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Spatial Poverty Traps in Rural India: An Exploratory Analysis of the Nature of the Causes

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Abstract

Analysis of the regional pattern of poverty in India reveals a number of spatial poverty traps, characterised by low levels of geographical capital and social-political marginalisation. Prima facie, these include vast tracts of dryland regions in the western-southern regions, and forest-based economies in the central-eastern regions. Apparently, poverty as reflected in the official statistics, depicts a rather contrary scenario with dryland regions having lower incidence of poverty despite their adverse agro-climatic conditions vis-à-vis forest-based regions. This could be largely due to the relatively more diverse and developed market economies, out-migration as an important livelihood strategy and the favourable agrarian conditions with better rights over land and other natural resources. Apparently, all these factors are missing in forest-based economies.

This paper analyses the nature and causes of chronic poverty in the two sets of regions in a comparative framework.

Introduction

The recent discourse on poverty has highlighted increasing disparities across the states and regions in India. This has been manifested in terms of growing evidence on the rural-urban divide, frequent failure of crops and non-sustainability of livelihood base in the remote rural areas (RRAs) facing severe failure of entitlement as well as access to productive resources. The incidence of chronic and/or severe poverty can be largely attributed to the weak geographical capital reflected through unfavourable agro-climatic conditions, physical isolation, and social alienation faced by a vast proportion of the rural community in these regions (Bird et al. 2001). These factors seem to have widened the existing gulf between the 'mainstream' economic system and those who live in perpetual poverty in some of the remote rural areas in different parts of the country.

While the bulk of the poor in India are concentrated in five major states, viz., Bihar, Orissa, Uttar Pradesh, Madhya Pradesh, and Rajasthan, and the north-

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eastern regions, conditions of acute or perpetual poverty exist in most parts of the country, including some of the developed states like Maharashtra, Gujarat, Tamil Nadu, West Bengal and Haryana (Kapur and Shah 2001). Prima facie, this dual scenario suggests the crucial importance of some of the spatial factors that put these regions at a disadvantage geographically, economically, and socially. Given the criticality of agricultural growth for reducing rural poverty in India, spatial poverty traps may broadly include two sets of regions: (i) vast tracts of dryland regions in the western-southern states and (ii) forest-based regions in the central-eastern states of the country. While the main constraints faced by the former emanate from the regions' weak agro-climatic conditions, and relative neglect by the State in terms of investments for drought-proofing measures, the problems faced by the poor in the forest-based regions originate from a complex mix of factors like physical isolation, low social capabilities, and failure of entitlements to the regions' rich natural resources. These initial conditions of marginalisation seem to have been aggravated by the political economy of mainstream development, which, by and large, had focused on growth maximisation rather than livelihood security for people who primarily depend on agriculture and related activities. Apparently, people in these two sets of regions face different kinds of poverty conditions and have different strategies to cope with them. Chart I depicts a broad typology of the situations likely to obtain in the two sets of regions representing the spatial poverty traps in rural India. Understanding these dynamics is very important for formulating a long-term strategy for amelioration of poverty, especially chronic poverty, in these regions.

This paper tries to examine the nature and causes of chronic poverty among the two sets of regions in a comparative framework. The analysis is based mainly on secondary data at both state and regional levels. Moreover, it draws from the existing micro studies of the dryland and forest-based regions in the country.

Incidence of Rural Poverty: A Spatial Profile

Recent evidence pertaining to the post-liberalisation period, 1991–1997, clearly suggests that despite a significant increase in per capita income, rural poverty did not decline appreciably. This is mainly due to increased inequality not only vis-à-vis the urban areas but also within the rural population. As a result, real per capita consumption of the bottom 40 per cent of the rural population has experienced either negligible or negative growth during this period. It is therefore important to identify the regions where the bottom 40 per cent of the rural population is concentrated and understand the intensity of poverty in terms of the income gap represented by per capita household expenditure estimated by National Sample Survey Organisation (NSSO).

Ideally, identification of spatial poverty traps in RRAs requires disaggregated information at the district level and below, for these patches of chronic poverty exist

Chart I: Factors Affecting Chronic Poverty in Remote Rural Areas

States and Factors+	Remote Rural Areas	
	Drought Prone	Flood Prone and Hilly
Major States/ Regions	Rajasthan (92 per cent)*, Gujarat (88 per cent), Maharashtra (81 per cent), Karnataka (68 per cent), Andhra Pradesh (65 per cent), Tamil Nadu (61 per cent)	Assam (31per cent)**- Hills Orissa (30 per cent) – South Madhya Pradesh (30 per cent) – South Western Bihar (15 per cent) – South Uttar Pradesh (Uttarakhand – (80 per cent) Northeast States – Entire Region
Social Alienation	Higher proportion of Scheduled Caste households	Predominance of Scheduled Tribes
Structural	Ryotwari land relations Low incidence of landlessness and semi-landlessness	Feudal land relations High incidence of landlessness
Population Growth and Access to Natural Resources and Modern Production Technology	Large but less productive land holdings Higher degree of commercialisation and neglect of common property resources, breakdown of collective institutions Low population pressure due to high out-migration Low untapped agronomic potential Overutilisation of natural resources, viz., water, CPLRs	Limited access to forest resources; high dependence of common property resources; collective institutions Subsistence crops, low level of input use High population pressure Moderate to high agronomic potential Moderate use of natural resources, viz., water, forests
Sectoral and Infrastructural Development	Relatively more diversified economies with developed industrial and/or mining sectors	Less diversified economies despite substantial mineral resources
Access to Markets	Better development of physical infrastructure like roads, electricity, communications and input-output markets for farm sector	Low development of physical infrastructure and markets
Policy Support	Special programmes for nutrition security in Tamil Nadu, Andhra Pradesh; Employment Guarantee Schemes in Maharashtra; Good network of drought relief in Gujarat; Generally weak public distribution system	Very little impact of state level Extremely weak public distribution system

States and Factors+	Remote Rural Areas	
	Drought Prone	Flood Prone and Hilly
Coping Strategy	Workforce diversification in industrially developed states High incidence of inter-state migration from less industrialised states Increased private investment in groundwater	Limited avenues for workforce diversification Relatively lower incidence of inter-state migration Negligible private investment in agriculture
Nature of Poverty	Poverty with non-sustainable coping strategies because of the higher depletion of natural resources and significant social cost of out-migration	Chronic poverty with significant scope for increasing the total earnings from the given land and water base and improved management of forests with participation of the poor

\+ For details on the factors see Table 2(b).

* Indicates percentage of geographical area under dryland conditions.

** Indicates percentage of area under forests.

Note: Ryotwari system represents ownership of land by the tiller without any middleman between the owner and the State; feudal system represents the erstwhile zamindari system, which involved a series of middlemen between the tiller and the landowner.

in several states, irrespective of their geographical remoteness. The official data collection system by the NSSO in India does not, however, provide poverty estimates at levels below the states and regions, each region consisting of several districts. Landlessness and out-migration are some of the other indicators that can be used along with the district-level estimates of Human Poverty Indices recently being constructed in select states, but these indicators cannot be perfect substitutes for indicating chronic poverty in the time sense. However, they might help in gauging the intensity of poverty. Owing to these limitations, this study is based on secondary data at the state as well as regional levels.

Agro-Climatic Conditions and Poverty: A Comparative Scenario

Table 1 provides state-wise estimates of various aspects of poverty. It is observed that the five major states with the highest rates of poverty, viz., Bihar (58.2 per cent), Orissa (49.7 per cent), Assam (45 per cent), UP (42.3 per cent) and MP (40.6 per cent) and the other states in the northeast, have also performed poorly in terms of rate of poverty reduction. This suggests that a large proportion of the poor in these states are in perpetual or chronic poverty. For instance, during the two decades since 1974, poverty in Bihar has reduced by only 7.6 per cent. Madhya Pradesh is

Table 1: Poverty in India: A State Profile

State	Headcount ratio [a]	% decline in HRC 74 to 94 [a]	Human poverty index [a]	Calorie gap index [b]
Andhra Pradesh	15.9	-67.1	40.8(9)	16.8
Assam	45.0	-14.5	47.2(13)	17.8
Bihar	58.2	-7.6	53.6(15)	14.9
Gujarat	22.2	-52.2	32.3(6)	18.9
Haryana	28.0	-18.1	31.9(5)	9.3
Jammu & Kashmir	30.3	-33.3	-	-
Karnataka	29.9	-45.8	35.4(7)	16.2
Kerala	25.8	-56.5	23.2(1)	20.4
Madhya Pradesh	40.6	-35.1	45.6(11)	13.7
Maharashtra	37.9	-34.3	29.5(4)	21.3
Orissa	49.7	-26.1	45.4(10)	11.9
Punjab	12.0	-57.6	29.3(3)	8.1
Rajasthan	26.5	-40.9	47.0(12)	6.7
Tamil Nadu	32.5	-43.4	28.2(2)	23.1
Uttar Pradesh	42.3	-25.2	48.3(14)	10.2
West Bengal	40.8	-44.2	38.5(8)	11.7
India	37.3	-34.0	40.5	13.7

Source: (a) Based on estimates provided by Hirway and Dev (2000);
(b) Suryanarayana (2000).

the only high poverty state where the poverty ratio has declined by about 35 per cent. Incidentally, most of thesestates have relatively better agronomic potential and constitute a large part of the forest-based communities.

In contrast, states with a large proportion of dryland regions in the western-southern parts of the country, viz., Rajasthan, Gujarat, Maharash tra, Karnataka, Andhra Pradesh, and Tamil Nadu, have relatively lower concentration of high or very high poverty (Table 2). Prima facie, this could be due to relatively diverse economic structure, development of markets and other infrastructure, and, above all, favourable agrarian relations that might have triggered the dynamic processes of development in these regions. The factors could be (a) consumption of coarse cereals that have higher calorie content than wheat and rice, which constitute the main staple food in the central-eastern regions; and (b) better opportunities for migration as an important coping strategy under the adverse agro-climatic conditions.

But, undertaking adequate expenditure on the requisite amount of calories does not ensure actual intake of nutrients in the required quantities. This is reflected by a substantial calorie gap in most of the states including some of the dryland ones like Gujarat, Andhra Pradesh, Karnataka, Maharashtra and Tamil Nadu. By 1993–94, only 30 per cent of the Indian population had a calorie intake considered acceptable by FAO/WHO norms. Of the remaining 70 per cent, the calorie gap is fairly significant, especially among the bottom 30 per cent of the consumption expenditure group. In

1993–94 the average calorie intake among this group was 1,579 against the recommended level of 2,500 (Chaudhri 2000:20). This kind of acute deprivation persists not only in those states that have a high poverty ratio but also among the other major states, as shown in Table 1.

To an extent, acute deprivation is due to relatively lower land productivity in states like Bihar, Orissa and Madhya Pradesh as compared with drought-prone states like Andhra Pradesh, Gujarat and Karnataka. The relatively higher land productivity in the drought-prone states is likely to be due to the predominance of high-valued crops like oilseeds and pulses. What is of concern, however, is that some of the drought-prone regions, viz., Gujarat, Rajasthan and Maharashtra, have highly unstable crop production as compared with the rest of India with the exception of Orissa. Apparently, higher instability of crop-productivity in Orissa could be due to the relatively lower level of private investment in ground water resources in the State. The high level of uncertainty in crop production in dryland regions may initially lead to transient poverty with temporary migration as a coping mechanism. Eventually, many of these migrants may shift out of the dryland regions, thereby reflecting lower incidence of poverty (than what would otherwise have been) in these regions. In fact, crop production in West Bengal and Assam is only moderately unstable (WFP and MSSRF 2001:21–22). Similarly, the existing calorie gap in the dryland regions could be associated with a high proportion of commercial crops grown even by small and marginal farmers in these regions. What is, however, of concern is that this kind of crop economy is being supported through a highly unsustainable use of land and water resources. This is evident in the overexploitation of groundwater resources in most parts of dryland regions, especially those with lower incidence of poverty like Gujarat and Andhra Pradesh (Shah et al. 1998: 95–100). Apparently, the strategy adopted by the farmers in many of the dryland regions is to maximise returns in the short/medium term, as long-run prospects for agricultural growth in these regions are perceived to be fairly weak.

The major factors in the high incidence of poverty in Orissa, Madhya Pradesh and Bihar, apart from land productivity, are relatively lower labour productivity in agriculture resulting in lower earnings as well as lower wage rates from agriculture among the rural labour households (See Table 2). This is largely an outcome of the relatively high demographic pressure accompanied by lower economic growth and limited workforce diversification among Bihar, Madhya Pradesh and Orissa in the 'forest-based' category.

Agricultural wage rates (for male workers) are not significantly lower in the high poverty states like Bihar, Assam, Madhya Pradesh and Uttar Pradesh vis-à-vis the dryland and low poverty states like Gujarat and Andhra Pradesh. This might be because the actual number of wage-paid days in both farm and non-farm activities is lower than that in the dryland states. While the data in Table 1 do not clearly indicate this, a recent study comparing dry and wet regions in rural Tamil Nadu do support

Table 2 (a): Important Features of the Major States with Significant Proportion of Drought-Prone and Forest-Based Economies

States	Growth of SDP (%) (1970–71 to 1995–96)	Non-Farm Employment (% to main workers)1991	Land Prod. Rs./Ha (1993–94)	Labour Prod. Rs. Workers (UPS)* (1993–94)	Average Number of Wage-paid Days	Agri. Wage Rate (1993–94 at (1970–71 Prices)
Drought Prone						
Andhra Pradesh	1.9	29.6	13,419	2340	257	4.68
Gujarat	2.7	40.6	10,188	3457	261	4.71
Karnataka	2.2	33.3	12,194	3499	278	3.79
Maharashtra	3.0	38.9	6,639	3381	251	5.19
Rajasthan	1.9	29.3	4,876	2922	273	4.64
Tamil Nadu	2.4	38.6	26,084	2723	236	4.11
Forest-Based						
Assam	1.7	N.A.	11,962	3080	285	5.11
Bihar	1.8	28.9	7,864	1675	304	4.32
Orissa	N.A.	25.2	6,317	2368	265	3.93
Madhya Pradesh	1.3	23.2	6,371	2664	286	4.15
Uttar Pradesh	1.8	27.1	10,690	3495	243	4.11
West Bengal**	2.3	44.2	13,628	5416	253	6.89

* UPS = Refers to those having Usual Principal States as Main Worker in Agriculture.

** West Bengal has been included here for comparison with the forest-based economies. The comparison is particularly relevant because the State, till the early nineties, shared several features like high poverty, high agronomic potential and low agricultural productivity.

Source: (1) Central Statistical Organisation, *National Accounts Statistics* (various issues), New Delhi.
(2) Government of India, *Population Census 1991*, New Delhi.
(3) NIRD (2000)
(4) Bhalla (2000)
(5) Indian Labour Bureau (1993–94)

this initial observation (Rajuladevi 2001: 2,657). The important issue here is that higher wage rate, in conjunction with relatively lower productivity of agricultural labour (except in Uttar Pradesh) and non-farm employment, suggests high incidence of surplus family labour, as noted by Bhalla (2000:2–3).

The above phenomenon is corroborated by the fact that states in the forest-based categories have high land productivity but low labour productivity in agriculture. This, prima facie, might be a result of the higher proportion of landless and semi-landless households accompanied by higher demographic pressure. The low overall economic growth in these states aggravates the situation in these high poverty regions.

Similarly, migration as a coping strategy may not always help in getting out of the poverty trap. A significantly large proportion of the migrant workers — both

Table 2(b): Important Features of the Major States with Significant Proportion of Drought-Prone and Forest-Based Economies

State	SC Population	ST Population	Avg.land holding	% NSDP	Landless Households	Infra.dev Index	In-Migration	Yearly Population
	%	%	(Ha)	Non-agri.	%		%	growth (%) (1981–1991)
Andhra Pradesh	15.93	6.31	1.56	65.18	57.7	104.01	29.28	2.42
Gujarat	7.41	14.92	2.93	79.49	57.5	105.33	32.85	2.12
Karnataka	16.38	4.26	2.13	67.41	42	106.12	29.55	2.11
Maharashtra	11.09	9.27	2.21	82.59	61.3	106.77	31.9	2.57
Rajasthan	17.29	12.44	4.11	55.48	27.4	87.27	28.14	2.84
Tamil Nadu	19.18	1.03	0.93	80.86	81.3	145.62	24.01	1.54
Assam	7.40	12.82	1.31	64.71	66.9	104.39	23.69	**
Bihar	14.55	7.66	0.93	68.83	56.5	91.31	24.67	2.35
Orissa	16.20	22.21	1.34	73.5	54.6	101.45	26.21	2.01
Madhya Pradesh	14.55	23.27	2.63	58.6	46	86.66	32.18	2.68
West Bengal	23.62	5.59	0.9	71.26	64.4	102.09	26.29	2.47
India	16.48	8.08	1.57	75.6	53.7	100		2.6*

Note: (1) per cent share of non-agriculture sectors in NSDP is based on constant (1980–81) prices for 1996–97.
(2) Landless households also include 'semi-landless'.
** 1981 census could not be held in Assam.
* Excludes the population of Assam.

in dryland and forest-based regions — end up being construction workers, among whom the incidence of poverty is high. It is observed that, besides agricultural labourers, which form the largest proportion of poor in rural India, the poverty ratio is significantly higher among households engaged mainly in construction activities (Bhalla 2000). This is of concern for it is the major activity available to the surplus labour force in rural areas, constituted mainly by landless and marginal farmers. By the mid-nineties, these two categories together constituted 43.6 per cent of the rural households compelled to seek wage employment outside their farms. This proportion is likely to increase substantially as landholdings are divided and sub-divided under mounting population pressure.

Before we look into the dynamics of poverty and the coping strategies in these regions, it would be useful to identify poverty and its correlates at the regional level. This is particularly important because acute poverty persists in the majority of states including the developed ones, and many of them have performed rather poorly in terms of qualitative aspects of poverty.

Rural Poverty: A Regional-Level Analysis

A recent study by NIRD (2000) has carried out detailed mapping of poverty across the seventy-eight NSS regions in India. However, the distribution of regions according to the levels of poverty (i.e., poverty ratio) presents a somewhat diverse picture, as shown in Table 3. It is observed that regions with high and/or very high poverty are located in nine of the major sixteen states besides the entire northeastern region. Apart from these top five states, the regions with high or very high incidence of poverty include relatively developed states like Maharashtra, West Bengal, Tamil Nadu, and Rajasthan. Together, the nine states, along with the northeastern region, constitute 198 out of the 428 districts in the country. This is a fairly widespread coverage of high incidence of poverty among the states/regions in India.

Table 4 gives region-wise estimates of poverty and the proportion of very poor households for the major states in India. Such information is not available for the northeastern region. It is observed that in 44 out of the 59 regions (in the major states) more than 30 per cent of the poor households live in severe poverty. The consumption level of such households is less than 75 per cent of the normative consumption at the poverty line. Of even more concern is that about 44 regions have over 40 per cent share among the households belonging to the category of severe or 'very poor'. Further, they are spread across different agro-climatic regions, i.e., in hills, coastal regions, dryland regions, and in large part in the medium rainfall regions in Assam, Bihar, Orissa, Uttar Pradesh, and Madhya Pradesh. Given the dispersed pattern of high and acute poverty, their characteristics are also quite different. This is evident in the wide range of variations in the major features of the thirty regions with

Table 3: Distribution of Regions by High and Very High Poverty Across States

States	Regions (No.)				Total No. of Districts in HP+VHP Regions	
	All	HP	VHP	Total	No.	%
Assam	3	2	-	2	13	6.5
Bihar	3	2	1	3	42	21.0
Madhya Pradesh	7	3	2	4	23	11.5
Maharashtra	6	3	-	3	15	7.5
Orissa	3	2	1	3	13	6.5
Rajasthan	4	1	-	1	3	1.5
Tamil Nadu	4	1	-	1	5	2.5
Uttar Pradesh	5	2	1	3	34	17.0
West Bengal	4	2	-	2	8	4.0
Northeast	7	7	-	7	41	
Dadranagar Haveli	1	1	-	1	1	21.0
Total	47	26	4	30	198	100

Source: NIRD (2000)

HP = High Poverty with 41–60 per cent of population below poverty line.
VHP= Very High Poverty with > per cent of population below poverty line

high and very high incidence of poverty (see Table 5). The following observations emerge from the estimates given in Tables 2 – 5.

- Land and labour productivity in agriculture are relatively lower among these regions. This is reflected by the fact that most of the high poverty regions are ranked relatively low (i.e., lower than 40) in terms of the values of land and labour productivities.
- The incidence of non-farm employment in some of these regions is as low as about one per cent of the rural workforce. This suggests limited options for livelihood security in these regions.
- Although (male) wage rates are not particularly low in Bihar, Assam or Uttar Pradesh, it is quite likely that the average number of days worked as paid workers is not high. If so, the total wage income, despite the relatively higher wage rates, may not be sufficient to cross the poverty line. This phenomenon has been observed in the estimates given by the Rural Labour Enquiry, which indicate that the average number of days per agricultural worker is higher in some of the dryland states like Gujarat vis-à-vis some of the states that have a higher level of irrigation and/or rainfall. While this merits further investigation, the important point is that higher wage rate, in conjunction with relatively low agricultural labour productivity and low non-farm employment, reflects surplus family labour and severe underemployment in the farm sector. This phenomenon is further

Table 4: Rural Poor by Severity of Poverty: NSS Region

States	Region	Percentage of poor households (HHs)	HHs with severe poverty to all poor HHs	Extent of Poverty (%)
Andhra Pradesh	Coastal	17.26	26.07	L
	Inland Northern	13.84	25.43	L
	South Western	20.43	33.97	L
	Inland Southern	12.87	19.50	L
Assam	Plains Eastern	37.38	29.45	M
	Plains Western	49.90	29.98	H
	Hills	41.29	13.39	H
Bihar	Southern	62.44	50.56	VH
	Nothern	58.68	47.07	H
	Central	54.03	45.64	H
Gujarat	Eastern	25.89	40.25	M
	Plains Nothern	22.63	23.99	M
	Plains Southern	28.70	30.66	M
	Dry Areas	26.24	27.93	M
	Saurashtra	11.80**	24.58	L
Haryana	Eastern	31.91*	31.43	M
	Western	22.34	37.15	M
Himachal Pradesh	Himachal Pradesh	30.29	29.48	M
Karnataka	Coastal and Ghats	9.24	30.95	L
	Inland Eastern	13.70	32.63	L
	Inland Southern	29.46	31.53	M
	Inland Northern	37.68*	40.42	M
Kerala	Northern	29.05	42.24	M
	Southern	23.43	32.05	M
Madhya Pradesh	Chhattisgarh	43.97	33.07	H
	Vindhya	36.71	37.59	M
	Central	50.13	43.45	H
	Malwa	27.39	36.40	M
	South	46.36	48.25	H
	South western	68.20	61.94	VH
	Northern	17.42**	36.51	L
Maharashtra	Coastal	14.84	27.56	L
	Inland Western	25.13	32.87	M
	Inland Nothern	47.18	40.50	H
	Inland Central	50.02	57.80	H
	Inland Eastern	49.08	40.87	H
	Eastern	48.56	35.46	H

State	Region	Poor	C/D	V.High/High/Moderate Low Poverty
Orissa	Coastal	45.36	41.95	H
	Southern	69.02	49.38	VH
	Northern	45.64	41.61	H
Punjab	Northern	7.55	22.12	L
	Southern	17.48	28.03	L
Rajasthan	Western	25.48	22.92	M
	Northeastern	17.79	32.49	L
	Southern	45.92*	34.95	H
	Southeastern	34.74	46.57	M
Tamil Nadu	Coastal Northern	43.58*	43.48	H
	Coastal	19.82	31.03	L
	Southern	36.74	42.13	M
	Inland	22.66	26.52	M
Uttar Pradesh	Himalayan	24.98**	28.22	M
	Western	29.59**	34.61	M
	Central	50.20	53.37	H
	Eastern	48.60	47.74	H
	Southern	66.74	59.48	VH
West Bengal	Himalayan	58.73	27.87	H
	Eastern	47.14	167.31	H
	Central Plains	31.04**	38.53	M
	Western Plains	40.26	23.72	M

VH = Very High; M = Medium; L = Low

* Indicates outliers in terms of high incidence of poverty in a state with relatively low incidence of poverty; ** Indicates relatively low poverty among high poverty states; *** indicates an extreme case of very low poverty in a region with severe dryland conditions from which significant out-migration takes place (Shah 2001).

Source: NIRD (2000)

Table 5: Economic, Social and Infrastructural Indicators Among Regions within the Major States with Very High/High Incidence of Poverty

State/Region	Indicators							
	Head Cont. poverty (%)	Safe Drinking water (%) HHs	Electricity per cent village	Primary School (%) village	Medical facility (%) village	Real wage rate	Land Prod.	Labour Prod.
Assam								
Plains Eastern	38.71	41.17	16.97	39.86	15.33	31.16	16	29
Plains Western**	35.51	45.27	9.59	85.76	15.74	28.04	27	32
Hills**	44.26	32.44	7.35	42.20	4.13	NA	NA	NA
Bihar								
Southern*	39.74	25.46	7.65	57.70	14.89	31.16	38	52
Northern**	31.10	79.79	3.88	77.52	30.06	26.49	25	46
Central**	31.57	45.26	6.53	71.72	32.20	32.20	23.	37
Madhya Pradesh								
Chhattisgarh*	51.25	44.92	25.26	80.08	7.94	23.75	48	43
Vindhya	38.61	22.01	24.71	66.48	6.92	24.02	53	39
Central*	41.70	41.81	37.10	65.29	7.23	21.79	49	12
Malwa	49.51	60.61	43.96	72.96	9.09	26.24	43	33
South*	48.60	49.51	36.73	75.08	8.09	18.54	46	38
Southwestern**	47.81	58.02	48.07	79.04	16.47	22.47	44	45
Northern	35.70	40.91	39.73	71.99	10.23	32.21	31	9
Maharashtra								
Coastal	47.81	29.48	74.36	93.10	26.12	25.79	14	49
Inland Western	48.48	59.68	59.82	98.02	36.23	20.16	35	22
Inland Northern	49.80	65.53	64.83	95.68	28.65	20.92	41	42
Inland Central**	49.83	68.69	48.63	97.63	34.81	20.86	51	41
Inland Eastern**	50.90	47.33	57.31	85.93	26.29	29.01	34	40
Eastern	53.32	31.78	47.54	82.49	25.13	18.50	40	35
Rajasthan								
Western	41.97	48.17	22.01	65.60	20.42	24.40	54	24
Northeastern	39.88	40.75	19.49	78.79	23.77	23.35	45	16
Southern**	46.42	59.39	20.43	68.20	21.40	21.77	50	47
Southeastern	32.87	64.47	25.28	64.42	13.92	23.85	37	18

Orissa								
Coastal**	31.53	36.84	23.50	72.10	18.67	25.75	26	31
Southern*	49.24	41.19	6.64	60.55	8.00	24.67	52	34
Northern**	43.08	30.07	16.68	74.99	13.15	22.33	42	26
TamilNadu								
Coastal Northern**	45.72	66.11	47.03	90.60	30.29	NA	NA	NA
Coastal	47.20	72.23	37.50	91.61	34.99	23.49	29	44
Southern	48.33	61.36	44.56	91.94	40.49	29.27	30	53
Inland	52.52	59.09	47.47	87.26	35.63	24.67	33	50
Uttar Pradesh								
Himalayan	40.65	71.72	25.13	55.13	39.75	28.50	12	11
Western	30.74	68.79	11.77	69.08	91.49	26.86	6	7
Central**	33.90	32.28	5.74	68.32	91.80	22.90	20	17
Eastern**	33.21	58.67	10.32	47.55	67.67	27.67	24	28
Southern*	41.83	34.77	7.47	78.32	99.85	25.99	36	19
West Bengal								
Himalayan**	34.07	54.64	12.53	82.39	35.31	NA	NA	NA
Eastern Plains**	32.82	85.57	24.88	74.52	26.86	31.26	1	6
Central Plains	30.18	94.75	16.38	86.70	35.82	44.59	2	8
Western Plains	37.53	64.74	13.04	65.74	21.71	40.14	11	15
Northeastern States								
Manipur								
Plains	23.64	54.03	88.57	31.66	-	-	-	-
Hills	44.72	27.73	62.83	12.61	-	-	-	-
Meghalaya	26.79	16.35	69.29	4.81	-	-	-	-
Mizoram	12.90	35.51	87.68	79.22	-	-	-	-
Nagaland	55.56	47.15	81.67	32.05	-	-	-	-
Sikkim	70.93	57.17	86.80	34.46	-	-	-	-
Tripura	30.61	28.53	81.64	53.31	-	-	-	-

Source: NIRD, India Rural Development Report, 1999

* Rank for 78 NSS regions in descending order

confirmed by the relatively high incidence of landlessness/semi-landlessness and marginal holdings among the poorer households. Obviously, higher rates of population growth and the subsequent division of landholdings are an important factor in the declining landholding size in these regions.

- While these regions have a relatively low literacy rate, it is difficult to gauge whether it is a cause or an effect of poverty. Chaudhri (2000:24–25) also observes a similar phenomenon while comparing the rate of illiteracy among households experiencing different levels of poverty. The existing estimates clearly indicate that the poorest are most likely to be illiterate. Whether and to what extent literacy can help them out of acute poverty, however, can be ascertained only when one can gauge the mechanism through which poverty can be mitigated in these regions.
- Finally, the status of basic infrastructure like primary schools and access to safe drinking water, in very high poverty regions is not markedly different from that in other regions with high incidence of poverty. For instance, while southern Bihar and Orissa have significantly lower scores in terms of infrastructural support, southwestern Madhya Pradesh and southern Uttar Pradesh have relatively better scores in terms of primary schools and medical facilities. Overall, however, most of the regions have relatively weak social and physical infrastructure (NIRD 2000) as compared with the rest of the regions. The important issue in this context is that of the actual vs. virtual existence of such facilities in the remote rural areas, which cannot be captured through secondary data like these.

The above features of the poor regions and households, however, do not throw much light on factors like (a) physical infrastructure and linkages; (b) agro-climatic conditions and (c) occupational diversification that are crucial in determining the coping strategy of households that live in perpetual poverty in these high poverty regions. In what follows, the conditions of physical and social infrastructure as correlates of poverty at the regional level are explored.

Role of Social Sector Development and Rural Infrastructure

With the concept of human capabilities gaining currency as a cause and as a measure or manifestation of poverty, education and health have assumed centrestage in understanding poverty conditions. The genesis of this approach, however, lies in the observed link between poverty and total fertility rates and the resultant population growth. This link is also confirmed by recent data from the NSS 50th Round (1993–94). The state-wise data clearly suggest that in every Indian state, the poor and very poor have larger families and number of children. Hence, all efforts to improve rural primary school and health services will benefit poor households twice as much as the non-poor (Chaudhri 2000:13). This is very significant.

The link between social sector development may, however, work at different levels. First, it may help in reducing the fertility rate, hence population pressure may be reduced by the next generation. Second, rather more importantly, it may help to enhance the capabilities of the present generation of children to obtain better livelihood opportunities. While the impact on population growth is widely established, the evidence of the second aspect has also been empirically observed in terms of positive association between literacy level and wage rate (Fan et al. 2000) and also ability to migrate (Visaria and Kothari 1984:30). While literacy does play an important role in poverty reduction, it may not by itself work unless it is accompanied by expansion of employment opportunities in both rural and urban areas. This implies that agricultural growth and social sector development have to go hand in hand. Apart from literacy, road networks and other rural infrastructure are also important determinants of rural poverty and its alleviation (Fan et al. 2000:1,459). Obviously, most of the regions, especially in the hilly areas, are significantly deficient in the coverage of roads, electricity, communication and irrigation.

It is strange that, despite the critical importance of social sector development and rural infrastructure, most of the states, including some of the developed ones, Gujarat, Maharashtra, Andhra Pradesh and Karnataka, falter on making committed expenditure in these directions. A detailed study by Prabhu (2000:7) shows that per capita expenditure on health and education is generally lower in low attainment states. Expenditure on the social sector in Bihar and Uttar Pradesh has been less than 50 per cent of that in Kerala. Further, though per capita expenditure by itself is not a sufficient condition for determining the level of social development, it is a necessary condition. And finally, the study restates the fact that deprivation is particularly acute in tribal areas where supply constraints operate for several reasons — cultural, geographical, and financial.

Apart from budgetary constraints, lack of political will, both at the centre and at the state level, accounts for dwindling investment in vital sectors like health and education. What is worse, a large part of the poor refrain from seeking health services and primary education because of the associated costs (Tilak 2000:9). This reflects on the inappropriate structure of subsidies and their ineffective implementation. The apathy towards the social sectors stems largely from a combination of the federal system of finance and the feudal character of political leadership in most of the high-poverty regions.

The crucial aspect of state intervention, however, is that of effectiveness and quality of services provided to the poor in these spatial poverty traps. While much has been said about poor quality of health and education systems, the most important factor explaining the phenomenon is corruption and/ or lack of accountability (Saxena 2000). However, this kind of situation can prevail, openly and pervasively,

only under a subdued or distorted political process within a representative democracy. While it is not possible to get into the details of the vast literature on the theme, the severity of the problem can be easily demonstrated by the fact that the major constraint to State-supported health and education service centres is the physical absence of the key functionary of the system, i.e., the medical practitioner and the teacher! This itself speaks profoundly for the State's commitment on the one hand and the character of the polity on the other. Needless to say, the problem is particularly serious in geographically remote hilly regions with sparse population and in the five major states with high incidence of poverty and a huge population.

To sum up the discussion on social and rural infrastructure, it might be useful to understand some links between economic and social sector development in poverty reduction. While some of the recent studies (Panchmukhi 1994; Chaudhri 2000; Fan 2000; and Ravallion 2000) have tried to identify the link between the various economic and social indicators explaining rural poverty in India, the NIRD (2000) study is a further step towards examining the interlinkages among the various human development indices. The following conclusions emerge from the NIRD study at the regional level.

- Social and infrastructural developments are mutually reinforcing.
- Social Development Index (SDI) and Infrastructure Development Index (IDI) significantly and positively influence per capita expenditure and negatively affect poverty levels.
- SDI is an important input in human resource development, which is a crucial factor in bringing qualitative changes in labour market and land productivity.
- IDI has a strong influence on land productivity and landholdings structure (LHS)
- Changes in labour markets, i.e., wage rates, occupational diversification and employment, significantly influence per capita expenditures (PCE). Similarly, land productivity has a considerable effect on PCE.

The above description of poverty traps in rural areas has brought home two important aspects:

- States that were under the zamindari (definition) regime and have experienced relatively ineffective green revolution as well as low level of industrialisation and market/ infrastructural development have remained in poverty. Strangely, this is despite, or perhaps because of, the better agro-climatic conditions which prevented them from desperately seeking alternative avenues of livelihood. Overall, therefore, 'drier states (in the west) harbour lesser poverty proportions than the wetter ones (in the east). Within these contours, all suffer, and vice versa' (NIRD 2000:9). What is, however, pertinent is that a high level of commercial agriculture may not be environmentally sustainable in the long run.
- While migration is an important coping strategy for drought-prone regions, its

outcome depends upon the overall economic development and scope for occupational diversification in the region/state. To the extent that industrial growth helps develop markets/infrastructure, it can improve the economic conditions of migrants from drought-prone regions within the state. In the absence of this, migration may merely shift the locale of poverty.

