	
1997-98	1605	2877	125.0	177.1	
1998-99	1569	3003	122.2	184.8	
1999-2000	1656	3134	129.0	192.9	
2000-01Q	1705	3192	132.8	196.5	
2001-02Adv	1745	3307	135.9	203.5	

Table 2.1: Per Capita Real Income: Assam vs. All-India

Note: Per capita net domestic product at 1980-81 prices. Figures for 1994-95 onwards are obtained by using annual growth rates from the new series with 1993-94 as base year.

T٤	ıb	le	2.	2:	Growth	in	Real	Gross	State	Domestic	Product

			(Per	· cent per annum)
Period	Primary	Secondary	Tertiary	GSDP
1980-90	2.16	4.13	4.37	3.34
1991-2001	1.89	3.88	4.52	3.27
1980-2001	1.81	3.80	4.57	3.25

Note: Estimates of growth rate for the period 1980-2001 made by fitting equations of the type Ln(Y) = a+bT where Y is relevant income series and T is time trend. For the sub-periods, growth rates are computed from equation Ln(Y) = a+bT + c D.T where D is a dummy variable with value 1 for 1991 onwards and 0 otherwise.

	All-India					
Years	Rural	Urban	Total	Rural	Urban	Total
1973-74	52.67	36.92	51.21	56.44	49.01	54.88
1993-94	45.01	7.73	40.86	37.27	32.36	35.97
1999-2000	40.04	7.47	36.09	27.09	23.62	26.1

Table 2.3: Percentage of Population below Poverty Line (Official Estimates)

Source: Economic Survey 2001-2002, Govt. of India

2.5 Sectoral Composition

- 7. Corresponding to the above growth rates, there has been a change in sectoral composition of GSDP. Table 2.4 shows the sectoral composition at current prices. As naturally expected in a growing economy, the contribution of the primary sector to the state GSDP has fallen from 47.5 per cent in 1980-81 to 40.7 per cent in 2001-02. The share of the secondary sector has increased by about 8 percentage points to 20.5 per cent in 2001-02 while the share of the tertiary sector has remained nearly the same. Since current price sectoral composition is affected by both relative growth rates across sectors as well as by relative price movements, it might be better to look at the changing composition in real terms.
- 8. Table 2.5 shows the sectoral composition in real terms at 1980-81 prices. This table shows that share of primary sector has fallen from 47.5 per cent in 1980-81 to 34.7 per cent in 2001-02 indicating a larger fall than those at current prices. The share of secondary sector has marginally risen from 12.6 per cent in 1980-81 to 14.7 per cent in 2001-02. The service sector considerably increased its share from 39.9 per cent in 1980-81 to 50.6 per cent in 2001-02. The rise in contribution of this sector is particularly evident since mid-1980s.

	Primary	Secondary	Tertiary	Total
1980-81	47.5	12.6	39.9	100.0
1990-91	48.5	19.1	32.4	100.0
2000-01(QE)	40.7	19.7	39.6	100.0
2001-02(Adv.)	40.7	20.5	38.8	100.0

Table 2.4: Sectoral Composition of GSDP (At Current Prices)

Source: Directorate of Economics and Statistics, Assam.

