

# GUJARAT HUMAN DEVELOPMENT REPORT 2004



**Mahatma Gandhi Labour Institute, Ahmedabad**

# **GUJARAT HUMAN DEVELOPMENT REPORT 2004**

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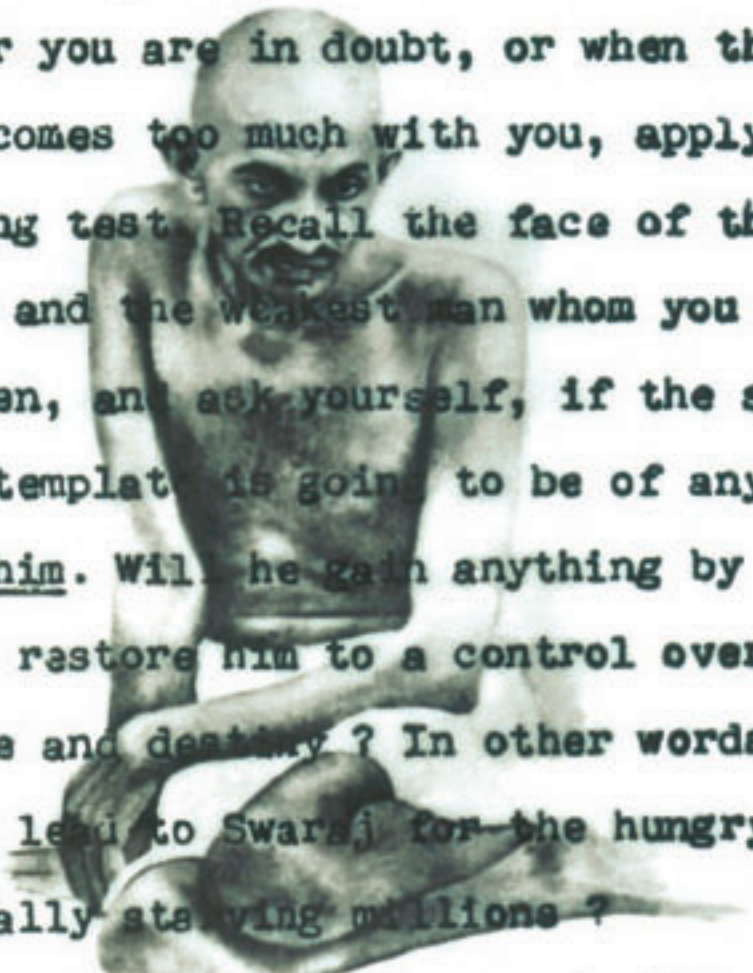
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I will give you a talisman.



Whenever you are in doubt, or when the self becomes too much with you, apply the following test. Recall the face of the poorest and the weakest man whom you may have seen, and ask yourself, if the step you contemplate is going to be of any use to him. Will he gain anything by it? Will it restore him to a control over his own life and destiny? In other words, will it lead to Swaraj for the hungry and spiritually starving millions?

Then you will find your doubts and your self melting away.

न.म.वि.सि.सं.  
सं. ४.३.३३।



**Narendra Modi**  
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## **Message**

It is now widely recognized that development of a society should be judged not by the average level of income of the people, but by people's capability to lead a life, the quality of which they value. Development should improve the capabilities of the people so that they are in a position to access better opportunities in life. Development should focus particularly on those who are lagging behind, who are marginalized and who are excluded from the mainstream. Human development, as defined by United Nations Development Programme, is a process of expansion of opportunities in life for people. It is not only the goal but also a development paradigm. A state should develop in such a way that its economic growth is translated into the development of its people. The Human Development Report of Gujarat presents the status of human development in the state in the context of this wider definition of development.

This report examines the development process of the state in the context of its relationship with human development. It shows that Gujarat has to further re-orient its development process to ensure that its economic growth improves the opportunities in the lives of all socio-economic groups in the state. This report also examines the status of health and nutrition, literacy and education, gender development, welfare and well being of people of Gujarat. This report has computed Human Development Indices (HDI) for Gujarat as well as for other major 15 states of India. These indices indicate that though Gujarat is doing well in terms of economic growth, it is lagging behind in a few indices. It has to improve its performance in the field of health and nutrition, literacy and education and development of the marginalized groups of the state.

The report has highlighted the priority areas of action and suggested modifications in the development process so as to translate economic growth into human development more efficiently and meaningfully. The report has also examined the status of human development in different districts and regions of Gujarat. Several Human development indices has been computed for different districts in Gujarat. These indices should help us in prioritizing our activities in the areas of health, nutrition, literacy, education, gender development etc., in the coming years.

There is major constraint which not only Gujarat but all other states are facing while collecting and collating data at district level - this is the shortage of equipments, staff and their training. Even our Directorate of Economics & Statistics is no exception. We need to strengthen its infrastructure. We look up to Planning Commission for their support to upgrade our directorate.

I am sure that this report will prove to be very useful to the concerned departments of the State Government, to the policy makers, researchers as well as NGOs and people's organizations in the state.

A handwritten signature in black ink, consisting of a large, stylized 'N' followed by a horizontal line that ends in a small flourish.

(Narendra Modi)

## Acknowledgements

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We are happy to put forward the first Human Development Report of Gujarat. As the first Human Development Report of the United Nations Development Programme (UNDP) in 1990 pointed out, the need for studying human development arises from the fact that economic growth does not get automatically translated into human and gender development. Special efforts in the form of appropriate macro policies and well designed public interventions are needed to ensure that there is a close match between the rate of economic growth and the pace of human development. This concept has been explored in this report.

While most State Human Development Reports in India are either written by persons working within the government or by a group of consultants appointed by the government, the Gujarat Human Development Report has travelled a unique path. It is written by two independent academicians, with full support of government officials, as well as a few reputed NGOs and academicians.

Human development is a State subject and it is extremely important that the State Government is involved in the process of preparation of the report in some ways. It is also important to use valuable experiences and expertise of NGOs and academicians in the report. Keeping this in mind, the Director General of Mahatma Gandhi Labour Institute (MGLI) set up a Consultative Committee consisting of senior officials of the Government of Gujarat, representatives of Non-governmental organizations and academicians. The Consultative Committee held three meetings to review the draft of the report and made useful comments and suggestions for revising the report. In the last meeting, the Committee recommended that the report should be published with some additions of the latest data without much delay.

The purpose of preparing the Gujarat Human Development Report is very well summed up by the views ex-

pressed by the members of the Consultative Committee in the last meeting. The Committee stated that the Gujarat Human Development Report would be extremely useful to policy makers as well as practitioners of development in Gujarat.

This Report has been possible because of participation of large number of people and organizations. We take this opportunity to thank them.

First of all, we are extremely grateful to the Planning Commission and Dr. Rohini Nayyar of the Planning Commission and the United Nations Development Programme (UNDP) and Dr. Seeta Prabhu of the Human Development Resource Centre of the UNDP for the financial support for this report and release of the report.

We are specially thankful to Shri A.M. Bharadwaj, Director General of the Mahatma Gandhi Labour Institute (MGLI) for taking the initiative of bringing out this report. His enthusiasm, his logistical support and persuasiveness has made this report see light of the day. This report is being published under the auspices of the MGLI.

We are extremely grateful to the members of the Consultative Committee, Shri A.M. Bharadwaj, Director General of MGLI; Shri S.K. Nanda PS, Health; Shri Varesh Sinha PS, Education; Shri Ravi Saxena PS, Social Welfare Department; Shri Netra Shinoy, PS General Administration; Shri Rita Teotia, PS Women and Child Development; Shri P.K. Roy Chaudhari, Tribal Development; Dr. Sujan Trivedi, Director, Directorate of Economics and Statistics; Dr. Amarjeet Singh, Commissioner, Industrial Development; Dr. Avinash Kumar, PS Labour and Employment; Shri J.N. Singh, Secretary Rural Development; Ms. Merai Chatterjee, Gen. Secretary, Self-Employed Women's Association; Ms. Indu Kapur, Director, CHETNA; Prof. Leela Visaria, Gujarat Institute of Development Research; Dr. Rohini Nayyar, Human Development Report in-charge,



Planning Commission and Dr. Nagesh Singh, Planning Commission; Dr. Seeta Prabhu, Head, Human Development Resource Centre, UNDP and Dr. Suraj Kumar, UNDP for their support and advice.

The members of the Consultative Committee have given their help at various points and for various tasks involved in preparing the report. Besides going through the earlier draft of the report carefully, they gave their critical comments and suggestions and helped in accessing the required data for updating the report. We are thankful to them for this support.

In this endeavour we have received good support from several non-governmental organizations. Ms. Merai Chatterjee from SEWA and Ms. Indu Kapur from CHETNA gave critical comments and suggestions as members of the Consultative Committee and also helped in accessing information on the activities of their organizations. Shri Sukhdevbhai Patel of *Gantar* helped us with the information on the activities of their organization and discussed at length the issues related to universalising of primary education in Gujarat. Dr. Ilaben Pathak of Ahmedabad Women's Action Group shared her documents and material on violence against women with us. We are grateful to all of them. We have interacted with many other non-governmental organizations and used their published and unpublished documents for understanding the dynamics and issues of human development in Gujarat. We acknowledge the indirect support of these NGOs, namely, Disha, Unnati, Vikas, Ahmedabad Study Action Group, Sarjan, Vivekanand Research and Training

Institute, Kachchh Mahila Vikas Sangathan, Paryavaran Suraksha Samiti, Research Foundation for Health Studies, Manaviya Technology Forum, Oxfam (India) Trust, etc.

Sheshadri has copy edited our report in a very short time and we are thankful to him. Babubhai Shah has painstakingly gone through the report, with innumerable changes coming in at many points in time, and translated it into Gujarati. We are extremely happy to present a Gujarati copy of the full report to the people of Gujarat.

We are also thankful to the staff of Mahatma Gandhi Labour Institute, Mr. Jayesh Patel and Mr. Narayanan for day to day logistical support.

Finally, we would like to acknowledge with thanks the contribution of our research team at the Centre for Development Alternatives (CFDA), Madhavi Patel (formerly at CFDA), Shital Lodhia, Harpreet Singh and Vimal Khawas. Jigar Kantharia and Abhish Mathew of CFDA have assisted us in secretarial works.

While we are grateful to all those who have helped us, we bear the responsibility for the lacunae in the Report. We dedicate this report to the people of Gujarat, belonging to different castes, religion and social groups.

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## Acronyms

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AE	Actual Expenditure
AKRSP	Aga Khan Rural Support programmes
AMC	Ahmedabad Municipal Corporation
ANANDI	Area Networking and Development Initiatives
AWAG	Ahmedabad Women's Action Group
BAIF	Bharatiya Agro Industries Foundation
BCR	Balance from Current Revenue
BE	Budgeted Expenditure
BMI	Body Mass Index
BPL	Below Poverty Line
BRC	Block Resource Centre
CACL	Campaign Against Child Labour
CARG	Compound Annual Rate of Growth
CBR	Crude Birth Rate
CDR	Crude Death Rate
CDS	Current Daily Status
CEDAW	Convention on the Elimination of all forms of Discrimination Against Women
CFDA	Center for Development Alternatives
CHC	Community Health Centres
CI	Citizens' Initiative
CIEE	Citizens' Initiative on Elementary Education
CMIE	Center for Monitoring Indian Economy
CPCB	Central Pollution Control Board
CPR	Couple Protection Rate
CRC	Cluster Resource Centre
CRR	Cost Recovery Rate
CRS	Civil Registration System
CSO	Central Statistical Organization

CSSM	Child Survival and Safe Motherhood Programme
CWS	Current Weekly Status
CZMP	Coastal Zone Management Plan
DALY	Disability-adjusted Life Years
DDP	Desert Development Programme
DIET	District Institutes of Education and Training
DPAP	Drought Prone Area Programme
DPEP	District Primary Education Programme
DRDA	District Rural Development Agency
DSC	Development Support Centre
DWCD	Department of Women and Child Development
EAS	Employment Assurance Scheme
EDEP	Equally distributed equivalent percentage
EOP	End of Pipe
ESIS	Employees State Insurance Scheme
ET	Educational Technology
ETP	Effluent Treatment Plant
FCV	Forced Vital Capacity
FMR	Female Male Ratio
FRU	First Referral Unit
FSI	Forest Survey of India
GDI	Gender Development Index
GDP	Gross Domestic Product
GEC	Gujarat Ecological Commission
GEER	Gujarat Ecology Education and Research Foundation
GEI	Gender Equality Index
GEM	Gender Empowerment Measure
GEMI	Gujarat Environment Management Institute
GIDB	Gujarat Infrastructure Development Board
GIDC	Gujarat Industrial Development Corporation
GIDR	Gujarat Institute of Development Research
GMB	Gujarat Maritime Board
GNP	Gross National Product
GOG	Government of Gujarat

GPCB	Gujarat Pollution Control Board
GPI	Genuine Progress Indicators
GRWWB	Gujarat Rural Workers Welfare Board
GSDMA	Gujarat State Disaster Management Authority
GSFC	Gujarat State Finance Corporation
GWSSB	Gujarat Water Supply and Sewerage Board
HCR	Head Count Ratio
HDI	Human Development Index
HDM	Human Development Measure
HDR	Human Development Report
HER	Human Expenditure Ratio
HPI	Human Poverty Index
HRD	Human Resource Development
IDD	Iodine Deficiency Disorder
IEC	Information, Education and Communication
IEM	Industrial Entrepreneurs Memorandum
IMR	Infant Mortality Rate
ISM	Indian System of Medicine
IWLD	Integrated Wasteland Development
JFM	Joint Forest Management
KPT	Kandla Port Trust
LEB	Life Expectancy at Birth
LIC	Life Insurance Corporation
LUP	Land Use Planning
MCHU	Mobile Comprehensive Health Care Units
MFC	Medicos Friends Circle
MMR	Maternal Mortality Rate
MSMI	Micro, Small and Medium Industry
NAAQM	National Ambient Air Quality Management
NAFRE	National Alliance For Right of Education
NBSS	National Bureau of Soil Survey
NCAER	National Council of Applied Economic Research
NCERT	National Council of Educational Research and Training
NCTE	National Council for Teacher Education