Since most of the high poverty regions in the east have substantial untapped potential for agricultural growth, and many of the low poverty regions in the west have started facing the brunt of frequent droughts, developing sectorally as well as regionally balanced growth has become almost inevitable. What is the recent experience of industrial growth and its impact on rural poverty? What are the constraints in developing agriculture in the drought-prone and/or high poverty regions? And, what are the various coping strategies, especially migration and their implications for poverty reduction? Such crucial issues are discussed below in the light of the available literature.

Developing the Lagging Regions: Causes and Future Strategy

An abundance of literature has come up examining the incidence and determinants of poverty in the post-liberalisation period. While there is some disagreement as to the incidence of poverty, most of the studies note that rural poverty has remained more or less unaffected by significant growth, especially in the industrial sector. According to Datt's (1999) estimates, the trend reduction in rural poverty virtually ceased after about 1991 while the momentum in urban poverty reduction has been maintained (Ravallion 2000: 1,090). Prima facie, this suggests increasing income or employment opportunities for those who manage to migrate to the urban areas, but not in rural areas.

The above phenomenon has been clearly borne out by a recent analysis of changing employment structure by Bhalla (2001). The study notes that in the second half of the nineties, employment growth in rural areas was negative and was concentrated in the urban areas. This has happened partly because of the shift of non-farm employment from rural to urban areas. This shift is largely induced by 'push' rather than 'pull' factors as reflected by the fact that in seven out of the sixteen major states agricultural labour productivity had declined. These include both the drought-prone states (i.e., Gujarat, Rajasthan and Andhra Pradesh) as well as the high poverty states (i.e. Bihar, Orissa, Assam). Given the 'relentless build-up of demographic pressures', except in Haryana, Punjab, Kerala and West Bengal, the damaging impact of slowdown in the agricultural sector has led to a reversal of the trends in changing workforce structure within rural areas (Bhalla 2001).

In short, the employment scenario in the post-nineties has been clearly depicted as follows: When all else fails, as in a drought year, underemployed farm workers turn to construction work. But this does not continue in the long run, as it did

in the case of Haryana. The result, therefore, is a retreat into agriculture, which along with the increasing demographic pressures, leads to a decline in labour productivity in agriculture (Bhalla 2000:3). Crucially, this implies that migration is also not a sustainable option for seeking improved income/employment opportunities for those who get pushed out of agriculture in the rural areas.

Overall, therefore, there has been a consensus on the central role of the agricultural sector, which 'reduces rural poverty directly, and, more importantly, fosters conditions for pro-poor growth in the (urban and rural) non-farm sectors' (Ravallion 2000:1,092). It is noteworthy that higher productivity in agriculture (i.e., yield) is positively associated with some of the qualitative aspects measured by the Human Development Index (HDI) and Gender Development Index (GDI). Conversely, yield is negatively associated with total fertility rate and female participation in the agricultural labour force (Chaudhri 2000:37). The other two factors are inflation and public expenditure in infrastructure and social sectors (Shand and Bhide 2000; Fan et al. 2000). Thus, criticality of agricultural growth, which in turn strengthens other sources of growth, especially human capabilities, is being increasingly emphasised.

The above analysis points to the need for pro-active measures for promoting research and extension, market development, rationalisation of subsidies and, above all, basic investments in land and water resources through watershed development, etc. What is also being increasingly emphasised is a new set of land reforms involving consolidation of holdings, restructuring of tenancy relations, and sharing of groundwater resources (Bhalla and Singh 1997). Overall, the thrust of the growth-oriented approach is to shift from low-value subsistence economy to high-value farming in the lagging regions (Vyas 2001). This can be achieved by shifting from input-intensive to technology or knowledge-intensive growth in agriculture (Desai and Namboothiri 1997:A-37), which is employment generating and at the same time environmentally conducive. These issues need further probing as to the potential impact that the proposed growth strategy may have on the conditions of different categories of poor in these lagging regions. The agriculturally lagging regions in Orissa, Madhya Pradesh, West Bengal, Eastern Uttar Pradesh, South Bihar, etc. have relatively better agronomic potential (Fan et al. 2000). Converting this potential into actual growth needs shifting of investment priorities to these lagging regions where marginal returns are high.

This kind of shift in the production frontier may significantly reduce the time frame for the trickle-down effect to reach the small and marginal farmers, and also the landless through restructuring of the labour markets. Evidence for this has been found in a recent analysis by Sundaram (2001), which indicated an increase in the real wages among agricultural workers at the all-India level. It is difficult to assess whether and to what extent the dynamics of growth, experienced in some of the agriculturally lagging regions during the nineties, can help in raising the net

returns or earnings from perpetually low levels. Gaiha (1989), using a data set of the pre-eighties period when agricultural growth had not spread beyond the Green Revolution areas, clearly argued that growth alone will not help shift the chronically poor out of the low-income traps, and that supplementary policies will have to be worked out in order to take care of the entitlement problems through employment generation and the public distribution system (Gaiha 1995). Thus, the recent experiences of agricultural growth in some of the high poverty states like Rajasthan, Madhya Pradesh, Orissa, Assam, and West Bengal need closer scrutiny in terms of where the growth has taken place. How has it been achieved? To what extent is it sustainable? And, who have been the beneficiaries?

It is quite likely that this new round of agricultural growth has bypassed a large proportion of those in chronic poverty. The measures needed to enhance the profitability, and hence income, among a large number of small and marginal farmers operating under dryland or unirrigated conditions take a fairly long time to influence farm productivity. In the absence of these, farmers are likely to resort to technologies that are non-sustainable in the long run. Rapid depletion of groundwater in some of the dryland regions in Gujarat, Maharashtra, and Rajasthan is a pointer in this context. This suggests that there is no short cut to knowledge-based agricultural growth, which can also benefit small and marginal farmers. To address the issue, increasing emphasis has been placed on watershed-based development, especially in the dryland regions. The initial results from some of the watershed projects following the new approach seem quite encouraging (Rao 2000). But the task is rather complex and it will be long before the full potential is realised. Pending this, it might be useful to have a brief review of the impact of the various watershed programmes being implemented in various parts of the country (Shah 1999:17). The following observations are important in this context:

- Water is the most crucial resource, bringing substantial benefits to the farming households; the present system of ownership of land and groundwater renders these benefits only to a small number of households, especially those owning irrigation wells within the watershed area.
- Common property resources remain neglected under watershed development, resulting in marginalisation of the poor, who are generally more dependent on such resources.
- There has been rather limited emphasis on water-saving devices as well as certain agronomic practices that are essential for improving farm productivity under low/uncertain rainfall conditions.
- Participatory processes have not necessarily triggered and strengthened a negotiating mechanism across different stakeholders, viz., landed vs. landless; farmers with and without irrigation; those with strong vs. weak political patronage; men vs. women; and severely poor vs. not so poor.

- Co-ordination between different line departments as well as agencies is generally non-existent.

It is also imperative to note that experiences from some of the other participatory programmes in the field of natural resources, e.g., joint forest development, wasteland development, or small fisheries development, bring out more or less similar results. The need, therefore, is to sharpen the focus of watershed programmes by bringing productivity concerns into centrestage. It is equally important to ensure that a large proportion of the farms and farmers, especially the poor ones, tend to benefit from such productivity gains directly and/or indirectly.

Future research on rural poverty thus needs to focus on understanding the nuances of agricultural growth and their impact on the chronically poor. Assuming that agricultural growth in some of the lagging regions picks up momentum and thereby takes less time to percolate to much of the farming community, it may still leave out a substantial proportion of the chronically poor who suffer from entitlement failure for several reasons — agro-climatic, economic, socio-political and geographical. These households may therefore need well-targeted policy support, especially for insulating them from sudden rises in prices (Gaiha 1995) and shortages, as well as inaccessibility to sources of food grain (Vyas 2001). While agricultural growth may help create entitlement among a segment of the chronically poor in these regions, those who remain left out have to be supported through various kinds of social security nets, which mainly include literacy and skill formation, basic health services and, above all, adequate nutrition. The last could possibly be attained through effective schemes like 'food for work'. This is particularly relevant when the country is facing the paradox of hunger in the midst of food surplus. More than revamping of the public distribution system (PDS) for food grains, what is actually needed is effective political clout and the requisite governance to translate political will into action. Civil societies have to play a major role in realising this critical policy goal. In this context, some of the local initiatives, supported by NGOs, for organising village-level grain banks may help in working out a way by which the PDS can be effectively targeted and decentralised.

Where Do We Go From Here? Some Policy Implications

The foregoing analysis has clearly highlighted the differentiated experience of the poor even within the two major categories of the spatial poverty traps. Obviously, this would imply situation-specific solutions in both the short and long run. Some of the important features that need special consideration during the next phase of policy formulation have been noted as follows:

(i) On Agricultural Productivity

Increasing agricultural productivity in the lagging regions should have

poverty reduction as its prime agenda. This should not be mixed up with the other larger goals of overall economic growth, export promotion, etc. The focus of agricultural growth in these regions should be on (a) enhancing the aggregate food supply and its effective distribution in favour of the poor; and (b) creating productive employment in the farming sector, which may subsequently help create scope for non-farm employment in rural areas.

While restructuring the input subsidies, emphasis should be laid on skill as well as knowledge-based improvement in land productivity rather than promoting input intensity per se. This implies a significant shift in the locus of agricultural R&D and, more particularly, extension services in favour of lagging regions that may have immediate pay-offs.

A fresh emphasis on land reforms is required, focusing on consolidation of holdings, regularising certain forms of tenancy, and development of marginal land for redistribution to the weaker sections of society (Bhalla and Singh 1997). Similarly, the entitlement of the poor to forest resources has to be ensured by involving them in the management of these resources. It is necessary to strike a critical balance between economic incentives and conservation of forest resources.

Land reforms should be accompanied by a significant move towards collective ownership and management of water and irrigation facilities, as equitable and widespread availability of water is a prerequisite for improving productivity especially in the dryland regions (Shah et al 1998). Special emphasis should be laid on promoting water-saving devices like drip irrigation in these regions. On the other hand, revamping of the diesel pump scheme in waterlogged regions is an urgent need (Shah 2000:14).

Participatory processes should eventually result in (a) interactive process of negotiations, cross-subsidisation and sharing of benefits and responsibilities; and (b) development of inputs and credit support system (Shah 2001:3,409). This, however, should be preceded by infrastructural development, location-specific technologies, and the right kind of incentives for promoting local enterprises and markets.

(ii) On Social and Rural Infrastructure

Roads, electricity and markets should reach a large part of the RRAs in the foreseeable future. Of course, providing roads through special employment programmes is fairly easy. What is crucial is to extend the reach of the poor to markets. However, instead of pre-empting new institutional forms and creating additional structures, efforts should be made to promote input supply by supporting the para-professionals through enterprise development and credit facilities. Developing the tertiary sector in rural areas is far more effective than promoting rural industrialisation because the former is likely to have better linkages with the growing agricultural economy vis-à-vis the latter.

- There is a huge budget for safety net programmes (i.e., Rs.7,000 crore annually

for poverty alleviation, Rs.10,000 crore for food subsidies, Rs.10,000 crore for kerosene subsidy), but little for asset formation (i.e., Rs.1,700 crore for irrigation and Rs.400 crore for afforestation), and very little for maintenance. The priority needs to be reversed (Saxena 2000: 3,630).

- Watershed programmes should be formulated in co-ordination with minor irrigation, animal husbandry and forestry departments, rather than in isolation.
- For social infrastructure, the hardware components (i.e., buildings for schools, dispensary and other public utilities like drinking water, sanitation, etc.) should come primarily from people's own contribution in terms of both labour and capital on the principle of 'each according to one's ability'. This will create a sense of ownership and enable the people to question the quality of the services, and perhaps lead to an effective system of self-governance. Subsidies are not only expensive but also counterproductive, as they prevent the emergence of new economic institutions and markets.
- The PDS has to play a significant role in ensuring food security to the poor. However, the present system needs restructuring at all levels, viz., movement of foodgrains across states, procurement mechanisms, and distribution. Linking PDS with employment schemes, school attendance, women's health, saving-credit groups, and participatory natural resource management programmes may have significant pay-offs in terms of effective targeting and cost reduction (Dev 2000:18).
- Finally, promoting people/ NGOs initiatives as well as private sector development in health and education may help to create a competitive environment within which the public system may also have to be modified. At least a beginning could be made by supporting such local initiatives by linking them with the structures and funding available within the public system. The problem, however, may still remain with personnel in the public system who refuse to perform. This takes us to perhaps the most difficult aspects of governance and accountability.

The foregoing analysis of spatial poverty traps in rural India depicts a plurality of problems, coping strategies, and policy implications. The future policy agenda will therefore necessitate a multi-pronged approach rather than one that focuses entirely on agricultural growth per se. While this is a prerequisite for poverty reduction in these regions, it is certainly not sufficient. The next stage of development should therefore place the poor, especially the chronically poor, at the centrestage of development. Spatial poverty traps become very important in this context.

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Time and Cost Overruns of the Power Projects in Kerala[1]

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Abstract

Delays in project implementation and the attendant cost overruns have been a regular feature of the electric power sector in Kerala. Almost all public projects, including the prestigious major hydroelectric project of Idukki, have been victims of time and cost overruns owing to several avoidable factors, labour disputes being singled out as the prime villain. This paper analyses the cost of inefficiency involved in the time and cost overruns in the power projects of KSEB, and their possible causes.

'Quite obviously it came up through the waste,
Rejects through ignorance or apathy
That passage back. The problem must be faced;
And life go on…..'

— Roy Fuller ('The Image')

Introduction

This paper on time and cost overruns of the power sector projects in Kerala is part of a larger study on 'The Plight of the Power Sector in India: Inefficiency, Reforms and Political Economy,' and discusses the costs of inefficiency in the context of the Kerala power sector at the project implementation stage. In an earlier paper (Kannan and Pillai 2001 a), we have discussed the cost of inefficiency involved in general in the Indian power sector at the various stages of operation. Here we analyse the cost of inefficiency involved in time and cost overruns in the power projects in Kerala. This is of much significance in the present context of arguments by the government in favour of private sector participation in power generating capacity addition, on the pretext of a resource crunch. The government is said to be facing a severe shortage of funds and is hence incapable of undertaking new power projects. However, as we will show, this argument is flimsy as the government is

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actually overspending on each of the projects undertaken. Each project involves immense cost overrun. Had the government been able to implement each project efficiently within the normally expected constraints of time and cost, it could have saved huge resources and hence undertaken many more additional projects. It is not that the government has no resources meant for power development, because it is actually overspending; the problem lies in the inefficiency of management, coupled with the political economy of corruption. The present paper has the limited objective of bringing this aspect to light. Following this introduction, the paper briefly discusses the individual projects experiencing time and cost overruns, and goes on to present a comparative analysis. Next it examines the costs of delays and their possible causes. Finally, it briefly discusses the political economy of corruption involved in the time and cost overruns of the power projects in Kerala, and draws conclusions.

Delays in project implementation and the attendant cost escalation have been a regular feature of the power sector in Kerala. Normally, the construction of a major hydro-power plant is expected to be completed within eight to ten years, and that of a mini hydel project in two to three years. However, the Kerala experience, with longer time and higher cost overruns in the case of both major and mini hydel projects, is baffling. A 'classic' example is the Kakkad hydroelectric project of 50 megawatt (MW) installed capacity; the project was sanctioned as early as in 1976 with an original cost estimate of Rs.1,860 lakhs; this project was proudly presented as the least-cost hydroelectric project in the State! It was scheduled to be commissioned in 1986, but took twenty-three years for the Kerala power system to tap the energy potential of this project (major construction works on it started only in 1979), at an estimated cost of Rs. 153.5 crores, about 725 per cent above the original one!

The Kakkad story is not an exception, but forms part of an endless series of overruns in Kerala's power system. The prestigious project of Idukki also was a victim of time and cost overrun, mainly due to labour disputes, the prime villain in every instance. Idukki Stage I project (three units of 390 MW) could not be commissioned in the Fourth Five Year Plan (1969–74) as scheduled and had a long gestation period owing to labour problems. It was finally commissioned in 1976. When Idukki Stage II project (three units of 390 MW) was put on line in 1986, after a time overrun of about eight years, it had a cost escalation of 115 per cent over the original estimate.

Similarly, the next project, Idamalayar (of 75 MW, started way back in 1970 and commissioned in 1987), suffered a time overrun of about nine years and a cost increase of 285 per cent. Two major firm power augmentation schemes, Sabarigiri Augmentation and Idukki Stage III, too had the same fate. Started in 1972 and 1975 respectively, the works on these projects could not be completed

till the turn of the 90s. A cost overrun of nearly 780 per cent (the highest ever among the projects in the Kerala system!) and a time overrun of ten years go to the discredit of Sabarigiri Augmentation scheme, beyond any common sense accounts. And a cost increase of about 270 per cent, with a time overrun of about ten years, lies behind the Idukki Stage III project.

Project-Wise Analysis

Data on time and cost overruns of sixteen other hydro-power projects are available for analysis, the data having been collected from the various volumes of *Economic Review* of Kerala State since 1985. These projects are 1) Kakkad, 2) Kallada, 3) Lower Periyar, 4) Pooyankutty, 5) Malampuzha, 6) Madupetty, 7) Malankara, 8) Chimony, 9) Peppara, 10) Azhutha Diversion, 11) Kuttiar Diversion, 12) Poringalkuthu Left Bank Extension, 13) Vadakkeppuzha Diversion, 14) Vazhikkadavu Diversion, 15) Kuttiadi Tail Race and 16) Kuttiady Extension. The details of these projects are given in Table 1 (and also in the Appendix).

1. Kakkad

This project, considered the least-cost hydroelectric project in Kerala, is to use the tail race waters of Sabarigiri power house (PH), together with the inflow of two tributaries of Kakkad river, viz., Moozhiyar and Veluthodu streams, over a gross head of 132.6 m. for power generation of 262 million units (MU) with an installed capacity of 50 MW.

Though the project was sanctioned by the Planning Commission as early as in 1976 at an estimated cost of Rs.1,860 lakhs, construction began only in 1978–79 for want of funds. Moreover, progress was tardy. The length of the interconnecting tunnel driven as by the close of 1986–87 was only 886 metres (out of 3,036 metres). The poor performance was mainly due to labour disputes for over a year (from October 3, 1985 to October 29, 1986. Though the work was resumed on October 30, 1986, it was interrupted on February 6, 1987, owing to a rock fall inside the tunnel. In the case of the power tunnel, some progress was achieved only in 1986–87; two earlier contracts with poor performance had to be terminated here.

Over a period of twenty-three years, involving a time overrun of about thirteen years, when it was finally commissioned in 1999, the cost escalation of this project was 725 per cent above the original estimate. That is, the actual cost was more than eight times the original cost estimate. It should be noted that a project is sanctioned at the costs that exist when the project is submitted. The cost estimate is likely to increase over time on account of price inflation. Though the original cost estimate is presumed to include an allowance for possible price inflation, often the actual experience can deviate from the assumptions. Hence, it is natural to consider

Table 1: Profile of Time and Cost Overruns of the Projects

Project	Energy Potential (MU)	Year of Starting	Originally Scheduled Year of Completion	Year of Commission-ing	Estimated cost (Rs. Lakhs) Original	Actual
Idukki II Stage	1007	1970	1978	1985–86	3168	6800
Idukki III Stage	376	1975	1981	1991	410	1511
Sabarigiri Augmentation	125	1972	1980	1990–91	128	1122
Idamalayar	320	1970	1978	1987	2340	9003
Kakkad	262	1976	1986	1999	1860	15352
Kallada	53	1981	1989	1993–94	1180	1802
Lower Periyar	493	1983	1991	1997–98	8843	35304
Malampuzha	5.6	1987	1989	?	295	679
Madupetty	6.4	1987	1989	1998	292	478
Malankara	65	1987	1990	?	780	4113
Chimony	6.5	1987	1990	?	314	425*
Peppara	11.5	1987	1990	1996	392	681
Pooyankutty	645	1986	–	?	25000	82000
Azhutha Diversion	57	1987	1991–92	1998	290	1446
Poringalkuth LB Extn	74	1989	1992–93	1999	902	4273
Kuttiar Diversion	36.6	1988	1990–91	?	214	949
Vadakkepuzha Diversion	12	1989	1991–92	?	131	514
Vazhikkadavu Diversion	24	1989	1992–93	?	186	1599
Kuttiady Tail Race	15	1989	1992–93	?	397	1292
Kuttiady Extension	75	1992	1995–96	2000	3073	19800

Note: * = by 1993; ? = Year of commissioning still remains uncertain.

Source: Government of Kerala, *Economic Review* (various years).

and identify that part of the cost escalation that is due to price inflation, which can by no means be attributed to improper project formulation and/or implementation. However, what remains in the cost overrun over and above the effect of price increase is a matter of concern demanding explanations in terms of real factors involved in faulty planning and execution. For each of the projects, we have estimated the price inflation in terms of WPI for all commodities experienced during the project implementation period, in order to differentiate between the effects of price inflation and those of other factors on capital expenditure. It should be noted that the effects of price inflation on capital expenditure account for the share of time overrun in cost escalation.

The WPI for all commodities registered in 1999 an increase of only 461.2 per cent over 1976 (when the Kakkad project was sanctioned). This implies that the cost escalation is about 1.5 times the general price inflation (as given by the

WPI for all commodities). Thus, it is clear that price inflation alone is not responsible for cost overrun; about 260 per cent of the increase in cost estimate can be attributed to factors other than price inflation, which can evidently be treated as a waste of resources.

2. Kallada

This project envisages construction of a dam toe power station of 15 MW installed capacity and generation of 53 MU of power from the existing Kallada irrigation project. Though the contracts for civil works were settled in April 1985, and works began immediately, frequent releases of water through the irrigation outlets of the dam flooded the work areas, preventing the progress of works.

The project was sanctioned in 1981 at an original cost estimate of Rs. 1,180 lakhs and was commissioned in 1993–94 at a (revised) cost of Rs.1,802 lakhs, representing a 52.71 per cent increase. It was to be commissioned at the earliest by 1989, but had to undergo a time overrun of five years. During the same period, the WPI (all commodities) rose by 148 per cent; and the revised cost estimate of this project appears not to have been inflated to that extent.

3. Lower Periyar

This is a tail race-cum-run-off-river scheme in the lower reaches of Periyar river downstream of Neriamangalam power house. The scheme envisages utilisation of the waters of Neriamangalam power station, the spill from Kallarkutty dam and the available yield from Perinjankutty catchment and the catchment areas below the dams at Kallarkutty, Idukki, and Cheruthoni river, over an average gross head of 302.63 m. for power generation, with an installed capacity of 180 MW and annual generation of 493 MU.

Started in 1983 at an original estimate of Rs.8,843 lakhs, the project was commissioned in 1997 and its revised cost estimate as in 1999–2000 stood at Rs.353 crores. Over these fourteen years (including a time overrun of six years), the cost estimate increased by about 300 per cent against an increase in the WPI (all commodities) by 194 per cent. Thus, after accounting for the full impact of price inflation on the capital cost of the project, about 111 per cent increase needs to be explained by other factors such as wasteful management.

4. Pooyankutty

The scheme envisages construction of a 148 metre-high concrete dam across River Pooyankutty and a surface power station with two units of 120 MW each, i.e., with an installed capacity of 240 MW and annual generation of 645 MU. The Planning Commission approved the scheme as early as in August 1986. However, the central government's sanction of forest clearance is yet to be received. The state government and KSEB are reported to have fulfilled all the formalities for the issuance of sanction, including the proposals for compensatory afforestation

as required under the Forest Conservation Act of 1980. So far, only minor preliminary works have been done.

A fourteen-year incubation for a project proposal is ample evidence of the lethargy and non-commitment on the part of the planners. During this period, the cost estimate was revised upward by 228 per cent, from Rs. 250 crores to Rs. 820 crores, far exceeding (by 45 per cent) the general price inflation (182.7 per cent) during this period.

It should be mentioned here that project overrun is usually analysed with reference to the time when construction works began; that is, after the project has been accorded all clearances and sanction. As far as Kerala is concerned, the organised environmental concerns succeeded in lobbying the government at the initial stage itself, that is, not to accord clearances to a particular project at all, for example, Silent Valley, Pooyankutty, etc. Thus, there has not been in Kerala a situation like the Narmada Valley dilemma, where environmentalists contribute to the time overrun of a project. In the case of Pooyankutty, therefore, we are not analysing the time overrun involved.

5. Malampuzha

A mini hydel project of 2.5 MW with an annual generation of 5.6 MU, this scheme envisages construction of a power station on the downstream side of the existing irrigation dam (owned by the State PWD) to utilise the irrigation release. This project, which was started in 1987 and expected to be on-line by 1989, is now expected to be commissioned 'in the near future.' After twelve years with a time overrun of about ten years as in 1999–2000, the capital cost was revised from the original Rs. 295 lakhs to Rs. 679 lakhs — an increase of about 130 per cent. Over the same period the WPI (all commodities) registered an increase of 169 per cent.

6. Madupetty

Another mini hydel project of 2 MW with 6.4 MU of annual generation, this scheme aims at construction of a dam toe power house at the existing Madupetty dam for power generation using the water released from the Pallivasal hydroelectric project. Started in 1987 and expected to yield its energy by 1989, this mini project was at long last fully commissioned by January 1998 after a time overrun of about nine years. The cost estimate was revised from Rs.292 lakhs to Rs.775 lakhs by 1995, which, however, fell to Rs. 478 lakhs by 1998, providing a good example of the reliability of the estimation procedure of KSEB; this is true of most of the projects. The cost increase in this case is 64 per cent, against the general price increase of 145 per cent.

7. Malankara

Another small hydroelectric (HE) project with an installed capacity of 10.5 MW and annual generation of 65 MU, this scheme envisages the construction

of a dam toe power station at the Malankara dam of the Muvattupuzha valley irrigation project (under construction by the State PWD). The project will utilise the tail water releases from the Moolamattom power house of Idukki hydroelectric project together with the inflow from 153 square km. free catchment less the irrigation requirements.

This project, which was started in 1987 and expected to generate power by 1990, has by now (1999–2000) registered a time overrun of about nine years; its capital cost was revised over the period from Rs.780 lakhs to Rs.43.36 crores by 1997 and then to Rs.41.13 crores by 1998 and 1999–2000, thus undergoing a phenomenal increase of 427.3 per cent against a wholesale price rise of 169 per cent. Reminiscent of the mammoth inflationary influence of the 'other factors' on the capital cost of Kakkad project, in this case the other factors of sheer waste and overestimation account for an increase of as much as about 258 per cent in the capital cost, which calls for another careful diagnosis.

8. Chimony

Another mini hydel project, this scheme envisages installation of a generating unit of 2.5 MW in a dam toe power station at Chimony irrigation dam (under construction by the State PWD). It is expected that 6.5 MU of energy can be economically generated during the period December–May.

This project was started in 1987 and was originally scheduled to be commissioned in 1990. But in 1993 it fell prey to a dispute between the contractor of the electrical works and KSEB, and all the works were paralysed thanks to a stay order from the High Court obtained by the contractor. By 1993, the capital cost was revised from its original level of Rs.314 lakhs to Rs.425 lakhs, representing an increase of 35.35 per cent against a general price rise of 72 per cent over the same period.

9. Peppara

This small project was proposed to benefit Thiruvananthapuram city by making use of the drinking water supply released from Peppara dam (owned by the Kerala Water Authority) through a dam toe power house of an installed capacity of 3 MW and an annual generation of 11.5 MU.

The Peppara project was started in 1987 and was supposed to have the normal gestation period of three years. It was finally commissioned only in 1996, with a time overrun of six years and a cost escalation of 73.7 per cent over the original estimate of Rs.392 lakhs, against a general price rise of 118.3 per cent during this period. Note that the cost estimate was earlier revised to Rs.850 lakhs in 1995 and then reduced to Rs.625 lakhs in 1998 only to rise again to Rs.671 lakhs in 1999 — another instance of haphazard planning.

10. Poringalkuthu Left Bank Extension

This scheme is to construct a second power station with an installed capacity of 16 MW and an annual generation of 38 MU for better utilisation of the water release from the existing scheme (Poringalkuthu power house). Its works were started in 1989 and it was expected to be commissioned in 1992–93. After a time overrun of about six years, it was commissioned in 1999; the original cost estimate of Rs. 9.02 crores rose by about 374 per cent to reach Rs. 42.7 crores. Comparing this with the rise in the WPI (all commodities) over the same period by 113 per cent, about 261 per cent of the increase in the cost estimate is found to be attributable to 'other factors' of wasteful management and overestimation.

11. Kuttiyadi Tail Race

This project proposes to utilise the regulated discharge from the existing Kakkayam power station of Kuttiyadi hydroelectric project for power generation in a station to be located further downstream. The proposed installed capacity is 2.5 MW and the annual generation 15 MU.

The project was started in 1989, and expected to be commissioned in 1992–93. By 1999–2000, with a time overrun of seven years, the estimated cost rose by 225 per cent from the original Rs.397 lakhs. The general price rise during this period was 132 per cent, indicating an increase of about 93 per cent in the cost estimate owing to 'other factors', over and above the influence of price inflation. Note that the revised estimate in 1997 was Rs.14.48 crores (265 per cent above the original) and in 1998, Rs.13.38 crores!

12. Azhutha Diversion

This scheme envisages diversion of waters from the 16,8389 sq. km. catchment of the upper reaches of Azhutha river, a major tributary of River Pamba to Idukki reservoir for increasing the power potential of Idukki power project by 57 MU. The scheme will provide diversion of about 57.6 mm^3 of water on an average per annum.

Work on this project was started in 1987, and it was expected to be commissioned in 1991. After a time overrun of about six years, it was partially commissioned in June 1998. By 1999–2000, the original cost estimate was revised upward from Rs.290 lakhs to Rs.14.46 crores, an increase of nearly 400 per cent, against the rise in WPI (all commodities) by 145 per cent. Thus, factors other than price rise appear to account for an increase of about 254 per cent in the cost estimate.

13. Kuttiar Diversion

This scheme envisages diversion of waters from a catchment of 10.4 sq. km. of Kuttiyar river (a tributary of Muvattupuzha river) to Idukki reservoir to raise the power potential of Idukki power project by 36.6 MU.

Started in 1988 at an original cost estimate of Rs.214 lakhs, the project

was to be completed at the earliest by 1990–91. It is now expected to be commissioned in the near future, with a cost escalation of 343.5 per cent to Rs.949 lakhs over a time overrun of about eight years as in 1999–2000. This is against a general price rise by 132 per cent during the same period. Thus, about 211 per cent increase in the cost estimate of this project remains to be explained in terms of 'other factors.'

14. Vadakkeppuzha Diversion

This scheme envisages diversion from the 3.43 sq. km. catchment of Vadakkeppuzha, a tributary of Muvattupuzha river, and 0.625 sq. km. catchment of Pothumattom stream, also of Muvattupuzha basin, to Idukki reservoir to augment the firm generation of Idukki project by 12.3 MU.

When the project work was started in 1989, it was proposed to be completed by 1991–92. However, even after a time overrun of eight years as in 1999–2000, the commissioning date remains 'not fixed,' and the original cost estimate of Rs.131 lakhs rose by 292 per cent to Rs.514 lakhs against a rise in WPI (all commodities) by 132 per cent over the same period, leaving 160 per cent increase in the cost estimate to be accounted for by 'other factors.' Note that the cost estimate was revised upward to Rs. 786 lakhs in 1997–98 and then downward to Rs. 705 lakhs in the next year only to be drastically cut down again to Rs. 514 lakhs in 1999–2000.

15. Vazhikkadavu Diversion

This scheme envisages diversion of waters from 6 sq. km. of catchment of Vazhikkadavu to the Idukki reservoir by a diversion tunnel to increase the firm power of Idukki project by 24 MU.

Started in 1989, the project was expected to be completed by 1992–93. However, even after a time overrun of about seven years as in 1999, its date of commissioning remains uncertain. The original cost estimate had to be revised by a phenomenal 760 per cent, dwarfing even the classical Kakkad phenomenon, from Rs.186 lakhs to Rs.15.99 crores against a general price inflation of 132 per cent over the same period. Thus, an increase to the tune of about 628 per cent in the cost estimate remains on account of the influence of 'other factors' — a shocking case of mismanagement in the preparation of project proposal and cost estimation, that too in the case of only a diversion project, meant only to increase water availability.

16. Kuttiady Extension

As the storage capacity of the existing Kuttiady reservoir is highly inadequate, the inflow cannot be fully utilised now. Hence, under this extension scheme, capacity addition (one unit of 50 MW; 75 MU) to the existing power station is proposed. Though the Planning Commission cleared the project in January 1992, major works on it started only in February 1994, and it was originally expected to be commissioned in 1995–96. After a time overrun of four years, it was finally commissioned in 2000, with a cost overrun of 544 per cent over the original estimate

of Rs.30.73 crores (that went up to Rs.198 crores), against a general price inflation of just 73 per cent, leaving an unbelievable waste gap of 471 per cent!

A Comparative Analysis

As already explained, the capital cost of a project is estimated on the basis of the price level prevailing when the project proposal is made; hence, there is a time element of error involved in it, representing underestimation in the face of inflation. The cost estimate is often revised upwards to take account of this, especially when the price level is rising rapidly and/or the time overrun involves an element of uncertainty as to completion of the project. Ideally, a revised cost estimate should sufficiently cover the general price rise. Hence, what remains in the revised cost escalation of a project over and above the general price inflationary influences merits serious consideration; it may represent an overestimation due to uncertainty or a deliberate attempt at mismanagement of resources.

Of the twenty projects we have considered above, all but seven have significantly high remainder in their revised cost estimates in excess of the general inflationary impact (Table 2).The seven projects are Idukki II, Idamalayar, Kallada, Malampuzha, Madupetty, Chimony, and Peppara. In the case of the Chimony project, work on which had to be suspended owing to a dispute with the contractor, which resulted in court intervention, inadequate coverage of the general price inflation in the revised cost estimate might be a case of underestimation. In the case of a number of projects (for example, Kakkad, almost all the mini projects and some of the diversion projects), the cost estimates have been revised every year, upwards and then downwards, indicating inconsistent planning.

It should be noted that apart from the 'classical' case of Kakkad project, it is mini hydel projects and diversion schemes that have become comparatively more prone to time and cost overrun. The mammoth cost escalations in the case of the Malankara mini hydroelectric project and Vazhikkadavu diversion are a result of some element of error that has crept into the project design and estimation. The other things appear to have great sway over most of the other projects also.

In general, these twenty projects of the last three decades account for time overruns ranging from 62.5 per cent (Kallada) to 500 per cent (Malampuzha) of the expected period of construction, and for cost overruns ranging from 52.7 per cent (Kallada) to 777 per cent (Sabarigiri Augmentation), of the original cost estimate (excluding Chimony).