Year	Primary	Secondary	Tertiary	GSDP	Primary	Secondary	Tertiary	GSDP	
	F	s Lakh at 1980)-81 prices		Percentage Distribution				
1980-81	119500	31742	100384	251626	47.5	12.6	39.9	100.0	
1981-82	128306	36033	110041	274380	46.8	13.1	40.1	100.0	
1982-83	137060	35459	115168	287687	47.6	12.3	40.0	100.0	
1983-84	142655	37169	119315	299139	47.7	12.4	39.9	100.0	
1984-85	135028	42813	124696	302537	44.6	14.2	41.2	100.0	
1985-86	145344	41765	136004	323113	45.0	12.9	42.1	100.0	
1986-87	140758	38521	136144	315423	44.6	12.2	43.2	100.0	
1987-88	148468	44082	140880	333430	44.5	13.2	42.3	100.0	
1988-89	147902	45651	143605	337158	43.9	13.5	42.6	100.0	
1989-90	159336	47675	155030	362041	44.0	13.2	42.8	100.0	
1990-91	158688	49640	168567	376895	42.1	13.2	44.7	100.0	
1991-92	162528	49522	182170	394220	41.2	12.6	46.2	100.0	
1992-93	163400	50745	185561	399706	40.9	12.7	46.4	100.0	
1993-94	167616	52504	195978	416098	40.3	12.6	47.1	100.0	
1994-95	171277	60300	193007	424584	40.3	14.2	45.5	100.0	
1995-96	171992	57045	212592	441629	38.9	12.9	48.1	100.0	
1996-97	170948	60756	224604	456308	37.5	13.3	49.2	100.0	
1997-98	176984	61653	222714	461351	38.4	13.4	48.3	100.0	
1998-99	171611	60669	233210	465491	36.9	13.0	50.1	100.0	
1999-00	179611	72715	240959	493284	36.4	14.7	48.8	100.0	
2000-01 (QE)	183828	73572	258159	515559	35.7	14.3	50.1	100.0	
2001-02 (Adv.)	184141	77652	268145	529938	34.7	14.7	50.6	100.0	

 Table 2.5: Sectoral Composition of GSDP (at 1980-81 Prices)

Note: Figures for 1994-95 onwards are obtained by using annual growth rates from the new series with 1993-94 as base year.

2.6 Effects of Growth and Distribution on Poverty

- 9. In this section, we use the data set created at the World Bank on mean consumption expenditure, Gini coefficient and head count ratio of poverty based on the National Sample Survey Organisation (NSSO) consumption expenditure data for various rounds and reported in Datt (1998). This data set, available for 1957-58 to 1993-94, has been created at comparable all-India rural and urban prices and could help us to examine the long-term effects of real income growth and its distribution on changes in poverty. This is attempted below. Before estimating this relationship, we make a few general observations on Assam's development process on the basis of the World Bank's data set.
- 10. While the overall income growth rate is slow, the Assamese society has been more egalitarian than most other Indian states. The Gini coefficient in consumption expenditure distribution has been only around 0.19 for rural areas and around 0.29 for urban areas of Assam in recent years. Among the major Indian states, Assam's income distribution is the most egalitarian in rural areas and the second best in urban areas on an average basis during 1990-94 (See Table 2.6).

- 11. Another noteworthy feature of the development process of Assam is the striking difference in relative position of rural and urban areas by per capita consumption expenditure. According to estimates made at the World Bank, Assam occupies the second highest level in mean consumption among the major states in urban areas on a comparable basis, but it is the second lowest in rural areas. This gets reflected in Datt's poverty estimates too. As Table 2.6 indicates, among the major Indian states, Assam's average head count ratio is the lowest during 1990-94 in urban areas (12 per cent) and the fourth highest in rural areas (49 per cent). The more egalitarian consumption expenditure distribution obviously helps the state to improve its ranking in poverty ratio compared to ranking in mean consumption.
- 12. However, more worrisome are the following trends in real consumption expenditure and poverty revealed by the NSSO data (See Table 2.7):

- Per capita mean consumption expenditure in real terms has fallen at a trend rate of 0.37 per cent per year in rural Assam² over a long period of above 35 years spanning over $1957-94^3$.

- As a result, Assam is the only major state where rural poverty has not fallen during 1957-94. In fact, the poverty measures – head count ratio as well as distribution sensitive measures such as squared poverty gap – showed an increasing trend, though not significant (Datt, 1998)⁴.

- This was so despite a falling trend in rural Gini coefficient during the above period. The benefits of reduced inequality on the poverty ratio have obviously been more than offset by the rapid fall in real mean consumption level in rural Assam.

13. To formally establish the relationship of poverty ratio with the mean income and distribution parameter, we have run a set of regression equations. Two types of data have been used: (i) time series data for rural and urban areas of Assam on head count ratio (HCR), mean consumption expenditure in real terms (MC) and the distribution parameter as given by the Gini coefficient (GINI) and (ii) cross section data across various states on trend annual growth rates on HCR, MC and GINI.

²Bihar is the only other state that showed a marginal fall of 0.03 per cent during the same period.