NEAF	NGO Environment Action Plan
NFE	Non-formal education
NFHS	National Family Health Survey
NGO	Non-governmental organization
NHRC	National Human Rights Commission
NIOH	National Institute of Occupational Health
NIP	New Industrial Policy
NIPCCD	National Institute of Public Cooperation and Child Development
NNMR	Neo-Natal Mortality Rate
NRF	National Renewal Fund
NRSA	National Remote Sensing Agency
NSS	National Sample Survey
NTFP	Non-Timber Forest Produce
NWDB	National Wasteland Development Board
OE	Over Exploited
PEFR	Peak Expiratory Flow Rate
PEM	Protein Energy Malnutrition
PER	Public Expenditure Ratio
PFT	Pulmonary Function Test
PMOST	Programme of Mass Orientation of School Teachers
PNNM	Post Neo-Natal Mortality
PRI	Panchayati Raj Institutions
PROBE	Public Report on Basic Education
PUC	Pollution Under Control
PUCL	People's Union for Civil Liberties
PVCG	Programme for Vulnerable Children in Gujarat
R & D	Research and Development
RE	Revised Estimates
RWRHS	Rain Water Roof Harvesting Structures
SAR	Social Allocation Ratio
SC	Scheduled Caste
SD	Standard Deviation
SDP	State Domestic Product
SEWA	Self-employed Women's Association

SGSY	Sampoorna Gram Swarojgar Yojana
SIDB	Social Infrastructure Development Board
SNA	System of National Accounts
SPI	Social Progress Index
SPM	Suspended Particulate Matter
SPR	Social Priority Ratio
SRS	Sample Registration System
SSI	Small Scale Industries
ST	Scheduled Tribe
SWDF	Sadguru Water and Development Foundation
TB	Tuberculosis
TFR	Total Fertility Rate
UEE	Universal Elementary Education
UIP	Universal Immunisation Programme
UN	United Nations
UNDP	United Nations Development Programme
VC	Vital Capacity
VRS	Voluntary Retirement Scheme
VRTI	Vivekanand Research and Training Institute
WCP	Women Component Plan
WHO	World Health Organization
WPR	Work Participation Rate

# Contents

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## Chapters

1.	Understanding Human Development: Concept, Content and Measurement	1
2.	Dynamics of Development in Gujarat	21
3.	Government Expenditure on Social Sectors	61
4.	The Status of Environment in Gujarat	75
5.	Health and Nutrition	115
6.	Literacy and Education	147
7.	Gender Development and Distance	179
8.	Human and Gender Development Levels	209
9.	Towards Better Human Development in the State	227
	Technical Notes	261
	Annexures	265
	References	341
	Definitions	353

---

## List of Tables

2.1	Trends in population and its characteristics	22
2.2	CBR over time, Gujarat and India	22
2.3	Population growth in major Indian states (CARG)	23
2.4	Health and population goals for Gujarat	24
2.5	Sectoral Growth Rates in Gujarat at constant prices (1980-81) in Gujarat (CARG)	25
2.6	Per capita NSDP in different sectors in Gujarat (Rs. at 1980-81 prices)	25
2.7	Performance of Agriculture Sector	27
2.8	IEMs filed in the major states in India (1991-2003)	28
2.9	Industrial investment sanctioned in large and medium industries	29
2.10	Regional Pattern of Medium and Large Industries sanctioned in Gujarat (1983-2002)	30
2.11	Growth of SSI units in over time by district, Gujarat	31
2.12	Workforce in Gujarat	33
2.13	Growth of employment 1983-1999-00, Gujarat and India	34

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2.14	Distribution of main workers by broad industrial categories, Gujarat (1981-2001)	34
2.15	Labour force and employment by sector, Gujarat (1983-2000)	34
2.16	Distribution of employed persons, Gujarat (1983-2000)	35
2.17	Employment scenario in major states in India, CDS basis	36
2.18	Male and female work participation rates, India and Gujarat (main + marginal)	37
2.19	WPR in Gujarat based on the NSS (Current Weekly Status) and the Time Use Survey (1998-99)	37
2.20	Occupational diversification of male and female workers, Gujarat	38
2.21	Employment status of workers, Gujarat	39
2.22	Percentage distribution of workforce by possession of marketable skills in Gujarat, 1993-94	42
2.23	Job seekers by level of education as registered with employment exchanges during 1980 to 2001, Gujarat	43
2.24	Estimates of Incidence of Poverty (1999-2000)	50
2.25	Incidence of Poverty in 15 major Indian states, 1973-74 to 1993-94	51
2.26	Poverty in Gujarat	51
2.27	Incidence of Poverty in Gujarat: Alternative estimates	52
2.28	NSS region-wise incidence of poverty	53
2.29	Poverty by size-class of towns, Gujarat	53
2.30	Per capita income, incidence of income poverty and incidence of human poverty in major states of India	56
2.31	Effective literacy rates by state, 1991 and 2001 and net enrolment rates by state, 1999-00	57
2.32	Enrolment Rates (age 6-14 years) by NSS Regions, Gujarat, 1993-94 and 1999-00	58
2.33	Infant Mortality Rates in India and in 15 Major States, By place of residence	59
3.1	Expenditure ratios in Gujarat, 1990-91 to 2001-02	63
3.2	Trends in expenditure on health and education, Gujarat	64
3.3	Expenditure pattern in education sector, Gujarat	64
3.4	Expenditure pattern in health sector, Gujarat	65
3.5	Claim of various downward rigid items on revenue receipts and expenditure	66
3.6	Growth of non-development expenditure in Gujarat	66
3.7	Government subsidies in Gujarat, 1993-94 to 1999-2000	67
3.8	Percentage share of social and economic services	68
3.9	Public debt of Gujarat, 1996-97 to 2000-01 (Rs. crore)	69
3.10	Financial indicators for Government of Gujarat	69

4.1	Utilizable groundwater reserves, Gujarat	80
4.2	Taluka-wise level of groundwater development	81
4.3	Status of water quality in Gujarat	82
4.4	Actual forest cover in Gujarat (sq. kms.)	83
4.5	Dense and open forests in Gujarat (sq. kms.)	84
4.6	Land under wasteful use, Gujarat (excluding Kachchh), 1980-81 to 1996-97	85
4.7	Estimates of wastelands in Gujarat (lakh ha.)	86
4.8	Area and number of talukas under DDP and DPAP, 1980-81 to 1999-00	86
4.9	Area of depletion in groundwater level in coastal talukas	92
4.10	Industrial investments by regions	93
4.11	Major and minor ports located near coast	94
4.12	Environment and Pollution Control Scheme-wise outlay in Eighth Plan	99
4.13	Bird's eye-view of pollution related infrastructure	101
4.14	CETP subsidy by Industrial Commissionerate	102
5.1	Health status, Gujarat and India	119
5.2	IMR and CDR in Gujarat and India	120
5.3	Infant and Child Mortality trends, Gujarat	121
5.4	District-wise Health Indicators	122
5.5	Morbidity in Gujarat	124
5.6	Prevalence rates of specific health problems, Gujarat, NFHS-1	124
5.7	Prevalence rates of specific health problems, Gujarat, NFHS-2	125
5.8	Reported cases of different diseases over time, Gujarat	127
5.9	Mean values of pollutants	128
5.10	Morbidity rates, districts	128
5.11	Distribution of deaths by major cause-groups, Gujarat and India	129
5.12	Proportion of malnourished children (1-5 years), Gujarat and India	129
5.13	Nutritional status of children by background characteristics, NHFS-2	130
5.14	Nutritional status of women Gujarat, NFHS-2	131
5.15	Anaemia among women, Gujarat, NFHS-2	132
5.16	Targets achieved in the nutrition programmes, Gujarat	132
5.17	Regions of iodine deficiency	133
5.18	Latrine construction in Gujarat	134
5.19	Health goals, India and Gujarat	136
5.20	Trends in health sector expenditure in the last decade, Gujarat	138

5.21	Health facilities in Gujarat and India, 1991	140
5.22	Number of Allopathic Medical Institutions (2001-02)	143
5.23	Utilisation of health facilities, Gujarat and India (NCAER data)	143
5.24	Health facilities in the selected villages	144
5.25	Health facilities in the selected Urban Centres	145
6.1	Effective literacy rates by sex and residence in Gujarat, 1981-2001	150
6.2	Effective literacy rates, Gujarat and India	151
6.3	Literacy rates, 1961 to 1991	151
6.4	NSS region-wise literacy rates, 1993-94 and 1999-00	152
6.5	District-wise effective literacy rate, 1991 and 2001	153
6.6	Literacy rates of the STs and SCs by states, 1999-00	154
6.7	Enrolment and retention of children age 6-14	155
6.8	Net enrolment in Class I-V and Class VI-VIII, Gujarat and India	155
6.9	Enrolment by sex in Class I over time, Gujarat	156
6.10	Enrolment rates (age 6-14 years) by NSS regions, Gujarat, 1999-00 and 1993-94	157
6.11	Gross enrolment rates in elementary school by district, 1996 and 2000	158
6.12	SC and ST enrolment by sex in Class I over time, Gujarat	158
6.13	Recent drop-out rates over time, Gujarat	159
6.14	District-wise drop-out rates (class I-VII), 1986-90, Gujarat	160
6.15	Expenditure on education over time, Gujarat	161
6.16	Share of education (%) in SDP by states	161
6.17	Share of education (%) in the total budget of the states (revenue account)	163
6.18	School education facilities, Gujarat and India, 1990-91	163
6.19	Teacher-pupil ratio over time	164
6.20	District-wise sanctioned and filled posts for <i>Vidhya Sahayaks</i>	164
6.21	District-wise primary education facilities, Gujarat	165
6.22	Education infrastructural facilities, 1996	166
6.23	Child labour in Gujarat and India (usual principal status), (1961 – 1999-00)	167
6.24	Participation by children in economic (SNA) activities, Gujarat, 1999-00 (per cent)	168
6.25	Average hours per week spent by children in economic (SNA) activities, Gujarat, 1999-00	169
6.26	Average hours per week spent by children in all economic (SNA) activities in select states in India, 1999-00	169
6.27	Reasons for tribal children not going to school	170

7.1	Overall and juvenile sex ratios, Gujarat and India 1901-2001	182
7.2	Overall and juvenile sex ratios by states, 1991 & 2001	183
7.3	Overall and juvenile sex ratios by district, 1991 & 2001, Gujarat	185
7.4	Age group wise sex ratio and population distribution, Gujarat	186
7.5	Infant and child mortality by sex, Gujarat	186
7.6	Infant and child mortality rates, districts, 1991	187
7.7	Estimated Crude Birth Rate, Gujarat and India	188
7.8	Fertility indicators, Gujarat and India	188
7.9	Median age at first and last birth by state, 1998-99	189
7.10	Use of contraceptive methods by state, 1998-99	189
7.11	Distribution of births by type of attention at birth, 1993	190
7.12	Performance of maternal health care programmes	191
7.13	District-wise performance of MCH programme	191
7.14	Literacy rate and gender equality over time, Gujarat	192
7.15	Literacy achievements of scheduled castes and tribes (%)	192
7.16	Percentage female students to total students, Gujarat	193
7.17	Percentage of girls to boys enrolled in primary schools, 2000-01, Gujarat	194
7.18	District-wise female WFPR, Gujarat, 1991, 2001	196
7.19	SHGs formed upto March 2003	199
7.20	Female participation in parliament elections	200
7.21	Elected representatives in panchayati raj institutions	200
7.22	Incidence of various crimes against women, Gujarat	203
7.23	Extent of child and below age marriages among females, districts, 1991	204
7.24	Women-specific and pro-women scheme allocations and expenditures	206
8.1	Correlation of HDM-1 indices, state level, 2001	211
8.2	Comparing income, human development, gender development and gender equality, 2001	211
8.3	Correlation between GDM-1, GEI and HDM-1, states, 2001	214
8.4	Correlation between HDM-1, GDM-1 and HDM-2, states, 2001	216
8.5	Correlations of component indices of HDM-1, districts, 2001	218
8.6	Comparing ranks of districts in GDM-1 and GEI, 2001	220
8.7	Correlations of component indices of GDM-1 and GEI, districts, 2001	221

8.8	Correlation of individual indices of HDM-1/GDM-1 and HDM-2, districts, Gujarat, 2001	223
8.9	Districts at top and at bottom, 2001	225
9.1	District-wise village amenities, 1999	238

---

## List of Figures

2.1	Crude Birth Rate in Gujarat	23
2.2	Poverty in Rural and Urban Areas in Gujarat	52
3.1	Public expenditure ratio (PER)	62
3.2	Social allocation ratio (SAR)	62
3.3	Social poverty ratio (SPR)	62
3.4	Human expenditure ratio (HER)	62
4.1	Percentage of problem talukas regarding groundwater status in Gujarat	80
4.2	Dense and open forests in Gujarat	83
4.3	Percentage share of Saurashtra and Kachchh in industrial investment	93
5.1	Total fertility rates, districts, 2001	123
5.2	Reported cases of scabies	126
5.3	Reported cases of gastro-enteritis	126
5.4	Reported cases of leprosy	126
5.5	Reported cases of malaria	127
5.6	Reported cases of TB	127
5.7	Revenue expenditure on health (1993-94 prices)	139
5.8	Capital expenditure on health (1993-94) prices	139
5.9	Total expenditure on health (1993-94 prices)	140
5.10	PHCs and sub-centres over time	140
5.11	Hospitals by place over time	141
5.12	Number of beds per lakh Population	142
6.1	Revenue expenditure in education (1993-94 prices)	162
6.2	Capital expenditure on education (1993-94 prices)	162
6.3	Total education expenditure (1993-94 prices)	162
6.4	District-wise Literacy Rates	177
7.1	Sex ratio over time, Gujarat	182
7.2	Sex ratios, Districts, 2001	184