For a more objective comparison, we can analyse the capital cost per kWh of potential energy of these projects (Table 2). Among the power plants considered, Idukki II Stage had the lowest capital cost per unit of electricity (68 paise per unit). Among the augmentation schemes, Idukki III Stage had the lowest

Table 2: Cost Escalation of Power Projects (as in 1999–2000)

Projects	Time Overrun (Years)	Time Overrun (%)	Cost Overrun (Rs. Lakhs)	Cost Overrun (%)	WPI (All Commodities) Increase (%)
Idukki II Stage	8	100	3632	114.65	258.31
Idukki III Stage	10	166.67	1101	268.54	237.89
Sabarigiri Augmentation	10	125	994	776.56	403.15
Idamalayar	9	112.5	6663	284.74	305.92
Kakkad	13	130	13492	725.38	461.15
Kallada	5	62.5	622	52.71	147.80
Lower Periyar	6	75	26461	299.23	193.68
Malampuzha	10	500	384	130.17	168.53
Madupetty	9	450	186	63.70	144.55
Malankara	9	300	3333	427.31	168.53
Chimony	9	300	111*	35.35*	71.96
Peppara	6	200	289	73.72	118.32
Pooyankutty	15		57000	228.00	182.67
Azhutha Diversion	6	120	1156	398.62	144.55
Poringalkuth LB Extn	6	150	3371	373.73	112.67
Kuttiar Diversion	8	400	735	343.46	132.42
Vadakkepuzha Diversion	8	400	383	292.37	132.42
Vazhikkadavu Diversion	7	233.3	1413	759.68	132.42
Kuttiady Tail Race	7	233.3	895	225.44	132.42
Kuttiady Extension	4	100	16727	544.32	73.03

Note: * = by 1993.

cost (40 paise per unit). The highest cost escalation of Sabarigiri augmentation project has spread very thinly over the large units of its energy potential, resulting in a capital cost of only 90 paise per unit. The capital cost of Idamalayar stands at Rs.2.81 per kWh of energy. At the other extreme, one's common sense may be baffled at the mammoth capital cost of Rs.26.40 per unit according to the latest estimate in the case of the Kuttiady extension project. Energy from the still unborn Pooyankutty project too is priced very high at Rs.12.7 per unit! Malampuzha (Rs. 12.10 per unit) and Kuttiady Tail Race (Rs. 8.60 per unit) are also planned to be high-cost energy generators. Note that the capital cost of energy from Kakkad, the classical example of time and cost overrun, is Rs.5.90 per unit.

It would be enlightening to compare these figures with the *original* capital cost of the Enron project (Dabhol power project phase I) in Maharashtra, much criticised as ushering in an era of stupendously high-cost energy in India. Its original capital cost of Rs. 4.48 crores per MW of capacity at the normal load factor of 68.5 per cent implies a unit capital cost of Rs. 7.50 per kWh. The Kuttiady extension project, undertaken with a Canadian loan and contracted for its completion with a

Canadian firm (SNC Lavalin), involves a capital cost of about 3.5 times the controversial original cost of the Enron project! It should be remembered that Enron's was a *new* project, while only an *extension* work was done at Kuttiady. It is highly significant to note that the Kuttiady extension work contract was awarded to the Canadian firm by a leftist government in the State, which is credited with an open anathema against foreign capital, especially Enron, but has time and again stood in defence of the Canadian firm, sanctioning all their demands of time and cost overruns.

The Cost of Delays

The delay in commissioning a power project invariably involves elements of avoidable cost to society, the most immediate one being cost escalation itself. A direct cost of overruns is in terms of the additional energy realisable were the project commissioned in time, as well as the additional sales revenue thereof. The increased availability of power could reduce the requirement of costly energy import, thus effecting some cost savings in it. In addition to these is the indirect cost of unsatisfied demand corresponding to the additional energy realisable.

Here, we attempt to quantify the cost of time overruns of the projects under study in terms of additional energy and revenue that could be realised if these projects were commissioned in time. The results are shown in Table 3.

We start with the year 1983–84, by when, it is assumed, the four earlier projects, Idukki II and III Stages, Idamalayar, and Sabarigiri Augmentation, could be brought on line, so that the available firm generation capacity in 1983–84 would be 5,554 MU, instead 3,726 MU. Given the firm power capacity utilisation (98 per cent) and loss (26 per cent) structure in the system, this then yields additional generation of 1,788 MU and additional sales of 1,327 MU, which at an average rate of 35.2 paise per unit would realise additional revenue of Rs.46.7 crores in that year. Additional revenue obtainable in 1984–85 works out to Rs.53.8 crores. The total revenue thus realisable during these seventeen years from 1983–84 to 1999–2000 is estimated at Rs.886.3 crores, or Rs.52 crores per year! This represents one cost of avoidable time overruns of these nineteen projects (excluding the non-starter Pooyankutty project) in Kerala (Table 3). It is distressing to think that the cash-strapped KSEB has been forced to forego revenue of about Rs.52 crores a year on an average on account of delays in getting the ongoing projects commissioned.

Such additional generation that could be effected through timely completion of projects could reduce the costly dependence on energy imports.

Timely completion of these projects could avoid the substantial burden of capital cost escalation also (Table 4). Such savings factor highlights the fact that when capital cost is escalated beyond what is planned, it results in a loss of its

Table 3: Extra Energy and Revenue Realisable from Timely Completion of

Projects

	Firm Energy (MU)		Generation (MU)		Extra Energy	Extra Revenue
Year	Actual	Realisable	Actual	Realisable	Saleable (MU)	Realisable (Rs. Crores)
1983–84	3725.73	5554.13	3643.4	5431.38	1326.69	46.67
1984–85	3725.73	5554.13	4884.9	7282.02	1797.91	53.83
1985–86	4397.33	5816.13	5357.1	7085.79	1298.12	39.94
1986–87	5053.13	5816.13	4642	5342.70	508.85	24.55
1987–88	5053.13	5816.13	4093.1	4711.07	439.11	24.44
1988–89	5053.13	5816.13	4548	5234.52	521.75	29.58
1989–90	5053.13	5881.13	5075	5906.42	648.62	34.65
1990–91	5554.13	6000.73	5491	5932.32	346.28	18.35
1991–92	5554.13	6562.73	5326	6293.00	756.60	45.40
1992–93	5554.13	6675.73	6189	7438.77	987.34	73.01
1993–94	5607.13	6675.73	5822.3	6932.08	886.60	72.75
1994–95	5607.13	6675.73	6572.3	7824.62	1001.38	86.80
1995–96	5607.53	6751.13	6662	8020.34	1086.20	100.93
1996–97	5619.03	6751.13	5502.9	6611.38	887.38	84.84
1997–98	6118.43	6751.13	5188.7	5725.63	440.70	56.91
1998–99	6249.43	6751.13	7601.6	8212.07	501.95	67.52
1999–2000	6586.43	6751.13	7655.57	7846.84	158.10	26.16
Total					13593.58	886.33

alternative uses. Considering the resource constraint of the government, if these resources were used more efficiently, the resultant increased availability of these resources to the government could be used for taking up more projects. To the extent that such cost escalation reflects inefficient resource utilisation, the savings in capital cost that would have been obtained in the absence of cost overruns also represents waste of capital. For example, suppose Kakkad hydroelectric project had been commissioned in time, in 1986 itself, eight years after its construction started. Accounting for the general price inflation during this period, the capital cost of this project by 1986 would be at the most only Rs.39.66 crores, saving as much as Rs.113.86 crores, almost enough to construct three more similar plants, or to add to the system capacity by another 140 MW at the nominal cost of Kakkad project! Thus, the capital waste involved in this case is equivalent to three more similar plants (Table 4) or an installed capacity of 140 MW! Timely completion of the lower Periyar project could save as much as Rs.189 crores, enough for a similar project of more than 200 MW capacity! The second highest savings, after the Lower Periyar project, could come from the Kuttiady extension project to the tune of Rs.158.3 crores, almost enough for four similar or Kakkad-type projects! As already noted, the Kallada project (the only exception), even with five years' overrun, has not eaten up resources beyond the limits set by general price inflation. Timely

completion of all the other eighteen projects (excluding the non-starter Pooyankutty) could yield a mammoth saving in capital cost of Rs.644.03 crores, almost enough for sixteen Kakkad-type projects of 800 MW capacity! This 800 MW (or Rs.644 crores) represents the capital waste involved in the faulty planning and implementation of power projects in Kerala. In other words, the capital-waste factor involved is sixteen (sixteen Kakkad-type projects)! And with the KSEB still in the red, the government lets such waste and mismanagement pass.

Thus, it is in this light that we should examine the so-called financial 'inability' of the SEBs (and the governments) to finance power development in general. The basic argument put up in defence of inviting private sector participation in power development stems from the resource crunch experienced by the governments. However, this defence turned out to be flimsy in the face of the fact that there is overcapitalisation in the case of each project that the government has undertaken; the government could, through efficient performance, save substantial resources, which could be used for taking up additional projects. Behind this inability works the political economy of corruption.

The gravity of the problem of overruns can be gauged by considering the combined effect of both time and cost overruns, a measure of which, called 'capital x time waste factor' (also see Morris 1990), is obtained as the difference between the actual capital x time (CaTa) and the originally planned capital x time (CoTo) measures as a percentage of the latter (where Ca and Co are the actual (or latest) and originally planned estimates of capital cost and Ta and To are the corresponding period of commissioning). In estimating this resources waste factor, we assume that expenditure over the course of a project takes place uniformly. Thus, in the case of the Kakkad project, the originally planned resources were Rs.18.6 crores x 10 years = Rs.186 crore years, but the actual resources spent were Rs.153.52 crores x 23 years = Rs.3,530.96 crore years, resulting in a capital x time waste of Rs.3,344.96 crore years or 1,798.4 per cent of the originally planned resources. Thus, it shows that as a result of time and cost overruns, this project has eaten up about 1,800 per cent more capital x time than what was originally expected. In other words, if the Kakkad project could be completed on time as per plans, KSEB could increase the quantum of similar projects by about 1,800 per cent with the same resources it actually spent for a single project.

The capital x time waste factor for the nineteen projects (excluding the non-starter Pooyankutty) ranges from 148 per cent for the Kallada project to 2,766 per cent for the Vazhikkadavu diversion! (Table 4). There are as many as nine projects (six of which are mini or diversion projects) having more than 1,000 per cent waste factor. That each project has eaten up, on average, extra resources worth 1,100 per cent just shows the enormous waste of capital x time resources in power project implementation in Kerala.

Table 4: Capital Cost Savings

Projects	Capital Cost (Rs) per kWh of Energy Potential		Savings in Capital Cost (Rs. Lakhs)	Capital Waste Factor**	Capital x Time Waste Factor (%)
	Original	Actual			
Idukki II Stage	0.31	0.68	910.20	0.15	329.29
Idukki III Stage	0.11	0.40	844.33	1.27	882.76
Sabarigiri Augmentation	0.10	0.90	838.42	2.96	1872.27
Idamalayar	0.73	2.81	4652.58	1.07	717.58
Kakkad	0.71	5.86	11386.17	2.87	1798.37
Kallada	2.23	3.40	-153.26	-	148.16
Lower Periyar	1.79	7.16	18940.91	1.16	598.65
Malampuzha	5.27	12.13	339.78	1.00	1281.02
Madupetty	4.56	7.47	142.23	0.42	800.34
Malankara	1.20	6.33	3124.06	3.16	2009.23
Chimony	4.83	6.54*	26.89*	0.07	441.40*
Peppara	3.41	5.92	184.00	0.37	421.17
Pooyankutty	3.88	12.71	NAP	-	NAP
Azhutha Diversion	0.51	2.54	1027.80	2.46	996.97
Poringalkuth LB Extn	1.22	5.77	3028.05	2.43	1084.31
Kuttiar Diversion	0.58	2.59	696.27	2.75	2117.29
Vadakkepuzha Diversion	1.09	4.28	349.72	2.13	1861.83
Vazhikkadavu Diversion	0.78	6.66	1342.28	5.23	2765.59
Kuttiady Tail Race	2.65	8.61	744.06	1.36	984.80
Kuttiady Extension	4.10	26.40	15825.39	3.98	1188.64

Note: * = by 1993; NAP = Not Applicable; ** = Equivalent to number of Kakkad-type projects

The Kuttiady power project had been long out of service in the name of extension works going on there. The extension programme, with a time overrun of over four years and a stupendously exorbitant capital cost of Rs. 26.4 per kWh of energy potential, also involved substantial revenue loss for the parent project owing to its closure. The firm generation potential of Kuttiady power station is about 270 MU or 0.74 MU a day, equivalent to sales revenue of about Rs.15 lakhs a day. If the extension scheme were commissioned in time (i.e., in 1995–96), it could fetch sales revenue of about Rs.7.1 lakhs a day. During the last five years, the total loss of sales revenue alone amounts to Rs.399 crores in this case!

Causes of Delays

Several factors account for the delays — changes in the technical design and feasibility reports, original cost estimates being based on inadequate or incomplete data and unrealistic assumptions, inefficient management, inadequate geological and technical investigations of the projects at the outset, vague and

ambiguous specifications and conditions of contract, sluggish decision-making at various stages of construction, unavailability of materials or lack of transport, infighting and ego clashes among different groups of the bureaucracy and technocracy of KSEB, unwarranted transfer of planning and supervisory staff between projects during their construction, lack of vision about the power needs of the State, labour disputes, court interventions for aggrieved contractors, and so on (Kannan and Pillai 2001 a). Nurturing all these is lack of political will to finish the work on schedule, borne and bred of course by high-level corruption and an indifferent public.

Recurring labour militancy is recognised in general as the factor that accounts for the highest cost burden. It cannot be otherwise in a politically surcharged atmosphere of highly pampered unionism of diverse hues peculiar to Kerala. Not a single project in Kerala (including the prestigious major project of Idukki) has been spared from work stoppages. The construction work of the Idukki project was very pompously inaugurated by the then chief minister, EMS Namboothiripad, on February 10, 1966; the very next day a labour strike started, which culminated in the death of two workers in police firing! It might be a cruel irony that the project (Stage I) could be completed and commissioned only under the coercive 'normality' during the infamous national emergency!

The Cost of Labour Militancy

There are two distressing examples from the recent history of power development in Kerala of the damages caused to the overall power and economic development of the State by the irrational behaviour of organised militant labour. The first is the example of Idukki Stage I, a 390 MW project, which could not be commissioned in the Fourth Five Year Plan (1969–74) and had a long gestation period because of frequent strikes and interruptions of work by labour. This project could be ultimately commissioned only in 1976. The Electricity Board suffered the consequences of delays caused in commissioning this project by way of escalation in costs and revenue foregone as a result of longer gestation period eight years ago. At the time Idukki – I was commissioned in 1976, there were a large number of consumers in all sectors of the State's economy waiting for power connections. Public memory being proverbially short, people have forgotten the great damage caused to the economy of the State by the long delay in the commissioning of Idukki. We would, however, like to recapitulate a recent experience of Idamalayar hydroelectric project, which unfortunately is yet to be commissioned (at the time this report is being got ready) because of unreasonable and irrational labour militancy. … The strike by the employees in this project started within three months of the commencement of work on the construction of the dam. The first strike was on 8-12-1976. There were a number of strikes between 8-12-1976 and 5-9-1979 by employees working in dam

construction, but these strikes were settled without much loss of time. But there was a long strike which increased the gestation period of the project by 6 months and 15 days (excluding monsoon off) which commenced on 6-6-1979 (ninth month of construction) and ended only on 25-3-1980. The direct financial loss on this account is estimated to be Rs.125 lakhs and it has also escalated the cost of the project by Rs.142.5 lakhs. During the period between 7-5-1977 and 18-1- 1983, there were a number of strikes in the power house resulting in a total financial loss of Rs.15 lakhs. The two strikes in the tunnel work of this project were something unique perhaps without parallel in the history of power development anywhere in the world. Initially the employees engaged in the tunnel work struck work between 9-6-1980 and 20-11-1980 increasing the gestation period by five months. But the most crucial strike, which affected the project and postponed its commissioning, was started on 10-4-1981 and continued till 10-6-1983, thereby postponing the completion of the project by two years and two months. The employees involved in the strike were only 110. The financial commitment for settling the strike was about Rs.125 lakhs… The major issue causing this strike was the demand by the contractor's employees engaged in this project for an assurance that they would be absorbed as permanent employees of the Electricity Board. We understand that a number of these workers were working as contractor's labour in earlier hydroelectric projects in Idukki and elsewhere. But we cannot appreciate how this would give any moral or legal rights to these employees to claim permanent employment in the Electricity Board. It is difficult to quantify the losses to the community due to the three strikes (one in the dam construction and two in the tunnel work) extending over a total period of three years and one month. Cosidering that the total installed capacity of the hydro system in Kerala is only 1,011.5 MW an addition of 75 MW three years earlier would have cushioned to some extent the power famine in Kerala especially in the year 1982–83. The losses to the Electricity Board as a result of the strike during dam construction have been estimated to be Rs.267.5 lakhs. The losses due to the delay in completing the tunnel are estimated to be Rs. 30.98 crores out of which Rs. 29.31 crores is loss of revenue due to delay in commissioning of the project and Rs. 1.67 crores is due to escalation in costs and revision of schedules. The total loss incurred by the project as a result of the delay of three years and one month (1,125 days) is Rs.33.65 crores. The loss per day of delay works out to slightly less than Rs. 3 lakhs. This state of affairs did not stir the conscience of the people of Kerala who remained apathetic. A project being delayed for such a long time and every day's delay costing Rs. 3 lakhs to the taxpayer did not receive adequate publicity in the Press or political platforms. That this could happen in a State with a vigilant press and politically conscious people is a tragedy. We feel that an in-depth study by one of the all-India management institutions into this strike, especially how and why it was allowed to continue for over three years and how and

> why the public opinion in the most literate State of the country was silent, would be very useful to draw appropriate lessons for the future. We strongly recommend issuing an ordinance followed by enactment of appropriate legislation prohibiting strikes under any circumstances in all power projects under construction. …….Those who take part in such strikes, and their leaders should get a minimum punishment of compulsory imprisonment for a specific period prescribed in such a law. In addition, all those who participate in such strikes should be debarred from being eligible for appointments under Government or any other institution owned or controlled by Government. …
>
> — Government of Kerala 1984: 57–61

Idamalayar project was one of the most unfortunate victims of recurring and prolonged labour unrest. Some stories, as told in the Report of the High Level Committee (1984) of Government of Kerala, are given in the box above.

Kakkad project had a long tale of unending woes of corruption and trade union militancy. When construction works started, serious defects in design were found. Initially, the whole construction works were awarded to one contractor who had no pre-qualification but was preferred by the then minister concerned. The contractor was too inexperienced and inefficient to yield any progress in works for quite a long time, and KSEB was forced to terminate the contract in June 1981 and select a fresh one. Construction of the interconnecting tunnel was started in 1980 at an estimated cost of Rs. 5.59 crores. Soon the workers went on strike, as the contractor refused to pay the ruling wage rate. In June 1981, another company was entrusted with the work, but still there was no progress; hence the work was divided and given to three contractors on condition that the work be completed within 41 months, and the cost went up to Rs.11 crores. In due course, three more contractors joined, yet by March 1988, only 30 per cent of the work could be completed—a case of too many cooks spoiling the broth. Reports show that, in all, there were sixteen contractors entrusted with the work in different phases (*The New Indian Express*, June 20, 2001).

The tortoise continued its pace. Interrupted very often by agitations, the tunnel construction went on and on from two opposite sides, but the two ends never met; the two tunnels from the opposite sides just ran parallel to each other!

Finally after twenty-one-and-a-half years, the tortoise reached its destination, eating away more than Rs.150 crores.

The World Bank-aided Lower Periyar project, visualised in the 1970s and cleared by the Planning Commission in 1983, also tells almost the same story of delays. The public sector National Power Construction Corporation (NPCC), which took up the civil works, just wasted more than four years without any progress. Finally, this contract was terminated in 1993 in an out-of-court settlement and the private sector Hindustan Construction Corporation (HCC) entered the scene. The

same company (HCC) had taken up tunnel works (in February 1984), with the deadline set on October 26, 1989. Later, HCC sought extension of time, citing reasons beyond their control, and the deadline was extended to June 30, 1992. Just a month prior to this date, HCC submitted to KSEB a memorandum giving details of delays as follows: initial troubles: five months; labour problems: ten months and twenty-nine days; climatic problems: ten months and six days; and obstructions/ impediments on the part of the KSEB: fifteen months! The company demanded additional payment of Rs.16.33 crores to cover the increased costs due to the time overrun. They had already been allowed a cost increase of about Rs.61.8 crores, against the original estimate of Rs. 23 crores. A committee that was constituted to look into the fresh demand recommended, surprisingly, payment of Rs. 8.5 crores with an immediate disbursement of Rs.2.5 crores to HCC. The alleged bias of the committee towards HCC, which never cared for the loss to KSEB amounting to Rs.117 crores due to the 47 months' time overrun, made headlines in the media and the clamour echoed in the legislative assembly for days. The company moved the High Court and the matter went up to the Supreme Court; finally, the KSEB had to eat its heart out! It should be added that the World Bank, which had given aid to the project initially, but reportedly got frustrated over the time and cost overruns, backed out long back.

Another jinxed project is Malampuzha, one of the first projects planned in the State to generate electricity from water let out from an irrigation dam. The contract for the design, supply, and installation works was awarded to a private firm, which allegedly had no previous experience in such projects. The civil work was done by KSEB.

Though the company started the erection work in 1992, it took as long as four years to attempt a trial run. However, during the trial run, some defects were noticed in the butterfly valve. In 1997, another trial run was tried, but again during the run, a valve disc got broken. And the story continues…..

Chimony, on the other hand, locked in a High Court stay obtained by the contractor since 1993, is altogether left out of KSEB reports now!

It is significant to note here that KSEB used to present, in its Annual Administration Report, a detailed report on the progress of each project, which, however, has been missing for quite some time now. Absence of such transparency makes any examination of the causes of delay difficult.

As labour militancy is the principal factor in time overrun of a project, any measure that can tackle this menace could help to improve the situation. The High-Level Committee of the Government of Kerala (1984) went to the extent of recommending enactment of appropriate legislation prohibiting all strikes in the power projects under construction (see the above Box). It should be recognised in this respect that there is a political economy of corruption involving collusion among

union leaders, contractors, bureaucracy and political leadership in inciting labour militancy. Hence, an effective check is required on such collusive power at its formative node, that is through the contract itself: future construction contracts should be so structured as to make it legally binding on the contractor to compensate the Board for any delay.

It should not, however, be construed that every power project in Kerala necessarily falls under the jinx of delay. The NTPC thermal project at Kayamkulam was completed and test-fired on November 1, 1998, four months ahead of schedule. Note that NTPC, famous for its performance efficiency, is, unlike the SEBs, an autonomous corporation, managed by competent professionals, and largely independent of governmental interference in its day-to-day affairs. The contractors were thus made legally bound to complete the entrusted works within the stipulated period. Similarly, the first private sector hydroelectric plant at Maniyar (12 MW) was completed and commissioned within fifteen months in 1994 by the Carborandum Universal Company. In this light, it goes without saying that something is rotten behind the KSEB projects — and it is nothing but the dead political will, dead of corrupt politicians and the indifferent public.

The Political Economy of Corruption

A detailed discussion of this aspect is provided in Kannan and Pillai (2001 b); here we sketch the most relevant ones.

In a neoclassical representation of the political process, the relationships among the public, government and utility may be aptly analysed in the light of a three-tier hierarchical model of principal-agent problem. The problem consists in the default and breach of trust (i.e., moral hazard and adverse selection, Arrow 1985), likely on account of the conflicting objectives of self-interest maximisation of the parties concerned and the uncertainty or information asymmetry involved in the relationship. In its simple version, it is assumed that in a regulatory governance structure, the principal's (i.e., the public's) objective is to maximise some measure of social welfare, while the agent (the government as supervisor) and the sub-agent (utility) aim to maximise the returns of their respective rent-seeking pursuits. In a complex structure of relationships, the principal may be viewed as a composite set of sectional interests against the background of the general welfare objective; each class in this composite set, such as the contractors, construction workers, bureaucracy, politicians and others, follows its own designs of predatory rent-seeking that dominate, in a particular context, the common objective. Such a structuring facilitates analysis of the political economy of corruption involved in time and cost overruns of power projects in Kerala.

Apart from the usual 'sales' procedures of construction contracts and materials purchase orders carried out through collusion between the supervisor

(government) and the sub-agent (bureaucracy in the utility), favouring certain contractors, the practice of allowing for time overruns of projects and sanctioning of the associated cost escalations involves a 'wide-spectrum collusion' among the domineering class interests in the composite principal set, viz., the political party in power (i.e., government), bureaucracy, contractors and trade unions. As already highlighted, recurring and unchecked labour militancy is recognised as putting the heaviest burden on the pace of construction works of power projects in Kerala, largely dictated by political rivalry rather than genuine labour demands, as for example, in the construction of Idukki hydroelectric project, to begin with. The time overruns resulting from labour militancy essentially go into the contractors' demand for cost escalation, which is soon endorsed by the Board and sanctioned by the government. Such rent-sharing is a widely recognised official practice in the power-irrigation sectors. The glaring laxity on the part of the government in fulfilling its responsibility to enforce its authority on the contractors and workers to bind them within the contractual terms they agreed upon is a clear indication of its corrupt collusion. As mentioned above, in Kerala, the time and cost overruns have afflicted only the State power projects; the public sector NTPC thermal and the private sector hydro projects in the State having been completed well within their schedules. In this light, then, the cost escalation sanctioned for each late-run project may rightly be taken to represent the cost of corruption involved in construction contract sales in the power sector of the State. Accounting for the general price inflation during the normal construction period, this amounts to Rs. 644 crores or Rs.35.8 crores per project (Table 4)! Unbelievably, it represents on an average about 60 per cent of the actual project cost! In some cases it is well above 70 per cent; for example, Sabarigiri Augmentation (75 per cent), Kakkad (74 per cent), Malankara (76 per cent), Poringalkuthu left bank extension (71 per cent), Kuttiady extension (80 per cent) and the diversion projects of Azutha (71 per cent), Kuttiar (73 per cent) and Vazhikkadavu (84 per cent). This is all shared among the four parties involved, at the cost of the helpless majority in the 'principal' set of tax payers.

Such lucrative rent-sharing collusion has unfortunately become firmly institutionalised in the political process of the country. A highly individualistic self-interest domineering ethos has come to stay across the social texture only to strengthen this political economy of corruption. It is not that the principal, the public at large, is unaware of all these murky dealings and developments; but they remain largely apathetic, despite being enlightened enough by the Press, true to the rotten spirit of an individualistic utilitarian society, lying moribund but never dying. This, in fact, raises questions as to the validity of the neoclassical apology of imperfect information as leading to the principal-agent problem. At the heart of the malady is lack of a sense of oneness, resulting in the void of an effective platform

of checks and balances, which would have avoided problems arising from moral hazards and adverse selection. And this should point towards the significance of a soul-cleansing cultural revolution, reminiscent of that of the era of liberalism.

This may, however, appear a highly idealistic long-term objective. We do recognise the exertion of significant public praxis by a few concerned citizens and their organisations for immediate, palliative results. Strengthening and extending such praxis can go a long way towards imposing the public will for common interests on the political process. For example, there are measures that can effectively be applied to restrain time and cost overruns in the public projects: as already mentioned, the construction contracts can be so structured as to provide for making the contractors liable for stringent penalties in case of non-performance such as time overrun. The previous Left Democratic Front state government (1996–2001) was reported to have taken some steps in this direction in the case of the Athirappally hydroelectric project by initiating the institution of contract penalty provisions for delay —the first of its kind in the history of KSEB, *if* implemented. It is such *if*s that govern the direction and tempo of our development.

Note

[1.] This paper is the outcome of a larger study, recently concluded, on the power sector in India with particular reference to Kerala. An earlier version of this paper was presented in a seminar at the Centre for Development Studies; we are thankful to M. N. V. Nair, K. K. Subrahmanian, K. Pushpangadhan, P. Mohanan Pillai, John Kurien, Achin Chakraborty, Indrani Chakraborty, and V. Santhakumar.

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Economic and Environmental Status of Drinking Water Provision in Rural India[1]

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Abstract

Drinking water, a renewable natural resource with no substitute, is a basic human necessity. Despite the efforts of the Centre and the states, at least one-fifth of the rural population is still deprived of this facility. Even where it is provided, the socio-economic and environmental issues still persist. This paper attempts to take stock of the economic and environmental status of drinking water supply in India over the last decade. It emphasises the need to take cognisance of economic and environmental considerations at all the three stages, viz., planning, implementation and maintenance of the source, to achieve sustainability.

Introduction

In developing countries, fundamental issues of the social sector are gaining prominence. Basic needs, particularly those of the rural poor, continue to attract the attention of planners and policy makers. Such needs, which include primary education, health care, drinking water, sanitation, housing, and roads, are intrinsic to community development and, in turn, economic development of the rural poor. Development that ignores these primary requirements would be incomplete and lopsided. Provision of potable water to the rural mass is a case in point. This is important because access to safe water has a direct bearing on the health of the poor, particularly the rural poor.

It should be recognised that the total quantity of water on earth is limited; continuous pressure from agricultural, industrial and domestic sectors leads to qualitative and quantitative deterioration of this finite and fragile natural system. Of the total water resources present on earth, 97 per cent is confined to oceans, 2 per cent is locked as ice, and only one per cent is available for direct human use as freshwater. As much as 84 per cent of our nation's water goes for agricultural activities; 12 per cent is utilised for industrial and energy sectors, and the remaining 4 per cent for domestic purposes (Parikh and Parikh 1999).

Provision of potable water on a sustainable basis is a basic necessity. Despite the concerted efforts of both the Centre and the states right from the First Five Year Plan, nearly 20 per cent of the population has hardly any access to safe

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water. Management of water resources with a view to providing drinking water in adequate quantity and of acceptable quality, is a stupendous task. Indeed, the issues pertaining to the water supply system are profound, involving socio-economic, environmental, institutional, financial and human resource management aspects. As water management in India is complex, hydrologists, social scientists, geologists, and environmentalists have a role to play in understanding and streamlining the system. Hence, the relevance of discussing the socio- economic and environment-related issues of drinking water provision in rural areas across the country.

The main objectives of this paper are as follows:

1. to review the status of rural water supply in the country with the help of NSSO data,
2. to account for the water institutions in India both from supply and demand standpoints, and
3. to discern the environmental dimensions of rural water supply.

Essentially, the exercise attempted here raises a hypothetical question, viz., why has India still not achieved total provision of potable water supply on a sustainable basis? Does the solution lie in a holistic approach by identifying the socio-economic and environmental problems with respect to domestic water supply? These questions are addressed, making use of secondary information from the National Sample Survey Organisation and Central Water Commission, as also research studies by social scientists in India.

Before discussing secondary sources of information, we review a few empirical studies conducted in India to facilitate a better understanding of the problem.

A Brief Review of Literature

There is a dearth of research studies on drinking water supply in India. A few empirical investigations carried out in different parts of country by various authors can be summarised as under.

Pushpangadan and Murugan (1996), using information provided by Rajiv Gandhi Drinking Water Mission reports, estimated the replacement cost, operation and maintenance costs across all states. They supported the view that user financing towards capital, operation, and maintenance costs can generate resources for sustainable rural water supply in developing countries. Such a change in policy would help achieve efficiency, equity and sustainability.

They estimated capital cost using annual expenditure data. About 90 per cent of the expenditure on Accelerated Rural Water Supply Progammes of the Centre (ARWSP) and 60 per cent of the expenditure on Minimum Needs Programmes (MNP) were allotted for capital formation. Further, 'using these proportions, the total capital cost is estimated for each year. Since the life of the system is assumed

to be fifteen years, we need consider only the capital expenditure starting from 1980–81. Capital cost thus obtained in a year is then distributed uniformly over the next fifteen years, the average life of the system. The sum of such distributed costs is taken as the replacement costs in current prices. The costs in current prices are then arrived at by deflating price indices.' (Pushpangadan and Murugan 1996, p.12).

Similarly, for the operation and maintenance cost, owing to lack of data, they took 6 per cent of the cumulated capital expenditure, which is in line with the Mission's suggestions. The actual estimates suggested that 64 per cent of the total expenditure on ASWSP and MNP was needed to keep the total stock of capital constant, and 34 per cent of the expenditure on operation and maintenance in the rural water supply sector. Finally, they concluded that the rural water supply was unsustainable and hence suggested user finance.

Another study, by Pushpangadan et al. (1996), on travel time, user rate and cost of supply of drinking water in rural Kerala used data collected after the launching of National Drinking Water Mission of 1986. In ascertaining the performance of the Mission approach, an all-India Census Survey was conducted during 1991–93 across all states and on all aspects of rural water supply. Data from the water census and validation survey were used. They felt that 'coverage by habitation is not a real measure of availability of drinking water in the State' (p.18). Their estimates revealed that only 0.8 per cent of the population was fully covered, while 67 per cent remained uncovered. Of the 32 per cent that was partially, covered most received less than half a bucket a day. By applying Becker's model on allocation of time in rural households, they provided empirical evidence to identify travel distance and uncertainty of supply as factors significantly affecting the demand for public sources. The study concluded that there is a need to broaden the definition of coverage incorporating consumption, quality and settlement pattern of the villages.

Reddy (1999) studied rural water supply in Rajasthan during 1994. Four villages across command and non-command areas with 89 sample households were taken up for the purpose. He found that households did not incur any direct cost on drinking water, but incurred indirect costs such as time spent and distance travelled to collect water. In regard to factors influencing water use, the regression results brought certain aspects to light — a negative relationship between per capita use and family size, and a positive relationship between high income and per capita use, positively related even with per capita time spent. However, distance travelled to fetch water did not turn out to be significantly related to per capita consumption.

The Contingent Valuation Method (CVM) was used to elicit information on willingness to pay for water. The study found that variables such as distance, time, total annual expenditure, annual income, and percentage of household expenditure on health care were positively related with willingness to pay for improved water supply.

One of the policy implications of the study was that provision of hand pumps in the endowed regions be continued. Increased coverage is possible if the quantum of water consumption can be measured, as it was actually lower than 40 lpcd in the study area under review. More importantly, the study rejected the notion that the willingness to pay for improved water supply was 5 per cent, but found that it was less than 2 per cent of the total expenditure regardless of the economic background of the region. The need for pricing of improved water supplies was emphasised, and discriminatory pricing, whereby the low income households are less burdened, was advocated.

The World Bank team on water demand research, comprising eleven principal members, conducted a study on determinants of rural water demand in select regions of Latin America, Africa, and South Asia during 1987–90. Its findings included the following: 'Supply-driven' strategies of governments failed to produce the desired results and therefore called for a paradigm shift towards 'demand-based' methods. The crucial aspects relevant to household demand for improved water service included education of family members, occupation, size and composition of family; and measures of income, expenditure and assets. Also relevant were the relative merits of traditional sources of water vis-à-vis the improved water supply with respect to cost, quality, and reliability, and finally the attitudes of households toward public policy on water supply.

The empirical results of the study showed that households' income did not prove to be the principal determinant as the proportion of income allotted for improved water supplies varied widely. Education was a stronger factor as educated households were willing to pay more for improved water provision. The gender of the respondent turned out to be significant, as women were willing to pay for better water service, even though they had little control over cash resources. Another relevant factor was occupation. Willingness to pay was higher among the respondents employed in the formal sector. Finally, family size and composition showed little effect on households' willingness to pay for improved service. The characteristics of existing alternatives as against the improved water supplies were assessed with respect to costs, quality, reliability of supply and level of service.

The team addressed two important policy issues. What kind of improved water services are best suited to a given village? Second, how to decide on modalities to induce the users to pay for the improved services? However, the study did not address institutional questions such as the respective roles of public agencies, private enterprise, non-governmental organisations and the users themselves. The team cautioned against a general policy for all villages, advocating instead that policies should address the situation prevailing at the community level. In communities where households were willing to bear the full costs of private water connections, the strategy should be to encourage private connections to enhance resources for

the State. In communities where the cost of provision is high but people are willing to pay a significant percentage of income towards better service, the strategy suggested including the provision of public taps on the one hand and encouraging households to have metered connections. Finally, in villages where people are reluctant to pay, subsidies would be given towards provision of water supply.