³ In the post 1975 period, mean consumption in rural Assam grew marginally at 0.47 per cent (Datt and Mukherjee, 2000).

⁴ As discussed earlier, the head count ratio in Assam dropped by 5 per cent during 1993-94 to 1999-2000.

	RURAL			URBAN		
	MC	HCR	GINI	MC	HCR	GINI
Andhra Pradesh	68.34	35.89	28.39	78.66	30.59	32.50
Assam	52.63	49.33	19.27	97.75	11.95	28.94
Bihar	48.60	63.20	22.36	67.22	42.39	31.72
Gujarat	59.27	41.77	24.07	68.27	37.33	29.52
Jammu & Kashmir	70.70	31.20	27.87	99.36	14.01	28.45
Karnataka	57.69	46.88	26.46	79.13	34.09	34.63
Kerala	73.32	33.01	30.67	89.53	30.62	37.16
Madhya Pradesh	60.56	49.79	30.53	71.80	38.17	33.76
Maharashtra	58.76	50.50	30.02	74.18	37.47	34.86
Orissa	66.32	34.66	26.29	75.06	43.31	37.83
Punjab & Haryana	83.27	20.64		93.41	13.63	
Rajasthan	60.02	45.79	27.98	75.90	29.50	29.61
Tamil Nadu	63.93	41.80	29.39	84.14	31.87	36.82
Uttar Pradesh	62.57	41.72	28.09	70.63	39.35	32.75
West Bengal	68.13	31.51	25.75	92.80	23.79	34.37

Table 2.6: Poverty, Consumption and Distribution: Averages 1990-91 to 1993-94 RUBAL UBBAN

Source: G. Datt, Indian Journal of Labour Economics, 1998

Note: MC = Mean Consumption in Rs per month at 1973-74 prices

HCR = Head Count Ratio of Poverty, GINI = Gini Coefficient

More recent estimates of official head count ratio for the period 1973-74 to 1999-2000 have been reported earlier in Table 2.3.

Table 2.7: Trend Growth Rates in Pover	ty, Consumption and Distribution
(1957-58 to 1993-94; per cent per annun	1)

		RURAL		URBAN			
	MC	HCR	GINI	MC	HCR	GIN	
Andhra Pradesh	1.14	-2.12	-0.21	0.92	-1.50	0.17	
Assam	-0.37	0.46	-0.60	0.47	-1.63	0.18	
Bihar	-0.03	-0.02	-0.96	0.57	-0.86	-0.14	
Gujarat	0.70	-1.49	-0.58	0.75	-1.28	-0.05	
Jammu & Kashmir	0.34	-0.51	0.47	1.32	-3.40	0.18	
Karnataka	0.18	-0.64	-0.56	0.91	-1.42	0.06	
Kerala	1.63	-2.41	-0.21	1.67	-2.06	0.30	
Madhya Pradesh	0.21	-0.40	-0.44	0.45	-0.87	-0.15	
Maharashtra	0.82	-0.99	0.23	0.20	-0.46	-0.10	
Orissa	0.67	-1.47	-0.35	0.84	-0.95	-0.09	
Punjab & Haryana	0.41	-1.92		0.83	-3.06		
Rajasthan	0.16	-0.54	-0.52	0.65	-1.42	-0.16	
Tamil Nadu	1.04	-1.45	-0.03	0.72	-1.10	-0.16	
Uttar Pradesh	0.33	-0.70	-0.22	0.62	-1.11	-0.40	
West Bengal	0.77	-1.74	-0.06	0.44	-0.56	0.25	

Source: G. Datt, Indian J. of Lab. Econ., 1998

Note: MC = Mean Consumption (Real), HCR = Head Count Ratio, GINI = Gini Coefficient

Trends on head count ratio during 1973-74 to 1999-2000 have been reported in Table 2.3

The results are given below:

Time series data on Assam:

Rural:Ln (HCR)= 11.067 - 2.355 Ln (MC) + 0.728 Ln (GINI),
(35.8) (20.1)
$$R^2=0.96$$

(8.2)Urban:Ln (HCR)= 12.436 - 3.197 Ln (MC) + 1.396 Ln (GINI),
(6.6) (8.3) (5.1) $R^2=0.82$