7.3	CBR over time	187
8.1	HDM-1 values of districts	224
8.2	GDM-1 values of districts	224

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## List of Boxes

1.1	Millennium Development Goals	2
1.2	GNP: Navigating with a faulty instrument	3
1.3	Human rights and human development	4
1.4	Human development – The concept is larger than the index	10
2.1	Rojgar Sahayak Kendra	46
2.2	Shramyogi Scheme	48
2.3	Evaluation of wage employment programmes	49
2.4	Long term impact of self-employment programmes in selected villages	54
2.5	Incidence of poverty by different criteria in selected villages	54
3.1	Privatizing infrastructure development	72
4.1	Excessive Salinity	81
4.2	Excessive Fluoride	82
4.3	Excessive Nitrates	83
4.4	Types of forests in Gujarat	84
4.5	Desertification in Kachchh and North Gujarat	85
4.6	Resolution on Drought - Revenue Department 28-12-2002	91
4.7	Salt affected areas in Gujarat 1960 to 1998	92
4.8	Coastal Zone Management	94
4.9	Water pollution levels at selected sites	98
4.10	Responsible agencies under Environmental Laws	100
4.11	Salient Features of the Joint Forest Management in Gujarat	106
4.12	Watershed projects in Gujarat	107
4.13	Social Forestry	108
5.1	Health sector achievements in Gujarat	119
5.2	Lok Swasthya Sewa Mandali	121
5.3	Nutrition goals in Gujarat	131
5.4	Bent under the burden of fluorosis	133

5.5	Slum Networking Programme	135
5.6	School sanitation	135
5.7	The State Health Policy – Proposed	137
5.8	Expenditure on health (current prices)	139
5.9	Health care delivery system in Gujarat	141
5.10	Health facilities in urban areas	141
5.11	Development of health facilities in Gujarat	142
5.12	Mobile comprehensive health scheme	142
5.13	National AIDS Control Programme: Gujarat	146
6.1	Widening Horizons	147
6.2	Education in the Indian Constitution	149
6.3	Adult Literacy Education Goals	154
6.4	Financial incentive for the girl child to complete elementary education	159
6.5	Some recent efforts in elementary education	159
6.6	Expenditure on education (current prices)	160
6.7	Child labour in Indian Constitution	166
6.8	Convention of the Rights of the Child	166
6.9	Conversation with a tribal girl	172
6.10	A surprise visit to the primary school, Divsi	173
7.1	CHETNA: Awareness on women’s health	190
7.2	SEWA: Gender development through organizing	195
7.3	Home-based women workers and poverty	196
7.4	Women’s development programmes in Gujarat	197
7.5	Swa-shakti Gujarat	198
7.6	On Gender Budgeting	205
7.7	Percentage allocation to women targeted and pro-women schemes	207
9.1	Gantar - Educating children of migrant labour	240
9.2	Shalane Pass Karo	242
9.3	Budget and marginalized: a case study of Patheya	252
9.4	Conceptualizing Governance	254
9.5	Good governance – for what?	254
9.6	On democracy	255

## List of Annexures

1	Index values, HDM-1, States, 2001	265
2	Index values, HDM-1, States, 1991	265
3	Ranking of States, HDM-1, 2001	266
4	Ranking of States, HDM-1, 1991	266
5	Comparing income, HDM-1 and HDI ranks, 2001	267
6	Index values, GDM-1, States, 2001	267
7	Index values, GDM-1, States, 1991	268
8	Ranking of States, GDM-1, 2001	268
9	Ranking of States, GDM-1, 1991	269
10	Comparing income, GDM-1, GDI, HDM-1 ranks, 2001	269
11	Index values, GEI, States, 2001	270
12	Index values, GEI, States, 1991	270
13	Ranking of States, GEI, 2001	271
14	Ranking of States, GEI, 1991	271
15	Index values, HDM-2, States, 2001	272
16	Index values, HDM-2, States, 1991	272
17	Ranking of States, HDM-2, 2001	273
18	Ranking of States, HDM-2, 1991	273
19	Index values, HDM-1, districts, Gujarat, 2001	274
20	Index values, HDM-1, districts, Gujarat, 1991	275
21	Ranking of districts, HDM-1, Gujarat, 2001	276
22	Ranking of districts, HDM-1, Gujarat, 1991	277
23	Index values, GDM-1, districts, Gujarat, 2001	278
24	Index values, GDM-1, districts, Gujarat, 1991	279
25	Ranking of districts, GDM-1, Gujarat, 2001	280
26	Ranking of districts, GDM-1, Gujarat, 1991	281
27	Index values, GEI, districts, Gujarat, 2001	282
28	Ranking of districts, GEI, Gujarat, 2001	283
29	Index values, GEI, districts, Gujarat, 1991	284
30	Ranking of districts, GEI, Gujarat, 1991	285
31	Index values, HDM-2, districts, Gujarat, 2001	286
32	Ranking of districts, HDM-2, Gujarat, 2001	287
33	Index values, HDM-2, districts, Gujarat, 1991	288



34	Ranking of districts, HDM-2, Gujarat, 1991	289
35	Comparing HDM-1, GDM-1, and HDM-2 indices, 2001 and change in district ranks in 1990s, Gujarat	290
36	Human Poverty Index-1981	291
37	Human Poverty Index-1991 (comparable with 1981)	291
38	Human Poverty Index-1991 (not comparable with 1981)	292
39	Indicators of human development measure-1 (HDM-1), States, 2001	293
40	Indicators of human development measure-1 (HDM-1), States, 1991	294
41	Indicators of gender development measure-1 (GDM-1), States, 2001	295
42	Indicators of gender development measure-1 (GDM-1), States, 1991	296
43	Calculating equally distributed income for female, States, 2001	297
44	Calculating equally distributed income for female, States, 1991	298
45	Indicators of human development measure-2 (HDM-2), States, 2001	299
46	Indicators of human development measure-2 (HDM-2), States, 1991	299
47	Indicators of human development measure-1 (HDM-1), Districts, 2001	300
48	Indicators of human development measure-1 (HDM-1), Districts, 1991	301
49	Indicators of gender development measure-1 (GDM-1), Districts, 2001	302
50	Indicators of gender development measure-1 (GDM-1), Districts, 1991	303
51	Indicators of human development measure-2 (HDM-2), Districts, 2001	304
52	Indicators of human development measure-2 (HDM-2), Districts, 1991	305
53	Per capita income in major States, India (in Rs.)	306
54	Population growth rates by States	306
55	Population composition, States	307
56	Vital statistics, States	307
57	Indicators of patriarchy	308
58	Selected indicators on literacy and education, States	308
59	Net enrolment rate, age 5-9 and age 10-14, States	309
60	Estimated enrolment (%) of all classes under different age groups, States	309
61	Distribution of literacy by education level, 1991, States	310
62	Per cent villages covered and population with access to primary schools, States	310
63	Effective literacy rate, States	311
64	Enrolment rate, 1993-94, States	311
65	Crude birth rate, States	312
66	Crude death rate, States	312
67	Infant mortality rate, States	313

68	Nutritional status of children, States, NFHS-2	313
69	Anaemia among children, States, NFHS-2	314
70	Nutritional status of women, States, NFHS-2	314
71	Anaemia among women, States, NFHS-2	315
72	Exposure to messages of family planning by States	315
73	Maternal care indicators by States, 1998-99	316
74	Mean age at marriage by States	316
75	Availability of basic amenities to households and distribution of households by type of house occupied, States	317
76	Unemployment rates (%) based on CDS for major states (1987-2000)	317
77	District-wise population, 1991	318
78	District-wise population, 2001	319
79	District-wise sex ratio (no. of females per 1000 males)	320
80	District-wise number of pre-schools, number of students and number of teachers, 1990-91	321
81	District-wise number of pre-schools, number of students and number of teachers, 1998-99	322
82	District-wise number of pre-schools, number of students and number of teachers, 2000-01	323
83	District-wise number of primary schools, number of students and number of teachers, 1990-91	324
84	District-wise number of primary schools, number of students and number of teachers, 1998-99	325
85	District-wise number of primary schools, number of students and number of teachers, 2000-01	326
86	District-wise students in educational institutions, 1998-99	327
87	Number of primary schools and middle & high schools per lakh population	328
88	Gross enrolment rate age group 6-14	329
89	SC students in primary school	330
90	ST students in primary school	331
91	District-wise Crime against Women (Number of reported cases per lakh population)	332
92	District-wise number of industries and fixed investment, 1998-99	335
93	District-wise land use classification, 1998-99 (%)	336
94	District-wise irrigated area, 1998-99	337
95	District-wise infrastructure status, 1999-00	338
96	District-wise banking	339





# Understanding Human Development: Concept, Content and Measurement

Road map to progress



A crime free village

## Chapter 1





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## Understanding Human Development: Concept, Content and Measurement

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# 1

Human development means increased capabilities of people that enable them to access larger opportunities in life. In the context of India, human development implies promoting basic capabilities among those who lack them. It also means supporting those who are marginalized and excluded from the mainstream of development. It is now widely accepted that human development, and not economic growth, is the ultimate goal of any society and that economic growth per se does not ensure human development.

Human development is not only the goal of a human society; it is also a development paradigm to be adopted to achieve this goal. Human development cannot be achieved only by promoting health and nutrition or education and literacy or welfare of people through scattered programmes. It requires a development path or development strategy that is conducive to the development of human capabilities and opportunities. The United Nations Development Programme (UNDP) has called this a human-centred development paradigm. The various annual global Human Development Reports (HDRs) of the UNDP have discussed at length different aspects of this paradigm. For example:

- ◆ The 1993 HDR discussed participatory and employment intensive development
- ◆ The 1994 HDR discussed sustainable human development based on development cooperation at the global level
- ◆ The 1995 HDR argued for engendered development path

- ◆ The 1996 HDR analysed the relationship between economic growth and human development
- ◆ The 1997 HDR explored the link between human development and poverty
- ◆ The 1998 HDR discussed issues related to consumption and increasing inequality in consumption
- ◆ The 1999 HDR presented the challenges to human development in the context of globalization
- ◆ The 2000 HDR was on human rights and the links to human development
- ◆ The 2001 HDR discussed the relationship between new technologies and human development
- ◆ The 2002 HDR presented the role of democracy and governance in human development
- ◆ The HDR 2003 gave the global level and individual country level achievements and efforts with regard to the Millennium Development Goals set in the early 1990s (see box 1.1).

The HDRs in essence attempt to connect different aspects of development that are linked to the goal of human development. They do not reduce the debate on human development to merely equating human development to economic growth. These reports express the need to look at human development in a holistic manner and argue that human development needs a development paradigm that possesses certain important characteristics at the global,

*It is now widely accepted that human development, and not economic growth, is the ultimate goal of any society and that economic growth per se does not ensure human development*

### Millennium Development Goals

Goal 1: Eradicate extreme poverty and hunger	Goal 5: Improve maternal health
Goal 2: Achieve universal primary education	Goal 6: Combat HIV/AIDS, malaria, and other diseases
Goal 3: Promote gender equality and empower women	Goal 7: Ensure environmental sustainability
Goal 4: Reduce child mortality	Goal 8: Develop a global partnership for development

Source: UNDP (2003).

*Several countries have prepared their own HDRs in response to the global initiative by the UNDP. They have evolved their own measurements of human and gender development*

national and local levels. A major contribution of the global HDRs has been to show that a society's performance should be judged not by the average income of the people but by the people's capability to lead the life they value and that this requires a development path that makes it possible.

Several countries have prepared their own HDRs in response to the global initiative by the UNDP. They have evolved their own measurements of human and gender development in the specific context of their own development needs. They have also laid different emphases based on their own country's human and gender development issues. In India, the Planning Commission has prepared a National Human Development Report (NHDR) (Planning Commission, 2002), which lays emphasis on governance for human development. Several state governments have prepared state level reports. While the Planning Commission has measured levels of human development across states in India, the state level HDRs have measured the levels of human development of their respective states through human development indices across districts. These reports have discussed the specific development needs of the states in the area of human development. In some states, such a report has also led to corrective policies and action.

This Gujarat Human Development Report examines various dimensions of human development in the state, over time, across regions and across different socio-economic

groups. Various dimensions of human development are observed within the macro context of development dynamics of the state. This report attempts to understand and assess whether the development paradigm pursued by Gujarat would lead towards sustainable human development.

Before moving to the discussion of various dimensions of human development in the state, the concept of human development as propounded by the UNDP, measures of human development, and modifications necessary in these measures to suit the requirements of a developing country are discussed. The new measure is then applied for measuring levels of human development across states in India and districts in Gujarat.

## Concept of Human Development

The concept of human development is not really new. Right from the early days of civilization, scholars and philosophers have doubted the validity of the notion of acquisition of national wealth as the goal of human society. Aristotle, for example, stated, "Wealth is evidently not the good we are seeking, for it is merely useful for the sake of something else" (UNDP, 1993), that is, for the well-being of human beings. With the growth of industrial capitalism one increasingly finds scholars raising questions regarding the validity of economic growth models that give primacy to the growth of national income and wealth as representative of human well-being. The term human development, thus, has emerged over the years as a goal as well as an alternative paradigm in development literature.