Sachchidananda (1999) analysed the sociological dimensions of rural water supply in India with particular reference to Bihar. The study covered 1,300 respondents across 130 villages in the State, taking into account social variables such as education, caste, religion, sex, exposure to media, cultural constraints and, more importantly, the role of women and non-governmental organisations (NGOs). Its major findings were as follows: more than 40 per cent of the respondents had inadequate access to drinking water facilities. More than 85 per cent of the sample households were deprived of sanitation facilities. The majority of the people used the open air, river banks, forest, and roadside drains. Women's organisations for water supply never existed in rural Bihar. Not surprisingly, many parts of the State experienced acute shortage of water during summer, forcing the villages to depend on traditional sources such as ponds, *chauan*, *dari* and pits dug in the riverbed. The failure is on the part of the panchayats and the State to repair and maintain the source.

NSSO Data on Rural Drinking Water Supply

The National Sample Survey Organisation (NSSO) has conducted several rounds of survey. The 44th, 49th and 54th rounds are noteworthy from the point of view of drinking water and sanitation. Of these, the 54th round, conducted during 1998, focused exclusively on these aspects.

The analysis of NSSO data yields several interesting results pertaining to access, usage and quality of principal and supplementary sources across modern and traditional sources of water[2]. It is evident from table 1 that in the last one decade, access to modern/mission sources had increased to 69 per cent in 1998 from 54.3 per cent in 1988 (figure 1). Households' dependence on modern sources has increased, while access to traditional means as a principal source fell during the same period.

For other domestic uses such as cooking, bathing, and washing utensils, the proportion of households that depended on modern means as a supplementary source was lower. More than 60 per cent of the households used modern facilities as principal sources for domestic purposes. Traditional means were used by more than 50 per cent of the households as a supplementary source for cooking, bathing, and washing utensils.

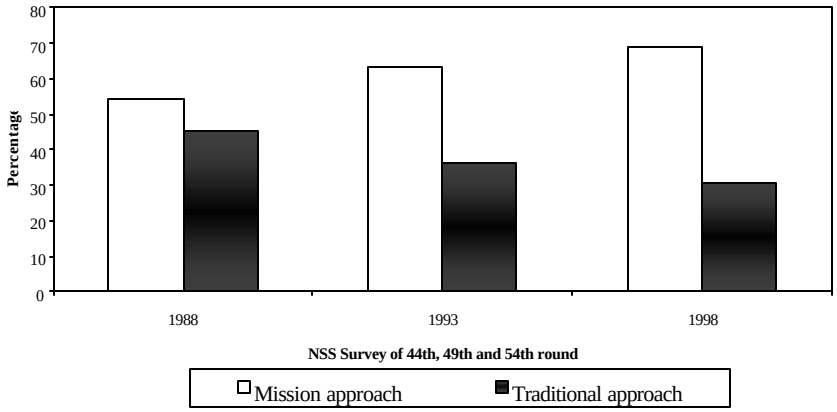
The trend that emerged from the 44th, 49th and 54th round of surveys reveals the following: First, modern facilities as a principal source have kept up an

Table 1: Access to Principal Sources of Drinking and Domestic Use of Water (Percentage Distribution of Households — 1988, 1993 and 1998)

Source	Principal source of drinking water			Principal and supplementary – 1998					
				Cooking		Bathing		Washing utensils	
	1988 (44th round)	1993 (49th round)	1998 (54th round)	PS	SS	PS	SS	PS	SS
Modern	54.3	63.4	69.0	69.6	45.1	60.1	43.3	64.9	44.7
Traditional	45.1	36.5	30.7	30.0	53.3	39.2	55.5	34.7	53.9
Others	0.6	0.3	0.2	0.4	1.6	0.4	1.2	0.3	1.3
All India (rural)	100	100	100	100	100	100	100	100	100

Source: Computed from 44th, 49th and 54th Rounds of NSSO data.
PS: Principal Source, **SS**: Supplementary Source

Figure 1: Percentage Distribution of Households by Principal Source of Drinking Water



increasing pace over the decade vis-à-vis the traditional means: second, the traditional means as principal source recorded a substantial fall during the same period. Third, other domestic uses depended largely on traditional facilities as supplementary sources. The implications of these trends is far-reaching. By over-emphasising mission/modern schemes, the State paid scant attention to the traditional facilities. Despite the concerted efforts of central and state programmes, one-fifth of the rural population is still deprived of access to potable water. This may be due to the negligence of traditional sources. Hence, the need for a holistic approach by paying enough attention to the traditional means, which would be sustainable in the long run.

Although the 54th round contains data on both rural and urban areas, the details regarding sources, consumption, quality and distance travelled to fetch water with respect to rural areas across different states are considered in this paper. For this purpose, zone-wise classification of states has been prepared across which the above stated aspects are analysed. On the whole, modern sources remained a major contributor as principal source (to the extent of 69 per cent), while the traditional sources contributed the rest. Kerala is an exception in that it has greater dependence on traditional means of water as the principal source. This does not necessarily mean any under-provision of public water supply in Kerala (table 2). The public distribution of rural water supply is reported to be a failure due to *'the characterisation of safe water as pipe water, and institutional framework of free distribution by the state agency, are the root causes of the ineffectiveness of public water supply in rural Kerala'* (Santhakumar 1998: 22).

A pertinent observation here is a gradual increase in the modern source and a moderate decline in the traditional source as the principal means of water. In regard to the supplementary source of water, Tamil Nadu, Karnataka, Haryana, Punjab and West Bengal depended on modern sources for supplementary uses. All the remaining states in India largely resorted to the traditional means as supplementary sources. The traditional sources across the country have been declining between 1988 and 1998. This is a disturbing trend as the reduction in traditional sources will exert pressure on modern sources, thereby leading to a crisis in rural water supply.

By classification of sources, the tube well and hand pump served the purpose better than the others. An average of 501 out of 1,000 households all over the country depended on these wells and taps as the major sources as per the NSSO report. Tanks, ponds, canals and lakes constituted less than 20 per 1,000 households. Tamil Nadu, Northwestern Zone, and Southern Union territories registered well in terms of the number of taps per 1,000 households. Central zone, Eastern zone, and Karnataka State recorded a higher proportion of hand pumps per 1,000 households. Kerala is the only state that showed 851 out of 1,000 households having been served by wells (table 3).

The NSSO tried to capture water quality problems too. Water supply through tube wells and hand pumps attracted the most complaints followed by wells and taps. Among the tap users in Kerala, Bihar, West Bengal, Assam, Northeastern zone, Northwestern zone and Southern Union territory, more than 10 per cent of the households faced problems with quality. Hand-pump users in Kerala, Punjab, Bihar, Orissa, West Bengal, Assam, Northeastern zone, and Southern Union territory recorded more than the all-India average with respect to problems with quality. Well users in Kerala were found in large proportion but were low in reporting quality problems. The NSSO data confirm that tap, tube well and hand pumps, the

Table 2: Principal Sources of Drinking Water

(in percentage)

Zone-wise analysis	State	Principal Source			Supplementary		
		Modern	Traditional	Others	Modern	Traditional	Others
South Zone	Andhra Pradesh	73.0	26.2	0.8	46.7	50.8	2.5
	Karnataka	80.5	19.5	0.0	60.2	39.8	0
	Kerala	11.9	87.8	0.3	23.2	76.6	0.3
	Tamil Nadu	81.7	18.3	0.0	54.2	45.5	0.0
North Zone	Haryana	80.9	19.1	0.0	75.9	24.0	0.1
	Punjab	97.5	2.4	0.5	96.3	3.2	0.5
	Rajasthan	55.6	43.9	0.4	39.9	58.2	1.9
Central Zone	Madhya Pradesh	57.2	42.7	0.1	36.98	60.6	2.3
	Uttar Pradesh	72.3	27.6	0.2	44.8	52.4	2.7
West Zone	Gujarat	80.5	19.4	0.1	41.2	58.4	0.4
	Maharashtra	65.9	33.9	0.2	41.7	57.9	0.4
East Zone	Bihar	70.9	28.5	0.5	39.1	58.4	2.5
	Orissa	56.4	42.2	1.3	41.9	55.8	0.1
	West Bengal	79.8	19.7	0.5	64.5	30.3	5.2
Northeastern Zone	Assam	56.8	42.3	0.9	20.7	79.0	0.3
	Arunachal Pradesh	69.1	28.1	2.8	30.4	65.6	4.0
	Manipur, Meghalaya, Mizoram, Nagaland, Sikkim, Tripura						
Northwestern Zone	Jammu & Kashmir	99.6	0.4	0.0	31.2	67.4	1.4
	Himachal Pradesh, Chandigarh, Delhi						
Southern Zone	Andaman & Nicobar Islands, Dadra & Nagar Haveli, Goa, Dam & Diu Lakshadweep, Pondicherry	90.6	9.3	0.0	40.0	59.7	0.2
All India		68.98	30.66	0.4	45.7	52.9	1.4

Source: Computed from NSSO 54th Round.

so-called safe water sources, as claimed by state governments, turned out to be more problematic at least quality-wise (table 3).

Distance travelled to fetch water is a crucial policy variable. The provision of modern sources by the State is guided by distance as one of the norms. The NSSO data threw light on this aspect too. The principal sources such as tap, tube well and hand pump, well, tank/pond reserved for drinking, other tank/ pond, river/ canal/lake, spring, and tanker were established at a distance less than 0.2 km from the habitat for all the states in the country. The proportion of traditional means as principal source per 1,000 households within the premises is less when compared with modern sources (table 4).

Punjab, Uttar Pradesh, Bihar, and Northwestern zone registered a higher proportion per 1,000 households depending on modern sources (tap, tube well and hand pump) within the premises. Kerala, Assam, Madhya Pradesh, Gujarat, Maharashtra, Southern zone and Northeastern zone performed well in respect of any one of the modern sources within the premises.

With respect to traditional sources as principal means, provision within the premises is low in almost all the states. Assam is the only state that scored relatively better on access to traditional sources within the premises as principal source.

Water Institutions

The literature on Institutional Economics (Saleth 1994) suggests that water institutions comprise water law, policy and administration. As water is a state subject, a number of rural water supply policies and programmes have been initiated from time to time under the constitutional provision by both central and state governments. They include: The International Decade for Drinking Water Supply and Sanitation (1981–90), The Rajiv Gandhi National Drinking Water Mission (1986), and the National Water Policy (1987). These arrangements can be considered supply-side institutions.

The Accelerated Rural Water Supply Programme (ARWSP) was introduced during the Fourth Five Year Plan (1969–74). The Minimum Needs Programme (MNP) was introduced during the Fifth Five Year Plan (1974–79). During the Sixth Five Year Plan (1980–85) there was increasing awareness, both nationally and internationally, of the urgency of protected water supply for sustaining the process of economic and human resource development. Global concern mounted, leading to the United Nations Water Conference in Argentina in 1977. As a follow-up measure, a decadal campaign was started among member countries, eventually declaring 1981–90 as the International Drinking Water Supply and Sanitation Decade. Another milestone in the history of RWS was the launching of Rajiv Gandhi National Drinking Water Mission (RGNDWM) during this period.

Table 3: Quality of Drinking Water—Sample Households' Perception

		Tap			Tube well and hand pump			Well			Tank & pond reserved for drinking		
			Per 1000 HHs			Per 1000 HHs			Per 1000 HHs			Per 1000 HHs	
Zone- wise analysis	State	HHs per 1000 (1)	Quality Problems (2)	Satis factory (3)	HHs per 1000 (1)	Quality Problems (2)	Satis factory (3)	HHs per 1000 (1)	Quality Problems (2)	Satis factory (3)	HHs per 1000 (1)	Quality Problems (2)	Satis factory (3)
South Zone	Andhra Pradesh	262	41	959	469	85	911	206	75	923	26	306	694
	Karnataka	266	5	985	539	28	973	156	48	952	19	0	1000
	Kerala	106	146	854	14	258	742	851	40	958	15	95	905
	Tamil Nadu	500	42	957	311	96	900	142	148	849	24	449	552
North Zone	Haryana	311	11	988	499	37	959	191	62	935	0	0	0
	Punjab	148	92	908	827	151	849	23	368	630	0	0	0
	Rajasthan	192	27	971	362	60	941	329	29	967	61	144	849
Central Zone	Madhya Pradesh	50	9	991	522	37	961	394	54	947	0	914	86
	Uttar Pradesh	88	19	541	635	63	887	221	76	633	4	0	426
West Zone	Gujarat	466	96	904	317	22	976	161	126	874	25	105	895
	Maharashtra	411	35	947	244	85	916	298	33	967	1	644	356
East Zone	Bihar	7	127	857	703	226	765	279	202	788	0	1000	0
	Orissa	29	34	967	532	140	856	337	169	830	14	679	321
	West Bengal	41	171	649	756	280	688	182	98	449	9	65	43
Northeastern Zone	Assam	73	273	727	495	325	653	278	321	675	21	137	793
	Arunachal Pradesh Manipur, Meghalaya Mizoram, Nagaland Sikkim, Tripura	283	191	726	185	481	499	194	347	639	47	145	749
Northwestern Zone	Jammu & Kashmir, Himachal Pradesh Chandigarh, Delhi	578	101	895	139	121	876	88	57	940	5	646	354
Southern Zone	Andaman & Nicobar Islands, Dadra & Nagar Haveli, Goa, Dam & Diu, Laksha-dweep, Pondicherry	626	115	886	63	159	841	254	105	895	1	0	1000
All India		187	56	903	501	130	853	258	98	832	13	219	686

Zone-wise analysis	State	Other tank, pond			River, canal, lake			Spring		
			Per 1000 HHs			Per 1000 HHs			Per 1000 HHs	
		HHs per 1000 (1)	Quality Problems (2)	Satis factory (3)	HHs per 1000 (1)	Quality Problems (2)	Satis factory (3)	HHs per 1000 (1)	Quality Problems (2)	Satis factory (3)
South Zone	Andhra Pradesh	3	0	1000	23	234	735	4	0	1000
	Karnataka	2	0	1000	17	88	912	1	333	667
	Kerala	7	0	1000	1	0	1000	3	0	1000
	Tamil Nadu	5	346	654	1	1	999	2	567	433
North Zone	Haryana	0	0	0	0	0	0	0	0	0
	Punjab	0	0	0	1	1000	0	0	0	0
	Rajasthan	23	181	820	27	206	857	0	0	0
Central Zone	Madhya Pradesh	1	0	1000	19	387	613	13	179	820
	Uttar Pradesh	1	0	0	1	280	546	47	0	1000
West Zone	Gujarat	0	439	531	7	628	372	0	0	0
	Maharashtra	0	1000	107	26	335	666	14	30	970
East Zone	Bihar	1	647	353	3	141	860	3	897	104
	Orissa	21	468	490	27	223	724	23	318	683
	West Bengal	2	196	107	2	237	595	2	0	1000
Northeastern Zone	Assam	69	645	356	43	440	301	11	935	65
	Arunachal Pradesh	19	540	460	33	430	538	203	111	867
	Manipur, Meghalaya Mizoram, Nagaland Sikkim, Tripura									
Northwestern Zone	Jammu & Kashmir, Himachal Pradesh, Chandigarh, Delhi	13	209	791	42	539	461	127	31	968
Southern Zone	Andaman & Nicobar Islands, Dadra & Nagar Haveli, Goa, Dam & Diu, Laksha-dweep, Pondicherry	0	0	1000	13	859	142	22	187	813
All India		6	392	554	13	319	673	17	92	906

Table 4: Distance Factor

Zone-Wise analysis	State	Within the premises (per 1000 households)				
		Tap	Tubewell & hand pump	Well	Tank and canal	Other tank
South Zone	Andhra Pradesh	310	142	141	39	0
	Karnataka	284	107	348	83	255
	Kerala	598	83	162	86	0
	Tamil Nadu	169	189	139	56	0
North Zone	Haryana	250	399	86	0	0
	Punjab	480	898	192	0	0
	Rajasthan	497	106	62	64	427
Central Zone	Madhya Pradesh	598	83	162	86	0
	Uttar Pradesh	763	588	153	67	0
West Zone	Gujarat	653	212	201	0	0
	Maharashtra	487	136	195	356	0
East Zone	Bihar	777	460	184	0	0
	Orissa	208	69	205	0	0
	West Bengal	278	268	195	43	107
Northeastern Zone	Assam	189	576	464	619	719
"	Arunachal Pradesh, Manipur, Meghalaya, Mizoram, Nagaland, Sikkim, Tripura	390	510	376	156	381
Northwestern Zone	Jammu & Kashmir, Himachal Pradesh, Chandigarh, Delhi	504	670	88	67	0
Southern Zone	Andaman & Nicobar Islands, Dadra & Nagar Haveli, Goa, Daman & Diu, Lakshadweep, Pondicherry	509	375	360	152	0
All India		411	342	227	96	349

Source: Computed from NSSO 54th Round.

The RGNDWM had certain interesting norms: 40 litres per capita per day (lpcd) for human beings, an additional 30 lpcd for cattle in desert districts, one handpump or standpost for every 250 persons, access to water sources within 1.6 km in the plains and within 100 metres elevation differences in hilly areas, and defining water as safe if free from biological and chemical contamination (Ghosh et al. 1995).

Even the National Water Policy of 1987 declared water to be an economic

good and a renewable natural resource to be conserved on a sustainable basis. It is hoped that in the approach to the Ninth Five Year Plan (1997–2002) minimum services like provision of safe drinking water will receive due attention, keeping in view the fact that economic growth and employment opportunities alone may not suffice to improve the living conditions of the poor. The Ninth Plan has proposed certain basic minimum services, which include provision of safe drinking water in the rural areas.

The allocation for water supply and sanitation was 2.47 per cent in the First Five Year Plan, of which only 0.71 per cent was earmarked for rural water supply. The allocation rose to 3.85 per cent in the Eighth Plan, of which 2.52 per cent was allotted to rural water supply (table 5). However, in terms of per capita cost of plan outlay towards the rural water sector, it was abysmally low during the early plan period. It increased five-fold between the Fifth and Sixth Plan periods. This increased priority began after the advent of Rajiv Gandhi Drinking Water Mission and the pace was kept up till the end of the Eighth Plan.

Financing of this sector assumes significance from the economic point of view. Several schemes have been launched at the central and state levels. Implementation of these schemes entails expenditure in creating a source for water. The cost of providing it is of great concern to economists. It is only through careful planning of the cost aspects of RWS that efficiency, equity and sustainability become achievable. Financing has two basic components, viz., capital and operation and maintenance costs. As the budgetary transfers to the sector have always remained inadequate, financing becomes more crucial as a means of bridging the resource gap.

Financial constraints have continued to hamper progress over the decades. The secondary source of information on the financial results of RWSS during 1974–75 to 1993–94 for India revealed certain important observations. The quinquennial averages clearly showed that working expenses towards RWSS increased at a faster pace than gross receipts. As a result, the percentage of recovery of working expenses through gross receipts was fairly low. Lack of accountability may be one of the reasons for the unprecedented rise in working expenses. Further, the state-wise financial results also brought to light the dismal recovery of working expenses through gross receipts. In Tamil Nadu, Karnataka, Madhya Pradesh, and Tripura the recovery has been zero. On the contrary, Rajasthan recorded the highest percentage of capital outlay and recovery with minimum working expenses (table 6). This only reflected the financial constraints and inability of the state governments to mobilise funds through user charges. The quinquennial averages showed that the working expenses increased from Rs.56.8 crores to Rs.905.8 crores between 1974–75 and 1978–79 and between 1989–90 and 1993–94. But the percentage of recovery of working expenses through gross recovery declined from 2.4 to 1.7 during the same period (table 7).

Table 5: Development Plans Outlays / Expenditure and Allocation to the Sector

(Rs. in crores)

Develop-ment Plan	Total Plan Original	Water Supply and Sanitation Sector				
		Total	% of the Plan Outlay	Rural	% of the Outlay	Per Capita Cost (in Rs.)
First Plan 1951 – 56	1960.00	48.89	2.47	14.00	0.71	
						1.4
Second Plan 1956 – 61	4600.00	91.00	1.98	28.00	0.60	
Third Plan 1961 – 66	8576.00	105.70	1.23	67.00	0.78	
						2.41
Annual Plan 1966 – 69	6625.40	102.70	1.55	19.67	0.29	
Fourth Plan 1969 – 74	15782.50	458.90	2.91	158.33	1.0	
Fifth Plan 1974 – 79	39426.20	1091.6	2.77	489.78	1.24	20.11
Annual Plan 1979 – 80	12176.50	429.52	3.52	234.16	1.92	
Sixth Plan 1980 – 85	97500.00	3907.80	4.00	2154.24	2.21	
						108.83
Seventh Plan 1985 – 90	180000.00	6522.47	3.62	3556.72	1.97	
Annual Plan 1990 – 92	137033.55	4427.29	3.23	2705.92	1.97	
						213.69
Eighth Plan 1992 – 97	525273.50	16373.03	3.85	10728.75	2.52	

Source: Ghosh Gourishankar et al. (1995): 127–8.

Table 6: State–wise Financial Results of Rural Water Supply Schemes (RWSS) (Quinquennial average for the period 1989 – 90 to 1993 – 94)

(Rs. crores)

Name of the State/UT	Capital Outlay	Gross Receipts (GR)	Working Expenses (WE)	Percentage Recovery of WE through GR
Andhra Pradesh	1.56 (0.05)	2.12 (13.8)	82.9 (9.3)	2.6
Arunachal Pradesh	1.85 (0.06)	0.01 (0.06)	7.5 (0.8)	0.02
Assam	--	0.26 (1.6)	34.5 (3.8)	0.21
Bihar	426.6 (15.3)	--	39.0 (4.3)	0.00
Goa	25.18 (0.9)	1.2 (7.8)	1.95 (0.2)	58.2
Gujarat	369.8 (13.3)	0.19 (1.2)	17.5 (1.9)	2.06
Haryana	11.23 (0.4)	0.06 (0.4)	32.8 (3.7)	0.9
Himachal Pradesh	246.9 (8.8)	0.61 (3.9)	30.5 (3.4)	1.9
Jammu & Kashmir	501.7 (18.0)	0.24 (1.5)	17.2 (1.9)	1.4
Karnataka	6.5 (0.2)	--	5.9 (0.6)	0.00
Kerala	110.8 (3.9)	Neg.	--	--
Madhya Pradesh	6.10 (0.2)	--	88.5 (9.9)	0.00
Maharashtra	--	0.1 (0.6)	145.8 (16.8)	0.16
Manipur	100.2 (3.6)	0.01 (0.06)	1.4 (0.1)	2.6
Meghalaya	111.4 (4.0)	--	--	--
Mizoram	15.9 (0.5)	0.2 (1.3)	3.2 (0.3)	2.5
Nagaland	43.2 (1.5)	0.03 (0.19)	9.5 (1.0)	0.05
Orissa	13.5 (0.5)	0.02 (0.13)	28.8 (3.2)	0.10
Punjab	2.6 (0.09)	1.9 (12.4)	32.6 (3.6)	8.5
Rajasthan	840.8 (30.2)	7.9 (51.6)	54.5 (6.1)	15.2
Sikkim	30.3 (0.4)	--	0.9 (0.10)	--
Tamil Nadu	4.19 (0.15)	--	81.3 (9.1)	0.00
Tripura	55.8 (2.0)	--	3.7 (0.4)	0.00
Uttar Pradesh	0.24 (0.008)	Neg.	112.1 (12.6)	--
West Bengal	--	Neg.	19.7 (2.2)	--
Pondicherry	--	0.4 (2.6)	2.4 (0.27)	26.7
Union Government	27.5 (0.9)	0.03 (0.19)	48.8 (5.5)	0.05
All India	**2779.3**	**15.4**	**889.0**	**1.72**

Source: Water and Related Statistics, Central Water Commission, July 1998.

Figures in brackets indicate percentage of the total.

Table 7: Financial results of Rural Water Supply Scheme (RWSS) during 1974 – 75 to 1993 – 94 (All India)

Quinquennial Average (Rs. crores)

Year	Capital Outlay	Gross Receipts (GR)	Working Expenses	Percentage Recovery of (WE) through (GR)
1974–75 to 1978–79	109.34	1.3	56.8	2.4
1979–80 to 1983–84	488.6	2.8	237.7	1.3
1984–85 to 1988–89	1202.7	6.1	577.5	1.0
1989–90 to 1993–94	3405.7	15.3	905.8	1.7

Source: Computed from Water and Related Statistics, Central Water Commission, July 1998.

Provision of drinking water to villages is a State subject under the Indian Constitution. The Constitutional Amendment Act of 1992 empowered the Panchayat Raj Institutions to be responsible for operation and maintenance of the sources created with financial autonomy to decide appropriate means of raising funds to keep the system going. In India, right from the beginning of the First Five Year Plan, funds have been allowed in the respective budgets of the state governments. Although many a state and central programme was started, Rajiv Gandhi Drinking Water Mission (1986) was a milestone in the history of rural water supply in India.

Under this mission approach, villages across the country were divided into habitations,[3] each of which was to be provided with at least one source of safe drinking water such as hand pump or stand post or tap connection. In official parlance, 81 per cent of the habitations in our country, as of 1999, were 'fully covered;' the rest were deemed 'partially covered' and 'not covered' habitations as per the Ministry of Rural Development, Government of India (table 8).

It may also be worthwhile to discern the water institutions with respect to user groups representing the demand side. In this context, user groups that organise themselves either in creating schemes or operating and maintaining the existing ones on a continuous basis, are treated under user participation as institutions. The institutional framework in vogue is the creation of schemes by the state government through TWAD Board and handing over of the responsibility of operation and maintenance with the local panchayats. All schemes except piped house service

connections are provided free of cost. No cost recovery is made for rural water supply.

Water institutions in villages are manifested through user groups in the following manner. The users, beneficiaries, themselves form a group either to create a source or to organise themselves to operate and maintain sources created by the State. Yet another mode is the State-induced water institution, the financial requirements of which the state government would partially bear. Participation may also be in the form of agitations and protests against the delay or negligence in the implementation of water supply programmes. In certain other cases, a few, preferably well-off people come together to render service in this sector.

Water supply in rural areas is indispensable. People generally expect the provision to be made by the government. The next alternative is the market, which can supply water at a price with a profit motive. If both the sources fail to make the facility accessible to the public, it becomes inevitable for the people at large to resort to self-help.

The experience of community participation in Kerala and Karnataka may be recounted here: Olvananna, a village in Kerala, speaks volumes for the way the people rallied to establish a source of drinking water in their village. The moment they realised that no help was forthcoming, the people of Olvanna village collectively raised money through sale of jewels and properties. Surprisingly, they were able to construct overhead tanks and lay pipelines using their local expertise rather than depending on a qualified engineer. The use of traditional knowledge brought the cost down from Rs. 50,000 to just Rs.5,000. Other problem villages in Kerala are trying to emulate this by effectively organising themselves to create some sources of water without depending heavily on the Government (Nair 1998).

The experience of Karnataka in implementing Karnataka Integrated Rural Water Supply and Environmental Schemes (KIRWS and ES) is worth recalling. This scheme aimed at providing 'an alternative delivery system through the participatory approach,' under which the village community is part of a decision-making body comprising the government, non-governmental organisations (NGOs), and the private sector in planning and execution. However, the operation and maintenance of the system is entrusted to village communities. Ultimately, it is the village community that assumes a role in all the three stages. Functionally, the village water supply committee (VWSC) comprises panchayat and community-selected members with the panchayat president as the ex-officio chairman of the committee. Women form about one-third of the membership. The main objective of the scheme is to inculcate a sense of cost sharing, as the sustainability of the system rests on user-financing and maintenance. The VWSC members mobilise community contributions by means of household connection fee and water tariff to meet the operation and maintenance costs. At times, the village panchayat had to come to their rescue when the VESC faced irregular power supply and mechanical

Table 8: Status of Water Supply in Rural Habitations in India – 1999

State and UT	Habitations			
	Not Covered	Partially Covered	Fully Covered	Total
Andhra Pradesh	0	24683	45049	69732
Arunachal Pradesh	548	1227	2403	4178
Assam	3901	26202	40566	70669
Bihar	1069	564	203803	205436
Goa	34	27	344	405
Gujarat	437	4639	25193	30269
Haryana	32	0	7513	7545
Himachal Pradesh	3750	13592	28025	45367
J & K	2430	4047	9249	15726
Karnataka	1522	10498	44662	56682
Kerala	880	6719	2164	9763
Madhya Pradesh	3563	17709	138596	159868
Maharashtra	1515	31811	43798	77124
Manipur	77	510	2204	2791
Meghalaya	869	1276	6494	8639
Mizoram	2	624	285	911
Nagaland	428	703	394	1525
Orissa	1978	4709	107412	114099
Punjab	5845	3123	4481	13449
Rajasthan	4715	38163	61188	104066
Sikkim	0	732	947	1679
Tamil Nadu	0	16971	49660	66631
Tripura	726	1604	5082	7412
Uttar Pradesh	0	0	274641	274641
West Bengal	0	22547	57830	80377
Union Territory				
Andaman & Nicobar Islands	11	6	487	504
Dadra and Nagar Haveli	128	190	198	516
Daman and Diu	0	1	28	29
Delhi	0	0	200	200
Lakshadweep	0	10	0	10
Pondicherry	0	0	276	276
Chandigarh	0	0	24	24
Total	34460	232887	1163196	1430543

Source: Annual Report 1999 – 2000, Ministry of Rural Development, Government of India, p. 201.

failure of motor pumps (Veerashekharappa 2000).

Community participation is thus an alternative approach through the creation of community-based problem-solving capability. Here the changes are directed towards locally felt needs unlike the ones decided by outside agencies. These endeavours motivate the community as a whole to participate, thereby teaching them certain skills of identifying problems and finding solutions. Further, they create a feeling that the community participants shall have a stake in the provision of the facility. However, community participation alone cannot achieve the goal of provision of safe water for all because it comes into play only in the event of total State failure. Where State functions well, community participation can only supplement the existing sources.

Environmental Dimensions of Drinking Water Supply

Water is essentially a renewable natural resource, which sustains life. The environmental aspects of drinking water can be described only in the backdrop of the socio-economic sphere. The reason is that besides natural cyclical changes occurring in the ecology of water, human intervention makes tremendous changes in the ecosystem in general and water in particular. For instance, over-extraction by human beings leads to depletion of the groundwater resource and is a matter of serious concern. So is degradation of the quality of drinking water, rendering it unfit for drinking. Third, the nexus between gender and ecological degradation is another crucial aspect. The vulnerability of women and girls is apparent under conditions of environmental degradation. Fourth, the dominance of modern over traditional practices of water supply is worth reckoning. There is evidence to support the view that traditional sources of water supply have been shrinking. Traditional wisdom once lost is irretrievable. Ultimately, it is the sustainability of water supply that is important as it incorporates ecology of the water resource.

Water Quality

The environmental quality of water is an extremely important facet of drinking water supply. WHO statistics show that most of the diseases in developing countries are related to unsafe water supply. The quality of water is as important as provision of adequate water supply, since the former determines its potability. In India, drinking water gets contaminated for a host of reasons such as rapid growth of population, industrialisation, urbanisation and excessive use of chemicals. In rural areas, improper maintenance of hand-pump sites and open-air defecation impair water quality.

The popular notion is that potable water is visually clear, tastes sweet, is free from unpleasant flavours and odours, cooks food well and quickly. Conversely, water unfit for drinking is that which is visually unclear, has a tinge of colour with

a salty, metallic taste or smell and in which grains / pulses take a long time to cook. Seldom does the general public realise that it is germ-free water that ensures safety. In fact, many are ignorant of the health implications of consuming unsafe drinking water. In the absence of factual knowledge, misconceptions and vague guesses are used to explain the relationship between health and quality of drinking water.

A few instances would suffice to understand the magnitude of water-related illness in India. In a cluster of villages in Khurda Tehsil, in Orissa, the villagers are crippled or even die because of toxins in the drinking water. The fluoride content of the groundwater is so high that users are crippled even before attaining the age of forty. Many look very aged and seldom live beyond forty. The local officials fear that 90 per cent of the population suffers from senility at the age of forty-nine years (*The Hindu,* 1999c). According to a study conducted by the Centre for Science and Environment (CSE), the drinking water in Delhi was found to carry industrial toxins and pesticide residues. These chemical pollutants cause gastrointestinal disorders and cancer. Treatment of pesticides and toxic substances through alum and chlorine would be difficult, until other suitable methods are used (*The Hindu,* 1999a). Nitrate contamination of drinking water in excess of 459 mg of ions/litre (the permissible level is 50mg/litre) has caused respiratory infections among 40–80 per cent of the children in Rajasthan villages. (*Down to Earth* 2000).

According to a survey of the health problems caused by drinking water, about 1,42,336 habitations were found affected. When compared with other states, Rajasthan recorded the maximum number of habitations affected by fluoride and salinity problems. Iron content was high in the potable water available to a large number of habitations in Orissa, followed by Punjab and Uttar Pradesh. In West Bengal the maximum number of habitations are affected by arsenic contamination (tables 9&10).

Depletion of Groundwater (Common Property) Resources

Groundwater depletion can lead to destruction of the ecosystem. The Azrag Oasis in Jordanian Badia is a unique case representing this feature. The Azrag, a Ramsar wetland spread over 7,500 hectares, has attracted a multitude of rare and unique aquatic and terrestrial species, and become a renowned haven of migratory birds. But the human intervention leading to over-extraction of groundwater resulted in the total drying up of wetland, causing a drastic fall in the water table and drying up of natural springs. The result was deterioration of the ecosystem with a threefold increase in salinity.

Groundwater depletion is a universal problem. Its magnitude and extent vary between countries and even within the state. The economics of groundwater envisages that permanent reduction in groundwater tables increases both the capital and the operating costs of water supply (Dhawan 1987).

Table 9: State-wise No. of Habitations Affected with Quality Problems (1991)

State	Flouride	Iron	Salinity	Arsenic	Total
Andhra Pradesh	4858	441	3977	-	9276
Bihar	12	669	-	-	681
Gujarat	2413	-	1072	-	3485
Haryana	738	450	106	-	1294
Himachal Pradesh	860	274	769	-	1903
Karnataka	237	502	26	-	765
Kerala	201	2215	87	-	2503
Madhya Pradesh	-	157	-	-	157
Manipur	33	1305	-	-	1338
Mizoram	-	52	-	-	52
Orissa	1138	42835	304	-	44277
Punjab	1113	4861	5349	-	11323
Rajasthan	14643	240	39623	-	54506
Tamil Nadu	527	604	NA	-	1131
Uttar Pradesh	1072	3720	4426	-	9218
West Bengal	NA	NA	NA	427	427
Total	27845	58325	55739	427	142336

Source: Report of the survey on the status of drinking water supply in rural habitation, Rajiv Gandhi Drinking Water Mission, Ministry of Rural Development, India, 1991–94.

Groundwater is the most valuable and renewable resource, but it is highly vulnerable. Hence, the fall in the water table and the attendant deterioration in water quality are matters of serious concern (Moench 1994).