Cross-section data on trend growth rates G(.) across major States:

Rural: G (HCR)=
$$-0.085 - 1.554$$
 G (MC) $+ 0.255$ G (GINI), R²=0.927
(0.62) (10.48) (1.20)

Urban: G (HCR)= -0.297 - 1.377 G (MC) + 0.375 G (GINI), R²=0.59 (0.84) (3.20) (0.46)

- 14. These equations do reveal strong relationship of poverty index with mean consumption expenditure and distribution parameter on time series data for Assam. The cross section data across states also reveals significant influence on poverty trend by mean consumption, though influence of distribution is not significant. The first equation set is obviously more relevant for our purpose. It indicates that the partial elasticity of HCR with respect to MC and GINI are -2.35 and 0.72 in rural Assam. This means that a 1 per cent rise in per capita real consumption expenditure reduces rural poverty ratio by as much as 2.35 per cent, while a 1 per cent rise in GINI coefficient increases rural poverty ratio by 0.72 per cent. Thus, given that rural Assam has witnessed a trend decline in MC by 0.37 per cent and in GINI by 0.60 per cent (Table 2.7), the overall effect on HCR was (-2.35) (-0.37) + (0.72) (-0.60) = 0.87 - 0.43 = 0.44 per cent per annum. This estimated change in HCR is very close to the observed trend increase of 0.46 per cent per annum, which implies that, estimated relation explains the observed changes fairly well. Note also that the final effect on HCR is dominated by the growth effect. Indeed, if the mean consumption fall in rural Assam could have been arrested or reversed (as in most other states), rural poverty in Assam would have shown a falling trend over the years rather than an increasing trend.
- 15. Similarly, if per capita consumption could grow at an additional rate of 3 per cent per annum in future, the poverty ratio HCR would fall by about 7 per cent per year assuming distribution parameter to remain constant. If this trend could be continued for five years, HCR would fall by 30 per cent of the initial level. For example, if 40 per cent of the population is below the poverty line initially, the level would go down to 28 per cent over
 - 30

five years and to 19 per cent over 10 years with a 3 per cent growth in mean consumption per annum. This establishes the need for a higher growth rate in per capita income and consumption to reduce poverty.

2.7 Higher Income Growth Scenarios

- 16. What is the order of higher growth rate Assam should target for? An answer to this question would depend on several factors:
 - 1. What would be the desired growth rate for the Assamese economy?
 - 2. What is the likely growth rate in the medium run (say, five years)?
 - 3. What is growth potential in the long run (say, two decades)?
- 17. As discussed above, the normative consideration for a desired growth rate could be based on the poverty alleviation target so as to ensure a decent minimum income to the people. Thus, if incidence of absolute poverty should be reduced to about 10 per cent over the next two decades, the per capita consumption expenditure must grow by at least 3 per cent per year. The corresponding growth in per capita income would be larger than 3 per cent because of higher savings requirement to finance the growth. This translates to a GSDP growth rate of more than 5 per cent.
- 18. Another normative consideration is: can Assam pull its income up to the average national level? Such a reference is often made in policy circles in Assam for fixing a growth target for the medium or long run. In order to have an examination of the relative magnitudes, we have estimated the per capita income levels for Assam and all-India for about two decades under alternative assumptions about the future growth rates in Table 2.8. Several observations might be made in connection with the estimates in this table.
- 19. First, given that the economy of Assam has grown at a lower rate than the national average for several decades, it would be unrealistic to think of bridging the gap in the medium run of 5-10 years. Hence, we consider a more modest target of accelerating Assam's growth rate to 6 per cent from the current 3.5 per cent per annum in the medium run, that is, during the next five years. This would help the state to catch up to the national level in terms of its growth rate and arrest the present relative difference to diverge further. The percentage difference in per capita income of Assam and all-India remains at current level for five years in this situation. This growth scenario translates to a growth rate of about 4 per cent per annum in per capita terms. The corresponding per capita income estimates are about Rs 8000 for Assam and Rs 13000 for all-India at 1993-94 prices (see Panel A of Table 2.8).
- 20. Second, once the growth rate of Assam accelerates to the national average during the first five years, more ambitious targets could be fixed in a long-term perspective for the
 - 31

following 15 years. Panel B of Table 2.8 shows the effects of a two-percentage points higher growth rate for Assam (6 per cent per capita) than the all-India rate (4 per cent per capita) during the period 2007-2022. The per capita income of Assam would then come closer to the national average and the current difference of about 40 per cent gets reduced to about 20 per cent in this scenario. The current difference is so large that a two-percentage points higher growth for 15 years can bridge the gap only by about half.