## Alternative Measurements

In the 1950s and 1960s, scholars raised doubts regarding the desirability of using GNP/GDP as a measure of development and presented alternative measures (refer box 1.2). It was observed during these decades that

human welfare was declining in spite of increased incomes in some industrialized countries. Crime was increasing, congestion and slums were increasing, and social development was suffering. Since then, scholars have presented several alternative measures of welfare. Broadly described, these are:

- ◆ **Social statistics, social accounting and social reporting:** These data referred to the social aspects of development and were presented in the form of social accounts, social reports, or social indicators (Henderson 1974; Land 1971; OECD 1976). Social accounts presented the data in input-output tables. Social reports and social indicators were a sub-set of the universe of social statistics (Land 1974).

- ◆ **Level of living, living standards, and state of welfare index:** Level of living and living standards indicated the level of satisfaction of the needs of a population as a result of goods and services enjoyed by them (Drewnoski 1974). The state of welfare index measured the level of welfare (using output indicators) of a population (Oscar and Juan 1980).

- ◆ **Quality of life:** Quality of life has always referred to the life people enjoy in the context of environmental pollution, deteriorating safety and security, and declining living standards (Szalai 1980). It has referred to subjective perception of people regarding their life's objective conditions (Henderson 1974; Datta and Agarwal 1980) or subjective assessment of needs in the context of Maslowian hierarchy of needs (Sethi 1992).

- ◆ **Physical quality of life index (PQLI):** This index was presented by Morris D. Morris to measure the conditions of the world's poor in terms of three indicators, namely LEB (Life Expectancy at Birth), IMR (Infant Mortality Rate), and basic literacy (percentage of literates in society) (Morris and McAlpin 1982).

- ◆ **Social progress index and others:** A few more indices have been presented by schol-

ars in recent years to focus on the positive aspects of human development while overcoming the lacunae of GDP. The Social Progress Index (SPI) is one of these and is defined at the individual level in three units: longevity or potential life time, consumption of private goods, and access to public goods such as clean water, sanitation, safety, transport etc. (Desai 1994). Another concept, Genuine Progress Indicators (GPI), developed by a group called 'Redefining Progress', measures 'genuine' progress by including more than 20 aspects of present day economic life that the GDP ignores (Cobb, Halstead and Rome 1995). The values of activities that add to human progress have been added and those that reduce progress have been subtracted from the total measured GDP. Some of the latter activities are: crime, defence expenditure, degradation and depletion of resources, etc. while the former include contributions of household economy, voluntary work, etc.

*The term human development, thus, has emerged over the years as a goal as well as an alternative paradigm in development literature*

BOX 1.2

**GNP: Navigating with a faulty instrument**

GNP needs to be improved to reflect all important economic transactions. But even then, it cannot be taken as a measure of human well-being, mainly because its focal variable is inappropriate for this purpose. It measures means, not ends. In addition, GNP has the following limitations:

- ◆ *It registers only monetary exchanges:* GNP counts only goods and services that can be exchanged for money. Thus, it leaves out of consideration the large amount of work done within the family and community. Report of 1995 estimated that, on average, two-thirds of women's work and a quarter of men's work never enter into GNP calculations.
- ◆ *It equates goods and bads:* It considers valuable services such as care for children or the elderly as having the same significance as the manufacture of, say, cigarettes or chemical weapons.
- ◆ *It counts both addictions and cures:* Addictive eating and drinking, for example, are counted twice: once when the food and alcohol are

consumed, and again when large sums are spent on the diet industry and cures for alcoholism.

- ◆ *It considers natural resources to be free:* Environmental degradation, pollution, and resource depletion are not accounted for. 'The earth is treated, it has been said, "like a business in liquidation".'
- ◆ *It places no value on leisure:* When GNP records the lower income associated with, say fewer working hours or earlier retirement, it does not compensate by adding increased leisure hours to the other side of the ledger. Nor does it subtract the leisure lost when people are forced to take on second jobs.
- ◆ *It ignores human freedom:* National income accounting puts no value on freedom, human rights, or participation. It would, for example, be perfectly possible to attain high per capita incomes and satisfy all material needs in a well-managed prison state.

Source: UNDP (1996).



*In the history of development theories, there has always been a quest for an alternative theory of development that does not view economic growth as development*

Thus, there is thus a wide gamut of concepts presented by scholars to express and measure social or human aspects of development. The Human Development Index (HDI) and other indices presented by the UNDP in the HDRs starting from 1990 are the latest in the series. The SPI and GPI have come as alternative measures to HDI. These latest indices are important because, unlike the earlier ones, they have been located within an alternative development paradigm, namely the human-centred development paradigm.

### Alternative Theories of Development

In the history of development theories, there has always been a quest for an alternative theory of development that does not view economic growth as development. Many scholars have argued that economic growth cannot automatically achieve social or human goals of development unless an altogether new model of development is pursued. Mills (1981), for example, argued that the concepts of social indicators, social progress, social development, etc. are noth-

ing but a liberal reformist response to inequalities caused by the capitalist development paradigm. He stated that unless structural changes are incorporated in the development model, measuring progress in social indicators would not help much. At the theoretical level, therefore, there are several presentations that provide alternatives to the established model of development giving primacy to economic growth over other goals (also see box 1.3).

The first scholars to question the capitalist growth models were the socialists/communists who vociferously criticized capitalism for being an exploitative system. They presented an alternative development paradigm of socialism that rejected the basic premises of capitalism. The socialist paradigm addressed the issue of asset and income disparities by a model of state ownership of all assets, equal distribution of incomes, and provision of basic needs to the population, but moved away from the ideology of creation of a new human being and sacrificed people on the altar of increased accumulation to achieve its goals. Later on, these economies transited from state capitalism to private capitalism without much difficulty as their inadvertent goal was maximizing economic growth.

The other set of theories that came to be propounded in the 1960s and 1970s criticized the dehumanizing results of an industrial society, which treated human beings as instruments for achieving higher incomes and wealth and concerned themselves with humanizing work and social life to enhance the spiritual dimension of life (Fromm 1968). For Fromm, the general aim of a humanized industrial society was to change the social, economic and cultural life of the society in such a way “that it simulates and furthers the growth and aliveness of man rather than cripples him; it activates the individual rather than making him passive and receptive, and the technological capacities serve man’s

BOX 1.3

#### Human rights and human development

Human rights and human development are both about securing basic freedoms. Human rights express the bold idea that all people have claims to social arrangements that protect them from the worst abuses and deprivations – and that secure the freedom for a life of dignity.

Human development is a process of enhancing human capabilities – to expand choices and opportunities so that each person can lead a life of respect and value. When human development and human rights advance together, they reinforce one another – expanding people’s capabilities and protecting their rights and fundamental freedoms.

Source: UNDP (2000: 2).

Human rights and human development share a common vision and a common

purpose – to secure the freedom, well-being, and dignity of all people everywhere. To secure:

- ◆ Freedom from discrimination – by gender, race, ethnicity, national origin or religion.
- ◆ Freedom from want – to enjoy a decent standard of living.
- ◆ Freedom from fear – of threats to personal security, from torture, arbitrary arrests, and other violent acts.
- ◆ Freedom from injustice and violations of the rule of law.
- ◆ Freedom of thought and speech and to participate in decision-making and form associations.
- ◆ Freedom for decent work – without exploitation.

Source: UNDP (2000: 1).

growth.” Meehan (1995) argued for emancipation of human beings from the enslavement of industrial societies. These theoreticians made certain concrete suggestions to re-appropriate the human dimension in industrial societies like: (i) bringing technology back to human scale, (ii) organizing actions that open up oppressive structures and create more space for human activity, participation, and accountability, and (iii) introduction of juridical and cultural reforms. Schumacher (1974), addressing similar concerns in the field of economics, argued that economics covers only that which is quantifiable and omits that which is not, thereby promoting gross inefficiency, environmental pollution, and inhumane working conditions. He, therefore, recommended development that puts man at the centre, through promoting small-scale and less alienating technologies for humanized development. It would not be an exaggeration to say that Schumacher was one of the first theoreticians to define the concept of human development as people-centred.

The third set of theories came up in the mid-1970s. Called the Basic Needs Approach, they emphasized ensuring for all the people the basic means of well-being: food, health, and education. Pitamber Pant, the pioneer of this approach in India, stated that development must be concerned with meeting the minimum or basic needs of people. The Basic Needs Strategy in the 1970s had three main components: (a) increasing incomes through efficient, labour-intensive production, (b) assigning a key role to public services – mass education, safe water and health services – in reducing poverty and (c) shifting people’s attention to participation in planning and delivery of public services that were to be financed by the government, often through international aid. While this strategy consisted of three elements: income, public services delivery, and participation, in practice it became a top-down, state action programme of delivery of public services.

The new set of development theories came up in the 1980s and 1990s, which brought in concern for people, but mainly concentrated on people’s productive capabilities, ignoring other capabilities. The theories considered technological progress or increase in productivity and human capabilities as endogenous, and not exogenous, factors of economic growth. They argued that development of the human factor, which can be influenced by policy interventions, can lead to economic development. The human capital theory of growth and theories based on research and development (R & D) were prominent among them.

The human capital models, starting with the work of T. A. Schultz, show how education allows the production process to benefit from positive externalities and promotes growth. The growth theories that emphasize R & D also underline the importance of human capital in economic growth. Both sets of theories, however, consider human beings as the means, and not the end, of economic development. The human resource development theory also falls in the same category as it treats human beings as human capital and aims at raising economic growth through developing human capital. Expansion of human capabilities is a by-product, but not the goal of development.

The latest theoretical support to the human development approach has come from Amartya Sen’s work, which is the foundation for the present human development paradigm. In Sen’s view, the standard of living of a society should be judged not by the average level of income but by people’s capabilities to lead the life they value. Also, commodities should not be valued in their own right but as ways of enhancing capabilities such as health, knowledge, self-respect, and ability to participate actively in community life. Thus, Sen sees human beings as the subject, rather than the object, of development. According to him, human

*The standard of living of a society should be judged not by the average level of income but by people’s capabilities to lead the life they value*

Considerable work has been done to understand the two-way inter-relationship between economic growth and human development

development is a process that expands the capabilities of human beings and allows them an opportunity to use these capabilities productively. That is, human development is a process of expansion of opportunities for human beings. Sen also emphasizes that at the core of human well-being is freedom of choice. The expansion of human capabilities implies greater freedom of choice - so that people can explore a wider range of options that they find worthwhile.

Human development as a process is expansion of people's choices. People want many things in life other than income: better health, education, better environment, and more freedom. The goal of development is to provide these choices. The basic concept of human development includes five dimensions: (a) empowerment, (b) cooperation, (c) equity, (d) sustainability and (e) security. *Empowerment* implies acquisition of capabilities that makes free choice possible and participates in decision-making. *Empowerment* allows people to become active agents in their own development. *Cooperation* is a sense of belonging, which is an important source of well-being. Human development is concerned not just with people as individuals but also with how they interact and cooperate in community. *Equity* in human development means seeking equity in basic capabilities and opportunities; each individual should have equal access to development opportunities in life. *Sustainability* implies not only environmental sustainability, but also sustainability of people's opportunities to freely exercise their basic capabilities. *Security* implies economic security, food security, health security, personal security, political security and cultural security.

The concept of human development is, therefore, unique. It has emerged not only as a measure of development or as a goal but has also evolved as a development model or a development paradigm. Human de-

velopment, thus, is a holistic concept that ensures overall development of human beings and society. Such development, according to UNDP, can take place only under a people-centred development paradigm.

## Human Development Paradigm - Some Characteristics

There is no comprehensive theory of human development available in the present literature. However, considerable work has been done to understand the two-way inter-relationship between economic growth and human development. On the one hand, the objectives of economic development have deepened and matured, while on the other hand, there is a growing realization that human development cannot be sustained without economic growth. The discussion whether economic growth first or whether human development first is no more relevant, as it is realized that better understanding of the linkages between the two is necessary to minimize their trade-off. The critical question therefore would be what kind of economic growth would maximize human development and how to strengthen the linkages between the two.

There is a basic agreement that, if human development is the goal, economic growth is a means to achieve this goal. However, there are no automatic links between economic growth and human development. These links have to be identified and forged through appropriate policy interventions, so that economic growth leads to rapid improvement in human development. That there are no automatic links between economic growth and human development is seen in several countries, where growth frequently tends to be jobless (does not generate enough employment), voiceless (regressive and non-participatory), ruthless (widening disparities across people and region), rootless (demolishing local socio-cultural

diversity), or futureless (non-sustainable) (UNDP 1996).

In order to promote human development, economic growth should have several basic characteristics:

- ◆ Economic growth is translated into human development easily when people have productive and well-paid work. That is, growth has to be employment-intensive.
- ◆ Economic growth should improve access of people to productive assets like land, physical infrastructure, financial credit, etc. to enable them to access economic opportunities.
- ◆ The more equally GNP and economic opportunities are distributed across regions, socio-economic groups and gender, the more likely that they will be translated into improved human well-being.
- ◆ Economic growth that integrates environment into the development process makes the development environmentally sustainable. This tends to promote human development, particularly in a state (country) where the livelihood of the majority of people depends on natural sources.
- ◆ Economic growth with strong inter-sectoral linkages contributes significantly towards the sustainability of growth as well as sustainability of human development. For example, economic growth that is based on well-developed agriculture, establishes strong linkages between agriculture and the rest of the economy, which helps agricultural population to access higher incomes and better opportunities for human development.
- ◆ The role of government is critical in translating economic growth into human development, because it is this commitment that would lead to framing of policies/programmes supported through allocation of funds. Good governance is critical for creating an environment where people enjoy the freedom and opportunities to lead the life they value.

◆ Participatory development that enables active civil society organizations with power to influence decision making in a decentralized framework is another important necessity for economic growth to get translated into human development effectively and efficiently.