Sustainability of groundwater is equally relevant as it is evidently the major source of drinking water across the villages in India. While it is true that water resources are renewable, the recharging rate should exceed the extraction rate. In India, the scenario of groundwater level is dismal. 'In most parts of the country groundwater exploitation is as high as 80 per cent. Only in 5 per cent of our country is water present at a depth of 0 to 5 metres, 97 per cent has water at 3–10 metres and 58 per cent of the areas have water below 40 metres' (Malik 2000: 55). Many methods have been adopted to store rainwater in tanks and allow it to percolate into the ground, thereby recharging it. The feasibility of percolation depends largely on the 'geological formation', which may vary from region to region.

'The distribution of underground water is not uniform and its availability is subject to wide spatio-temporal variations depending on the underlying rock formation, precipitation pattern and other hydrological conditions' (*The Hindu*, 1999b, p.7). There is a relationship between groundwater depletion and mechanical and

Table 10: Drinking Water Quality Standards

	WHO		CPHEEO	
Parameters	Rmc	Mps	A	B
Physical Examination				
Turbidity				
Colour [NTU]	5	25	2.5$	10$
Taste and Odour	5	50	5	25
Total Diss, solids mg/l	-	-	@	@
Electro con.	-	-	500	1500
Micromho/om	-	-	-	-
Chemical				
PH	7.0-8.5	6.5-9.5	7.0-8.5	6.5-9.2
TDS/mg/l	500	1500	-	-
Calcium as Ca	75	500	75	200
Magnesium as Mg	0.1	0.5	30	150
Copper	1.0	1.2	-	-
Sulphate as SO 2	200	400	200	400
Phenols	0.001	0.002	-	-
Flouride as F	0.5	1.0-1.5	1.0	1.5
Nitrate as NO 2	-	50-100	45	45
Iron as Fe	-	-	0.1	1.0
Manganese as Mn	-	-	0.05	0.5
Total Hardness as CaCo2	-	-	200	600
Toxic Constituents				
Ammonia as NH3	-	-	-	-
Arsenic	-	0.2	-	-
Cadmium	-	-	-	-
Chromium	-	0.05	-	-
Cyanide	-	0.01	-	-
Lead	-	0.1	-	-
Selenium	-	0.05	-	-
Silver	-	-	-	-
Chloride as CI	-	-	200	1000
Phosphate as PO4	-	-	-	-
Biological Parameters	1 Coliform/100/ml		Standard plate count per ml. Total coliform per 100 ml	

WHO – World Health Organization. Rmc- Recommended maximum concentration [Mg/1], Mpc- Maximum permissible concentration [mg/1] CPHEEO – Central Public Health and Environmental Engineering Organization:A – Acceptable limit. B - Causes for rejection when exceeds results of chemical examination are expressed in mg / 1. @- Unobjectionable.

technical problems involved in operating and maintaining the sources such as hand pumps and stand posts. As the water table falls, the extraction of water becomes more and more difficult, eventually rendering the machines unutilised and vulnerable to mechanical failure.

Gender Issues in Rural Water Supply

A careful perusal of current literature on environment suggests a direct linkage between population growth, poverty and environmental degradation. Indeed, environmental degradation and population are part of a vicious circle. Increased population exerts pressure and degrades the fragile environment, which, in turn, induces more population growth. This vicious circle is well explained by Nerlove (1991) thus: 'For example, as forests recede up the mountainsides, parents may perceive a greater need for having an additional child to gather firewood, more realistically; similarly in a poor agricultural setting, lower environmental quality may be associated with a greater livestock component in total production. Arguably, children have a comparative advantage over adults in tending livestock in contrast to the heavier labour of planting, tilling and harvesting crops. Thus, environmental deterioration may well enhance the marginal productivity of children at least relative to family productivity' (p.1,334–47).

Dasgupta and Maler (1995), with similar reasoning, have developed further theoretical arguments. According to them, 'the children are devoted to that part of family income which is derived from the exploitation of natural resources for which the primary cost is in the time required to collect the good. Hence, as the implicit price of those goods goes up, the marginal value product of children relative to adults rises. Parents then may have the incentive to have more children in spite of the worsening environmental conditions, and in spite of the fact that an additional child might further worsen these conditions for all other families.'

The behavioural part that creates a vicious circle is worth probing. Owing to increased scarcity of common property natural resources such as water, firewood and grazing land, the parents may place a higher value on children. This is due to the practice of children gathering natural resources for the family.

Demographers are of the view that 'environmental poverty' and female literacy are positively correlated. One such indicator of 'environmental poverty' is the time spent by rural households on procuring basic necessities such as water, fuel and fodder from the nearby local environment. Women and children are more vulnerable to the impacts of environmental poverty. A study conducted by the World Bank in 1997 highlighted another facet, viz., the number of female children and proximity to the environmental resource base. The study further confirmed that 'families living in areas in which distance from firewood source is greater have more children' (Agarwal 2000, p.34).

The implications are profound as other factors such as women's literacy and fertility rate are involved in understanding this issue. To reiterate the hypothesis of Dasgupta and Maler, children are treated not only as offspring to provide old-age support but also as enhanced 'workforce.' Empirical evidence confirms this hypothesis with respect to a few countries under certain circumstances, and Bakane-Tuoane (1997) established that the economic value of children to households was a determinant of fertility.

Sustainability of Rural Water Supply

Sustainability is an often-quoted paradigm in environmental economics. In the absence of a substitute for drinking water the question of sustainability becomes increasingly important. Two basic arguments have been advanced in this context. Provision of water by means of creation of a source through scientific identification, installation of hand pump/stand post and operating and maintaining the system continuously is one way of looking at the sustainability aspect. Lack of finance makes the system unsustainable. Therefore, to achieve sustainability, water tariffs should be rationalised to improve revenue position, thereby meeting the operation and maintenance expenses. The other argument highlights the traditional water supply systems. Rainwater harvesting, watershed management and check dams are traditional methods of achieving sustainability. The modern (mission) versus the traditional method or a blend of both is an issue that remains to be resolved in order to understand the complex question of sustainability.

According to the Citizens' report, 'the principle of water harvesting is to conserve rainwater according to local needs and geophysical conditions. In the process, groundwater is also recharged. Traditional water harvesting systems have met the domestic and irrigation needs of the people. The available historical and archaeological evidence suggests that effective systems of water management had been established and were being operated by small communities in many regions of the country as early as the 4th century BC.' (Agarwal and Narain 1997, p.17).

Rainwater harvesting is an ecologically benign method of recharging groundwater; it is growing in significance, as many recent success stories in our country would testify. The CSE conducted a survey of drought-hit villages in Gujarat and Western Madhya Pradesh in 1999, and found that villages that had experimented with rainwater harvesting and watershed development in the recent past had good drinking water source and even had some water for irrigation. Conversely, neighbouring villages that neglected their traditional systems experienced severe drinking water scarcity. Other famous success stories include the following: Anna Hazare in Ralegaon Siddhi and Manegaon villages in Maharashtra succeeded in eradicating water scarcity. Hundreds of villages in Alwar district of Rajasthan were rescued by a non-governmental organisation called Tarun Bharat Sangh, which

taught the residents to build several thousands of small check dams to enable wells and underground aquifers to recharge. They reportedly gave life to the dying rivers. Rich business groups from Mumbai came forward voluntarily to fund the construction of water harvesting structures in Saurashtra. A dynamic district collector in Dewas, Madhya Pradesh, has encouraged the local people to practice rooftop rainwater harvesting, thereby reducing the dependence on scarce municipal water.

The foregoing discussion raises further questions. What are the merits of the modern (mission) relative to those of the traditional system? Is it possible for the State (through the mission approach) to achieve the target of providing a source of drinking water to all habitations in the country? Is there a need to combine both traditional and modern methods to achieve the goal? The Mission approach keeps the groundwater source as its base, while the traditional systems are more flexible depending upon the prevailing local hydrological conditions. The State considers that water provided through hand pumps, stand posts, and house service connection taps are protected and safe for consumption. Other sources such as lakes, tanks and ponds are not protected and are unsafe. The fact remains that 90 per cent of the water supplied in rural areas depends largely on groundwater.

The paradox of 'scarcity amid plenty' is applicable to rural water supply too. In most cases it is not lack of water but improper and inequitable distribution of water among consumers. Water, after all, has no substitute unlike other items such as oil and coal.

Many reasons can be cited for the negligence of traditional water systems. An important historical reason is that 'centralisation of power in the pre-colonial and colonial periods saw rapid changes in traditional systems. The responsibility of managing small water bodies passed from the local community of ruler to centralised state agencies. The concept of water as a ''national asset'' was used to justify this transfer as if the local community could not be trusted with national property. Disinvested of their customary powers and responsibilities, communities became apathetic to the maintenance of reservoirs and water channels. The increasing politicisation of village panchayats did not help matters' (*The Hindu* 2000, p..III).

Discussion of the traditional system of water harvesting is not necessarily meant to discredit the mission approach; it is this approach which brings in research and development and science and technology inputs into the water supply schemes. Also, it envisages scientific source finding, water quality assurance, water conservation, operation and maintenance, and other sustainability aspects.

There is no doubt that our traditional system of rainwater harvesting was based on science and common sense. These practices ought to be revived and harnessed to modern methods and knowledge. No doubt, provision of drinking water to the rural population of India is a formidable task, keeping in view the fact that both central and state governments have already invested Rs.15, 000 crores for

this purpose, and estimates show an additional requirement of Rs.15,000 crores for a complete solution to the problem.

Conclusion

Even after fifty years of independence, nearly 20 per cent of the rural population has little access to safe drinking water. Even though conditions have been improving over the last decade owing to efforts by the central and state governments, the question that remains is whether the provision made is sustainable. A major economic impediment to the mission approach is lack of finance for operation and maintenance of potable water sources. The weak financial position only reflects inefficiency of the states in mobilising funds for this purpose besides the populist policies of certain states. The need of the hour is to rationalise the tariff structure of both house service connection and the property tax, thereby raising revenue to meet the operation and maintenance of the system on a sustainable basis.

The environmental problems associated with rural water supply have received scant attention. Water quality is as problematic as quantity of water. There is ample evidence on the health hazards posed by deterioration of water quality. Rural water users know little about the linkage between health and safe drinking water; seldom do they treat or purify their source of drinking water. Depletion of groundwater is a reality in India. This being a common property resource, any reduction in the water table would jeopardise the access of the poor and aggravate existing problems. The gender component of rural water supply cannot be pushed under the carpet on the pretext of 'legacy' and 'time-honoured practice' of our country. The relative merits of traditional versus modern (mission) system of water sources are a matter of serious concern as both the systems are not mutually exclusive. However, the traditional modes are reportedly dying for want of adequate state support. Community participation is reckoned as a powerful instrument to meet the people's aspirations. Certain states like Kerala and Karnataka have exerted their collective strength towards this goal.

Many are the complexities involved in understanding and seeking a permanent solution to the rural water supply problem. The need to preserve and strenghten traditional systems cannot be overemphasised; existing policies need to be so modified as to allow modern schemes to supplement rather than supplant the traditional sources. There is a paradigm shift in the role of State from 'provider to facilitator;' hence a collective effort by the State, local people and the NGOs is needed to identify scientific sources without compromising on the traditional means of water harvesting. Unless existing policies are given a holistic character by resolving the socio-economic and environmental issues, the reported success of providing rural water supply in India shall remain inconsequential.

Notes

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[2] **Principal and supplementary sources**: If a household, during the last 365 days, obtained drinking water from more than one source, the one most commonly used was treated as the principal source and the next one (in terms of frequency of use) was treated as the supplementary source. Thus, if a household used source A for five months of the year, source B for four months, and source C for three months, A and B were treated as the principal and the supplementary sources, respectively (NSSO 1999).

Traditional sources: Well, tank/pond reserved for drinking, other tank/pond, river/canal/ lake, spring.

Modern (***Mission) sources***: Tap, tube well & hand pump, and tanker.

[3] An entity with a minimum population of one thousand, and the distance between two habitations should be not less than one km.

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The Politics of Minority Languages: Some Reflections on the Maithili Language Movement *

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Abstract

Post-Independence India has witnessed varied mass mobilisations over the issue of language. Such mobilisations have taken place at three levels: (1) the national where the question of Hindi versus English has exercised great many minds and led to intense conflicts; (2) the regional where the 'vernacular' languages were projected and then made the basis of politico-administrative organisation of Indian states and, (3) the intra-state, which happens to be the provenance of minority languages and where attempts are being made by the speech communities concerned to get legal-constitutional recognition for their languages. Against this backdrop, the present paper examines the chequered career of the Maithili Language Movement as an instance of the politics of minority languages, and attempts to explain its waxing and waning. Overall, it offers a critical assessment of the movement in order to underline its future potentialities and constraints.

Introduction

In popular parlance the language categories of India are variously designated as mother tongues, minority languages, regional languages, scheduled languages, official languages, and national languages. These categories are, however, not fixed for ever. Historically, there have been quite frequent crossing of boundaries owing to language-based mobilisations and State intervention. Quite often, a variety of mother tongues go through processes of status reduction. These processes of marginalisation are the function of the dynamic interplay between the contending interests of varying social groups. Unsurprisingly enough, in India such mother tongues have, over a period of time, ceased to be autonomous languages and have become a variety of another language. At times, the state groups a range of mother tongues into different sets of languages through the instrument of census. For example, in the 1971 census forty-six mother tongues had been grouped with Hindi

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in the reports of the Commissioner for Linguistic Minorities (Brass 1994: 159). True, not all mother tongues are linguistically autonomous entities, but the grouping is not governed by the linguistic criterion alone. Otherwise, Maithili, with 5 million speakers (1961 census, according to the claims of the elites of the community it is over 15 million), a literary past and script, and genetic relation with eastern Indo-Aryan, would not have been treated as a variety of Hindi, a western Indo-Aryan language. This is further corroborated by the fact that the number of mother tongues, as enumerated in the census, has gone down from 1,652 in 1961, to 221 in 1971 to 106 in 1981 (Krishnamurti 1998: 256–57). What is to be noted is that census is only a visible instrument of the absorption of powerless minority languages. In reality, it articulates the mobility struggles of conflicting power groups. Dominant pressure groups/castes have historically used census to further their sectional interests (see Cohn 1990). In quite a few cases, the people speaking different mother tongues themselves prefer not to report them and instead report the regional/state language as their mother tongue. This strategy not only brings political mileage to the groups concerned by making them part of the regional/national linguistic mainstream but also saves them from many socio-political complications such as the fear of discrimination on account of their constituting minority language groups. In any case, no monocausal explanation can do justice to the complex processes of status reduction of languages as they vary according to the contexts and situations.

The language scene in post-Independence India seems to be characterised by a definitive hierarchy, at least in terms of official status (see Brass 1994: 175). For obvious reasons, Hindi and English occupy top positions in the official hierarchy. Regional languages come next, having been recognised as official languages in the linguistically reorganised states, nay, the very basis of their organisation, and also for having found a place in the coveted Eighth Schedule of the Indian Constitution. At the third level are languages listed in the Eighth Schedule but having been deprived of the luxury of territorial anchorage in particular provinces such as Sanskrit, Sindhi and Nepali (Gorakhali). At the lowest level are those mother tongues which are not recognised either as official languages of India or of any state and are not listed in the Eighth Schedule which, in fact, constitute the bulk of minority languages. Such mother tongues, along with the officially recognised languages, were recorded fully for the first time in the 1961 census, where some 1,652 were listed. Among these mother tongues in 1971, were thirty-three with recorded speakers of more than a million. Maithili, our present concern, occupies sixteenth position with 6,121,922 speakers (ibid.; 159).

The processes of the constitution and consolidation of linguistic identity necessarily entail shifting configurations between language, identity and politics. Language becomes a contested site to access resources, including political power, where larger politics of identity unfolds itself. Naturally enough, linguistic and

other identities, such as religious, ethnic, and regional, merge, cross cut and diverge. This intermeshing of identities tends to complicate the politics of language leading to warring linguistic groups and factions with opposing identities and interests, real or otherwise. Language no longer remains a means of collective communication and imagination but gets embedded in a given socio-political power structure. The socially mobile and politically ambitious social groups (of all places and at all time) see to it that the plural cultural resources of a given language are made amenable to a distinctively new group identity, which would serve their political ends better. As a rule, languages come to mark asymmetrical power relations: the relationship of domination and subordination. Proponents of any dominant language regard the minor languages (read 'dialects') as part of them or subordinate to them. This framework helps us situate the plight of minority languages such as Maithili in the northern region which was used as cannon fodder to consolidate the emerging dominance of ever-paternalistic Hindi as the *rashtrabhasha*. In fact, the very usage of the term *dialects/ minority languages* smacks of the relationship of domination and subordination.

Basing itself on a review of secondary literature, and on the insights and observations gathered by the writer as an insider to the speech community and the movement, the present paper intends to examine the chequered career of the Maithili Language Movement as an instance of the politics of minority languages. It attempts to look into the causes and consequences of the movement with a view to explaining the waxing and waning that it has gone through. Overall, it aims to present a critical assessment of the movement in historical and contemporary outline in order to underline its future potentialities and constraints.

Linguistic Reorganisation of States and the Minority Languages

Between 1956 and 1966 the linguistic states were formed on the basis of twelve dominant regional languages—eight in 1956 (Assam, Andhra Pradesh, West Bengal, Karnataka, Kashmir, Kerala, Orissa and Tamil Nadu), two in 1960 (Gujarat and Maharashtra) and two in 1966 (Punjab and Haryana) in addition to states having Hindi as their official languages (Krishnamurti 1998: 252). This does not mean that all the states could be formed on linguistic basis (there are exceptions such as Nagaland, Meghalaya, Manipur, Tripura, and the recent ones, Jharkhand, Uttaranchal and Chhatisgarh). Regardless of these exceptions and the contention that the organising principle was not that each language (whether listed in the Constitution or not) will have a state but that each state would have a majority language (Annamalai 2001: 153), a distinctive language has turned out to be the very *raison d'être* for a privileged claim to statehood. By implication, it has also meant that the linguistic states need not remain multilingual. As the report of the Linguistic

Reorganisation Commission puts it,

> An autonomous linguistic province…means an autonomous linguistic state and an autonomous state means…that its territories are inviolate. And if in a linguistic province the majority language group comes to regard the territory of the entire province as exclusively its own, the time cannot be far distant when it will come to regard the minority living in that province and people living outside it as not their own (cited in Karna 1999: 85).

The state, through various means, tries to make the official language symbolise the state. One particular language is projected to be the shared symbol of statehood. Annamalai (2001: 153) rightly avers that the distinction between the instrumental and symbolic function of language is obliterated. This is made possible by the sheer will of those commanding power at the state level as they also have the numerical majority on their side. At times, regional pride or religion or tribal-ethnic identity can be made amenable to linguistic assertion. Thus, numerical superiority (derived from the logic of popular democracy) and the political power that it generates make a language-based state marginalise other languages in the state. With population and power in its favour, the official language is treated as *de facto* 'national language of the state' making all people in the state identify themselves with it and pay allegiance to it (ibid.).

In a way, the growing assertion of regional languages has been deeply wedded to the character of Indian nationalism (Karna 1999: 86). What is relevant for the present purpose is the rather unexpected assertion of the unrecognised local contact languages (mostly minority languages) for recognition of their rights. Karna links this assertion to the release of certain social forces by the formation of linguistic states (ibid.). The imposition of linguistic uniformity in the name of language-based states is sufficient cause for the linguistic movements to fight against the domination of one language. Be that as it may, no state or union territory in the country is entirely homogeneous. The minority languages in the state range from 5 per cent (Kerala) to nearly 85 per cent (Nagaland) of their respective populations. One could therefore call India 'a country of linguistic minorities' (Krishna 1991: 26). There is another aspect of the minority language scene. The dominant language in one state may be a minority language elsewhere, as in the case of the Malayalis constituting minority language speakers in many other states such as Arunachal Pradesh and Nagaland (ibid.; 28). In essence, patterns of verbal usage in the subcontinent have hardly ever been coterminous with political and administrative boundaries. The present linguistic states are based on the language identity of dominant pressure groups. *Language-identity* regions are not necessarily homogeneous *communication regions*, as is being accepted like an article of faith by administrative and educational agencies in various states (Khubchandani 1991:

30).

In effect, the minority languages are the first victims of the linguistic state's quest for homogeneity and standardisation. According to Khubchandani (ibid.; 30–31) such overenthusiasm of many state agencies to bring about coercive homogeneity in communications in favour of the language identity of the dominant groups is a typical instance of generating insular tendencies among plural societies. As a result, since the 1970s the number of educational languages (languages used as media of instruction and those studied as subjects) has been decreasing steadily. As a rule, the languages axed are minority and tribal languages. In undivided Bihar itself, Ho, Mundari, Kurukh (Oraon), Kharia, and Maithili have been discontinued. 'It appears that the most neglected languages as media of primary education are the various tribal languages of central India, and languages that have affinity with Hindi such as Maithili and Bhojpuri' (ibid.; 92). With educationists and administrators concentrating their attention on the three-language formula, the educational needs of the minority language students tend to be forgotten. Throughout India, the 40–10 (40 students in the school, 10 in a class) requirement for providing minority language teaching remains unimplemented (ibid.; 97). Even otherwise, access to resources and opportunities is linked to the medium of learning. The real-life experience of depleting or dwindling of opportunities forces the students of minority languages to opt for the dominant language. It is not a question of sentiment but of survival in the midst of scarcity. When education becomes commodified the non-marketable languages get eliminated from the medium of instruction. As Peggy Mohan (2001: 2609–11) points out, the vast number of speakers of various dialects and languages in India cannot access the 'open-ended world of modernity' as they 'are excluded from that world, by their poverty, the lack of educational opportunities available to them in their languages, by the sheer cussedness of the social system'. However, they too have ambitions of 'upward transit to a bigger world with more opportunities open to them, the world represented in India by English' [and other dominant languages]. This social impasse leaves them effectively with two options: to be in place and keep contributing to the vitality of these languages or to move ahead and sacrifice any languages that come in the way of their empowerment.

Generally, those who exercise the first option (which include linguistic minorities) are the ones who resist the homogenising juggernaut of dominant languages. Whenever and wherever they assert their distinctive linguistic identity, conflicts follow. The nature of the conflict and the extent of the success of the protesting groups depend on the nature of numerical and political equations between the minority and the majority (Annamalai 2001: 153). To the extent that language is a source to access resources, positions, and power, dominant social groups manoeuver linguistic identity in order to consolidate and retain power. In some cases, certain language groups might join together to keep away some language

group(s) from positions of power. The general antagonism found among the speakers of Hindi, Bhojpuri and Magahi/Magadhi towards the demands of the Maithili language movement is a case in point. Also, the politics of numbers steamrolls the regional minority languages or groups. In a democracy of numbers the marginal groups are bound to become invisible unless disproportionate attention is showered on them.

Dialectalization and the Politics of Linguistic Identity

There is nothing inherent in the nature of language that automatically makes it the basis of political contestations. When language acquires institutional importance in some major domains of nationality—law, polity and economy—it may assume political significance (Karna 1999: 82). Even otherwise, mobilisation of linguistic loyalty for political purposes is implicated in the very nature of modern democratic processes (Brass 1974, 1994) or the needs of the modern State (Hobsbawm 1992: 51–63). Such mobilisations are as recent as the arrival of modernity and associated transition from 'fuzzy' to 'enumerated communities' (Kaviraj 1992).

A nation-state feels compelled to enforce a single dominant language in all spheres of life. A single dominant language creates the myth of a homogeneous communication zone. It promotes mass media, large-scale printing and centralised control of information. It also leads to greater uniformity. Concomitantly, the minorities are exhorted to join the mainstream which, in effect, means giving up the loyalty of their own language and welcoming assimilation through the dominant language. In any case, the apparent linguistic homogeneity and uniformity achieved by the State hides differences and deviations beneath a false surface. For Pattanayak (1981: 40) the assertion of identity of Maithili, Bhojpuri and Pahadi in the Hindi Zone of India are instances of protest against the false uniformity in the name of Hindi. Several other factors go into the drawing and redrawing of linguistic boundaries. More often than not, this exercise is fraught with serious political consequences. On the other hand, certain languages prefer branching out from the existing language and establishing their claims for a separate identity. For instance, the christening of Angika and Bajjhika as separate languages indicates their desire to break with the existing Maithili identity (Pattanayak 1981: 43). In this process of identity-formation, 'the linguistic distinction between language and dialect is immaterial in the sociolinguistic context of India' (Annamalai 2001: 38). The emergence of standard dialects and the social and economic values attached to them make other dialects low and dispensable. What is considered to be a separate language like Maithili by linguists on historical and grammatical grounds may be perceived by some of its speakers as a dialect, and be reported as such in the census, and a separate language with a literary history of its own by other speakers (ibid.).

In fact, the *dialectalization* process is one of the means for the dominant language to consolidate its power. Through this process, more mother tongues are added under major languages and their population is thus enlarged, adding to their dominance. As a consequence, powerless languages lose their existence as languages. This may even include languages in a linguistic sense, which are grammatically distinct and have a literary tradition of their own. Hindi, for example, has absorbed languages like Maithili and Avadhi as its mother tongue varieties (ibid.; 79).

Obviously, what matters in categorising languages and in naming these categories is its politico-economic dimensions and the way it has been constructed socially not only by the community of its speakers but also by neighbouring speech communities and the State. This social construction may refer to 'the boundary of the language, that is, about which variants of speech are included in a language, it may be about the norm of the language, what is considered as the standard speech which is equated with language'. And, any 'social construct is basically ideological in nature in the sense of being the link "to the process of sustaining asymmetrical relations of power" (Annamalai 1998: 149). In the case of Maithili, this has been made clear more than once that "objective" language differences would not suffice for a reorganisation to succeed or inclusion in the Eighth Schedule, where a cultural and literary elite demanded the creation of a separate province for the speakers of Maithili, a language distinct from its neighbouring communities of Hindi and Bengali speakers' (Brass 1974, 1994: 173). The irony is that on the one hand, the claim to a distinctive linguistic identity is denied to Maithili by treating it as an adjunct or mother tongue variety of Hindi, while on the other, in terms of nativity of the speech, a Maithili mother tongue speaker of Hindi is not treated on a par with the Khari Boli speaking community, and quite frequently, is branded a dialect speaker of Hindi, i.e., 'not a native speaker in the centre of the construct' (Annamalai 1998: 154). This is so by the political decision of the State as well as the community's ambivalence between loyalty to the mother tongue and regional and national aspirations realised through identification with Hindi (Brass 1974).

Contested Space and Uneasy Adjustments

Like many other movements of its genre, the Maithili language movement has put forth two principal demands: the enforcement of Constitutional provisions concerning the minority languages and inclusion in the Eighth Schedule. There are four Articles in the Constitution of India that protect the rights of linguistic minorities. Only one of them specifically refers to mother tongues. Article 350 A obliges every state and local authority to 'provide adequate facilities for instruction in the mother tongue at the primary stage of education to children belonging to linguistic minorities groups'. Articles 20, 30 and 350, which refer to languages, confer broader rights upon linguistic minorities to preserve their 'distinct language, script or culture'

(Article 20), 'to establish and administer educational institutions of their choice' (Article 30), and to submit representations for redress of grievances to any central or state authority in any language (Article 350). Moreover, a listing on the Eighth Schedule carries symbolic and material advantages: a presumptive right to recognition as a minority language in states where other languages are dominant, including a presumptive right to recognition as medium of instruction in both primary and secondary school classes in such states, a right to the protection of the President of India (i.e., the central government) on the advice of the Commissioner for Linguistic Minorities against discrimination in use of the language, and representation on language development committees appointed by the central government (Brass 1994: 175–79).

It is equally true that in both respects such spokesmen have faced strong resistance from state governments that wish to avoid the administrative costs of implementing mother tongue instruction for a multiplicity of minority languages. So far as inclusion in the Eighth Schedule is concerned, the government has felt that 'such recognition to a geographically compact language group would provide a basis for making a further claim thereafter for the creation of a new linguistic state' as all the languages in the Eighth Schedule except Sanskrit and Sindhi have also been recognised as the official language of one or more states. Moreover, the listing of further languages in the Eighth Schedule would act as a catalyst and lead to an unending demand for addition of more and more languages therein (ibid.; 178).

At the root of such demands is an aspiration among the spokesmen for languages such as Maithili to get recognition as a language, and not just as a mother tongue. It is a different matter altogether that many minority language movements have not been able to generate adequate political momentum by way of developing strong enough movements to gain inclusion in the Eighth Schedule let alone to achieve a separate linguistic state. They are equally determined to oppose all those 'who wish to secure the dominance of the major regional languages in their states and seek to assimilate the speakers of such mother tongues to the dominant language' (ibid.; 179).

While trying to evaluate the Maithili language movement, Brass (1974, see also Singh 1986: 194–95) locates its failure in the absence of the requisite transformation, on the part of the Maithili-speaking people, of their objective differences from the rest of the people of Bihar as well as from the rest of India into a significant subjective consciousness. This meant that the Maithili language elites have been ambiguous about their identity between Mithilia and India, and thus have failed to ensure popular participation in the movement. More importantly, he finds Maithili's lack of association with a distinctive religion a big stumbling block in the consolidation of the movement. This jibes well with his overall thesis where

religion has been posited as the pre-eminent locus of identity and political mobilisation in north India. In his explanatory framework, other co-ordinates of identity are made subsidiary to the overarching axis of religion to project what he calls 'multi-symbol congruence,' which makes a sustained political mobilisation possible. Thus, political elites have selected religion as the primary symbol and have exerted themselves to make language and other symbols congruent (see also King 1999: 4).

Singh (1986: 195), though differing from Brass's assessment, concedes low level of social mobilisation achieved by the movement. He finds a certain reluctance on the part of the political elites in north Bihar to emphasise regional symbols in the political arena and also the disproportionate participation and leadership by Maithils outside the region of Mithila. However, he does not go into the question as to why this has been the case. Moreover, his rendering of the achievements is highly loaded in favour of certain individuals and political personalities. It seems all the gains of the movements were the generous gifts bestowed on the people of Mithila by those loving *Maithil* brethren who had somehow risen to positions of power and authority. Nonetheless, he raises an important question as to how a language movement (Maithili) fails to register its presence in an area that has been in the forefront of almost all political movements of the twentieth century (see also Singer 1997).

On a different plane, the antecedents of the Maithili language movement can be traced back to the great struggle for dominance between Hindi and Urdu in the nineteenth century (see King 1999). In order to consolidate its claim as the future *rashtrabhasha*, as the first step, Hindi was to establish itself as the regional standard language for the entire region from Punjab to Bengal. Naturally, in this great historical drama the claims of the small mother tongues and vernaculars had no or negligible role to play except acquiescing to the demands of the main contenders as they were far removed from the nationalist aspirations and were not supposedly equipped to cater to the demands of a great nation-in-the-making. Even after independence, few mother tongues (Punjabi being the sole exception) have succeeded in achieving an officially recognised distinctive linguistic personality. Independence also meant the accretion of power to Hindi as it became the official language of the Union of India. Rai (2001: 105) puts it succinctly: 'It [Hindi] has become a kind of poor man's "English", the language of social access and upward mobility. "Dialect" users are under pressure to acquire this official, officials' "Hindi"'. Arguably, mother tongues became the cannon fodder in the game of facile democratic legitimacy that Hindi had to achieve to make good on its claim of having the largest percentage of speakers. Nonetheless, the ambitions of the promoters of Hindi as the regional standard language of north India have meant the absorption of numerous mother tongues under its umbrella and there being rendered its dialects.

Whither Maithili Language Movement?

Incidentally, the first great success for the spread of Hindi occurred in Bihar in 1881 when Hindi displaced Urdu as the sole official language of that province. Logically enough, the potential claims of three large mother tongues (Maithili, Magahi, and Bhojpuri), which Grierson had included in the Bihari group, were ignored in the long-drawn battle between two competing regional standards (Hindi and Urdu). Bihar Official Language Act, 1950 made Hindi the sole official language of the State but in the mother tongue census of 1961 only 44.3 per cent of the population of the State had declared Hindi to be their mother tongue (Brass 1994: 184). However, an interesting question arises here: why have political representatives of Maithili always insisted that Maithili is an entirely distinct language from Hindi while those of Bhojpuri and Magahi have treated the inclusion of their mother tongues as dialects of Hindi as a *fait accompli*? In fact, even among Maithili speakers this claim has been largely restricted to an upper caste elite, while, many, if not most, middle and lower caste groups in the Maithili-speaking districts of north Bihar have accepted Hindi as their language (ibid.). There also seems to be a variation along caste lines so far as identification with the Maithili language is concerned. Mainly, Maithil Brahmins and Karan Kayasthas provide the support systems to the Maithili movement (most of the leaders of the movement come from these two caste groups) whereas various other caste groups living in the region of Mithila are projecting Bajjhikka and Angika as their mother tongues and are consciously seeking to break away from all-inclusive regional identity based on the Maithili language (Pattanayak 1981: 43; for further details on the relationship between caste and language/dialect see Bean 1974 and Pattanayak 1975, 1976). This dependence of the movement on a handful of caste groups combined with the disproportionate representation of migrant leadership (by Maithils outside the region of Mithila and in places such as Kolkata, Delhi, and Allahabad) has narrowly circumscribed the social base of the movement. It also shows that the social character of the leadership itself has remained largely unchanged. The consistent failure of the leadership to reach wider social constituencies has had a telling effect on the movement. It comes as no surprise, then, that Maithili language elites seem to have given up even the pretensions of a mass-based language movement. Their attempts are more focused on literary production than mass mobilisation. In the light of Annamalai's (1986: 9–11) classification of language movements on the basis of their concern with *status* or *corpus* of a language, the present day Maithili language movement can be seen as marking a shift from the earlier status-orientation (implying attempts towards achieving a separate politico-ethnic identity by way of claiming certain statutory privileges and acceptance for use in certain domains) to the current corpus-orientation (meaning choice and reform of script and spelling, choice of variety for specific domains, and choice of source for lexical development).

One can cull out two interrelated hypotheses from the available literature in order to account for the claim of Maithili for a separate linguistic state in the 1950s and 1960s (though never pressed too far) and its quest for a distinctive linguistic status. First, among the three languages identified by Grierson under the rubric Bihari - Magahi, Bhojpuri and Maithili, only the last could claim a literary tradition of several centuries while the other two have had rich oral folk literature. In this respect, Maithili could rub shoulders with Avadhi, Brajbhasa, and Khari Boli (King 1999: 200). This literary heritage got the indirect official stamp when the Sahitya Akademi (the National Academy of Letters) included Maithili in the list of twenty-two languages chosen for the regular annual awards in the field of literature. Eighteen languages are already officially recognised languages by virtue of their inclusion in the Eighth Schedule, whereas Maithili shares its rank with Rajasthani, Dogri and English. Curiously enough, which brings us to our second point, in the case of Maithili, approvals of its being linguistically autonomous have come from the scientific community — experts ranging from Grierson to Suniti Kumar Chatterjee to the members of the committee of the Sahitya Akademi — which further seems to have fuelled up the processes of political mobilisation (see Singh 1986: 186). At least, for the participants and spokesperson of the movement, it seemed to be a case of objective differences working themselves out and making the linguistic fault-lines visible rather than out and out instrumental interests masquerading as primordial linguistic loyalties and associated communitarianism. These conjectures, nonetheless, continue to beg answers as all objective differences do not lead to attempts to transform them into subjective perceptions. After all, Avadhi had to yield to the onslaught of Hindi and similar other literary languages (now dialects of Hindi) have come to terms with their historically-destined status (see King 1994; Rai 2001). Interestingly, a close perusal of the demands of the Maithili movement shows that they too were geared towards the extension of use of languages into the public domains. The principal demands were as follows (Singh 1986: 179–80):

- Maithili should be accepted as an optional (or obligatory for the students in north Bihar) subject as well as the medium of instruction in primary education. Subsequently, a demand for inclusion of Maithili as a subject in the list of the Bihar Public Service Commission was also made. Further, they pressed for the acceptance of Maithili as a subject in the universities.
- To protect the language, literature and culture of Mithila a university should be established in the region. Also there should be a Maithili Academy on the lines of the Bihar Hindi Grantha Academy and the Bihar Rashtrabhasha Parishad.
- To cater to the special needs of the Maithili-speaking population an All India Radio station should be set up in Darbhanga.