Year	Grow	Growth rates		Terminal year		
	Assam	All-India	Per Capita	a Income	All-India	
			Assam	All-India		
			Panel: A			
2001-02			6299	10623	0.593	
2002 to 2007	4.0	4.0	7970	13441	0.593	
]	Panel: B			
2002 to 2007	4.0	4.0	7970	13441	0.593	
2007 to 2012	6.0	4.0	10666	16354	0.652	
2012 to 2017	6.0	4.0	14273	19897	0.717	
2017 to 2022	6.0	4.0	19101	24207	0.789	
]	Panel: C			
2002 to 2007	4.0	4.0	7970	13441	0.593	
2007 to 2012	6.0	4.0	10666	16354	0.652	
2012 to 2017	7.0	4.0	14960	19897	0.752	
2017 to 2022	7.0	4.0	20982	24207	0.867	
2022 to 2027	7.0	4.0	29428	29452	0.999	
]	Panel: D			
2002 to 2007	6.0	6.0	8935	15069	0.593	
2007 to 2012	8.0	6.0	13129	20166	0.651	
2012 to 2017	9.0	6.0	20200	26986	0.749	
2017 to 2022	9.0	6.0	31081	36114	0.861	
2022 to 2027	9.0	6.0	47821	48328	0.990	

 Table 2.8: Per Capita Income: Long-Term Scenarios

Note: Per capita income at 1993-94 prices (Rs)

Year 2001 represents financial year 2001-02 and so on.

- 21. Third, panel C indicates a scenario where Assam catches up with national level per capita income by 2027. Such an aspiration is reflected in the "Vision: Assam 2025" document prepared by a group of Ministers recently. This scenario involves high growth rates on a sustained basis for the next 25 years: same growth rate as the national level (4 per cent per capita) for first five years, two percentage points higher growth rates (6 per cent per capita) for next five years and three percentage points higher growth rates (7 per cent per capita) during the following 15 years.
- 22. Fourth, if the national economic growth rises to about 6 per cent per capita as is being suggested now as the target for the 10th Plan, then Assam too must attempt to grow at that
 - 32

rate during the next five years to keep the relative disparity at the current level. Further, another 23 percentage point higher growth rates would be needed to catch up by 2027 (panel D of Table 2.8). A per capita growth rate of 89 per cent for about two decades, as panel D suggests, might look infeasible⁵ and Assam would then have to reconcile with a longer time horizon to catch up with the national level.

2.8 Investment Need

- 23. We now ask the question: what would be the investment requirement if Assam were to accelerate its growth rate to 6 per cent per annum over the next five years? Capital being the constraining factor for growth in a labour abundant economy, the feasibility of medium-term growth would mostly depend on availability and efficient use of financial resources. We make an attempt to answer this question below.
- 24. The latest data available on GSDP refer to the year 2001-02 (advanced estimates) and it has been estimated to be Rs 34030 crore at current at 2001-02 prices. Corresponding to a 6 per cent compound annual growth rate, the GSDP in 2006-07 would be Rs 45540 crore. The incremental income turns out to be Rs 11510 crore during the five years 2002-06 at 2001-02 prices (See Table 2.9).
- 25. The sectoral composition of GSDP for 9 broad sectors is projected using the current trends and likely growth pattern. Projections of current trends in GSDP composition indicate that share of primary sectors would fall by about 2 percentage points to 38.7 per cent in 2006-07 from 40.7 per cent in 2001-02, share of service sector would rise to 40.5 per cent from 38.8 per cent and industry share would marginally rise to 20.8 per cent over this period.
- 26. Next, in order to estimate investment need of various sectors, we need an indication about likely values of incremental capital output ratios (ICOR). We started with the ICORs reported in 9th Five-Year Plan and calibrated them keeping in mind the intra-sectoral composition of Assam and projected efficiency gains for the 10th Plan. Applying the ICORs on incremental income, we get a total investment requirement⁶ of about Rs42500 crore for the five-year period 2002-03 to 2006-07 (See Table 2.9). A few major points emerging from this table are:

- Agricultural growth could not be neglected for achieving a higher overall growth. It needs to grow at about 4.8 per cent per annum corresponding to GSDP growth of 6 per cent. The investment requirement is relatively lower in agriculture

⁵ Note that the GSDP growth rate would be at least 1.5 per cent higher because of population growth. There are very few instances of 9-10 per cent steady growth for an economy for two decades.

⁶We might note here that the investment requirements estimated here provide only an indicative pattern. It was not possible for us to estimate state level ICORs in the absence of sufficiently long time series data on investment for Assam.

³³

because of lower capital-output ratio. About 13 per cent of investment needs to be allocated to agriculture as against its share of above 32 per cent in GSDP.

- Substantial proportions of investment are required in the infrastructure sectors like electricity, gas, transport and communication. The estimates indicate that about 17 per cent of total investments is needed in these sectors even though they account for only about 5 per cent of state income. Infrastructure sectors have high ICORs and long gestation lags. Unless adequate investments are made early enough, bottlenecks might arise for future growth prospects.

- The manufacturing sector, which accounts for about 13 per cent of GSDP might need about similar per cent of total investment. We discuss later priorities within the manufacturing sector based on inter-sectoral linkages and comparative advantage.

- Given the continuation of likely shift in GSDP in favour of service sectors, investment requirement in these sectors would be almost proportional to share in GSDP at about 40 per cent.

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	GS	SDP	G	SDP	Incremental	Growth	ICOR	Investment
	200	1-02	200	06-07	Income	Rate		Needed
	Level	%	Level	%				
Agriculture	11047	32.5	13965	30.7	2918	4.80	1.90	5545
Forestry & Logging	500	1.5	608	1.3	108	4.00	2.30	249
Fishing	584	1.7	782	1.7	198	6.00	2.20	435
Mining & Quarrying	1702	5.0	2278	5.0	576	6.00	5.90	3396
Manufacturing	4451	13.1	5845	12.8	1394	5.60	4.10	5715
Construction	2119	6.2	2972	6.5	853	7.00	2.70	2303
Electricity, Gas and Water Supply	430	1.3	632	1.4	202	8.00	14.30	2886
Transport, Storage & Communication	1284	3.8	1887	4.1	603	8.00	7.50	4520
Trade, Hotels and Restaurants	4132	12.1	5795	12.7	1663	7.00	4.80	7984
Real Estate, Ownership of Dwellings and Business Services	761	2.2	1067	2.3	306	7.00	4.80	1470
Finance &Public Administration	4201	12.3	5723	12.6	1522	6.38	2.39	3645
Other Services	2819	8.3	3987	8.8	1168	7.18	3.80	4439
GSDP	34030	100.0	45540	100.0	11510	6.00	3.70	42587

Table 2.9: Income and Investment Estimates during 2002-06

Note: All income and investment levels in Rs Crore at 2001-02 prices. Investment refers to gross capital formation by public and private sectors together.



Table 2.10: Investment and Income Profile for 2000-2005

(By public and private sectors together;								
Rs Crore at 2001-02 prices)								
Year	Investment	GSDP	Investment/GSDP (%)					
2001-02	6125	34030	18.0					
2002-03	6923	36072	19.2					
2003-04	7720	38236	20.2					
2004-05	8517	40530	21.0					
2005-06	9315	42962	21.7					
2006-07	10112	45540	22.2					
Total (2001-06)	42587	203340	20.9					