Human development, on the other hand, also contributes to economic growth in many ways:

- ◆ Human development improves skills and productivity of the workforce, which in turn promotes economic growth.
- ◆ Human development influences the development path by promoting participative and labour-intensive economic growth.
- ◆ Human development makes economic growth sustainable and equitable as it widens the base of economic growth.
- ◆ Human development influences a country's comparative advantage in international trade, and thereby promotes globalization of the economy on the one hand and enables people to access new opportunities emanating from globalization on the other.

Economic growth and human development are supplementary and complementary to each other. Promoting one without the other is likely to lead to non-sustainable economic development. People can access better opportunities in life and can lead the life they value only in an environment where economic growth facilitates improvement in human development. In other words, improvement in human development calls for a policy framework that builds close linkages between economic growth and human achievements. It needs a favourable development paradigm and, within the paradigm, favourable sectoral policies – trade policy, fiscal policy, infrastructure policy and so on – accompanied by supportive institutions within and outside the government.

This report discusses human development in Gujarat in this wide perspective. Instead

*Economic growth and human development are supplementary and complementary to each other*

of limiting itself to the discussion on health and nutrition, education and literacy, welfare and social security, and employment, which are called social sectors, this report relates achievements in human development in the state in the context of the macro development path of the state. Further, it makes recommendations for improving the macro environment to make it more conducive to promotion of human development as well as for improving performance of specific sectors such as health, education, nutrition, welfare, and so on.

## Measurement of Human Development

UNDP measures human development through the following indices:

### 1. Human Development Index (HDI)

HDI is a summary measure of human development that measures the average achievement in a country or a geographic entity in three basic dimensions of human development:

- ◆ A long and healthy life, as measured by life expectancy at birth (LEB).
- ◆ Knowledge, as measured by the adult literacy rate (with two-thirds weight) and combined primary, secondary, and tertiary gross enrolment rate.
- ◆ A decent standard of living as measured by GDP per capita (PPP US\$).

The achievements in the three dimensions are measured in the context of 'goal posts', which have constant value. HDI reduces all the three basic indicators to a common measuring rod by measuring achievement in each indicator as the relative distance from a desirable goal. The maximum and minimum values (goal posts) are reduced to a scale between 0 and 1 with each country at some point on the scale. HDI is constructed

by defining a country's measure of relative achievement in each of the three basic variables and taking a simple average of the three indicators.

### 2. Gender-related Development Index (GDI)

GDI measures achievements in the same basic capabilities as HDI, but takes note of inequality in achievement between men and women. Thus, GDI is HDI adjusted for gender inequality. The methodology used imposes a penalty for inequality such that GDI falls when the disparity between the achievement level of men and women in a country increases and also imposes penalty for under-performance so that GDI falls when level of achievement of both men and women fall. This penalty is imposed by the concept of epsilon (I). The greater the gender disparity in basic capabilities, the lower a country's GDI compared with its HDI. For each of these three dimensions, an EDEP (equally distributed equivalent percentage) is calculated and GDI is calculated as a simple average of the three indexed EDEPs.

### 3. Gender Empowerment Measure (GEM)

GEM measures whether women and men are able to actively participate in economic and political life and in decision making. While GDI focuses on expansion of capabilities, GEM is concerned with the use of those capabilities to take advantage of the opportunities in life.

GEM captures gender inequality in three key areas:

- ◆ Political participation and decision making power, as measured by women's and men's percentage shares of parliamentary seats.
- ◆ Economic participation and decision making power, as measured by two indica-

*While GDI focuses on expansion of capabilities, GEM is concerned with the use of those capabilities to take advantage of the opportunities in life*

tors – women’s and men’s percentage shares in positions held as legislators, senior officials, and managers; and women’s and men’s percentage shares of professional and technical positions.

- ◆ Power over economic resources as measured by women’s and men’s estimated earned income (PPP US\$).

For each of these three dimensions, an EDEP (equally distributed equivalent percentage) is calculated and GEM is calculated as a simple average of the three indexed EDEPs.

#### 4. Human Poverty Index (HPI)

UNDP introduced HPI in 1997. In 1998, UNDP split HPI into HPI-1, for developing countries and HPI-2, for OECD countries. HDI measures average achievements, HPI measures deprivation. HPI-1, relevant for developing countries such as India, measures deprivation in the three basic dimensions of human development captured in HDI:

- ◆ Vulnerability to death at a relatively early age, as measured by the probability at birth of not surviving to age 40.
- ◆ Knowledge – exclusion from the world of reading and communication, as measured by the adult illiteracy rate.
- ◆ Lack of access to overall economic provisioning as measured by the percentage of population not using improved water resources and the percentage of children under five who are underweight.

HPI-1 is calculated by averaging the percentages of each of the indicators by giving equal weight to each of the three components.

A country should design its own HDI at the national and sub-national levels for the following reasons:

- ◆ At the global level, indicators that represent the most common concerns of human development across all countries – industrialized and developing, located across all the continents of the world – are selected. At the national level, more specific national con-

cerns and issues in human development, which could be different from those at the global level, can be selected. At the sub-national level, locally relevant issues and concerns for measuring human development can be selected.

- ◆ At the global level, only those variables for which common data are available in each country have to be selected. For the national and sub-national HDI relevant variables for which the required data are available can be selected. It is, therefore, possible to look at more components of human development in national and sub-national indices than the global HDI does.

- ◆ Following from the above two, for computing the national and sub-national indices in India, it is possible to improve upon the present UNDP indices. Besides, the UNDP’s indices, HDI, GDI, and GEM, have been subject to several criticisms. While designing national level indices these critical comments can be taken care of.

### A Critique of HDI, GDI and GEM

The strengths and weaknesses of the UNDP indices in general and in the context of India in particular are as follows:

#### 1. The indices are too narrow

Compared to the wide concept of human development, its measurement in HDI is too narrow. While the concept of human development presents an alternative development paradigm, HDI is an index of three simple variables measured by concepts such as PQLI. None of the critical components of human development, namely, equity, sustainability, productivity and empowerment is included in the HDI.

UNDP has been quite forthright with respect to this lacuna of the HDI. It admits that human development is a much wider concept than HDI and HDI is only a snapshot of the status of human development

*At the national level, more specific national concerns and issues in human development can be selected as indicators of human development*

*If HDI has to establish its superiority over a simple quality of life index, it has to incorporate some of the critical elements of the conceptual superiority of the term human development*

(UNDP 1995, 2002) (refer box 1.4). To explain why it has selected these three variables, it argues that:

Human development is a process of expanding people's choices in life. These choices can be infinite and can change over time. However, the three basic capabilities that are universally applicable are the capability to live a long and healthy life, capability to be knowledgeable and capability to acquire a decent standard of living. If these essential choices are not available, many other opportunities will remain inaccessible. HDI, therefore, incorporates only these three variables (UNDP 1994).

- ◆ HDI has selected these three variables because the availability of data imposes some restrictions on the selection. Selection of more indicators may confuse the picture and detract the attention from core variables (UNDP 1994). Adding more variables therefore is not likely to make HDI a better or more sensitive index. HDI should be kept simple and manageable.
- ◆ UNDP has admitted that HDI is a crude and partial measure. As Amartya Sen puts it, "HDI is a crude index, attempting to catch in one simple number a complex reality about human development and

deprivation" (HDR 1999). But, it is needed to break the overuse of GNP as a measure of development. As Mahbub ul Haq said, "We need a measure of the same level of vulgarity as GNP – just one number – but a measure that is not as blind to social aspects of human lives as GNP is" (HDR 1999). And as Sen has observed, the crude index did speak loud and clear and it has received intelligent attention of people (UNDP 1999).

This argument of UNDP, though valid, does raise the issue that, if HDI has to establish its superiority over a simple quality of life index, it has to incorporate some of the critical elements of the conceptual superiority of the term human development and also incorporate some of the processes and dynamics of development. HDI need not be a static measure but should reflect the dynamics of the process of expanding opportunities in a country.

## **2. HDI has ideological underpinnings**

Since HDI refers to three simple outcomes of development, it fails to incorporate any dynamics of the human-centred development paradigm; consequently, it inadvertently tends to support the established development model of the North. For example, the index does not measure or monitor the progress of human development in terms of its paradigm. That is, it does not measure the process or monitor the development path to see whether it creates an enabling environment for human development. The index, therefore, is not a proper measure of this innovative concept of human development.

## **3. HDI ignores the concerns of the South**

HDI does not incorporate some of the important developmental concerns of the South. Some of the basic human develop-

### **BOX 1.4**

#### **Human development – The concept is larger than the index**

Ironically, the human development approach to development has fallen victim to the success of its human development index (HDI). HDI has reinforced the narrow, oversimplified interpretation of the human development concept as being only about expanding education, health and decent living standards. This has obscured the broader, more complex concept of human development as the expansion of capabilities that widen people's choices to lead lives that they value.

Despite careful efforts to explain that the concept is broader than the measure,

human development continues to be identified with HDI - while political freedoms, participating in the life of one's community and physical security are often overlooked. But, such capabilities are as universal and fundamental as being able to read or to enjoy good health. They are valued by all people – and without them, other choices are foreclosed. They are not included in HDI as they are difficult to measure appropriately, not because they are any less important to human development.

Source: Statement of Sakiko Fukuda-Parr, Director and Lead Author of the HDRs, in UNDP (2002): 53.

ment related concerns in India would be inequality – of assets and incomes – poor socio-economic infrastructure, environmental degradation and pollution, and certain structural issues like patriarchy. None of these concerns is incorporated in HDI. As a result, the index does not measure some of the critical aspects of human development in the country.

If human development is a process of expansion of opportunities in life, these need not be only at the individual level, as individual capabilities alone do not ensure expansion of choices in life. For example, even if individuals enjoy better education and better health they may not enjoy better opportunities if physical safety and security is absent or if environmental degradation is very severe. Any assessment of the available opportunities/choices in life, therefore, should include individual as well as macro level variables. HDI should somewhere indicate whether the development path chosen by the country is conducive to human development or not. Without that, HDI does not serve much purpose as an index of human development. If the global HDI is unable to do so, on whatever grounds, the national or state level HDIs should be able to do so.

#### 4. HDI is not engendered

HDI is not engendered to incorporate any variable that reflects the gender dimension of human development. Instead, UNDP measures gender-related development in two indices; GDI and GEM. But, gender related critical dimensions should also be incorporated in the main HDI to cover the concerns of half of the population of any society. Variables that could be considered for inclusion could be TFR (total fertility rate) which affects demographic transition status, MMR (maternal mortality rate) that reflects the level of safe childbirths and women's health, and some variable that

reflects patriarchy, which limits women's opportunity in life.

#### 5. Selection of variables and indicators

The indicators used to measure the three components included in HDI are not fully satisfactory.

- ◆ **Healthy life:** HDI measures this component in terms of LEB. Since the goal post for women's LEB is five years higher than men's, the biological factors that give women a longer life is taken care of. Other critical aspects of health such as the incidence of disability and short-term and long-term (chronic) morbidity, which reflect the quality of health enjoyed by people, are not included in HDI.

- ◆ **Standard of living:** This component is measured by per capita income in HDI. The use of consumption expenditure data is better for measuring standard of living: (a) it allows for smoothening of income fluctuations; (b) it allows inclusion of non-monetized transactions which may be significant in rural areas in developing countries; (c) it allows for the implications of the non-SNA (system of national accounts) transactions, such as illegal transactions or those involving common property resources in villages, or an individual's intake or command over commodities, and (d) given the large-scale under-reporting of income data in developing countries, it may capture individual's command over resources more accurately.

- ◆ **Access to knowledge:** HDI includes adult literacy rate and the combined enrolment ratio for measuring access to knowledge. In the case of India, one has to be careful, as these data are not strictly comparable across the different population censuses because of changing definitions.

Besides these limitations, the gender-related indices of UNDP, GDI and GEM, have other limitations. These are discussed below.

*Any assessment of the available opportunities/choices in life, therefore, should include individual as well as macro level variables*



*The strategies that lead to women's development also lead to their empowerment and vice-versa*

## 6. Why separate GDI and GEM?

As regards GDI and GEM, there are some additional problems. UNDP argues that GDI measures capabilities of women in relation to men while GEM measures the use of these capabilities, i.e. empowerment of women. But, separating the measurement of capabilities and empowerment does not make much sense at the conceptual and operational level.

◆ At the conceptual level it is difficult to distinguish between women's development and women's empowerment. Historically speaking, the approach towards women's development was based on improving women's welfare (welfare approach) through different types of welfare programmes. Later on, this was found inadequate and the development approach was adopted according to which development of women was to be achieved through employment/income/asset programmes, i.e. by strengthening their economic base. It was felt that treating women as beneficiaries of development programmes was not adequate. They are the 'subjects' and not 'objects' of development. The empowerment approach, which followed the development approach, argued that women cannot develop unless they are empowered and that empowerment is a part of their development.

◆ The strategies that lead to women's development also lead to their empowerment and vice-versa. If women's education is promoted, it is for their better self-image and self-confidence, for their ability to think clearly and for their better participation in the process of bringing about social change in society, or for better employment and earnings. All these can be termed as development as well as empowerment. Any artificial distinction between development and empowerment does not serve much purpose.

## 7. Exclusion of patriarchy

A fundamental constraint to women's development is patriarchy, which denotes a structural system of male domination. The differences between men and women cannot be seen just as differences as these are contradictions rooted in exploitation and oppression.