- There should be acceptance of the language by the Sahitya Akademi and such other official and cultural bodies.
- A separate state of Mithila should be carved out on the basis of the language. Additionally, it should be made the associate official language of the state of Bihar.

Then, there were minor demands like publication of official notices and advertisements in Maithili, use of Maithili script in the names of railway stations in Bihar, governmental support for the exhibition of Maithili books and periodicals, and introduction of a new train by the name Mithila Express. In course of time, all these demands were met except two, i.e., separate statehood and inclusion in the Eighth Schedule. Maithili Academy was established in Patna in 1976. In the same year the All India Radio station was made operational at Darbhanga. In the previous year, i.e., 1975, a university named after one of the popular leaders of the region, L.N.Mishra, was inaugurated. The Bihar Public Service Commission accorded Maithili a place in the list of recognised subjects in 1972. Sahitya Akademi had already granted recognition to the language in 1964. All these apparent achievements, however, fail to belie the assertion that the movement was accompanied by somewhat minimal political action. One tends to see these achievements more as the outcome of elite action and manipulations at the official level than that of mass action. This probably explains the feeling that the successes of the movement amounted to 'symbolic concessions without effective protection of the rights' (ibid.). This assumes added significance as it has been voiced by a sympathetic observer of the movement who seems to be less inclined 'to call the outcome of this movement a failure at this stage' (ibid.; 195).

In the meantime, Bihar Government's declaration of making Urdu the second official language of the State in 1980 adds another dimension to the Maithili language movement. This is so because Urdu, as the second official language, has to be made effective in precisely those districts which have been the stronghold of Maithili. Going by Brass' thesis (1974), this linguistic turn on the part of the Bihar Government would amount to the ultimate dying out of the movement. In that case, the leaders and spokesmen of the movement should have echoed sentiments articulated by the famous socialist theoretician Karl Kautsky in a different context: '…[small] languages will be increasingly confined to domestic use, and even there they will tend to be treated like an old piece of inherited family furniture, something that we treat with veneration even though it has not much practical use (cited in Hobsbawm 1992: 36). Does the contemporary low ebb of the Maithili movement mean that their proponents have reconciled themselves to the eventual disappearance of Maithili? Do we find such a resigned tone having sunk deep in them?

By Way of Conclusion

However, an alternative reading of the movement seems possible. As some of the recent scholarship on social movements has argued:

> When we examine the impact of movements, then we must gauge the extent to which their demands, discourses, and practices circulate in weblike, capillary fashion (e.g., are deployed, adopted, appropriated, co-opted or reconstructed as the case may be) in larger institutional and cultural arenas. [For such an assessment, one needs to go beyond] the prevalent notion that 'the measure of success of a social movement is its ability to achieve mass mobilizations and public protests'…[W]e must consider that there may not be any 'demonstrations to count'…[B]ut there will be new generations of students, leaders, teachers, development workers, and community elders who have been touched in one way or another by the movement and its cultural production (Alvarez et al. 1998: 16).

The very selection of the theme and substantive focus of this paper by the present writer tilts towards the second reading of the Maithili language movement, albeit, on different theoretical grounds, 'where social movements' political interventions extend into and beyond political society and the state'. It calls attention to 'the cultural practices and interpersonal networks of daily life that sustain social movements across mobilizational ebbs and flows and that infuse new cultural meanings into political practices and collective actions' (ibid: 14). The richness of the literary output in Maithili, the publication and circulation of literary journals like *Antika*, the new sense of linguistic solidarity and cultural activism being found in the migrants from the region and the use of the already existing institutional space to further and consolidate them, all point towards a new configuration of the movement.

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Primary Education and Language in Goa: Colonial Legacy and Post-Colonial Conflicts*

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Abstract

Languages are a privileged means of social, economic and political mobility. In multilingual countries, like India, they are functionally distributed and the relationship among the different language categories, viz. official language, mother tongue, etc., is hierarchical. Mother tongue languages evoke strong emotions. However, socially less prestigious mother tongues are often discarded in favour of languages useful for social and economic advancement. The language shifts at home, school and other spheres are determined by the social, cultural and political contexts.

This paper examines language shifts in the context of primary education and language in colonial and post-colonial Goa. The language shifts and the consequent controversies in Goa are manifestations of two opposing forces: the instrumental draw of language assimilation and the primordial pull of language preservation. The latter regard language shift as pathological and ubiquitous; the former view it as perfectly normal.

Introduction

Goa joined the linguistic states of India on May 30, 1987, with Konkani, the mother tongue of 95 per cent of the Goans, as its official language. According to UNESCO, 'ideally, the medium of instruction for a child living in its own language environment should be the mother tongue' (quoted in Pattanayak 1998: 134). In Goa, however, due to the anti-Konkani colonial policy, not many Goans could study in Konkani-medium schools for the last few centuries as there were hardly any such schools. In post-colonial Goa, English and Marathi dominated the educational scene, especially at the primary level. Till 1990, when the Progressive

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Democratic Front (PDF) government in Goa introduced the new educational policy, Goans studied either in Marathi or English medium, not in Konkani, except for a few Konkani '*mogis*' (lovers), who enrolled their children in the few Konkani-medium schools. The 1990 education policy, while providing grants to all primary schools conducted in regional languages, denied any State aid to English-medium primary schools which, however, were attended by as many as 40 per cent of the primary school children in Goa.

This paper attempts to examine the present conflict of primary education and language in Goa, in the context of the language and education policies of the erstwhile Portuguese regime and the language-based politics of the post-colonial era. The socio-cultural and political context of the language policy in primary education followed by successive governments as well as the reasons behind the choice of language during primary education by different sections of the Goan populace at different moments in history have been analysed. An attempt has also been made to explain the issues and problems surrounding the medium-of-instruction controversy, which dogged the educational scenario in the state a dozen years ago. The relevant literature available on the topic, since Portuguese times, is examined and analysed, in the context of the overall educational system, and the important aspect of multilingualism, in India.

Multilingualism in India

India is a socio-linguistic giant. It has been a multilingual country for millennia, and since independence a multilingual nation. Its multilingualism includes more than 1,600 mother tongues, reducible to 200 languages belonging to four language families: Indo-European, Dravidian, Austro-Asiatic and Sino-Tibetan. Besides being demographically multilingual, the country is also functionally multilingual — forty-seven languages are used in education medium, eighty-seven in print media, seventy-one in radio, and as many as thirteen languages in films and television. In the domain of administration, there are two official languages at the central level, and more than twenty official languages at the state level.

The functional distribution of languages is not static. Social and political formations determine the relative status and power of languages, which are derived from access to resources of the State and the rewards the speaker hopes to obtain on acquisition of a particular language. Multilingualism, then, more than the presence of many languages in a country, involves a relationship between the many languages, which may be decided culturally by the individual, socially by the community, and politically by the State. At the political level, it is reflected in the language categories used in India, viz., mother tongue, minority languages, tribal languages, regional languages, scheduled languages, official languages, and national languages. The relationship between the many languages is more hierarchical as the languages

used in administration and education provide greater access to power and status than others. The relationship, therefore, turns out to be a pyramid rather than a mosaic.

In India, linguistic minorities have maintained their languages for centuries. The eighteen languages listed in the VIII Schedule of the Constitution have been declared by 95.58 per cent of the Indians to be their mother tongues (see Annamalai 2001: 77). At the state level there are majority languages whose population may vary from 96 per cent (Kerala) to 63 per cent (Manipur). The majority languages are often made the official languages of the state. But there are states where the official language is not the majority language of the state (as Urdu in Jammu and Kashmir) or is not the mother tongue in the state at all (as English in Nagaland). The linguistic states also have multilingualism as a shared value but, often, political reasons make the official language symbolise the state. The official language, promoted as a cultural institution and a symbol of the people of the state, marginalises the other languages in the state, leading to linguistic tensions and conflicts. Any discussion on mother tongue, then, should take into account not only the language dynamics of the nation-state but also the socio-economic and politico-psychological make-up of the region.

Secularism and linguistic secularism are ideals envisaged by the Indian nation-state in its Constitution. The Constitution 'under the Fundamental Rights, Article 29(a) provides the right for any section of the citizens to conserve its language, script or culture. Article 30 provides the right for the linguistic minorities …….to establish and administer educational institutions' (Annamalai 2001: 127).

> 'The Constitution does not stipulate that the educational institutions maintained or supported by the state should teach the minority language or give education through it to students speaking a minority language. It is to be done by the educational institutions established by the linguistic minorities which of course are protected by the Constitution to get aid from the state.' (Ibid.128).

Further, as quoted in Annamalai,

> 'The VIII amendment introduced in 1956 as Article 350A, enjoins upon the state "to provide adequate facilities for instruction in the mother tongue at the primary stage of education to children belonging to linguistic minority group." The significance of this amendment is that the use of minority mother tongue in primary education is stipulated for the sake of education….' (Ibid.128).

Multilingualism, today, has become an essential part of the school curriculum. The educational policy, starting from the last phase of the colonial period, has adopted a three-language formula (TLF). The three languages are the regional language (or the official language of the state when the two are different) (Ibid.140), Hindi and English. In Hindi-speaking regions, there is a special

recommendation in TLF to teach a modern Indian language other than Hindi, preferably a south Indian language. The three languages are taught as first, second, and third languages, and under each category one can choose from a number of languages. The TLF does not explicitly state which language should be taught as first, second or third language. The social, political and economic organisation of India, however, has been undergoing fundamental changes since Independence, and this has influenced the choice of languages as upward mobility and access to greater resources and power can be obtained through acquired characteristics like language.

Mother Tongue and Identity

In the words of Dominique Arel (2002: 114–15),

> 'Language is a potent force in nationalist politics, since it simultaneously acts as a symbol of identity, a privileged means of social, economic, and political mobility, and a claim to territory. In the modern era, "mother tongue" can either evoke strong emotions or be discarded in favour of another language deemed better suited to increase one's life chances.'
>
> '"Mother tongue", as with all identity categories on the census, can actually be interpreted in diametrically opposed ways.' (Ibid.99). The United Nations defines mother tongue as 'the language usually spoken in the individual's home in his early childhood' (quoted in Ibid. 99). '"Mother tongue", however, can also be interpreted as the language one speaks best as an adult, when the census is conducted, rather than as a child.' (Ibid.99).

D.P. Pattanayak examines the issue from the Indian perspective in his article, 'Mother Tongue: An Indian Context'. (Pattanayak 1998: 125–32). According to him, the concept of mother tongue has been taken for granted and not examined carefully. In the 1881 census, mother tongue was defined as the language spoken by the individual from the cradle. A decade later, in the 1891 census, the term was changed to 'parent tongue'. In subsequent censuses of 1901 and 1921, parent tongue was replaced with 'language ordinarily used'. In the censuses from 1931 to 1971 the term mother tongue was used. In the 1951 census, mother tongue was again defined as the language spoken from the cradle. Mother tongue, according to the 1961 census, meant the language spoken in childhood by the person's mother. This definition, particularly in the Indian context, can be inadequate and misleading as, in the patrilocal families, it is usually the father's dialect that dominates, and the child grows with it.

For some scholars, mother tongue would be that language learnt without formal training. In the multilingual context the primary socialisation or the intimate socialisation of the child involves multiple languages, which would imply more than one mother tongue. It becomes difficult to treat one of the languages, thus

acquired, with precedence. Albert Schweitzer, fluent in Latin, Greek, French, and German, wrote,

> 'My own experience makes me think it only self-deception if anyone believes that he has two mother tongues. He may think that he is equally master of each, yet it is invariably the case that he actually thinks only in one and is only in that one really free or creative…'(quoted in Pattanayak 1998: 129).

Further, the 1961 census records *Teli* (caste), *Haridasi* (sect), *Bilaspuria* (place), *Gawari* (rural), *Pardeshi* (outsider), as responses to the query of mother tongue. These responses can at best be considered an assertion of group identity or some indication of attitudes. Announcing one's mother tongue is like choosing one's identity from among many. One's mother tongue cannot be defined by one's creativity as there are writers creating literary masterpieces in languages other than their mother tongue. For D. P. Pattanayak, the emotional identification with a language also does not provide a steady defining criterion. Mother tongue has also been defined by one's language use in intimate domains like counting, swearing, naming kitchen utensils, etc.

Distinction must also be made between mother tongue and native language. The notion of 'native' is opposed to 'foreign', that is, any language transplanted from a foreign country within recent memory. English is considered to be a foreign language even though it is the mother tongue of two million Anglo-Indians, the official language of two states, and associated official language of the union.

Pattanayak also stresses the need to differentiate between mother tongue and L1 (first language). These may not be the same always as L1, L2, and L3 refer to the serially ordered list of languages formally acquired in school. For instance, in Nagaland, where none of the mother tongues is a medium of education, L1 refers to a language other than the mother tongue and this is the case of linguistic minorities in other states also.

Thus, mother tongue is an elusive concept which is difficult to define precisely. After looking at the many interpretations of the label 'mother tongue' and the problems associated with such interpretations, Pattanayak writes, 'mother tongue is both a socio-linguistic reality and a product of the mythic consciousness of a people. It provides social and emotional identity to an individual with a speech community.' (Ibid.132).

As we have already noted, India's multilingualism includes 1,652 mother tongues (1961 census) but they are not languages in a grammatical sense. They may include, besides languages, dialects, names of villages, castes, occupations, etc. Probal Dasgupta, in the introduction to 'Managing Multilingualism in India', 'underscores the technical term status of the mother tongue, the language name that a speaker offers to a census enumerator, a name that often marks identity rather

than realities of linguistic usage.' (Annamalai 2001: 14). For instance, one can find a Marathi Muslim claiming Urdu as mother tongue without knowing a word of it. Thus, often, '"mother tongue" reflects less the language of an individual than the language of the nation to whom the individual is supposed to belong' (Kertzer and Arel 2002:27).

Against this background we shall look at the question of language and primary education in Goa. In what follows, we will briefly describe the relationship between primary education and language from Portuguese times to the present day.

Primary Education and Language During the Portuguese Period

Prior to the Portuguese conquest of Goa, there were in Goan villages, village schools, called *patshalas*. According to George Moraes, 'There was no village but had a school be it in the shade of a grove or in the porch of the temple where the children were exercised in the three R's' (quoted in D'Souza 1975). The teachers in the school were called *Sinais* or *Xennoy* or *Shenvi Mama*. The *Sinais* or *Shennois* would teach in vestibules of temples, porches of big residential houses and verandahs of village administrative offices. The medium of instruction was Konkani, the mother tongue of Goans, and it was written in Kannada script. Marathi was used in Goa only in the late fifteenth century when the Sultan of Bijapur ruled Goa. The Sultan even recognized Konkani as the official language of the state. (Coutinho 1987: 153) Besides the *patshalas*, there were *agraharas*, *brahmapuris* and *maths* (See Pereira 1979). The *agraharas* were a kind of 'studium generale' or universities of medieval India wherein were taught Arts, Sciences and Religion. Other subjects like music, rhetoric, mathematics, logic, politics, etc., also, found a place in these institutions. *Brahmapuris* were Brahman Colonies established near the towns, for the purpose of running educational institutions. They were the meeting places of cultured Brahmans well versed in Vedas, Puranas, Smritis, etc. *Maths* or monasteries taught religion and sacred art. The Portuguese conquest in 1510 sounded the death knell of the Konkani educational institutions. The Portuguese carried on a planned and systematic annihilation of the Goan mother tongue and the educational institutions that fostered the growth and development of the language of Goa, Konkani. According to T.B. Cunha, from the very beginning all Konkani schools were closed to make place for the Christian languages, Latin and Portuguese. (Coutinho 1987: 154).

After the Portuguese conquest, as the number of Christians increased, churches sprang up everywhere with a parochial school, successor to the former *patshalas*, attached to it. These came into existence as a result of a decree by John III, king of Portugal, dated March 8, 1546. (Ibid. 73) The purpose of these schools, financed and supported by village communities, was to teach Christian doctrine,

impart moral instruction and cultivate artistic tastes in the students. The teachers were required to teach the students reading and writing so as to facilitate their reading of the catechism books. The medium of instruction followed in these schools was compulsorily Portuguese, but local language was also used, as the teachers were not well versed in Portuguese and perhaps because the students, too, did not understand the Portuguese language.

The attitude of the Portuguese government towards the Goan language changed remarkably in the latter half of the sixteenth century as it realised that persuasion rather than force was necessary to facilitate the process of conversion and promotion of Christianity in Goa. Persuasion meant that the Portuguese give up their antagonism to Konkani of the indigenous culture. Priests posted in parishes had to be conversant with Konkani. This period witnessed a revival of Konkani, though for a short time. The Holy Spirit College built by the Jesuits, around this period, had a primary school attached to it, which had two sections: one where Konkani was taught and the other where the medium was Portuguese. 'By 1608 there must have been at least fifteen Jesuit schools in Goa where Konkani was taught' (Almeida: 2000), as Salcette parishes were served by Jesuit priests and every parish had its own school. Whatever progress these schools may have made came to an end with the expulsion of the Jesuits. Some of the important books published during this period were: *Christian Doctrine* by Fr. Thomas Stephens, *Arte de Lingua Canarim* by Fr. Thomas Stephens (1640), *Miracles of Saint Anthony* by Fr. Antonio Saldanha (1614), *The Divine Soliloquies* by Joao de Pedroaza (1660). However, the bright interlude was short-lived. Priolker writes, 'The literary movement suffered a gradual decline during the 2nd half of the 17th century and came to an end by the close of the century.' (quoted in Coutinho 1987: 158).

On June 27, 1684, the Viceroy, Conde de Alvor, decreed, 'I assign three years as a period within which the Portuguese language ought to be studied and spoken.' (Ibid.160). In 1745 Archbishop D. Lourenco de Santa Maria made knowledge of Portuguese compulsory to enter into the sacrament of matrimony. (Ibid.161)

This language situation changed with Marquis de Pombal (1749–77). 'The first subject should dwell on the languages of the places where we have churches and missions' (Varde 1977:22), decreed Marquis de Pombal whilst setting up the college of natives. In 1772 Marquis de Pombal, attempting to overhaul the system of education, created two posts of teachers of Reading and Writing (Magister Regius) in Goa. This was the forerunner of Government primary education, or the public schools, as primary education till then was carried on in parochial schools. But, after Pombal, the Governor, Veiga Cabral, on the pretext of poor attendance and inefficiency, discontinued the public school system and primary education was reverted to the parochial schools. As a result of this policy, public education was in

the doldrums. Governor D. Manuel de Camara, in 1823, writes of the disastrous effects of the policy: 'Public instruction here borders on nothingness. In a population of 2,60,000, not a single educational institution can be traced….' (Ibid.7).

Very little was done in the field of education till 1836, when a New Education Policy was introduced in Portugal and extended to Goa and other colonies. The provisions of the policy were actually implemented in Goa only in 1841. A primary school was set up in each village, thereby minimising the importance of parish schools. Parish schools could function only in areas where there were no government schools. Consequently, the number of parish schools was reduced from 49 to 25 for the Old Conquests (Ibid. 8). The New Conquests also benefited as six Portuguese primary schools were established during this period and they exempted non-Christians from religious instruction. The decrees of 1844 and 1845 encouraged privately sponsored institutions of primary education in Goa, and by 1869, there were 112 primary schools. Of these, 37 were government primary schools, whereas 75 were managed by parish schools or by other non-governmental institutions. Only 16 were located in the Novas Conquistas (See D'Costa 1982). The total enrolment in all these schools was a meagre 6,124 in a population of 3,85,000 (Varde 1977:12).

This meant that education, in general, and primary education, in particular, was far from satisfactory. Local Inspection Boards, created by the decree of November 30, 1869, pointed to a number of limitations in the educational system, one of them being the difficulty in promoting education and Christianity through a medium of instruction other than the local language. The Board quoted the then Commissioner of Instruction, Cunha Rivara, in support of its position. 'As a new language can only be learnt by comparison of its mechanism with that of the mother tongue, Concani language should be made a starting point to teach the Indians any other language.' (quoted in Ibid.13). Accordingly, an order dated July 10, 1871, converted the existing Portuguese primary schools into mixed schools, teaching Portuguese and Marathi. No Konkani medium schools were set up, as there were no books in Konkani. Fr. Joao de Albuquerque, the first bishop of Goa, writing a letter on November 28, 1548, recounts his conscientious efforts to collect books written in Konkani, the language of the pagans, with the sole purpose of destroying them. Even twenty years later, that is, in 1889, the baron of Cumbharjua, who was entrusted with the task of writing schoolbooks in Konkani, did not, for some reason or the other, fulfil the task.

Marathi-medium schools did exist in Goa during the pre-Portuguese period, but it is believed that they were confined to the areas bordering the state of Maharashtra. (Coutinho 1987: 162–3). The Portuguese regime benefited Marathi schools and Marathi, as it divided the Goan community on the basis of religion and culture. Christianisation of Goans meant westernisation of the converts and

persecution of the non-converts, Hindus. The Hindus were the less privileged, alienated from the mainstream Goan life and rendered third-class citizens in their own land. While some Hindus migrated to the neighbouring states, those who stayed back suffered social, economic and political hardships. 'By insisting on Goa's being Catholic and Portuguese, the colonial rulers forced the Hindus ever further towards glorifying the past and adopting the regional culture of neighbouring Maharashtra. The same process prevented the Goan Catholic elite from recognising its own Indianness…' (Newman 2001: 59). As a result of this 'Many Goan Hindus came to define themselves as Maharashtrians, Marathi speakers, while many Goan Catholics thought of themselves as western, Portuguese speakers or non-Indians' (Ibid.59). Also, as Row Kavi wrote in 1987, 'Hindus, who had, by then retreated to the hinterland, brought in Karada, Deshasth and Konkan Brahmins from Maharashtra to teach their children in Marathi.'(quoted in Noronha 1999: 46). Thus, educated Hindus turned to Marathi and 'identified (themselves) with the ancient and intricate traditions of neighbouring Maharashtra.'(Newman 2001: 58–59). But, 'the majority of Goans, Catholic and Hindu, remained untouched by questions of language and westernisation. They simply lived in their traditional way, speaking Konkani, within a common socio-economic system, with similar and overlapping religious beliefs and worldview.' (Ibid.59).

By the end of Monarchy (1910–11), there were 105 government schools — 88 were Portuguese, 7 Marathi, and 10 Gujarathi schools. By 1915 the number of government schools had increased to 141: 122 Portuguese, 8 Marathi-Portuguese, and 11 Gujarathi-Portuguese. (Varde 1977: 49). The Education Draft Plan of 1920 of the Governor, Dr. Jaime de Morais, provided for two types of primary schools: General Primary Education and Rural Primary Education. The medium of instruction in the rural schools was the regional language, but efforts were made to teach Portuguese gradually. The General Primary Schools had Portuguese as the medium of instruction. Even in these schools regional language could be used as an auxiliary medium. The award of Primary School Certificate, however, depended on the proof of his/her ability to speak Portuguese.

In 1920–21 the total number of primary schools had gone up to 244. Besides the 141 government primary schools, there were 37 Portuguese-medium private schools and 66 Marathi-medium private schools (Ibid. 88). In fact, there was a tremendous increase in the enrolment figures during the Republican period, which created additional educational facilities and encouraged both Portuguese and Marathi-medium private schools. However, enrolment in Portuguese medium began to dwindle soon, and Marathi and English-medium private schools began to attract pupils in increasing numbers. Marathi, because it catered to the cultural and religious needs of the Hindus, who identified themselves with Maharashtra and its music, poetry, and arts, and the exploits of Shivaji and saints like Tukaram and

Ramdas. English, also, was gradually becoming popular. The desire to emigrate to India or the outside world attracted many towards English education. Prior to liberation, there were, also, several Konkani-medium schools established by Pilar Society in Sanguem Taluka, some of which are still functioning today.[1]

Primary Education and Language (1961–90)

After liberation, efforts were made to review the educational system, and to make it conform to the one generally followed in the country. A step in this direction was the appointment of a committee, under the chairmanship of Mr. B. N. Jha, by the Government of India. The committee was entrusted with the task of thoroughly reviewing the educational system in Goa and to make recommendations for its integration with the one prevailing in the rest of India. Some of its important recommendations were: 1) the medium of instruction at the primary level should be the mother tongue. 2) A minimum of twenty students was required to open a school division in a particular medium. 3) Konkani, if chosen, had to be in Devnagri script. 4) Primary education had to be made free and compulsory for all children between the ages of six and eleven.

With liberation, enrolment in government primary schools experienced a phenomenal increase. This could be due to the availability of free education and that in the local language. Availability of free primary education, inadequacy of the grant-in-aid code for private primary schools, the higher wage aspirations of private primary school teachers after liberation, opening of new schools, etc., led to the decline of private schools. Many of these private schools had to be closed down for want of funds; others were converted into government schools.

The colossal expansion in primary education is reflected in the increase in the number of government primary schools from 176 in 1961–62 to 601 in 1962–63. Enrolments shot up to 55,202 from only 17,028 in the year of liberation. In about two decades, that is, in 1980–81, the number of schools was 1,218. In this year 'the medium of instruction in the government primary schools was Marathi in 726 schools; English and Konkani in 38 schools; Marathi, English, and Konkani in 29 schools; Marathi and English in 45 schools; and in the case of non-government primary schools the medium of instruction was English in 35 out of 48 schools.'[2]

Arthur Rubinoff, commenting on the construction of political community in Goa, writes, 'In situations where democratic politics begin in a vacuum, as was the case in Goa, the emergence of communally based issues becomes an integral part of the political landscape' (Rubinoff 1998: 85). He further writes: 'such issues offer political leaders the promise of a secure basis of support' (Ibid.85). As such, in March 1963, Maharashtrawadi Gomantak Party (MGP) was founded, which took 'an anti-Konkani, caste and religion-based mergerist position designed to wipe Goa from the cultural and political map' (Newman 2001: 66). The communalist

polarisation was begun and propagated by the MGP. (Ibid.66). The MGP further believed that the language of Goa was Marathi and dismissed Konkani as only a dialect of Marathi. The MGP's communal and merger campaign was successful, as is evident from the results of the 1963 assembly elections wherein the MGP, and its allies, drawing its strength from the predominantly Hindu New Conquest, garnered over forty per cent of the popular vote and won sixteen assembly seats. 'The communal pattern was established in Goan politics for the next decade for ….. the ethnic politics axis preempts other issues from emerging' (Rubinoff 1998: 90). The MGP continued in office till 1980.

From 1963 to 1980 the MGP did nothing to develop Goa's long neglected language, Konkani, but quietly went about setting up as many Marathi schools as possible. Pratap Singh Rane, who was the education minister during Smt. Shashikala's reign and who succeeded her as chief minister, continued the educational policy he pursued earlier. 'Without realizing, the Maharashtrawadis had already quietly, silently, insidiously, surreptitiously, deviously taken over the education in the state.[3] Almost all Marathi schools owe their existence to the government policy of the 60's.'[4] Goans themselves did not favour Konkani as a medium of instruction; most preferred English or Marathi. Some efforts to revive Konkani education, in 1965, are worth mentioning here. That year, Loyola High School, Holy Spirit School and two other convent schools in the city of Margao started Konkani-medium primary sections in their schools. Konkani Bhasha Mandal helped train teachers and produce a series of textbooks for the purpose. In two schools at least, Loyola and Holy Spirit, primary section in Konkani medium lasted eight years. Later, Konkani Bhasha Mandal, too, started a primary school of its own, which is still functioning efficiently. Apart from the Margao Schools, some time later, two other primary schools taught in Konkani medium and have continued till date (Almeida 2000).

In 1986, *The Hindu* wrote, 'Though 90 per cent of the people of the territory speak Konkani, more than 60 per cent of the Hindus have enrolled their children in Marathi-medium schools. Konkani protagonists have no compunctions about sending their children to English-medium schools. There are no takers for Konkani-medium schools.'[5] In 1986, for instance, 'out of 1,537 primary schools in Goa, only 15 used Konkani, while 984 were conducted in Marathi, the other 538 being mainly in English or Urdu.'[6]

The Konkani language was given official status in Goa on February 4, 1987. 'After centuries of suppression by the Portuguese and 25 years of neglect by Goan government, Konkani ascended to her rightful throne at last.' (Newman 2001: 71). Some months later, on May 31, 1987, Goa became a full-fledged state with Konkani as its official language. In the last few centuries, Konkani language and literature has flourished. 'Today, Konkani possesses considerable literature of all

varieties. Ravindra Kelekar's collection of 400 Konkani publications of high literary standard is enough evidence to prove. Further, Stephen's Konkani Grammar is the first grammar of any Indian language, which was published as early as 1640' (Saksena 1974: 41). There are about twenty-seven grammars and thirty dictionaries in Konkani. J.A. Fernandes, B.B. Borkar, Prof. Ram Chandra Naik, Ravindra Kelekar, Felicio Cardozo, E. George, Fr. Agnelo Maffei S.J., Manohar Sardessai, R.V. Pandit, etc., by their writings, 'have proved that Konkani is an independent and mature language which can adequately express all nuances of thought and feeling in prose, poetry, plays and in music.' (Ibid.41). However, neither Hindus nor Catholics have favoured Konkani as a medium of instruction. They seem to have preferred another language, English, for the earlier colonial Portuguese, and adopted a neighbouring regional language, Marathi, instead of their mother tongue.

The New Education Policy (1990) and the Medium of Instruction (MOI)

Three years after the official language agitation, Goa was caught up in another linguistic imbroglio. 1990 was the year of political instability: defectors, forming an unholy and unprincipled alliance, the MGP-dominated Progressive Democratic Front (PDF), toppled Rane's ten-year-old administration. The PDF ministry adopted a policy decision on May 15, 1990, making it mandatory for primary schools to teach only in the mother tongue of the child. It refused grants-in-aid to those English schools which did not switch over to the regional language, Konkani or Marathi, thereby compelling schools to abide by the policy.

The medium-of-instruction controversy is an unexpected fallout of the High Court ruling in November, 1987, which stated that teachers in all private, non-aided primary schools would have to be paid salaries at par with government schoolteachers. Three months later, The Tenth All India Konkani Writer's Conference, held in Pednem, on February 17 and 18, 1990, passed a resolution that the Goa government should take steps to impart pre-primary and primary education only in the mother tongue, Konkani, and that no grants be given to private schools that harm children by thrusting on them primary education in alien languages, especially English. Absence of financial assistance from the government was acceptable so long as the management of the private schools was not compelled to pay their staff at government scales. The managements of Catholic schools in Goa were the most affected by the government's policy. Over forty per cent of the children in primary schools studied in English medium in 1989–90.[7] These children and their parents were placed in a predicament. On the one hand, while the Konkani protagonists welcomed this decision, those who desired English education for their children protested determinedly. A prolonged agitation rocked Goa for over two months. Goa was caught up in a language-based conflict, which, as Dominique

Arel would put it, 'can occur whenever *both* the primordial pull of language preservation and the instrumental draw of language assimilation divide a speech community' (Arel 2002: 115).

Rubinoff writes, 'In the face of a challenge by the nationalist Bharatiya Janata Party (BJP) to its Hindu base, the MGP began emphasizing its regional identity.' (1998: 121). The blatantly discriminatory measure of denying grants to English-medium schools by Smt. Shashikala Kakodkar, Education Minister in the MGP-dominated PDF government, should perhaps be seen in this light. The moot question is whether the pro-Marathi Education Minister was really interested in changing the medium of instruction at the primary level to the mother tongue as per the national policy, or whether it was plainly a renewed attempt at 'Marathification' of Goa by giving a fresh lease of life to the Marathi schools, which were already losing their students to English-medium schools at the rate of approximately 2,000 students per year.[8] The total number of students in all Marathi-medium schools in 1980–81 was 78,607; it was reduced to 58,310 in 1989–90.[9]

The decision of the government to provide financial aid to regional languages — to Konkani, the official language, and to Marathi, and to deny it to schools imparting education in English, the official language of the Union, was a political one,[10] meant to 'denigrate that language (English) and enhance Marathi.'[11] Politicization of education is not unique to Goa. 'Language policy in education in India has been more a political bargain and choice than of academic requirements and practical considerations.' (Jayaram 1993: 93–94). Planned and implemented under the direction of the Marathi protagonist, Smt. Shashikala Kakodkar, the policy certainly did not consider the furtherance of Konkani, the official language of the state and Konkani schools, but intended to maintain the status quo, that is, 'the historical accident of the stranglehold that Marathi acquired over Goa by virtue of the fact that Portuguese colonial regime suppressed Konkani and actively discouraged the setting up of schools in Konkani.'[12] That Konkani also benefited in the bargain is another story altogether.

The PDF government's audacity, haste and intransigence with which it pushed through the policy, changing the medium of instruction to the regional language, at the same time denying grants to English-medium primary schools, forced the managements of 119 Catholic schools under the Archdiocesan Board of Education (ABE) to protest and challenge the policy and seek grants for its many schools. Initially, the Church-run schools agreed to the change of medium of instruction but demanded postponement of the policy by a year for better implementation of the policy as teachers were not equipped to teach the language and other infrastructural preparations were required. With this decision 'the church was pitted against the pro-English medium parents, some of whom took out vociferous protest marches.' (Noronha 1999: 51). ACMI (Action Committee for

Medium of Instruction) came to be recognised as the representative body of parents. The secretary of Diocesan Society of Education (DSE) himself assured ACMI that their views would be considered before taking a final decision on the medium of instruction.[13] Later, the ABE did modify its stand about switching over to Konkani medium from the following academic year, as is clear from the Archbishop's circular. 'But in the changed circumstances ……. It is obviously not possible to give any firm commitment of accepting the responsibility of necessarily changing the medium of instruction from the next academic year.'[14]

It must be noted that language is a fluctuating marker. While in 1987 people fought to enthrone *Konkani Mai* onto the throne of 'official language', three years later the same people wanted to retain English as a medium of instruction at the primary level and, as the survey indicates, even today desire to educate their children through English medium schools at the primary level. As Dominique Arel writes,

> 'People often add languages to their linguistic repertoire, and might experience a shift in their "private" language (the language they feel most comfortable with) during their lifetime or, more commonly, might have children whose private language differs from their own. Nationalists portray this linguistic assimilation as forced, unnatural, and fundamentally illegitimate, the result of destructive policies by the "imperialist" state. Yet, from a comparative standpoint, linguistic assimilation is a "normal" occurrence: not in the sense that most people assimilate, but in that, in most national groups whose language is socially less prestigious, and therefore less useful for social advancement, there are individuals who choose to assimilate.' (Arel 2002: 93).