- 27. The base investment data for 2000-01 are not available. Figure 2.2 indicates the investment rate of Assam and that of all-India for the period 1980-81 to 1997-98. One major reason for low-income growth in Assam is low rate of investment. The gross fixed capital formation (GFCF) rate was only 12.3 per cent for Assam in 1980-81 when the all-India rate was high at 21.4 per cent. The difference has narrowed down over time, but still Assam's GFCF rate for 1997-98 at 17.2 per cent is still way below the all-India rate by 7.5 percentage points. Unless this difference is further narrowed down, Assam's income growth cannot catch up with rest of India.
- 28. We assume an investment (GFCF) rate of 18 per cent of GSDP for Assam that is consistent with the current level of income growth and investment rate of 17.2 per cent in
 - 35

1997-98. The absolute investment level then is estimated to be about Rs 6100 crore in the state. Under a linear growth path of investment over the five years 2002-06, we have an investment and income profile as in Table 2.10. The rate of investment need to grow by at least 4 percentage points to 22 per cent of GSDP during 2002-06 to realize the 6 per cent growth target.

- 29. The government has fixed the Annual Plan for 2002-03 at Rs 2770 crore⁷. This turns out to be about 40 per cent of the estimated investment for 2002-03. The public sector had a share of 34.5 per cent in total GFCF in 1997-98. The National Development Council has notified Assam as a Special Category State in the early 1990s. This notification had a major effect in the grant to loan component of Central assistance. It entitled Assam to receive Central assistance for State Plans with 90 per cent as grants and 10 per cent as loans (the grant-loan components used to be 30 per cent and 70 per cent earlier). Despite this provision, the state government finds it hard to raise resources for financing its 10 per cent share in plan outlay.
- 30. A report prepared by the National Institute of Public Finance and Policy (NIPFP) states that large dependence on Central funding leads to a fall in state's effort to raise its own resources and further increases dependence on Central fund (Srivastava, Chattopadhyay and Rangamannar, 1998). While very liberal Central funding cannot continue in the long run, we must also keep in mind immediate measures to tighten it would get reflected in reduced public investment and lower growth and further erosion of the tax base of the state. The appropriate sequence should be: downsize the government, reduce non-discretionary expenditure and increase state surplus for investment.
- 31. Assam would not be able to attract large-scale private investment till insurgency problem is solved. The urgent action for investment and growth also cannot be postponed for it would fuel the insurgency problem further. Hence, Central government should continue liberal support for investment for a few years. The share of public sector in total GFCF should be maintained between 35-40 per cent in Assam for at least five years. As insurgency problem is solved and the state becomes attractive for private investment, the Central government might reduce the plan grants in stages to the normal level.

2.9 Inter-sectoral Linkages

32. Another question that arises is whether we can identify some sectors where investments and consequent growth might have strong effects on other sectors to grow as well. In order to look at this question, we need to examine the backward and forward linkages of various sectors in the economy. The backward linkage of a sector measures the extent of inducement it has on the growth of other sectors that supply inputs to it. The forward

⁷ See, "Draft Tenth Five year Plan and Annual Plan 2002-03", Government of Assam.

³⁶

linkage, on the other hand, measures the extent of inducement a sector has on the growth of other sectors, which use inputs from it in their production process. The higher the total linkages of a sector, the more is the inducement on other sectors to grow. On this consideration, one might argue that sectors with high backward and forward linkages should get some priority in initial investment decisions.

- 33. What are the sectors in Assam that qualify for such considerations? A team of researchers from Gauhati University and Indian Statistical Institute has constructed an input-output table for Assam. On the basis of this table, the team identified the following sectors as having high backward (>1) and high forward (>1) linkages :
 - (a) Nonferrous Metal Products
 - (b) Other Metal Products
 - (c) Iron and Steel
 - (d) Other Wood Products
 - (e) Cotton Textiles
 - (f) Other Non-Electrical Equipments
 - (g) Paper and Paper Products
 - (h) Construction
 - (i) Electricity
 - (j) Petroleum Products
 - (k) Chemical Products

The list of sectors with high backward linkage (but low forward linkage) includes sectors such as leather products, fertilizers, cement, edible oil, sugar, jute, plywood and silk textiles. Some of the sectors that have high forward linkage (but low backward linkage) are crude and natural gas, animal husbandry, non-rail transport, forestry and agricultural produces.