Patriarchy, or rule of the father, manifests firstly at the household level in terms of male dominated families and in terms of power of the father and husband over the family and its assets and resources. Patriarchy exerts its power over biological reproduction and sexuality, and ultimately results in a set of social relations among men and women rooted in a material base, which creates interest to dominate women. The material basis of patriarchy is needed to continue ownership of wealth and transfer it through inheritance. This requires that women's labour power is controlled by men and a significant part of women's labour is associated with reproductive and subsistence activities. Thus is the desire to control woman's reproductive power and woman herself. Men are identified with forms of production that generate surplus wealth. This need to control women's labour and exploit it for transfer of wealth from one generation to another has led to varying forms of their oppression; sexual, political, ideological, religious, or economic. Patriarchy manifests within the households as well as outside, in the labour market and in society in general. Patriarchy is, therefore, part of the overall structure of inequality in a society. Its strength determines the power and development women enjoy in a society.

GDI or GEM do not incorporate or even touch any aspect of patriarchy and remain very narrow and superficial for measuring women's development and empowerment.

## 8. GEM is too narrow

Most women in India are caught in a vicious circle where their low development

results in their weak position. The daily struggle for food, fuel, water and fodder for their cattle, frequent childbirths and child rearing sap all their energy. Their social interaction and mobility is determined by cultural traditions, taboos and superstitions.

Consequently, they are very weak or poorly empowered. They have very poor self-image and low self-confidence. Their ability to think critically is very poor, their organizations are almost non-existent, and their participation in decision-making within and outside households limited. Their economic independence is limited, asset ownership is near zero, and participation in diversified economic activities is very poor. Women are poorly empowered psychologically, socio-culturally, economically and politically. Any attempt to measure their empowerment should try to capture these manifestations of lack of empowerment. GEM hardly reflects these dimensions of empowerment of women in India. In fact, the three components of GEM are far from relevant to the Indian situation. There is a need to evolve relevant criteria for measuring political, professional, and overall participation of women in India.

### 9. Measuring gender inequality

GDI does not measure gender inequality *per se*. It is essentially a harmonic mean of male-female achievements in three selected variables. It refers to the absolute levels of gender development as well as to the gender inequality scores. It is not a measure of gender equality independent of level of development. GDI and GDP always go hand in hand.

For example, if male and female literacy rates in country 1 and country 2 are 80 and 70 and 40 and 38 respectively, the education score of GDI will be higher in country 1 than in country 2 according to UNDP methodology. Though country 2 has higher gender equity with regards to the literacy rate,

its value of GDI will be lower than country 1. In case GDI is to be a measure of gender equity, country 2 should have a higher value than country 1.

Dijkstra and Hanmer (1997) have shown that there is a high correlation between GDP and GDI in 137 countries for which GDI was calculated. When GDP and GDI were put on a scatter diagram only six countries were found to be outliers. This clearly implies that richer countries have higher GDI and vice-versa. At low level of GDI, incremental increases in per capita GDP results in some improvement in GDI; after a certain level of GDP, the responsiveness of GDI to increases in per capita GDP decreases. In other words, GDI gives only a limited amount of new information about gender development and does not provide either any direct measure of gender equality or any explanation of gender inequality.

### 10. Components and indicators of GDI/GEM

HDI and GDI are comprised of exactly the same indicators. Indicators that may be appropriate for measuring absolute levels of human development are not necessarily most appropriate for measuring gender equality. In GDI/GEM women's share of earned income is based on the male-female differences in urban wages and WPRs. In India, urban wages alone would not be adequate and both rural and urban wages would have to be considered. Also, WPRs of women in India still under-represent women's participation in economic activity and their use will not give satisfactory results with regard to women's share in per capita income.

A higher share of income, even if computed correctly, does not say much about women's control over resources. It primarily depends on intra-household distribution of incomes. In the absence of these data, the income component of GDI/GEM will not say much about women's control over resources.

*Women are poorly empowered psychologically, socio-culturally, economically and politically*

*A higher share of income, even if computed correctly, does not say much about women's control over resources*

The variables of GDI/GEM do not really capture gender dimensions of development.

## An Alternative Framework for Measuring Human and Gender Development

There is a need for an alternative framework for measuring human and gender development. The new approach presented here is based on the following premises:

- ◆ Human development is different from the earlier concepts of development as it is a goal (development of a country should not be judged by material wealth but by whether people are able to live the life they cherish) as well as a paradigm (human development can be achieved only through a development path that is conducive to it). Measurement of human development should reflect the richness of both these aspects. The measure should incorporate macro aspects of development – its critical characteristics and the processes.

- ◆ A human development index is needed primarily (a) to measure the outcome of development, (b) as a monitoring tool for assessing efficacy of public and private action and (c) to design public policy. The index should incorporate outcomes, processes as well as selected macro characteristics.

- ◆ HDI, GDI and GEM have very successfully challenged the supremacy of GNP as a measure of development at the global level. But they do not reflect specific issues and concerns of India. There is a need to use supplementary data and measures for incorporating India's concerns.

- ◆ Human development indices have to be simple and crisp. There should not be too many components or indicators for computing them. At the same time, it is important that the critical dimensions of human development are incorporated in these indices. A careful balance has to be maintained between the simplicity of indices on the one

hand and the inclusion of critical dimensions on the other.

- ◆ The alternative approach should take into account availability of reliable data in the country so that only those indicators for which reliable data are available are selected. This calls for improving the data on core indicators of human development in the country.

- ◆ The main tasks in such an exercise would include selection of relevant components and suitable indicators to measure these, selection of methodology including weights, and final construction of the index.

## Proposed Human Development Measures

The new human development indices are named Human Development Measures (HDM). Four such measures for India are presented below.

1. **Human Development Measure-1 (HDM-1)** that measures opportunities/capabilities of individuals.

2. **Gender Development Measure-1 (GDM-1)** that measures the level of capabilities/ opportunities available to women in relation to men. GDM-1 is HDM-1 adjusted for gender inequality.

3. **Gender Equity Index (GEI)** that measures gender inequality *per se*, independent of level of development.

4. **Human Development Measure-2 (HDM-2)** that measures macro level capabilities and opportunities available to both men and women and includes macro capabilities relating to macro processes and structures.

### Human Development Measure-1

HDM-1 incorporates the following components and indicators:

- ◆ **Standard of living, which refers to control over resources:** This component should ideally be measured by per capita consumption expenditure using the data

*A careful balance has to be maintained between the simplicity of indices on the one hand and the inclusion of critical dimensions on the other*

from the NSS (National Sample Survey) Rounds. Given the increasing divergence between the CSO's (Central Statistical Organization's) aggregate consumption estimates and the aggregate of the NSS consumption estimates in India, income data will be used for measuring this variable as the global HDR and other state level HDRs do.

Income data at district level are available for only some states in India. In Gujarat, these are not available. In that case, any one of these proxies can be used: (a) per capita output in agriculture and industries together; (b) per capita bank deposits; and (c) percentage households having specified assets. For district level HDI, per capita bank deposits have been used as an indicator.

◆ **Access to knowledge or educational attainment:** This component is measured in terms of (a) adult literacy rate, and (b) combined enrolment ratio. The former is a stock variable, data for which are available from the decennial population censuses. The latter is a flow variable, data for which are available from departments of education at the national and state levels. Data generated by national level surveys such as that of the NCERT (National Council of Education Research and Training) and of NFHS (National Family Health Survey), which have large sample sizes can be used for computing state level indices.

Availability of reliable data on combined enrolment ratio is a problem, particularly at the district level, as department data tend to overstate enrolments. Further, it is also important to include drop-out rates as a flow variable. To capture both, percentage of children attending school in the age group 6-14 can be used as a flow variable. These data are available from the population censuses for the states as well as districts of India disaggregated by gender.

◆ **Ability to lead a long and healthy life:** This component can be measured in terms of: (a) LEB, (b) incidence of disability, and

(c) incidence of morbidity (short-term and long-term/chronic). Data for (a) and (b) are available, but that for (c) are not reliable. Disability data available now are quite old, (of 1981) and the gender break-up is not available. The 2001 census has collected the disability data but has not made them public. Data on morbidity are not reliable as the incidence of diseases measured is more dependent on their being reported than on actual incidence. For states where the health infrastructure is good and/or literacy rates are higher, reporting of morbidity is higher. Its use therefore cannot be recommended. LEB remains as an indicator that can be used. But LEB data are not available for districts. Instead, IMR (Infant Mortality Rate), which has a strong positive correlation with LEB, has been used. Data on IMR are available from the population census as well as SRS and are available disaggregated by gender. To engender HDM-1, TFR has been added to the index.

It will be useful to collect some supplementary data on health towards improving the index on health status. For example, nutritional status of children can be captured by anthropometric measures. These data are relatively new and are not available for all the states and not available at district level.

In addition, two more components have been added to HDM-1/GDM-1:

◆ **Housing and related facilities:** Housing has its intrinsic value as a goal of human development as it ensures safety and security as well as privacy to human beings. It also ensures better health and higher productivity. For a large number of people in rural and urban areas, a house is also a work place. Housing is a capability that expands opportunities for people. Apart from the availability of a shelter, basic amenities, such as electricity, water supply, and sanitation available within the house are equally important.

*HDM-1/GDM-1 measures opportunities/capabilities at the individual level. HDM-2 measures macro level capabilities and opportunities available to both men and women*

*Participation is an integral part of human development as it ensures people's involvement in the economic, social, cultural and political processes that affect their lives*

The indicators for housing could be: (a) availability of a durable (*pucca*) house, and (b) availability of three basic facilities, namely, water, electricity and sanitation. Data on shelter, however, do not reflect the reality, as some of the so-called non-*pucca* houses are durable and functionally good. Availability of the three basic facilities has been used for constructing the housing index.

◆ Participation is an integral part of human development as it ensures people's involvement in the economic, social, cultural and political processes that affect their lives. It allows them to have control over the life that they lead (UNDP 1993). Participation provides respectability to human beings as it makes their life more meaningful and worth living. Participation in economic life provides a basis for social dignity and self-respect. Political participation is crucial as it is not just casting of vote, but a way of life. Participative democracy is an essential component of people-centred development.

The major indicators here could be: (a) participation in the labour market or the work participation rate (WPR), (b) participation in non-farm employment which reflects possibility to participate in diversified economic activities, (c) percentage of eligible voters voting in elections at national, regional and sub-regional levels, and (d) number of contestants per lakh of eligible voters in each of the three level of elections. Economic participation can also be measured through participation in cooperatives, trade unions, credit and asset ownership, etc. Participation in non-farm employment is also an indication of income.

WPRs available from the present employment surveys are not fully representative as they underestimate the workforce, especially the female workforce. Since the underestimation is more for marginal workers than for main workers, main workers' participation has been used as an indicator of economic participation. These are available at

district as well as state level and disaggregated by sex. Data on participation in cooperatives, trade unions, credit societies, etc. are not easily available, especially at disaggregated level and with gender break-up. But data on political participation are available. For HDM-1, three indicators have been used: (a) WPRs of main workers, (b) percentage electors voting, and (c) contestants in elections per lakh population. For the last two indicators, data for the last state assembly and last parliamentary elections have been taken.

Right to life is an important indicator of human development as to lead a safe and secured life or to enjoy right to life has an intrinsic value in itself. Without this, other capabilities do not make much sense. In India, where violence in various forms is prevalent widely, such as communal violence, violence against *dalits*, women and the poor, this component becomes very important for constructing HDM-1. But, data on these are not very reliable as there is under-reporting of incidents in some regions and better reporting in some others. This component could not be incorporated in HDM-1.

### **Gender Development Measure-1**

Any good GDM-1 and GEI should have the following characteristics:

- ◆ They should measure the extent of gender inequity.
- ◆ They should reflect the nature of gender inequity with a view to suggesting policies for reducing it.
- ◆ They should help in monitoring gender equality.

Gender development, therefore, will be measured in two ways: (a) as GDM-1 and (b) as GEI. GDM-1 will measure the level of development of women as compared to men, adjusted for gender inequality as UNDP does. GEI will directly measure gender equity/inequity. GDM-1 will have the same

components and indicators as HDM-1, with the exception of the indicator representing command over resources.

◆ **Command over resources:** For state level indices, this component is represented by the income share of women in total income. It will be computed by multiplying WPR of women by the ratio of male-female agricultural wages. This is clearly not the best method of estimating women's share in total income or their control over resources or their standard of living. However, in the absence of reliable data, there is no option but to use this indicator. At the district level, male and female agricultural wages are used to represent command over resources, as data on non-agricultural wages are not available.

In addition to the indicators used for constructing HDM-1 and GDM-1 mentioned above, there are women specific data that are available. These could be used if a separate index of women's development is to be constructed. In the health sector, for example, maternal care indicators such as percentage of deliveries attended by trained medical persons can be used. In right to life, indicators of violence against women can be used, such as (a) incidence of crime against women (murder, dowry deaths, rapes, and others) and (b) incidence of unnatural deaths among women (murder, suicide, accidents, etc.). Unfortunately, as discussed above, reliable data on these indicators are not available. Also, in a male-centric society, the police itself do not register cases pertaining to violence against women and families do not report such crimes.

These special indicators representing women's development have not been used for constructing the indices here. If reliable data on these were available, at least a few of them could have been used to engender HDM-1, like the use of TFR in HDM-1. The method of construction of HDM-1 and GDM-1 has been explained in the technical notes at the end of the report.

## Gender Equality Index (GEI)

The main components of GEI will be the same as HDM-1/GDM-1 but the method of computation will be different. Instead of referring to any goal posts and computing indices based on the distances from the goal posts, GEI will be computed in three steps: (a) computation of a ratio of male-female achievements for each of the indicators, (b) averaging of the indicator ratios for computing component ratios, and (c) averaging of the component indices to calculate the composite GEI. Thus, there will be an inequality index for each of the components of GEI, as well as a composite GEI.