The protest movement continued till the end of August 1990, but slowly died down. After about four months, the Archbishop brought out one more Circular, which settled the MOI controversy. 'After deliberations with relevant bodies of the church like ABE, DSE, DPC (Diocesan Pastoral Council), Diocesan Council of Priests, discussions dealing with relevant aspects and implications of the issue under reference…we have decided that Konkani will be the medium of instruction at the primary and pre-primary level, starting from June 1991 in our Church-run schools.'[15] Whatever the outcome of the medium-of-instruction controversy, the voice of the people seems to have been throttled as the policy ignored the educational reality of the time, and struck a death blow to the very schools that were most popular in the state. It underscored 'the cultural fact that the majority of English-medium educated parents of the post-liberation era both in north and south Goa would by all means prefer their children to study in English-medium schools.' (Martins 1990). These parents had spoken to their children from childhood in English to enable them to master the language of basic and higher education, and that of status and upward mobility.

Earlier, 'Socially, social stratification based on caste… Economically, the feudal and agrarian form of economic system did not provide for upward economic mobility by language choice or other means.' (Annamalai 2001: 69). But since liberation and democratic polity, industrialised economy and Constitutional provisions of equal opportunity to all segments of society, there is greater scope or at least hope for various sections of society for upward mobility and access to power and resources through acquired characteristics including language. The policy deprived these sections of society of the equal opportunity to education in the language of their choice. It meant that the provision made under Part IV of the document 'National Policy on Education 1986' dealing with 'Education for Equality' was overlooked, as it had said that 'The new policy will lay special emphasis on the removal of disparities and to equalise educational opportunity by attending to the specific needs of those who have been denied equality so far.' The policy adopted an ostrich-like approach to the fact that English is the mother tongue of several children in Goa or at least that it is the language mainly spoken in many households. The National Policy on Education 1986, in its Programme of Action 1992 under Minorities' Education, stated that 'It shall be the endeavour of every state and of every local authority within the state to provide adequate facilities for instruction in the mother tongue at the primary stage of education to children belonging to linguistic minority groups'. The Education Policy of the Goa government failed to incorporate this important provision, thereby disregarding the educational needs of the children from the English-speaking households whose mother tongue may be said to be English.

Review the Policy?

By the end of this academic year, 2001–02, the medium-of-instruction policy will have completed a dozen years since it bulldozed many schools to adhere to its dictates. No government since 1990 has attempted to re-examine and redraft the policy lest it stir up a hornet's nest. An opinion survey conducted among an unsystematically selected sample of 810 people from two talukas (310 from the New Conquest taluka, Quepem, and 500 from the Old Conquest taluka, Salcete), to understand the attitudes of parents vis-à-vis the medium-of-instruction policy, after a lapse of nearly a dozen years since its implementation, unearths some interesting facts. The two talukas were selected considering the time and feasibility aspects and also the fact that Goa is divided into Old Conquests, which have more Catholics, and New Conquests, which are sparsely populated and overwhelmingly Hindu. The respondents belonged to a cross-section of the population of the two talukas and included housewives (268), teachers (106), 'service' (103), 'business' (77), labourers (24), doctors (15), tailors (17), farmers (14), drivers (14), seamen (14), clerks (12), nurses (8), fisherwomen (5), mechanics (4), servants and peons (4),

sweepers (3), carpenters (3), and toddy tappers (3). Of the 310 respondents from Quepem Taluka (less than 0.5 per cent of the total population of Quepem taluka, which stands at 64,518), 151 persons were Hindus, constituting as much as 48.70 per cent of the sample population. Christians numbered 136 and Muslims and others 24, forming 43.87 and 7.74 per cent of the sample respectively. Salcete, though smaller in area (by 25.31 sq. kms) than Quepem taluka, is densely populated with a population of 2,19,897 persons. The study is based on the sample of 500 persons, less than 0.25 per cent of the total population of Salcete. The sample comprised 347 Christians, 123 Hindus, 25 Muslims and 5 persons of other religions, constituting 69.4, 24.6, 5 and 1 per cent respectively of the total sample population.

The following tables show the distribution of sample population according to mother tongue, language spoken to the child from childhood, desired medium of instruction, opinion on the allocation of grants-in-aid to schools in different media and enrolment or intent of enrolment of children in schools conducted in different media.

The tables reveal that 78.51 per cent of the sample population claim Konkani as their mother tongue. Comparatively very few have declared Marathi (8.27 per cent), Hindi (4.81 per cent), and English (3.58 per cent) to be their mother tongue. The sample, apart from Urdu, Malayalam, Kannada, Tamil, and Gujarathi mother tongue speakers, also includes some who claim to be bilingual (English/ Konkani; Konkani/Marathi; English/Marathi; English/Hindi; Hindi/Marathi; Urdu/ Hindi), and trilingual (English/Konkani/Marathi).

A closer examination of the data regarding the language spoken to the child from childhood and the declared mother tongue reveals that the percentage of Konkani-speaking persons has decreased by roughly 16 per cent and that of English-speaking persons has increased by 12 per cent as compared with the declared mother tongue percentage. Besides, there are, certainly, a number of respondents, a few of whom are personally known to the author, who have declared Konkani as their mother tongue, despite having spoken English in the household all through their life. These respondents, and many others, who may have done likewise, feel they betray their 'Goanness', when they declare any language other than Konkani as their mother tongue. This is the case even when their parents have spoken to them in English from the cradle and are convinced that only English will equip their children to perform better academically and socially, enhance children's employment opportunities, and give children an edge over others in the competitive world. 'For many children of English-speaking parents the regional language is the grandmother's tongue' (Martins 1990). In these cases it seems more appropriate to say that Konkani is their grandmother's tongue, and English, the language spoken from the cradle and in childhood, their mother tongue. What happens if these parents claim to be a linguistic minority and declare English to be their mother tongue and demand State aid!

Table indicating distribution of sample population according to mother tongue, language spoken and medium of instruction desired

Language and Media	Mother Tongue						Language Spoken to the Child						Medium of Instruction Desired					
	Quepem		Salcete		Total		Quepem		Salcete		Total		Quepem		Salcete		Total	
	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P
English	9	2.90	20	4.00	29	3.58	27	8.71	103	20.60	130	16.05	182	58.71	349	69.80	531	65.56
Konkani	233	75.16	403	80.60	636	78.52	195	62.90	314	62.80	509	62.84	34	10.97	88	17.60	122	15.06
Marathi	40	12.90	27	5.40	67	8.27	32	10.32	29	5.80	61	7.53	68	21.94	35	7.00	103	12.72
Urdu	12	3.87	3	0.60	15	1.85	13	4.19	3	0.60	16	1.98			1	0.20	1	0.12
Hindi	11	3.55	28	5.60	39	4.81	9	2.90	23	4.60	32	3.95						
Malayalam	3	0.97	3	0.60	6	0.74	2	0.65	1	0.20	3	0.37						
Tamil	1	0.32	2	0.40	3	0.37			2	0.40	2	0.25						
Gujarathi	1	0.32	1	0.20	2	0.25												
Kannada			4	0.80	4	0.49			3	0.60	3	0.37			1	0.20	1	0.12
Eng/Konk			3	0.60	3	0.37	16	5.16	15	3.00	31	3.83	6	1.94	10	2.00	16	1.98
Eng/Mar													2	0.65	1	0.20	3	0.37
Eng/Port							1	0.32			1	0.12						
Eng/Hindi									1	0.20	1	0.12	1	0.32			1	0.12
Konk/Mar							14	4.52			14	1.73	3	0.97			3	0.37
Hindi/Urdu			2	0.40	2	0.25			2	0.40	2	0.25						
Hindi/Mar									1	0.20	1	0.12						
Eng/Konk/Mar							1	0.32	1	0.20	2	0.25	4	1.29			4	0.49
Not Resp.			4	0.80	4	0.49			2	0.40	2	0.25	10	3.23	15	3.00	25	3.09
Total	310	100	500	100	810	100	310	100	500	100	810	100	310	100	500	100	810	100

Table indicating respondents' opinion on grants-in-aid and enrolment in schools in different media

Language and Media	Grants to be given to Schools						Admitted/ Will Admit in Schools					
	Quepem		Salcete		Total		Quepem		Salcete		Total	
	F	P	F	P	F	P	F	P	F	P	F	P
All Media	184	59.35	378	75.60	562	69.38						
English	73	23.55	60	12.00	133	16.42	140	45.16	263	52.60	403	49.75
Konkani	23	7.42	35	7.00	58	7.16	41	13.23	99	19.80	140	17.28
Marathi	20	6.45	14	2.80	34	4.20	57	18.39	28	5.60	85	10.49
Urdu												
Hindi												
Malayalam												
Tamil												
Gujarathi												
Kannada												
Eng/Konk												
Eng/Mar												
Eng/Port												
Eng/Hindi												
Konk/Mar	1	0.32			1	0.12						
Hindi/Urdu												
Hindi/Mar												
Eng/Konk/Mar												
Not Resp.	9	2.90	13	2.60	22	2.72	72	23.23	110	22.00	182	22.47
Total	310	100	500	100	810	100	310	100	500	100	810	100

*Abbreviations: F - Frequency; P - Percentage.

The Document on the National Curriculum Framework for School Education (2000), in its section on Medium of Instruction, states that 'in the case of those students whose mother tongue is different from the state language or regional language, the regional language may be adopted as a medium only from the third standard onward. In the earlier years the students' mother tongue ought to be used in such a manner that a smooth transition from the students' operations in the mother tongue to those in the regional language naturally take place at the earliest.' In Goa, the Education Policy has made it mandatory to use the regional language, not English, from the first standard onwards in all schools aided by the government. Thus, children who speak English in their households and whose parents desire English education for their children have to pay hefty sums as fees in private schools or be forced to admit their children in schools where the regional language, which is not their household language, is the medium of instruction. These parents either make tremendous financial sacrifices, enrolling their children in privately managed schools, or send their children to government-aided schools where the regional language is as alien to the child as any other foreign language and, as mentioned earlier, emphasizes the importance of mother-tongue medium. The policy deprives these children of the necessary 'central factor behind the nurturance of the children's mental and emotional make-up'.

While the government has made primary education in regional languages free and accessible to all, the data indicate a pronounced preference for English-medium education, with 65.56 per cent favouring it as against 15.06 and 12.72 per cent preferring Konkani and Marathi respectively.

Further, an overwhelming majority (69.4 per cent) is of the opinion that grants should be given to all schools, irrespective of the medium of instruction. While 16.42 per cent opted for restriction of grants to English-medium schools only, and 7.16 per cent for exclusively Konkani schools, a lesser percentage, 4.19, were in favour of grants to Marathi-medium schools only.

In addition, the fact that 49.75 per cent of the respondents claim to have admitted or will admit their wards to English-medium schools as against Konkani (17.3 per cent), and Marathi-medium schools (10.49 per cent) confirms the trend towards English-medium primary education. Some respondents in Quepem taluka said that they enrolled their children in schools conducted in the regional languages, as there were no English schools in the vicinity. In 1994–95, the 13 English schools had 10,793 students while in 1999–00, the number of schools shot up to 37 and the enrolment has increased to 15,687. However, enrolment in Marathi schools, which was at 55,122 in 1994–95, has plummeted to 47,533 in 1999–00.[16]

The fact that there is an increasing demand for English education should persuade the government to reconsider releasing grants to all schools regardless of the medium of instruction.

Conclusion

Education is a fundamental right deriving from the right to good life. The State, committed to universal elementary education, has a special responsibility to ensure its realisation. Even in the erstwhile Portuguese regime, steps were taken to achieve the goal of compulsory enrolment. (Varde 1977: 80). One of the major achievements of the Goan government, since liberation, has been the rapid expansion of education in Goa. However, English and Marathi, and not Konkani, became the new languages of primary education in Goa, as many of the private primary schools run in Marathi or English before, were simply converted to government schools after liberation. Konkani was introduced in some schools, but most Goans were opposed to Konkani-medium schools and still are. There has been a widespread desire to study English, clearly the language of the future. However, in Goa and elsewhere, 'assimilating to another language, whenever language acts as one of the main markers for the group, is perceived as pathological and iniquitous by nationalist leaders.' (Arel 2002:99). And therefore, 'the "backward-looking" conception of a language-based identity, where the true identity is the one that allegedly prevailed before assimilation, collides with the "forward-looking" conception which can go as far as projecting one's language preference in the future.' (Ibid.115).

The government policy to provide grants-in-aid to regional languages came at a time when over 40 per cent of primary school students were studying in English-medium schools, and the parents were keen to have their children educated through English. As discussed earlier, the PDF new education policy was a political decision. Even twelve years after the education policy, introduced to further the interests of Marathi and Konkani, and to stifle English schools, the English schools have not died down but are mushrooming fast. Despite the exorbitant school fees and the consequent burden on the parents, enrolment is escalating rapidly. In fact, vernacular schools are losing out to English-medium schools both quantitatively and qualitatively as the few English schools can pick and choose their students, as there are a number of takers for the few English primaries. While there exists a strong preference for primary education in English, it seems that politics and politicians would rather ignore popular opinion and 'get away with extremely cynical manipulation of atavistic sentiment among people whose past is written in entirely different styles.' (Newman 2001: 268). In conclusion, it may be stated that while the promotion of Konkani education seems necessary from the viewpoint of maintaining Goan identity, objectivity demands a sensitivity to the changing social, cultural, economic and political aspirations of various sections of the Goan community.

Notes

1. *Navhind Times*, June 18, 1990.
2. The report of the committee for revitalization of the educational system of Goa, Daman and Diu.
3. *Herald*, May 24, 1990.
4. *Goa Today*, June 1990.
5. *The Hindu*, December 28, 1986.
6. *The Indian Express*, December 30, 1986, p.8.
7. *Goa Today*, June 1990.
8. *Herald*, June16, 1990.
9. *Goa Today*, July, 1990, and Educational Statistics at a Glance, 1980-81, Statistics Section, Directorate of Education, Government of Goa.
10. *Goa Today*, July 2000, pp.16.
11. *Goa Today*, July 1990, pp.12-20.
12. *Herald*, May 24,1990.
13. *Herald*, June 26, 1990.
14. Archbishop's Circular, July 24, 1990.
15. Archbishop's Circular, December 14, 1990.
16. *Goa Today*, September 1995, pp.59, and Educational Statistics at a Glance, 1999–2000, Statistics Section, Directorate of Education, Government of Goa.

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Inequality and Relative Poverty*

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The subject of inequality and poverty has engaged the attention of scholars for centuries. The ongoing debate and discussions reflect the serious concern of policy makers in India and the World Bank. As is well known, the various measures in use for measuring inequality and poverty differ widely in respect of their definition, data used, and the manner in which the 'poverty line' is computed. However, an attempt is made here to show that the concepts of *relative poverty* and inequality are interlinked, using a well-established theoretical model. A systematic updating of the existing estimates of inequality and poverty in India in the light of our analysis would be a rewarding exercise, which may yield useful results.

Inequality and Poverty

Generally, inequality refers to the uneven distribution of income and wealth as well as status and power. It is a common feature of all economies, irrespective of their stage of economic development, political system, social and cultural values. Inequality and poverty are closely linked concepts, arising from size distributions, and their inter-relationship can be analytically demonstrated by choosing a standard model of distribution of an economic variable, like income. Examination shows that policies designed to reduce inequalities are precisely those which will also serve as instruments to reduce poverty. Exploiting this basic idea, it may be possible to use a simple definition of poverty that is almost price-invariant. An outline of this new approach to measuring 'relative poverty' is indicated below.

Relative Poverty

Let us assume that the relevant economic indicator, such as per capita consumption in current prices or income of households, has been selected for classifying the sampled households in an ascending order from poor to rich. Let the distribution of the variable indicator, say X, be denoted by its probability density function, $f(x, \boldsymbol{q})$, where $\boldsymbol{q}$ is the vector of unknown parameters reflecting the shape of the size distribution. The mean (μ) and inequality (L) are functions of the elements of θ. One can take for the inequality the coefficient of variation C, or the Lorenz ratio (L), which are independent of the monetary units in which x has been expressed. Let us further assume that the poverty line (x^*) can be defined as a fraction of the

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mean of the distribution, i.e., $x^* = k\ \mu$, where k lies between zero and one. Here, k is arbitrary and may be left to be determined by a parliament decision. For example, k may be fixed as 0.50, so that whatever be the mean income or consumption, the relative poverty line is just half of that income or consumption. When rapid economic development takes place, the policy makers may fix a higher percentage of income as the poverty cut-off. The way of defining relative poverty has its own merits, particularly in the context of inter-country comparisons. It can be easily worked out from existing national income statistics, without depending on any additional data from the National Sample Survey.

The Law of Proportionate Effect

Let us assume that the distribution of income or consumption levels of households closely follows the Law of Proportionate Effect, which is widely observed in the natural and social sciences. According to this famous law, like the celebrated Pareto Law, the income or wealth status of a household is determined by a variety of independent and random effects, including inheritance, windfalls, marriages, etc., each contributing an infinitely small share of total influence. It implies that households that are already wealthy have better chances of improving their rich status in a market-driven economic system in the absence of any effective state intervention. This law has been empirically tested and fairly well established for India using published NSS data on household expenditures. See, for example, Iyengar (1960, 1964, 1967); Bhattacharya (1978); Suryanarayana (1987). One implication of the law of proportionate effect is that households' per capita expenditure or income when measured in natural logarithms, follows the well-known Gaussian or normal law of distribution (Cramer 1946; Aitchison and Brown 1957).

Two-Parameter Log-Normal

A random variable (X) is said to be log-normally distributed with parameters (θ, λ) is normally distributed, with mean θ and standard deviation λ. The mean (μ) and (L) inequality of the X-distribution, as measured by the Lorenz ratio (L), are

$$\mu = exp\ (\theta + 0.5\ \lambda^2) \qquad (5.1)$$

$$L = 2\ \Phi(\lambda/\sqrt{2}) - 1, \qquad (5.2)$$

where Φ is the cumulative distribution function of the standard normal deviate with mean 0 and variance 1. The cumulative distribution of X is given by

$$F(x) = Prob\ (X \leq x) = \Phi[(\log x - \theta)/\lambda]. \qquad (5.3)$$

If x^* is the poverty line, then the poverty ratio is simply $F(x^*)$. If we use the definition of relative poverty, $x^* = k\,m$, then the poverty ratio is

$$F(m/2), = \Phi[0.50\,\lambda + (1/\lambda)\log k]. \qquad (5.4)$$

Thus, the relative poverty is dependent on the policy parameter (k) and the degree of inequality (L), as reflected by the inequality parameter of the log-normal distribution. The coefficient of variation for the two-parameter lognormal is

$$C = \exp(\lambda^2) - 1,$$

This also entirely depends on the single parameter λ. It can be shown that the poverty ratio increases as inequality increases, and *vice versa*. Also, empirically, it is not difficult to estimate the inequality parameter from the available grouped size distribution data published by the National Sample Survey Organization (NSSO) using the techniques developed by Iyengar (1960). Appropriate standard errors can also be computed for the poverty estimates for large samples under testable and realistic assumptions (Iyengar and Nadig 1993).

Three-Parameter Log-Normal

In the case of a three-parameter log-normal distribution an additional threshold parameter, X_o, is introduced. This can be interpreted as the minimal X below which the probability density function $f(x,\theta)$ takes the value of zero. That is to say, the deviations (X-X_o) from the threshold follow the standard 2-parameter lognormal distribution, with mean, say, β and variance δ^2. The 3-parameter log-normal is positively skewed and fits well most empirical data on economic size distributions (See, Aitchison and Brown 1957; Iyengar and Jain 1974; Iyengar and Suryanarayana 1984). The probability density function has a single mode and has its cumulative function,

$$F(x) = \Phi(z), \qquad (6.1)$$

where

$$z = [\log(x - X_o) - \beta]/\delta \qquad (6.2)$$

The mean, mode and median, occur, respectively, at

$$X_o + \exp[\beta + 0.50\,\delta^2], \text{ Xo} + \exp[\beta - \delta^2], \text{ and } X_o + \exp(\beta). \qquad (6.3)$$

Obviously, mean ≥ mode ≥ median. This property is characteristic of all positively skewed distributions of positive-valued random variables. The second and third moments from the mean are, respectively,

$$\sigma^2 = \text{variance} = \tau^2 \exp(2 + \delta^2), \qquad (6.4)$$

where

$$\tau^2 = exp\,(\delta^2) - 1, \qquad (6.5)$$

The coefficient of variation

$$C = \tau\,(1 - \gamma), \qquad (6.6)$$

where γ is the ratio X_o / μ, and the coefficient of skewness

$$\gamma_1 = \tau^{-3}\,[exp\,(3\delta^2) - 3\,exp\,(\delta^2) + 2]. \qquad (6.7)$$

The parameters γ and δ have natural interpretations: while $1-\gamma$ indicates the relative poverty gap between the poverty line and the average level of living, δ^2 gives a measure of asymmetry in the distribution of levels of living. It is easy to show that τ satisfies the equation,

$$\tau^3 + 3\tau - \gamma_1 = 0. \qquad (6.8)$$

See, Cramer (1946). The index of inequality, whether measured by the coefficient of variation or by the Lorenz ratio, depends on the poverty line as well as on the degree of skewness. The Lorenz curve for the three-parameter log-normal distribution can be written as

$$q = \gamma F(x - \delta) + (1 - \gamma) F(z_p) \qquad (6.9)$$

where p is the cumulative proportion of households and z_p is its corresponding normal abscissa while q is their share in the aggregate consumption. As already defined, $p = F(z_p)$. Since $q \leq p$, the Lorenz curve lies below the diagonal, $p = q$, as already noted. The Lorenz ratio takes the simple form,

$$L = (1-\gamma)\,[2\,F(\delta\sqrt{2}) - 1], \qquad (6.10)$$

which clearly shows that there are two crucial parameters γ and δ that determine the degree of inequality in the distribution of levels of living. According to this model, one could resort to a reduction in the mean poverty gap by granting suitable subsidies to the poor and concomitantly bringing down the skewness by progressively taxing the rich. It may be of special interest to compute the consumption share of the lower one-half of the households as well as the share of the richest one per cent of the households for purposes of policy formulation and programme evaluation. For this it is enough to put $p = 0.50$ and $p = 0.99$ in the Lorenz equation and obtain $q_{0.50}$ and $1 - q_{0.99}$.

Estimation of 3-LN Parameters

There are several ways of estimating the log-normal parameters, depending upon the data available. If one has individual observations on X, one may straight away compute the skewness coefficient (γ_1) by second and third central moments

of X from the sample. This value of γ_1 could be inserted in the cubic equation and a real root obtained. Once this is done, the value of δ can be found through the relationship,

$$\delta^2 = \log\ (1 + \tau^2).$$

Using the values of δ and σ, we can find the value of X_o using the relationship

$$X_o = \text{Mean } X - \sigma / \tau.$$

The β parameter is given by

$$\log\ (\sigma / \tau) - 0.50\ \delta^2.$$

However, one practical difficulty in this method is that it is time-consuming and hard to apply when grouped data are given, and probably more expensive. Ahmed and Bhattacharya (1974) used a percentile approach proposed in Aichison and Brown (1957), which seems appropriate when ordinary frequency distributions are given. However, when one has size distributions along with group means it would be preferable to use their Lorenz curves. When such curves have already been constructed it would be much more economical to use the readily available information. As already noted, the median of the X-distribution occurs at $p = 0.50$ for which $z_p = 0$. The corresponding share of consumption will be

$$q_{0.50} = \gamma F(-\delta) + 0.50\ (1 - \gamma). \qquad (7.4)$$

Since $F(-\delta) + F(\delta) = 1$, we can also write

$$\gamma = [1 - 2q_{0.50}] / [2\ F(\delta) - 1]. \qquad (7.5)$$

Suppose the Lorenz curve meets the diagonal, $p + q = 1$, at the point (p^*, q^*). At this point we should have

$$q^* = \gamma F(z_{p^*} - \delta) + (1 - \gamma)\ F(z_{p^*}) \text{ and } q^* = 1 - p^*.$$

But since $F(z_{p^*}) = p^*$, we can write

$$\gamma = [1 - 2p^*] / [F(z_{p^*} - \delta) - p^*].$$

Finally, combining the two expressions for γ, we may write the following equation. Left-hand side

$$\text{(LHS)} = F(z_{p^*} - \delta) - p^*$$

and Right-hand side

$$\text{(RHS)}: [1 - 2\ p^*]\ [2\ F(\delta) - 1] / [1 - 2\ q_{0.50}\ ].$$

Taking the values of q^* and p^* from the empirical Lorenz curve, we note that the LHS and RHS are functions of the only unknown parameter δ We may graduate the LHS and RHS functions by assuming various values for δ and obtain their curves on graph paper. We may choose the value of δ at which the two curves intersect as our desired estimate. For a rigorous demonstration of this procedure, see Iyengar and Suryanarayana (1984). They have shown that the three-parameter log-normal fits the data better than the two-parameter model. Both models show that inequality and poverty are connected concepts and provide a theoretical basis for further empirical analysis.

Concluding Remarks

The concepts of inequality and relative poverty are currently debated in India and abroad. Poverty removal forms an important agenda of the national and international agencies like the World Bank. In this context it is suggested that appropriate techniques of analysis, as outlined above, be tried on NSS data for all recent years for which data are readily available and the existing results be reviewed and updated. In an analysis of this type, one comes across various types of data deficiency and often draws tentative conclusions along with specific suggestions for improving the data base. Interesting findings are reported in recent literature on poverty trends in rural and urban India, which are debatable. For example, Radhakrishna (2001) makes rather interesting observations on poverty changes in India in his Presidential Address to the 43rd annual conference of the Indian Society of Labour Economics. Such observations can provide valuable hypotheses for further statistical analyses and fine-tuning.

Appendix

Numerical Illustrations

To illustrate the application of the log-normal model, we may use the grouped mean data on household expenditure according to size classes of monthly per capita total expenditure in rural and urban sectors of the Indian economy, as found in the NSS 28th Round (1973–74). But one has to check whether the 3-LN model (M_3) is to be preferred to the 2-LN model (M_2). To do this, one has to compute a measure of distance between the observed data and the results expected from the models. For instance, if p and $\hat{p}$ are, respectively, the vectors of observed and expected frequencies under model M_i (i = 1, 2), a measure of distance between the two vectors is provided by the distance function

$$D^2 (p, \hat{p} \mid M_i) = (p - \hat{p})'(p - \hat{p}). \qquad \text{(A.1)}$$

Computations show the following results for D^2 : It follows that M_3 is to be preferred to M_2.

Table 1: The value of D^2 for M_2 and M_3

Model	Rural	Urban
M_2	14.2799	45.8494
M_3	4.0801	13.2936

Table 2 gives the estimated parameters of M_3 for two selected periods, 1968/69 and 1973/74, and for the rural/urban households surveyed by NSS.

Table 2: Estimates of LN3 Model: Rural and Urban India

Parameter	Rural		Urban	
↓	1968/69	1973/74	1968/69	1973/74
X_o	2.9700	8.6900	14.530	9.8700
b	3.2258	3.6114	3.0363	3.9044
d	0.6100	0.6000	0.9100	0.6400

If Y is the level of living in 1973–74, it is related to the 1968–69 level X , as follows:

$$\textit{Rural:}\ Y = 8.69 + 1.5504\,(X - 2.97)^{0.9836} \qquad \text{(A.2)}$$
$$\textit{Urban:}\ Y = 9.87 + 5.8649\,(X - 14.53)^{0.7035}$$

These functions can be plotted on graph paper and the two periods can easily be compared. If suitable sets of prices are available, such comparisons can also be made in real terms, as Iyengar and Suryanarayana (1984) have done.

Table 3 gives the values of the parameters based on LN3 for 1973/74. If data were made available in the required form, our method can be extended and a time series built up.

Table 3: Estimated parameters of inequality and poverty based on LN3 Model, R/U India: 1973/74

Parameter	Rural	Urban
$q_{0.50}$	0.3140	0.2925
p^*	0.5970	0.6090
$1 - g$	0.8360	0.8606
Mean (Rs.)	53.0100	70.7700
Threshold (X_o)	8.6900	9.8700
Median (Rs.)	45.7100	59.4900
Mode (Rs.)	34.5200	42.8100
Coefficient of Variation $(C\%)$	55.0300	61.2300
Skewness Coefficient (γ_1)	2.2607	2.4945

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Book Reviews

Peter Ronald deSouza (ed.). *Contemporary India—Transitions.* New Delhi: Sage Publications. 2000. Pp. 388. Rs. 475.

The book under review is the result of a conference held in Lisbon in 1998 with the objective of beginning a 'new conversation', after four decades, between Goa and Portugal. In the event, the scope of the conference was much wider than Goa. The focus on *contemporary* India was also intended to initiate a dialogue between contemporary India and contemporary Europe. In addition, the organisers felt that 'the study of contemporary India has the potential to rejuvenate the social sciences' by refocusing attention on social transformations (deSouza, Introduction, p. 13).

Given these goals, the wide range of topics covered in this volume can be forgiven, although it is doubtful whether the last objective of 'rejuvenating the social sciences' has really been achieved. Rather, the volume provides a fairly comprehensive overview of a number of important current issues, written for the most part competently by well-known scholars and public figures. As such, it serves more as a useful introduction to the contemporary scene in India for a reader largely unfamiliar with the territory, rather than as a significant contribution to the social science literature. Many of the writers reiterate views and positions explicated in detail elsewhere, so for someone familiar with the social science literature on India there isn't much new to learn from this volume.

In order to convey a sense of the wide range of topics covered, it is necessary to list the contents, although this is not a preferred procedure for book reviews. In this case, there are no papers that stand out so much that they attract more discussion than others, nor do any of the papers deserve special criticism. Instead, the contributions in this volume are quite even in quality (unusual in an edited volume), and as such merit individual mention.

The book is divided into five sections. The first, 'Civilisation in Transition', includes a reflective piece on the writing of Indian history by Romila Thapar, one on the concept of nation by U.R. Ananthamurthy, a discussion of current cultural politics by Rustom Bharucha, and a paper on dalits' 'search for inclusion' by Gopal Guru. All of these are well-written pieces, but for those familiar with the writings of these contributors, nothing new is offered.

The second section, on the economy, includes overviews of industry, agriculture, and poverty alleviation programmes in the context of recent liberalisation, by (respectively) S.S. Bhandare, Bhupat M. Desai, and Ghanshyam Shah. Again, these are good summary pieces for the reader who is unfamiliar with the Indian scene, but nothing beyond this. The third section covers the 'Polity in Transition' and includes a piece on the Constitution by Soli Sorabjee, one on the

democratic process by deSouza, and one on human rights by Nawaz Mody. The fourth piece in this section, 'Do Muslims have a right to their personal laws?' by Rajeev Bhargava, rehashes arguments he has made at length elsewhere; it is also the most heavily academic piece in the volume and as such will perhaps not be digestible by the casual reader.

The fourth section on 'society in transition' contains the more interesting contributions. D.L. Sheth discusses transformations in the caste system through processes he terms 'secularisation' and 'classisation', in a laudable attempt to synthesise and make sense of the complex processes of social change that have been observed over the last few decades. Seemanthini Niranjana offers a well-written and thoughtful piece on the women's movement in India, and Zoya Hasan provides a lucid discussion of the Uniform Civil Code issue. This section also contains a short piece on the history of the media in India by B.G. Verghese.

The final section, which returns to the original agenda by focusing on Goa, includes a comprehensive overview of economic policy and development issues in Goa by Errol d'Souza (albeit from a rather too heavy 'new political economy' perspective), a discussion of environmental issues by Maria Ligia Noronha, and a contribution on Goa's recent political history by deSouza.

Taken together, the papers in this volume constitute a useful survey of current issues and debates in India. However, as stated above, the authors do not break new ground, and the book is likely to be more suited to the general reader and the non-specialist (especially non-Indian) rather than to the professional academic. The inclusion of a section on Goa in a volume that covers a much broader range is a bit jarring, but given the history of the volume, is understandable. In sum, this is a good effort that deserves a place in university and general libraries as a reference work, but it is not a volume that most individual readers would be moved to purchase on their own account.

Carol Upadhya

S. Mahendra Dev, Piush Antony, V. Gayathri and R. P. Mamgain. *Social and Economic Security in India.* New Delhi: Institute for Human Development. Pp. 523. Rs.750.

The book under review is a collection of papers presented in a seminar on social security measures. The volume, divided into six sections, addresses a wide range of issues relating to social and economic security in India. Section one has three papers. 'Social Security: Performance, Issues and Policies,' by Mahendra Dev, discusses the components of social security in respect of food and nutrition, employment, health, education, and women. Further, it deals with financing of social security programmes. The paper, 'Social Security for Organised Labour,' by Thakur

and Ratnam, deals with social security provisions from the directive principles of state policies and the legislative norms on provision of social security for industrial workers. It also discusses medical care, safety, occupational health and welfare funds, and advocates integration of the various types of social security measures. The paper by Prabhu and Iyer, 'Financing Social Security: A Human Development Perspective,' examines the financing of social security, government policy, and levels and pattern of financing of social security by the states and union government.

Part two has four papers, which deal with food, nutrition, health, and housing security. 'Food Security: Emerging Concerns,' by Radhakrishna, reviews the trends in food and nutrition deprivation using a wide range of input and output measures, including per capita consumption of food, per capita food intake, and malnutrition based on anthropometric measures. The study shows that the rate of food production, including non-cereal food, has increased and the per capita consumption of cereals has declined over the years. The author concludes that while India has successfully combated food insecurity caused by droughts or floods, it has failed to make much progress in overcoming chronic food insecurity. The paper, 'Nutrition Security in Tamil Nadu,' by Anuradha, attempts to examine the unprecedented growth and sustained investments in the nutrition sector through direct provision of food, food supplements and health care, and explores the nutrition situation in Tamil Nadu. The paper also deals with nutritional status such as weights for age, birth weights, secular changes in body sizes and male–female differences.

Amitabh Kundu's paper 'Access of Urban Poor to Housing Amenities: Aspects Concerning Social Security,' examines the availability of housing and basic amenities like water supply, toilets and electricity at the national level by building comparable indicators for the seventies, eighties and early nineties. A similar analysis was also attempted across the states and size classes of urban centres. Further, it analyses the problems and issues concerning vulnerability of the poor in relation to housing and other basic amenities. The paper points to a significant disparity in the availability of basic amenities across the states.

Section three has three papers, which examine the access to education and household educational expenditure. 'Household Expenditure on Education: A Few Stylised Facts,' by Tilak, analyses the magnitude, nature and pattern of family expenditure on education. The author has collected data on educational expenditure from households and the public. While public expenditure provides the educational facilities, household expenditure makes it possible to take advantage of them. The author deplores the lack of empirical studies on household expenditures on education, particularly in the context of dwindling public expenditure on education and increased interest in household and private finances. It has been argued that households are able and willing to pay for both higher and elementary education. The willingness to pay for education can be tapped to provide funds for education

and the government can reallocate it in favour of other sectors. Households' expenditure on the education of their male and female children shows that the difference in terms of gender is small and in favour of boys. Substantial differences exist in household expenditure incurred on children attending government schools, government-aided schools and private schools. Expenditure incurred on education in private schools is the highest, followed by that on government-aided schools and government schools in that order. Households from even low-income groups spend a lot on acquiring education, including elementary education. Tuition and other fees account for the largest proportion of expenditure on education. Srivastava's paper, 'Inequality and Education Security,' argues that the expansion of educational opportunity has to be understood in terms of changes in social relations, constituted by a complex interplay of caste, class, gender and ethnic dimensions. The study shows that among rural households, landless labourers generally have the lowest enrolment status, whereas salaried households and those with sizeable incomes have the highest enrolment rates. Children of migrant casual or contract workers and of other mobile groups such as nomadic people have very low enrolment rates. The author concludes that caste and class relations determine access to schooling in the educationally poor regions.