- 34. Such a list provides guidelines for priorities in either direct provision of investment by the public sector or inducement to private sector's investment decisions. While intersectoral linkages are major considerations, it cannot be the exclusive basis regarding investment decisions in the economy. Other important factors to be considered are:
 - Demand considerations: likely demand within the state as well as possible export demand outside the state.
 - Comparative advantage: comparative advantage must ultimately guide the final decision for production within the state or imports.

Once the sectors are selected on these considerations, those having high backward and forward linkages should get priority while allocating scarce resources. This would help in deriving the maximum multiplier effects.

- 35. Assam's economy continues to depend heavily on agriculture. While a third of the SGDP originate from agriculture, a majority of the working population depends on this sector. As such, agriculture would continue to play a major role in the future growth process and
 - 37

would call for a fairly good share of total investment as we have already noted. Since a separate chapter is devoted to agriculture in this report, we outline below a few points about prospects of non-agricultural sectors.

2.10 Industrial Diversification

- 36. Consistent with the state's natural resource base, industries like tea, petroleum refinery and plywood have occupied historically important positions in Assam. The tea industry dates back to mid-19th century and has played an important role in the economic and cultural life of upper Assam. Production, acreage and yield of tea have gone up over the years with large employment opportunities more favourable to rural areas and female employment. The petroleum refinery industry at Digboi is also about 100 years' old. Refineries have also been set up at other places like Guwahati, Bongaigaon and Numaligath. Despite these industries, the industrialization process has not been wide spread in Assam. The contribution of manufacturing sector in the state's GDP remains low at about 10 per cent compared to all-India figure of about 19 per cent. Moreover, as the Industrial Policy Resolution of Assam Government points out future prospects for expansion of the large traditional industries is rather limited. Tea industry is believed to be approaching a saturation point. Petroleum sector might not be able to grow very much unless new oil fields are discovered. In the absence of a sustainable forest use plan, most units in the plywood industry have currently faced closure due to court intervention. Against this background, the need for diversification of the state's industrial base could not be overemphasized.
- 37. Other major manufacturing sectors in the state at present are cement, paper, petrochemicals, fertilizer and sugar. As pointed out in the chapter on Development Strategy, the scope for expansion of the new technology based information industry is no less in Assam than any other part of the country. In fact, Assam would have a relative advantage with the establishment of the new Indian Institute of Technology. The emphasis placed on information technology in the Draft Tenth Plan is in right direction. Another area where more attention needs to be devoted relates to agriculture and plantation based mass consumption products. These have high backward linkages as well as large employment effects. Development of industries based on locally available resources should naturally get priority. Assam also enjoys comparative advantage in tourism, handicraft and handloom sectors. In fact, handicraft and handloom markets could have a special tourists (and exports) focus in view of higher value addition.

2.11 Conclusion and Strategic Actions

- 38. In this chapter, we have reviewed the macroeconomic development process of Assam. Two major standard data sources in the country provide sufficient evidence to the fact
 - 38

that Assam has not been able to keep pace with the national level on economic front. The National Accounts data income indicates that growth rate of state income has remained low for several decades and there is no evidence of acceleration in the post-reform period. The NSSO consumption expenditure data too shows that real mean consumption expenditure is falling in rural Assam. While income distribution in Assam has been more egalitarian compared to other states, it has not helped to reduce rural poverty in the state. Poverty reduction necessarily calls for higher economic growth in Assam.

- 39. A growth strategy for Assam to raise its per capita income to the national average by 2025 would require:
 - A pick-up in state income growth to the national level in the medium run of about five years.
 - A 2-3 percentage points higher growth rate than the national level thereafter for about two decades.

Admittedly, it is not an easy task. Yet, it is not an impossible task. Assam has got the required natural and human resources. Generation of required financial resources would involve the following:

- Steady pick up in investment rate in relation to state income by about 4 percentage points.
- Attraction of private investment in a big way. This in turn requires quick solution of the insurgency problem.
- Maintenance of the important role of the public sector in areas like irrigation, infrastructure and social sectors where private investment might not come forward.
- Priority should be given to those sectors that have both comparative advantage and high linkages with other sectors.

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