## Human Development Measure - 2 (HDM-2)

HDM-2 refers to macro variables including macro processes and structures that reflect the macro capabilities and opportunities available in a society. The main objective of including these variables is to examine the conduciveness of the economic growth process for sustainable human development. The components and indicators selected for constructing HDM-2 are based on the discussion of the concept and paradigm of human development in the earlier part of this chapter.

◆ **Environmental and ecological capabilities/opportunities:** Environmental sustainability is an important component of HDM-2. On the one hand, it promotes human development, while on the other it ensures sustainability of development. The relevance of environment and ecology in the context of Indian states cannot be overemphasized, as livelihoods of many people depend on natural resources.

(a) Environmental status reflects the sustainability of economic development. Heavy depletion of natural resources like land, water and forests, as well as high level of pollution because of poor management of

*Specific indicators representing women's development can be used for engendering HDM-1*

*Environmental status of a society tends to affect the macro level opportunities available to people*

vehicular and industrial discharges adversely affects the sustainability of development.

(b) Environmental degradation and depletion encroaches upon the livelihood of people, particularly the poor, by reducing the supply of free goods like firewood, fodder, fish, fruits, and many such products. It also has an adverse impact on the health status of the population depending upon these resources for survival.

(c) Depletion of water resources, desertification and land degradation may lead to increasing drudgery of women and children for collection of fuel, fodder, and water, or may force the poor to migrate to distant places in search of work which may reduce their access to education, health and general welfare.

(d) Pollution of air, water and land affects the health of people adversely. This is likely to raise the incidence of morbidity of different kinds. Environment-friendly growth tends to be employment-intensive, broad-based, equitable, and inclusive in nature, which, in turn, tends to promote human development.

Environmental status of a society tends to affect the macro level opportunities available to people. No amount of individual capabilities would help much if the macro environment is degraded, depleted and highly polluted. Further, macro environment degradation may adversely affect possibilities of developing capabilities as people might be too engaged in the struggle for survival to pay attention to development of their capabilities for better life.

The indicators of this component could be:

(a) proportion of degraded land or wasteland in total land, (b) proportion of area under forests and degraded forests, and (c) number of pollution prone factories and/or employment and investment in these factories per 100 sq. km. area or per lakh population. Data on proportion of wastelands to total is available for the recent years at

state and district level. Earlier, data on area covered under the Desert Development Programme (DDP) and the Drought Prone Area Programme (DPAP) were available. The former indicator has been used. Unfortunately, data on the last indicator, which is extremely important for a highly industrialized state such as Gujarat, are not available in the form required for index construction.

◆ **Basic services:** Availability of basic services at the community level is a primary enabling condition at the macro level. These services include not only the infrastructure for health or education, but also community services such as approach roads, street lights, post and telecommunication facilities, fair price shops, etc. Such services create and promote opportunities for people for using their capabilities.

The indicators of this component will be:

(a) percentage of villages with primary school within the habitat, (b) percentage of villages with government health facilities, and (c) percentage of villages with all weather approach roads. Since, at the district level, nearly all the villages have a primary school within the habitat, only the last two indicators are used for constructing HDM-2.

◆ **Structural inequalities:** Structural inequalities have specific implications for human development. The higher the inequalities resulting in concentration of assets and incomes in a few hands, the lower is the bargaining power of those with no/low assets and incomes. Low bargaining power implies lower wages and remuneration and lower access to credit markets and development opportunities, as well as acute exploitation of vulnerable groups in extreme situations.

States/countries with relatively equal distribution of incomes and assets will provide their population with relatively equal access to opportunities on the one hand and reduce chances of extreme exploitation and acute deprivation of the weaker sections on the other. In the same way, the

extent of regional disparities reflects the structural dimensions of growth concerning space. In countries where regional disparities are very high, developed regions attract financial, human, and other resources resulting in exploitation of backward areas. People in backward areas are left with limited opportunities and are frequently forced to migrate in search of livelihood.

Indicators to measure structural inequalities can be: (a) inequalities in the distribution of consumption expenditure measured in terms of coefficient of variation (CV) or Gini coefficient, (b) regional disparities measured in terms of inter-district variations in availability of infrastructure, and (c) asset inequalities measured in terms of inter-district variations in per capita bank credit. For the state level HDM-2 index, disparity in CMIE's infrastructure index at the state level has been used. For inter-district inequality, data on taluka-level availability of facilities have been used to construct the inequality index. Inequality is represented by CV.

◆ **Patriarchy:** Patriarchy has considerable influence on the opportunities available to women, as discussed earlier. The structure of patriarchy is highly complex and cannot be easily incorporated in the index. Based on the fact that patriarchy is reflected primarily in terms of women's lack of control over their own life and bodies (in marriage, reproduction, sexuality, etc.), the following indicators will be used:

(a) *Age at marriage:* Men's control over women's life is reflected in the age at which women are married. Data on two indicators that reflect early marriage of girls are available: incidence of child marriage and incidence of marriage before the specific minimum legal age. Of the two, child marriage reflects severity of family control over the right of women to choose in matters of marriage. Percentage of ever-married women (married, widows, divorced, deserted) in the age-group 10-14 years has been used as an indicator.

(b) *Juvenile sex ratio:* The overall sex ratio is not very sensitive to how women are treated in society, as the ratio is affected by several factors such as migration of men for work/education/business, etc. The juvenile sex ratio, the sex ratio for the age-group 0-6 years, is better and directly represents the treatment girls receive in society. A society where patriarchy is strong will have a highly unfavourable or masculine juvenile sex ratio. Sex ratio in the age-group 0-6 years has been selected as an indicator.

(c) *Percent of women using contraceptives:* Another important manifestation of patriarchy is pressure on women to use contraceptives and to get sterilized. Though men want to control family size, they do not want to take any responsibility for it. Percentage of women using family planning measures will be a good indicator of the strength of patriarchy. A reduction in the birth rate brought about by forcing women to get sterilized, therefore, is not an empowering act for women. But, this indicator has not been used in constructing HDM-2.

(d) *Maternal mortality rate:* Maternal mortality reflects (i) health care received by mothers during pregnancy, (ii) health support in the form of a skilled nurse or doctor present during childbirth, and (iii) the general health of women. These data are not available at the district level and hence are not used for constructing HDM-2.

Two indicators have been used for constructing the patriarchy component of HDM-2. These are (a) percentage of girls in the age-group 10-14 years married and (b) juvenile sex ratio.

The alternative set of human development indices is superior to HDI, GDI, etc. in several ways:

◆ The indices are broad-based and inclusive of the critical concerns of the country. When desegregated indices are computed for different variables at the state and sub-regional levels, they can provide useful guid-

*Patriarchy has considerable influence on the opportunities available to women*



ance for policy and action interventions. A study of the interrelationships among different sets of variables can also be useful in understanding the synergies.

- ◆ A separate index for macro capabilities and processes can be useful in designing macro interventions for improving the level of human development.
- ◆ In spite of their inclusive character, the indices are simple and crisp. They can be used for assessing the overall level of human development.

GDM-1 includes intrinsic variables, capability variables and empowerment variables which overlap thus throwing useful light on gender development.

## Organization of the Report

The present report, rather than limiting itself to a few sectors like health, education, welfare, etc., presents the status of human development in Gujarat in this broad framework. It has nine chapters. Chapters 2, 3, and 4 present the dynamics of the development path of the state economy to throw light on the macro level charac-

teristics that influence the level of human development in the state. Chapter 2 discusses macro growth trends and their characteristics, employment and livelihood issues, and poverty and human poverty issues. Chapter 3 analyses the government expenditure on social sectors. Sectoral expenditures by the state government are discussed in respective chapters. In this chapter only the macro issues of financing human development are discussed. Chapter 4 discusses the relationship between environmental status and human development in the state. This chapter has been added to HDR as this is a very important aspect in Gujarat and has strong links with human development in the state.

Chapters 5, 6, and 7 discuss respectively the achievements in health and nutrition, literacy and education, and gender development and distance in the state. Chapter 8 presents different human and gender development indices. The indices are calculated for the 15 major states in India to observe where Gujarat stands and for all the 25 districts of the state. The last chapter presents a strategy to move towards better human development.



# Dynamics of Development in Gujarat

Deepening of village pond



Vocational Training

## Chapter 2





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## Dynamics of Development in Gujarat

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2

Human development cannot be reviewed independently of economic growth, since economic growth is a means of achieving sustainable human development. A study of the rate and pattern of economic growth to examine the dynamics of development in Gujarat, therefore, becomes important. This analysis helps in understanding the relationship between economic growth and human development, leading to suggestions regarding modification of the growth path of the state economy to achieve higher levels of human development.

Gujarat was formed in 1960 when the erstwhile bilingual Bombay State was split into two separate states; *Gujarati* speaking Gujarat and *Marathi* speaking Maharashtra. With its enterprising population and committed leadership, Gujarat has done rather well since then in terms of overall economic growth. It has progressed to achieve the fourth rank in per capita income among major states in India and has maintained this rank for almost two decades. Today it is one of the prosperous states of India with about 50 million population (in 2001) spread over 196,000 sq. km. Though the state has less than 5 per cent of the population, it contributes about 7 per cent of the production and about 13 per cent of the industrial output.

Gujarat is one of the developed states in India. State's per capita income in 2000-01 was Rs. 12,975 (at 1993-94 prices), which was about 27 per cent higher than the national per capita income of Rs. 10,254 in the same year. The per capita monthly

consumption expenditure in the state was Rs. 678.27 (in 1999-00), which was 25.4 per cent higher than the national average. The state economy has diversified sources of income, with about 84.5 per cent of it coming from non-primary sources and a diversified workforce, about 47.8 per cent of whom are engaged in non-primary sectors. The state is also relatively more urbanized than others with about 38 per cent of population living in urban areas as against 27 per cent for the country. The state has well developed capital and money markets.

### Population and Demography

Population and demography in a society are closely linked with its status of human development. This is because, population stabilization, achieved through healthy demographic transition, reflects good health and good nutritional status of the population. It also reflects satisfactory care of mothers and good child health. Lastly, and most importantly, it reflects gender equality and women's empowerment.

The population of Gujarat has increased from 9.1 million in 1901 to 50.05 million in 2001 (Table 2.1). The compound annual rate of growth (CARG) during the 1950s, 1960s and 1970s was fairly high, but declined considerably between 1971 and 1991, from 2.6 per cent between 1961-71 to 2.4 per cent between 1971-1981 and to 1.9 per cent between 1981-1991, raising hopes that the state was fast reaching population stabilization.

*Human development cannot be reviewed independently of economic growth*

*Population and demography in a society are closely linked with its status of human development*

TABLE 2.1

## Trends in population and its characteristics

Year	Population (millions)		Sex ratio		Inter-censal growth rate p.a. (%)		Population density per (sq. km.)		Gujarat				India				
	Gujarat	India	Gujarat	India	Gujarat	India	Gujarat	India	Rural		Urban		Rural		Urban		
									CBR	CDR	CBR	CDR	CBR	CDR	CBR	CDR	
1901	9.1	238.3	954	972	-	-	46	77	-	-	-	-	-	-	-	-	-
1911	10.0	252.0	946	964	0.8	0.6	50	82	-	-	-	-	-	-	-	-	-
1921	10.2	251.2	944	955	0.4	0.0	52	81	-	-	-	-	-	-	-	-	-
1931	11.5	278.9	945	950	1.2	1.1	59	90	-	-	-	-	-	-	-	-	-
1941	14.5	318.5	941	945	1.8	1.3	70	103	-	-	-	-	-	-	-	-	-
1951	16.3	361.0	952	946	1.7	1.3	83	117	-	-	-	-	-	-	-	-	-
1961	21.0	439.1	940	941	2.4	2.0	105	142	-	-	-	-	-	-	-	-	-
1971	27.0	548.2	934	930	2.6	2.2	136	178	42.1	18.1	36.1	13.1	38.9	16.4	30.1	9.7	
1981	34.1	683.3	942	933	2.4	2.2	174	221	36.1	12.4	29.8	10.7	35.6	13.7	27.0	7.8	
1991	41.3	46.8	934	927	1.9	2.1	211	273	28.2	8.8	25.9	7.9	30.9	10.6	24.3	7.1	
2001	50.05	102.7	921	927	2.05	2.1	258	324	26.9	8.8	21.5	5.6	27.1	9.0	20.2	6.3	

Note: Growth rate for 1961-71 and 1971-81 were calculated taking into the fact that the reference date of 1971 Census was April 1, whereas 1961 and 1981 censuses had the usual reference date of March 1.

Source: Based on respective population censuses.

This declining rate of population growth could not be sustained and CARG increased to 2.05 between 1991 and 2001.

The main reason for the rapid decline in population in the state since 1971 has been the decline in CBR (crude birth rate) (Table 2.1); which declined from 42.1 in 1971 to 36.1 in 1981 to 28.2 in 1991 in rural areas (indicating 14 percentage point decline in two decades) and from 36.1 in 1971 to 29.8

in 1981 to 25.9 in 1991 in urban areas (more than 10 percentage point decline in two decades) (Table 2.2). In the 1990s, a deceleration in the decline in the CBR in the state was observed. The rural CBR fell only marginally, by 2 percentage points, while the urban CBR fell by 4 percentage points.

There was remarkable progress in reduction in CBR in the 1980s. But, in the later half of the 1990s, CBR stagnated. The total fertility rate (TFR) in the state also remained almost stagnant in the 1990s; 3.2 in 1991 and 3.0 in 2000, which indicates that the demographic transition in the state has suffered a setback in the 1990s (Figure 2.1).