Another study, 'Education Security for Children: Some Insights from the PROBE Survey,' by Anuradha, Noronha and Samson, deals with parents' awareness of the benefits of education and their aspirations for their children as well as their difficulties in accessing schooling. The paper discusses how the system exacerbates gender, class and caste biases in reducing access to education. The author calls for greater commitment by the states to the schooling system. Otherwise, education will work only for the benefit of the advantaged, contrary to what was intended by the framers of the Constitution.

Section four has two papers, which deal with employment and income security. 'Employment Generation and the Question of Employment Security,' by Sharma and Mamgain, examines growth and structural change in the employment and labour market in recent years, evaluates the mechanisms and measures adopted towards employment security in both the organised and unorganised sectors, and assesses their effectiveness. 'Employment Guarantee Scheme and Employment Security,' by Dev and Ranade, examines the experience of Maharashtra with EGS, which was introduced in Maharashtra in the early 1970s, as an antipoverty scheme. It provided employment for adults above eighteen years of age who were willing to do unskilled manual work on a piece-rate basis. The cost per person day at current prices increased from about Rs.4 in the first year to around Rs.31 in 1989. The scheme was financed entirely by the state government and was approved by the Planning Commission. The twenty-five-year-old scheme is in need of changes to make it more effective in helping the poor without altering its basic structure. The

author concludes that EGS provided employment security for some sections of unskilled workers in Maharashtra. The study shows that public works should form one of the components of the mechanism of poverty alleviation in India.

Part four examines the security of vulnerable groups. The study 'Social Security for Women Workers,' by Gayathri, discusses the various issues relating to women in the formal workforce and the social security mechanisms available to them. Further, it provides a framework to study the relationship between the disparities in market economy as well as in social policy, and other forms of disparity imposed on women by the existing gender ideology. The author has observed that a large majority of women either work in agriculture or are concentrated in 'informal' employment ranging from household work to traditional productive tasks. 'Crime, Gender and Society in India: Insights from Homicide Data,' by Dreze and Khera, explores the links between murder rates and various socio-economic variables such as poverty, urbanisation, literacy, and social composition of the population, and finds a robust negative correlation between murder rates and the female-male ratio in the population. It also examines the possible link between murder rates and various indicators of modernisation and development such as urbanisation, literacy and the level of poverty. The study finds that murder rates in India bear no significant relationship to urbanisation or poverty, and that education appears to exercise a moderating influence on criminal violence. 'Social Security for the Aged' by Alam and Antony, examines the social security measures provided for the elderly in India, and discusses their vulnerability in the context of the trends in population growth and changing family values. Further, it attempts to analyse the health status of the aged, and brings out the need to incorporate health insurance for them as an integral part of the social security system in India. The analysis indicates that the dependency burden may increase with growing privatisation, imposition of user charges and informalisation of the labour market. The study also clearly indicates a rising trend in old-age dependency and faster growth of the elderly population in relation to the labour force.

'Social Security for Scheduled Castes in Unorganised Sector,' by Thorat, examines the effectiveness of social security measures for the Scheduled Castes (SC). Specifically, it examines the occupational status, access to agricultural land and other capital assets, employment situation in rural and urban areas and the level of poverty among the various occupational groups in these areas. The higher unemployment rate, based on current weekly and daily status, clearly shows that underemployment among SC workers was much higher than among other workers. In the case of self-employed persons, promotional measures have been of very limited benefit. Land reforms have failed to provide surplus land to SC/ST households. The IRDP and wage employment programmes have helped some to improve their incomes but they are inadequate in magnitude and coverage. The

author calls for a review of the working of anti-poverty programmes in terms of their level and coverage. Further, the level and coverage of self-employment and wage-employment programmes should be increased and the economic discrimination against SCs in factor and product markets needs to be redressed.

'Social and Economic Security for the Scheduled Tribes,' by Dayal and Karan, is based on a survey conducted in twelve villages in Jharkhand State. The paper attempts to profile the status of surveyed households with regard to their education, employment, food security, and health with a stocktaking exercise of various social and economic security mechanisms prevalent among the tribal groups. It provides an overview of the nature and extent of insecurity faced by these groups. Institutional degradation such as poor attendance of teachers, intensity of teaching, management of schools and teacher-parent relationship contribute to low enrolment, high drop-out rates, and poor educational attainments of the tribal students.

The last section, comprising five papers, deals with the State and micro-level experiences. 'State-Assisted Social Security for Poverty Alleviation and Human Development: Kerala's Record and its Lessons,' by Kannan and Francis, examines the State-assisted social security arrangements in Kerala. It shows that four most prominent old-age pension schemes for the poor have been in existence for over ten years. The observation has often been made that Kerala spends a larger share of its budgetary resources on State-assisted social security and related activities. 'Social Security in Uttar Pradesh: Moving Beyond Policy to Governance,' by Srivastava, examines the trends and magnitudes of poverty in Uttar Pradesh, the performance of the State in providing security to the poor, employment security and food security. Another study, by Indrakant and Swaminathan, presents the status of social security in Andhra Pradesh, viz., 1) the social security provided to the workers in the organised sector, 2) working of the Minimum Wages Act with respect to agriculture and other rural employment programmes, 3) attempts to protect the entitlement of the vulnerable, 4) to report macro- and micro-level surveys on the rice subsidy scheme, 5) efforts to build capacities of the needy and enlarge the entitlements of the vulnerable.

Agricultural labour forms the largest proportion of workers covered under the Minimum Wages Act, and wage rates in agriculture are fixed every two years. Wage rates are prescribed for ploughing, transplanting and harvesting, and vary between different zones. Inspectors of the labour department monitor observance of the law. Based on the complaints received from the labourers, offending landlords are to be prosecuted in labour courts. The Andhra Pradesh government introduced the subsidised rice scheme in the early 1980s to improve the consumption levels of the poor. The scheme was modified in 1991 and again in 1994.

The book under review contains important source material for social activists, policy makers and researchers. The editors of the volume deserve to be

congratulated for bringing out such a valuable publication on social and economic security.

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Niraja Gopal Jayal and Sudha Pai (eds.). *Democratic Governance in India: Challenges of Poverty, Development, and Identity.* New Delhi: Sage Publications, 2001. Pp.264. Rs.425.

The book under review discusses issues which have been of some importance, and for a substantial length of time, in the context of Indian society. However, its main focus is on the 1990s, when various events and forces played a crucial role in influencing the state of Indian polity. Thus, while globalisation has been a factor in the initiation of economic reforms, which in a sense may have been seen to reduce state authority, the other factor was identity politics, which gave rise to several political outcomes, including reduction of the pre-eminence of the State, and more so the central government. Theoretical discussions of these issues as well as empirical cases of identity politics have made the book eminently readable as well as enlightening. They have been dealt with in two parts, the first on governance, poverty, and development, and the second on the politics of identity.

Specifically, the problem of poverty has exercised minds for several decades, with Independence providing more space for an Indian initiative to address this problem. That the State was considered indispensable in reducing poverty and simultaneously increasing economic growth was not seriously disputed by those in India. And the position and stature of Nehru made it more or less a foregone conclusion that economic development in the country would be implemented in the manner in which he envisaged it. While giving prime position to the government, the private sector too was considered indispensable to economic growth. That economic growth was not sufficiently high to make a major dent in poverty is an issue that has generated considerable debate, and is dealt with by several authors of this collection.

Hardly any consensus exists on the type of political system most suited to economic growth, or, to be precise, high growth rates. Evidence has been marshalled in support of the view that democratic forms of government are more suitable to economic growth and also in support of the contrary view. For example, a relatively higher degree of authoritarianism such as in the development states, Japan, Taiwan, South Korea, and Singapore (essentially single party states in the past thirty years), is said to have enabled the higher economic growth rates observed in those countries. Economic growth was led by bureaucratic and technical elites who were insulated

from political pressures, and could deal firmly with economic issues without the compulsions of compromises necessary in liberal democratic politics. However, if economic growth could be maintained at a higher rate, the negative features of such a system were that popular political participation, civil society and accountability were either suppressed or were manifestly lower. On why India has had a modest rate of economic growth, many believe that if India had been a 'stronger' State, more along the lines of the developmental states, economic growth may have been at a much higher rate. On balance, whether political liberties and pluralism actually curtail or enhance economic growth in recently democratising countries cannot be conclusively demonstrated. Certainly, with the existing levels of poverty, one may confidently state that the political system in India since Independence has not succeeded in reducing poverty sufficiently. Thus, as one of the authors suggests, could it be that some political cultures are better suited than others to the elimination or alleviation of poverty? From a normative standpoint, one may like to see the high economic growth of a developmental state in conjunction with more institutions of liberal democracy. Thus, we find that the general consensus seems to be that the State is crucial to development, and what we need is not less governance. Here, the consensus seems to become weak, with the form of governance that would be best suited to high growth and development having several shades of opinion and support.

The second part of the book, which discusses the politics of identity, suggests that there has been a resurgence of the politics of identity since the late 1980s, based on identities such as caste, tribe, and religion. To say that caste has had a resurgence is not to imply that caste did not form a significant part of politics in India even earlier. However, in recent times, caste-based identity politics also includes groups that were considered disadvantaged, such as the dalits. Dissatisfied with the distribution of economic resources based on the Nehruvian model of development, they have chosen to mobilise political resources by organising members of these castes, to wrest a part of political power, and ensure a redistribution of social and economic benefits in their favour. Their aim seems to be to find a better place for themselves in the existing structure, rather than destroy the structure and invent a new one. The book also discusses the relative failure of the dalit movement to rise above protest, to provide a vision of a more egalitarian social order. A theme of the book is that the increasing politics of identity is another factor (along with globalisation) that reduces the pre-eminence of the State. However, one has also to observe that in this re-organising of their position in the polity and society, the State has made a crucial contribution, through affirmative action, which has enabled a number of dalits to become a part of the dalit middle class. Notwithstanding this, the fact that a substantial number of dalits remain underprivileged, and economically weak, is also an indictment of the State and

form of governance, which, in future may benefit from the politics of identity in the reduction of poverty. Overall, while the book covers long-debated issues, it nevertheless provides fresh insights, and makes a significant contribution to the ongoing debate.

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Naila Kabeer. *Bangladeshi Women Workers and Labour Market Decisions: The Power to Choose.* New Delhi: Vistaar Publications. 2000. Pg xi + 464. Rs. 575.

At a moment when the employment crisis in South Asia has reached a quantitative threshold with no respite in sight and the large-scale entry of women into the labour market is being hailed as an indicator of an empowering society, Naila Kabeer's book is a timely reminder of the complex and multifaceted nature of the problem. The book weaves together several disciplinary strands and thus addresses labour economists, feminists, and development scholars.

The book begins with the insistence that women's work be contextualised in view of the changing face of labour standards in international trade. To this end, a series of observations are made about work, labour market and international trade: economic imperatives inform labour standards; political agendas mediate to determine women's participation in the labour market; labour market hierarchies keep changing; increase in women's participation in the informal sector of the economy needs to be located within the local as well as international organisations of production.

The author then catalogues the various arguments and theories on women's participation in the labour market. Given the trend in women's entry into the labour market, as in the case of Bangladeshi women in the public arena, one learns that most efforts at theorising either characterise them in static terms or as 'rational' agents who make informed choices. The author cites extensive evidence from the literature in support of both streams of arguments, and concludes that the issue of women's labour market decisions and the consequent impact on intra-household power relations remains largely untheorised. This is because it seems to be viewed either as a personal matter that each individual woman negotiates to discover workable solutions or as a result of a collective change in norms and mores.

The subsequent sections focus on urban Bangladeshi women workers and the perceived changes in their status. The changes in Bangladesh's social and political landscape are first catalogued and then related to the national and international organisations of production. Next, their consequences on the labour market are analysed with a view to contextualising women's presence in the labour market.

Relying primarily on field insights, the subsequent sections highlight structural constraints and determinants of women's participation in two arenas: in the labour market and within the household. This section concludes with a strong case for exploring not only imaginative ways of understanding women's participation in the labour market, but also situating individual women's decisions both within their localised milieu and in relation to the larger context.

Turning next to the situation of Bangladeshi women workers in London, we learn about the needs that determine women's participation in the household economy and the ways in which the organisation of production changes its goalposts to 'allow' women this freedom. Quite apart from the question of how women came to access the labour market and the concomitant resources and power that result from it, the author addresses the critical issue of the changes that this has engendered in intra-household power relations.

The final sections call for a nuanced understanding of women's position vis-à-vis the household and labour market. The author states that the erstwhile focus on visible changes has resulted in simplistic and linear linkages being drawn between women's labour market decisions and perceived shifts in household power relations. In addition, she challenges the images of women as either 'rational fools' or as 'cultural dopes' and provides an alternative to both the structure and agency theories. In the final section, the book revisits the international trade arena within which women workers are forced to perform roles, and concludes that although these roles have had some positive effects on individual women workers, the gain is only incremental.

While the book cautions us against making hasty judgements, it prompts us to look beyond the obvious and visible picture that women's participation in the labour market creates. The author provides an alternative explanation by refocusing on the complexity of the relationship between individual woman and the context in which she works. And, finally, by teasing out various interrelated strands from developmental economic and feminist theorising about the relationship between women's work and status, the author allows us to raise different kinds of issues. The book, however, warns us against making any totalizing argument in favour of women's work and the inevitable rise in women's intra-household power that it is seen to generate.

Not surprisingly, the book raises the basic question, whether women's economic participation implies empowerment. These issues have begun to plague a number of developing countries. Since the mid-1970s and, more conspicuously in the 1990s, a host of development programmes in South Asia have been targeting women with the objective of bringing them into the workforce in order to empower them economically. Encouraging women's participation in the labour market is seen not merely as good public policy, but also as the only means of empowering

women. This book debunks much of the hype surrounding this unmitigated optimism and discloses the extent of its myopia. Thus, its contribution in raising the issue of women's participation and decisions thereof in the labour market from the level of policy and implementation to a subjective and contextual issue is immense and unquestionable. For all of us struggling to find a balanced and appropriate response to the feminisation of certain occupations and processes and the optimism that this has generated with respect to women's empowerment, Kabeer's conclusion is a timely reminder that the struggle for women's empowerment cannot be achieved easily.

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K. P. Kalirajan, G. Mythili and U. Sankar. *Accelerating Growth Through Globalization of Indian Agriculture.* New Delhi: Macmillan India. 2001. Pp.VIII+374. Rs.495.

The term 'globalisation' has never been as pervasive as it appears today, particularly after the Uruguay Round Agreement. Protagonists of globalisation have taken the counter response for granted in favour of smooth sailing of the process. It appears necessary to examine the other side of the coin in the age of multilateral trade regime, i.e., the responses of global partners of trade and exchange and also the situation of comparative advantage that a country enjoys. The book under review attempts to deal with the issues of globalisation to accelerate the growth of Indian agriculture.

In the Introduction, the authors state that there is consensus on the need to globalise, and express the hope that by 2005 India's exports would go up to 4 per cent from 0.6 per cent, which has not changed for the last ten years of reforms. Their confidence is based on technological efficiency over the developed nations and the expectation that liberalisation would transform subsistence agriculture into commercialised agriculture. However, presenting an overview of Indian agriculture, Sankar and Mythili themselves acknowledge the fact that about 78 per cent of the holdings are of small and marginal farmers with 32 per cent of the area in their possession (p.10). They also acknowledge the decline in public investment in agriculture (p.18) and increase in private investment. However, they have not discussed whether private investment in agriculture can be sustained without public expenditure. While discussing price policies, they argue that 'in an open economy

regime, our price movements for traded goods cannot be independent of the world prices' (p.64). Their statement would be valid if there were an open economy regime at all. If we look at the protectionist policies of other nations in terms of quantitative restrictions, non-tariff barriers and subsidies to agricultural corporates of developed nations, particularly the USA and European Union, we can afford to make only subjective statements, not categorical ones. While advocating reduction of subsidy they have also hinted at the escalation of the cost of production, which will dampen agricultural supply (p.67).

Part B contains case studies of a few states, reflecting variations in the levels of development. States considered for this exercise were Bihar, Karnataka, Tamil Nadu and Punjab. At the end of this exercise an inter-state comparison has been presented. Alok Kumar's paper on agriculture in Bihar stresses the need for radical land reforms, water management backed by comprehensive credit support and subsidies. Hanumappa's paper on the problems and prospects of Karnataka agriculture highlights certain success stories of high-tech agriculture and innovative farming as an emerging trend. However, he rightly emphasises the need for a safety net for the deprived in order to empower them to avail of the opportunities before resorting to any major reforms (p.219). Thimmaiah emphasises the role of the State in speeding up agricultural development.

In an analysis of the development of Punjab agriculture, Bhalla demonstrates that there has been a slowdown in agricultural growth. There is concern over the gradual depletion of soil nutrients because of excessive unbalanced use of chemical fertilizer, neglect of organic and green manure, and excessive use of water, which has increased the level of salinity. The steep hike in the price of P & K has raised the cost of production and led to a decline in productivity. The author has warned about 'declining yields and profitability, which have serious consequences for the Indian economy' (p.247). Mythili's study of the performance of agriculture in Tamil Nadu finds that the real wage rate in agriculture has been on the decline, after a rise in the 1980s, which was not sustained in the 1990s (p.286).

Shanmugam has presented a comparative study of Technical Efficiency of Farms through the Random Co-efficient Approach for the four states mentioned above. He underlines the need for strengthening extension services in the low efficiency zone to exploit the full potential of existing farm technology, and advocates identification of target groups for providing extension services. Finally, an inter-state analysis of agricultural growth prospects, by Mythili, points to a sharp decline in the share of agricultural income in GDP without any proportionate decline in the workforce. Regional analysis suggests that liberalisation has not laid the foundations for accelerated growth in agriculture.

Sankar and Kalirajan present a global comparison of Indian agriculture, ranking it next to that of China, with the highest percentage of arable land, higher

tractorisation but fewer harvesters and threshers than China, largest number of cattle, highest domestic use of cereals, nominal increase in export of agricultural commodities and stagnant share of world export. Following this, Sankar, Kalirajan and Mythili discuss various measures of protection, such as Nominal Rate of Protection, Effective Rate of Protection, Domestic Resource Cost, and Net Economic Benefit. In chapter five Sankar reviews trade policy reforms since 1991, outlining the process of liberalisation in terms of export promotion, trade, tariff, thrust on agricultural export, current account convertibility, SAFTA provisions, Exim Policy, etc. At the end of the chapter the authors discuss the difficulties with reforms because of reservation for small industry and rigid labour laws. Unfortunately, when they look at export possibilities they ignore the employment or demand side of the economy.

In chapter six, Sankar and Kalirajan deal with India's international trade in the context of WTO. They effectively highlight the operational difficulties created by the member countries, particularly developed countries, which have insisted on keeping agriculture out of GATT so as to avoid major changes in domestic agricultural policies. The Uruguay Round Agreement appears to be in favour of developing countries in principle but not in practice. The authors have also pointed out the manipulation by the European Union and the USA in their favour and enforcement of non-tariff barriers against developing nations (p.146). FAO is on record that strong protection will continue despite the multilateral regime. It would have been fair to precede the discussion on WTO by analysing what went wrong with the truly liberalising efforts and programmes of G-77 and NAM in 1975 under the name of NIEO regarding opening up of the world market, which was unanimously rejected by the North (Amin 1997:28).

In chapter seven, Sankar and Kalirajan present an optimistic scenario of the opportunities and challenges of globalising Indian agriculture. They see complete removal of quantitative restrictions and trade liberalisation measures as opportunities for farmers and industrialists to tap the world market, scale economies, knowledge, demand characteristics in foreign markets, information about new technology, processes and products, and cost reductions and quality improvements in products because of international competition. It also makes resources available to meet our growing imports of capital goods, raw materials and crude oil and also to meet our external financial commitments to attract FDI. They are also optimistic of an enabling policy environment to achieve a target of 4 per cent of world exports. They expect that these initiatives will influence production decisions, which will also be influenced by border prices. However, 'history also shows that relative prices are not determined by the market, but by the social conditions, beyond supply and demand, in which production operates' (Amin 1997:27).

In regard to challenges, the authors suggest a thorough review of MSP,

PDS and input subsidies. Although they agree with the idea of MSP and crop insurance, they question the basis of domestic determinants in an open economy (p.158). In regard to PDS, they express concern over fluctuation of agricultural prices, but do not advocate direct intervention by government. They suggest that farmers' access to the market be increased by improving road and transportation facilities and setting up storage, packing and agro-processing facilities, etc., in order to reduce price instability and generate employment and income in rural areas. On the issue of subsidies, they suggest that these be diverted to development of rural infrastructure, agricultural research, farmers' education and creation of facilities to enable farmers to comply with SPM and SCM in a phased manner. The authors reject the argument that globalisation of Indian agriculture will hurt the poor, but see much scope in the application of Engels law of consumption. Nor do they agree that agricultural trade may result in degradation of land and other natural resources. Rather, they cite the experience of the Asian Tigers with reforms, forgetting that the Tigers are no longer tigers and that the billions of dollars of US assistance could not save them.

The authors have largely ignored the fact that the majority of India's farmers are marginal and small farmers who hardly produce for the market. Neither have they taken account of irrigation and cropping intensity. Public investment in agriculture has been declining, and private investment, which has increased because of favourable terms of trade in the post-reform period, can hardly be sustained without public investment. As the mid-term appraisal of the Ninth Plan suggests, there is a strong complementarity between public and private investments, and inadequate public investment could lead to 25 per cent lower private investment than desired (GOI 2001, p.5). The document also suggests declining growth rate in agriculture during the 1990s because of low public investment in irrigation and rural electrification, poor maintenance of rural infrastructure, especially canals and roads, and rising subsidies for power, water, fertilizer and food (p.57).

Moreover, the authors are in a dilemma when they suggest liberalisation of the economy and also expect the State to take measures to provide coupons for the poor and long-term price mechanism in the interest of small and marginal farmers and effective redressal from the multilateral trade mechanism. As the authors themselves have stated, USA despite pressure from WTO, managed to subsidise its agricultural corporate sector heavily. The author could have gone into the political economy of globalisation of capital and its expansion as guided by the quest for profit, which has never been in favour of the developing world. The non-tariff barriers and other trade restrictions imposed by the European Union have already been recorded by the authors, who have overlooked these facts while advocating liberalisation. History does not suggest that capital could forgo monopolising profits and accumulation in favour of distributive justice for the developing economy.

Moreover, the interests of merchant capital and industrial capital are contradictory. Merchant capital promotes deflationism, whereas industrial capital expects inflationary gains through markets (Patnaik 2002). However, competition among the imperialist powers to control resources, particularly non-renewable resources, has historical evidence (Lenin 1978:78).

The global market shows no sign of the WTO providing a level playing field. Neither does Indian agriculture display any encouraging results to justify the expectation of accelerated growth through globalisation. On the contrary, the vast literature on the debate on globalisation of agriculture prompts us to ask 'why there is a glut in the food grains market and mounting stocks with FCI despite the deceleration in the growth of food grains output in the last decade and the net export of food grains consecutively for the last six years' (Rao 2001). There is an apprehension that in the present phase of global deflationism, the agrarian crisis will deepen further. There is the possibility of importing depression from the global market to the Indian economy (Patnaik 2002). This will further aggravate the contracting effective demand even in developing countries like India due to lack of purchasing power of the teeming millions owing to the steep rise in procurement and issue prices.

This book is very useful for those seeking to be acquainted with the process of liberalisation in agriculture. Moreover, for those who want to develop independent views on liberalisation and agriculture, the book may serve as a good foundation for further understanding. Perhaps, a political economy analysis could have balanced the debate with academic neutrality even if not to plead in favour of the marginalised millions.

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Oliver Morrissey and Michael Tribe (eds). *Economic Policy and Manufacturing Performance in Developing Countries*. Cheltenham, UK: Edward Elgar. 2001, i-xi, 1–225.

This edited volume is extremely heterogeneous in terms of coverage, quality of papers and methodologies used. Out of the nine studies included in this volume, three are of Africa — Ghana, Zambia, and Uganda; four of Asia — Indonesia, Nepal, India, and Cambodia; one of Latin America — Ecuador; and one of West Asia — Gaza Strip. While some studies are technical and develop econometric models to test their hypotheses, others are non-technical and read more like government reports presenting well-known facts, with little value addition. It is not clear why the editors included such general studies in a volume that contains well-researched papers. This is unfair to those who have presented in-depth studies. In my review, however, I propose to concentrate on the research papers alone.

As the introductory chapter states, the essays in the volume do not employ a uniform definition of economic policy. Instead they focus on the impact of different policy measures on the performance of the manufacturing sector. This book, unlike most others which present evidence of success in liberalisation policies relating to medium and high-income countries, mainly concentrates on low-income countries where the impact of liberalisation policies has been mixed.

The paper by Acheampong and Tribe (Chapter 2), dealing with sources of industrial growth in Ghana, investigates the impact of policy changes on the large and medium-scale industries during 1970–93. Their analysis shows that the growth, which occurred after the introduction of the economic recovery programme in 1983, was mainly due to increased intermediate and capital goods imports. Total factor productivity growth for much of the period was negative. However, there is some evidence that it was turning positive in recent years. Employment growth was not significant. Though labour productivity increased significantly, real wages declined. The authors conclude that the growth which occurred during the early 1990s was mainly due to better capacity utilisation rather than to structural efficiency gains.

The paper by Wise Mainga (Chapter 3) deals with firm-level capability building. Based on a survey conducted on Zambian firms, Mainga analyses the determinants of the process innovative capability of these firms based on a model that links firm-level capability process to economy-wide variables. The results show that 'the ability to achieve international competitiveness among manufacturing firms in LDCs is much more than getting prices right'. In the same vein, Nichodemus Rudaheranwa, (Chapter 4) based on a study of the impact of policy reforms on Ugandan exports, highlights the importance of infrastructure, in particular, transport and other facilities. He argues that poor infrastructure is equivalent to tax on exports and manufacturing and reduces the competitiveness of exports. The role of

government spending in infrastructure development is emphasised. In its absence, structural reforms might not make the manufacturing sector competitive. While Chapter 4 emphasises the importance of physical infrastructure, Chapter 5 stresses the vital role of institutional and administrative infrastructure in promoting competitiveness. Based on a case study of Indonesian exports, John Thoburn exposes the critical role of institutional bottlenecks and wrong administrative practices in harming exports. In particular, Indonesian institutions, created to promote exports, concentrated more on auditing against fraud (inputs imported duty free, being resold in the protected domestic market). This resulted in harassment, more paperwork and litigations, and became counter-productive. In contrast, China took a positive view of exporters and was concerned more with export facilitation than auditing for fraud, resulting in a rapid expansion of exports.

The role of infrastructure and efficient functioning of institutions in achieving competitiveness has also been sharply brought out by Livingstone (Chapter 8) in the case study of enterprise development in Cambodia. The study emphasises the critical importance of road transport and dependable and affordable power to small and medium firms (SMEs) for development. In addition to analysing the direct impact, the paper also brings out the importance of indirect impacts. Most SMEs in Cambodia have to depend on their own generator sets for power supply, which increases their cost of production and makes their goods non-competitive. Furthermore, the study highlights the impact on SMEs' performance, of corruption or 'the existence of unofficial taxes' collected by the military personnel. Most developing countries suffer from infrastructural and institutional bottlenecks but very few studies have attempted to quantify them and pinpoint their role in making the enterprises non-competitive.

The study by Migdad, Jalilian and Weiss (Chapter 10) on small-scale industries in Gaza Strip is interesting. Apart from being one of the most densely populated areas in the world, Gaza Strip lacks natural resources, suffers from water scarcity and has a high unemployment rate. These get further aggravated by Israel's frequent border closures as over 40 per cent of the employed work in Israel. In order to understand the factors affecting growth of employment, cost of labour and profit rates of enterprises, the authors have done a survey based on a random sample of 150 firms. In their regression model, they have used variables representing firm characteristics such as age of firm, sources of finance, educational background of the owner; sector characteristics such as trends in demand and nature of technology; and variables representing general political and macroeconomic situations. In their study, among other things, an improved system of financial intermediation turns out to be an important determinant of a firm's performance. Thus, in addition to political instability, and the dependence on Israel for jobs and markets — factors that are likely to continue for some more time — a lack of developed financial

intermediaries turns out to be important in adversely affecting the enterprises.

The studies presented in this volume clearly show that mere macroeconomic adjustments aimed at 'getting the prices right' may not be sufficient to promote industrial development. Governments will have to play an active role in investing in infrastructure and in facilitating private sector activities in infrastructure development. In the liberalisation era, governments should function as facilitators rather than as mere controllers and regulators. As the case studies of the countries included in this volume indicate, concentration by the governments in controlling and regulating the activities of the enterprises, might, instead of facilitating their growth, become counter-productive and make the enterprises non-competitive. In this context, institutional reforms aimed at removing corruption and delays and making them function efficiently are essential for the global competitiveness of enterprises.

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Ronaldo Seroa da Motta (eds.). *Environmental Economics and Policy Making in Developing Countries — Current Issues*. Cheltenham, U.K., Northhampton, M.A., U.S.A.: Edward Elgar, 2001, Pp.201.

This volume is a collection of papers by renowned environmental economists David Pearce, Hans Opschoor, Edward Barbier, Anil Markandya, Robert Evenson, etc. The broad theme of the volume is to analyse the applications of environmental economics from the perspective of developing countries. The growth, trade and environment nexus, the causes and costs of degradation, and strategies for combating it are its broad sub-themes.

In a very perceptive piece, Hans Opschoor discusses the sustainability of development policies and the evidence on the relationships between economic growth and environmental degradation (more popularly known as the Environmental Kuznets Curve). As Opschoor rightly observes, the available studies that have tried to examine this relationship are neither conclusive nor based on strong empirical evidence. Problems in measuring environmental degradation and limitations of econometric techniques applied have reduced the general validity of these studies. Opschoor stresses the need for developing countries to pursue policies that alter consumption patterns to create cleaner outputs and upgrade technology.

Whether developing countries can attain these policy improvements without jeopardising their comparative advantages in the use of natural resources in the context of globalisation is a recurrent theme. The chapter by Cees van Beers and Andre de Moor thus examines the relationship between international trade and

environmental policy. They note that although the effects of trade on the environment could be both positive and negative, perverse subsidies could affect trade patterns by increasing pressure on the natural resource base. They emphasise the need for subsidy reforms to improve market access for exports.

Policy strategies to reduce the impacts of growth and trade on the environment require a clear understanding of the economic costs of degradation. The costs of degradation and strategies for initiating it form the theme of another set of chapters. The chapter by David Pearce presents a careful overview of the theoretical and methodological basis for measuring the statistical value of life. He discusses the controversial concept of the statistical value of lives from the perspective of risk analysis and provides evidence to show the importance of the careful valuation of these estimates and how they tend to dominate the overall damage estimates in environmental cost-benefit studies. In another piece, Anil Markandya provides guidelines and methods to estimate health costs in developing countries, using the statistical values of life.

Seroa da Motta and Sayago, in another chapter analyse the social benefits of recycling in Brazil and how tax policy could be designed to address environmental concerns. Their analysis shows that the choice and design of economic instruments are crucial and that monetary valuation may be helpful in this process.

The causes of deforestation in developing countries and strategies for combating this are addressed in the remaining chapters of this volume. Edward Barbier provides a cross-country analysis of the role of population, income, agricultural yields and timber production with forest clearance in Latin America. He acknowledges that combating rural poverty would reduce the urge to clear forests. He emphasises the need to understand rural poverty — deforestation linkages and importance of targeted interventions. In a complimentary piece, Young analyses the sectoral and macro policy-related actions to forest clearance in Brazil during 1970–85 and notes that apart from an increase in land and agricultural prices, the low opportunity cost of labour will also play a major role in the deforestation process in Brazil. He emphasises the importance of property rights to reverse deforestation.

The chapter by Robert Evenson and Alves analyses the implications of climate change effects on Brazilian agriculture through variations in land productivity. They observe that while agriculture in some regions will be adversely affected by climatic changes, others may in fact benefit from them. They stress the importance of mitigating these effects by enhancing agricultural technology policies and reducing forest land conversion.

Ferraz and Seroa da Motta, in the last chapter, discuss the prospects of promoting sustainable logging in the Amazon. They identify economic incentives for combating deforestation and promoting sustainable logging in the region.

The papers in this edited book by Ronaldo Seroa da Motta are a valuable collection and will be useful for policy makers, researchers and scholars.

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Ranjani K. Murthy (ed.). *Building Women's Capacities: Interventions in Gender Transformation.* New Delhi: Sage Publications. 2001. Pp. 383, Rs. 280.

As a result of critiques of mainstream analyses of building women's capabilities and the combining of field-based and comparative approaches to the question, feminist research has undergone major re-orientations in the past decade. While field-based studies have revealed strong and inextricable interlinkages between the duties bestowed upon women due to various affirmative actions and the strategies being adopted to engender them with the knowledge and power to cope with this new formal status, comparative field studies have shown the diversity in their situations as well as in the policies formulated to address them. Owing to these trends, as is repeatedly demonstrated in various papers in the book, the subject has moved out of the empowered-dis-empowered/knowledgeable-ignorant sector frameworks. On another front, those working in the women's studies 'specialism' have been awakening to the fact that it is equally important to go beyond theorising into identifying specific areas that need to be pursued to solve problems confronting the majority of women in India.

Accordingly, the contributions in the book under review offer various facets of what is popularly referred to as 'gender-sensitive training'. It grew out of an effort to capture various experiences of imparting gender awareness at the community level. There are seventeen papers covering the entire spectrum of issue-specific and existential gender training and institutional strategies to build women's capacities. The discussion, which is organised into four themes, provides a comprehensive account of the methods that can be used to engender the whole community.

The introduction sets out the various challenges encountered in capacity building, and provokes the readers to question mainstream ideas and trends. Individual contributors subtly question, analyse and discuss issues related to conceptual and methodological patterns in participatory training. In view of the significance of micro-level experiences and the diversity in training arenas/issues and methods adopted, three sections have been devoted to an exploration of their heterogeneity and deriving useful pointers for policy formulation.

Although the last decade has seen a huge literature on participatory training as well as feminist methodologies, this collection of essays stands out in its attempt

to bring together papers on issue-specific gender training as well as problems arising from structural and institutional bottlenecks. The book challenges the reader to consider the shape that advocacy strategies may take in the coming years in moving towards changes in policy, legislation and patterns of resource allocation. It discusses the roles that capacity-building strategies might play in transforming women from marginalised sections in strengthening their understanding of processes leading to their position in society as well as enhancing their ability to change this. The types of changes in organisational strategy necessary to enable grassroots women to emerge from isolation and collectively bargain for a better position are also discussed.

Substantively, while the book attempts to inform policy, its very composition makes it unable to offer focussed and programme/policy-specific advice. To elaborate, while policy is informed by research, practicality and legal necessity, the relationship between these is rarely unilinear. While participatory research and training aims to make a measurable impact on policy and practice, this is merely one of its functions. In fact, research most often attempts to make such an impact by drawing attention to an issue that is of great concern to society. It is in this arena that the book, with its incisive insight and direction, is most successful. By insightfully bringing out the heterogeneity and vulnerability of participatory training in building women's capacities, the book provides practitioners as well as theoreticians a catalogue of issues and concerns to focus upon in future.

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