The increased rate of growth of population in the state during 1991-2001 cannot be attributed to increased in-migration. This is because the districts where the population growth rates have been high during 1991-01 have a very high TFR (for example, in Dahod TFR is 3.9, in Banaskantha it is 3.5, in Dangs it is 3.8, and in Surendranagar it is 3.4) and these districts are not the ones where there would be much in-migration. Also, the TFR of the whole state has remained

TABLE 2.2

## CBR over time, Gujarat and India

Year	Gujarat			India		
	Rural	Urban	Total	Rural	Urban	Total
1971	42.1	36.1	39.2	38.9	30.1	37.2
1981	36.1	29.8	34.5	35.6	27.0	33.9
1986	32.9	30.8	32.2	34.2	27.1	32.6
1990	30.2	28.3	29.6	31.7	24.7	30.2
1991	28.2	25.9	27.5	30.9	24.3	29.5
1992	29.5	24.6	28.1	30.9	23.1	29.2
1993	29.1	25.8	28.0	30.4	23.7	28.7
1994	28.5	24.5	27.1	30.5	23.1	28.7
1995	27.9	24.0	26.7	30.0	22.7	28.3
1996	26.9	23.0	25.7	29.3	21.6	27.5
1997	27.0	22.6	25.6	28.9	21.5	27.2
1998	27.0	22.2	25.5	28.0	21.1	26.5
1999	27.0	22.0	25.4	27.6	20.8	26.1
2000	26.8	21.9	25.2	27.5	20.7	25.8
2001	26.6	21.5	24.9	27.1	20.2	25.4

Source: SRS data.

almost stagnant during the 1990s. Hence, natural growth rate of population is a major contributing factor to the increase in the population growth rate. There is no easy explanation for the low decline in TFR in the 1990s. However, the explanation seems to lie in the performance of health and nutrition in the state during the 1990s. This is examined in Chapter 5.

Another important setback in demography is the declining sex ratio. The sex ratio in the state has continuously declined from 942 in 1981 to 934 in 1991 and to 921 in 2001 (Table 2.1). The rate of decline accelerated during 1991-2001, from 8 points during 1981-91 to 13 points during 1991-01. This, as discussed later on, is explained by a very high decline in the juvenile sex ratio (0-6 years) during 1991-01. This is a matter of concern for the State. It is worth noting that all the major states (except Gujarat, Haryana, Punjab, and Maharashtra) and India as a whole have experienced an increase in the sex ratio during 1991-2001.

Most major states experienced a decline in the population growth rate during 1991-2001 (Table 2.3), with Kerala having a CARG of just 0.90 per cent and Tamil Nadu, Andhra Pradesh and Karnataka having less than 1.6 per cent CARG during this period. Gujarat's rate of population growth during the decade has been higher than that in India.

The crude birth rate (CBR) in Gujarat was 25.2 in 1999-00 and 24.9 in 2001 (Table 2.2). The lowest CBR in 2001 was in Kerala (17.2), followed by Tamil Nadu (19.0), West Bengal (20.5), Maharashtra (20.6), and Andhra Pradesh (20.8). The recent SRS (Sample Registration System) data on the natural growth rates confirm this. The population growth rate in Gujarat is 17.2 per cent (SRS Bulletin October 2002), as against 17.0 in India. This rate is 10.6 in Kerala, 11.4 in

Tamil Nadu, 12.8 in Andhra Pradesh, and 13.1 in Maharashtra. In fact, Gujarat ranks 8<sup>th</sup> among major states in India with respect to the natural rate of growth of population. Clearly Gujarat is lagging behind in moving towards population stabilization.

District-wise, the highest TFR is in the tribal districts of Dahod, Dangs and Panchmahals, and in the districts of Banaskantha and Surendranagar located in the dry region of the state. Environmental degradation, poor health and nutrition and relatively high infant mortality in these regions appear to be responsible for this. There is, however, a need to investigate carefully the causes high TFR in the tribal districts.

Figure 2.1  
Crude Birth Rate in Gujarat

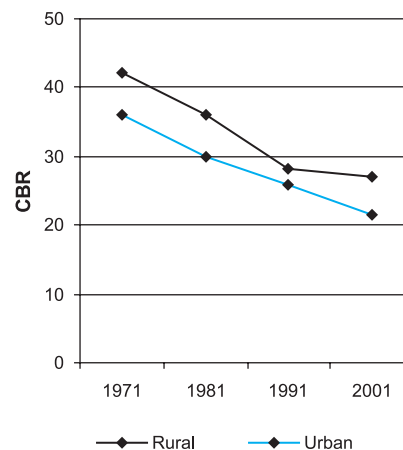


TABLE 2.3

**Population growth in major Indian states (CARG)**

States	Population (million)			CARG (%)	
	1981	1991	2001	1981-91	1991-01
Andhra Pradesh	53.55	66.51	75.73	2.19	1.31
Assam	19.90	22.41	26.64	1.19	1.74
Bihar (composite)	69.91	86.37	109.79	2.14	2.43
(a) Jharkhand	-	-	26.91	-	-
(b) Bihar	-	-	82.72	-	-
Gujarat	34.09	41.31	50.6	1.94	2.05
Haryana	12.92	16.46	21.08	2.45	2.50
Jammu & Kashmir	5.99	7.72	10.07	2.57	2.69
Karnataka	37.14	44.98	52.73	1.93	1.60
Kerala	25.45	29.10	31.84	1.35	0.90
Madhya Pradesh (composite)	52.18	66.18	81.18	2.41	2.06
(a) Chhatisgarh	-	-	20.80	-	-
(b) Madhya Pradesh	-	-	60.39	-	-
Maharashtra	62.78	78.94	96.75	2.32	2.06
Orissa	26.37	31.66	36.71	1.85	1.49
Punjab	16.79	20.28	24.29	1.91	1.82
Rajasthan	34.26	44.01	56.47	2.54	2.52
Tamil Nadu	48.41	55.86	62.11	1.44	1.07
Uttar Pradesh (composite)	110.86	139.11	174.53	2.30	2.29
(a) Uttaranchal	-	-	8.48	-	-
(b) Uttar Pradesh	-	-	166.05	-	-
West Bengal	54.58	68.08	80.22	2.23	1.65

Source: National Human Development Report 2001, Planning Commission (2001).

## Population Policy

The Health and Family Welfare Department of the government of Gujarat has declared a Population Policy in May 2000 (GOG 2002). The main objective of this policy is to achieve replacement level of fertility, i.e. TFR of 2.1 by 2010. The policy was announced on the basis of the recommendations of the high level expert committee on population stabilization and subsequent discussions in workshops and seminars. Some of the important features of the policy are:

- ◆ Paradigm shift from population control to reproductive and child health approach.
- ◆ Improving quality of services and making them more client focused.
- ◆ Promoting gender equality, women's empowerment, and male participation.
- ◆ Decentralization in implementation through structural changes and financial reforms.
- ◆ Promoting inter-sectoral coordination and partnership between government, NGOs, corporate sector, cooperatives and private sector.
- ◆ Enforcing accountability of public and private health care sector and social service sector.
- ◆ Resource mobilization, alternative financing, and better financial utilization.
- ◆ Social mobilization and information, education, and communication.

*The main objective of the Population Policy is to achieve replacement level of fertility of 2.1, by 2010*

The Population Policy lays down the various targets to be achieved till 2010 (Table 2.4). Though the objectives and major component of the policy appear to be good, the report does not mention the ways of achieving population stabilization by 2010. This is particularly because (a) the performance in the 1990s does not match with the expectations for the present decade (2000-2010), (b) the quantum jump requires dramatic improvements in institutions, funds and administrative performance. It is clear there is an urgent need to improve health care, female literacy, child survival and family planning to sustain and expedite demographic transition in the state.

## Economic Growth in Gujarat

Gujarat's economy has shown a consistently increasing rate of growth during the past few decades (Table 2.5). CARG has gone up from 3.32 per cent in the 1960s to 4.88 per cent in the 1980s, and 5.53 per cent in the 1990s. If the primary sector is excluded, the state economy shows about 7.7 per cent growth during the past two decades, which is indeed quite high. Per capita income in the state has increased at the rate of 3.14 per cent in the 1980s and 4 per cent in the 1990s.

A careful look at the sectoral growth rates reveals that the economy grew in a fairly balanced fashion during the 1960s and 1970s.

The rates of growth of the primary, secondary and tertiary sectors were between 3.0 per cent and 3.6 per cent in the 1960s and between 4.15 per cent and 5.80 per cent in the 1970s. This sectoral balance in the 1960s and 1970s also indicates close linkages between agricultural and manufacturing sectors. The situation, however, has changed since the 1980s with the primary sector, and particularly agriculture, lagging far behind other sectors. Agriculture in the state was almost

TABLE 2.4

### Health and population goals for Gujarat

Health Indicators	Current status	2010
Total Fertility Rate, 1998	3.10	2.10
Couple protection rate, 2001 (%)	54.20	70.00
Maternal mortality rate, 1992-93	38.90	< 1.00
Infant mortality rate, 1999	63.00	16.00
Under 5 mortality rate, 1996	20.40	< 10.00
% children fully immunized, 1998-99	48.00	100.00
% deliveries by trained attendants, 1998-99	74.20	100.00
% institutional deliveries, 1998-99	46.00	80.00

Source: Population Policy, Government of Gujarat, Health & Family Welfare Department, March 2002.

TABLE 2.5

**Sectoral Growth Rates in Gujarat at constant prices (1980-81) in Gujarat (CARG)**

	1960-61 to 1969-70	1970-71 to 1979-80	1980-81 to 1989-90	1990-91 to 1999-00	1993-94 to 1999-00
Primary Sector (Agriculture)	2.91 (2.27)	4.15 (4.22)	1.74 (1.77)	1.95 (-0.18)	-0.68 (-1.10)
Secondary Sector (Manufacturing)	3.62 (3.04)	5.64 (5.55)	6.51 (7.33)	7.25 (6.98)	6.09 (6.32)
Tertiary Sector	3.51	5.86	7.10	7.39	7.22
Trade	-	-	6.08	10.34	7.17
Banking & Insurance	-	-	12.11	12.94	6.56
Overall SDP	3.32	4.95	5.02	5.53	5.06
Per capita income	-	-	3.14	3.94	3.58

Source: (a) EPW Research Foundation (1998).  
(b) Directorate of Economics & Statistics (2002).

stagnant in the 1980s and showed negative growth in the 1990s. It needs to be noted that Gujarat is the only major state reporting a negative growth rate in agriculture and allied sectors in the 1990s (1993-01).

An overview of the growth experience of the major states in the reforms period (1993-94 onwards) shows that Karnataka is at the top with 7.92 per cent CARG, followed by West Bengal, Rajasthan and Tamil Nadu. Karnataka has maintained its top rank in all the three sectors, viz. primary, secondary and tertiary. Gujarat's advantage is mainly in the industrial sector (3<sup>rd</sup> rank) and to an extent in the tertiary sector (5<sup>th</sup> rank). It is almost at the bottom in the primary sector.

A striking feature of sectoral incomes in Gujarat is the highly fluctuating character of per capita income from the primary sector, which varies from Rs. 792 in 1980-81 to Rs. 729 in 1990-91 to Rs. 896 in 1994-95 and to Rs. 491 in 2000-2001 (Table 2.6). A recent publication of the Directorate of Economics and Statistics (2002) shows that there are wide fluctuations in total agricultural income in the state (at 1993-94 prices), from Rs. 9,793.43 crore in 1993-94 to Rs. 16,846.18 crore in 1996-97, to Rs. 10,606.71 crore in 2000-2001, indicating a long term negative trend.

On the whole, Gujarat's economy has undergone significant structural transformation with the share of the non-primary sectors having significantly increased. This cannot be considered satisfactory because the primary sector - particularly agriculture - has lagged far behind with almost stagnant long-term growth since the 1980s. Also, agriculture in the state is highly unstable, which tends to leave the small farmers and farm labour in poverty. It is clear that this pattern of growth cannot be sustained for long as it does not allow agriculture and industry to establish strong and mutually reinforcing linkages, which are so very essential for sustained development.

TABLE 2.6

**Per capita NSDP in different sectors in Gujarat (Rs. at 1980-81 prices)**

Year	Primary sector	Secondary sector	Tertiary sector	All sectors	Per capita GDP in India
1980-81	792	528	620	1,940	1,625
1990-91	729	914	997	2,641	2,267
1991-92	591	792	998	2,381	2,226
1992-93	867	1,132	1,093	3,091	2,298
1993-94	646	1,123	1,174	2,944	2,391
1994-95	896	1,379	1,255	3,531	2,518
1995-96	681	1,488	1,347	3,517	2,648
1996-97	779	1,577	1,443	3,799	3,915
1997-98	772	1,667	1,537	3,976	4,101
1998-99	741	1,047	1,171	3,043	4,371
1999-00	546	1,131	1,258	3,026	4,649
2000-01	491	1,222	1,320	3,094	4,928

Source: Directorate of Economics and Statistics (1997-98, 2001-02).



*Since more than 50 per cent of the workforce in the state is still dependent on agriculture, it is important that this sector grows to its potential and growth is stabilized to ensure stable incomes to farmers and farm-labourers*

Since more than 50 per cent of the workforce in the state is still dependent on agriculture, it is important that this sector grows to its potential and growth is stabilized to ensure stable incomes to farmers and farm-labourers. This will also help the agriculture sector to access benefits of globalization through increased trade and agri-business. Higher agricultural incomes are also seen as an important precondition, particularly in the period of globalization, for promoting overall growth of the economy as markets for non-agricultural products are expanded. A recent survey of National Council for Applied Economic Research (NCAER) has shown that more than 60 per cent of demand for consumer non-durables comes from rural areas (NCAER 2003). The lagging agriculture sector is a matter of concern for the sustainability of growth, and for poverty reduction.

## **Agriculture and Human Development**

The primary sector, including agriculture, holds an important position in Gujarat's economy. About 15.52 per cent of the state income comes from this sector (three yearly average for 1999-2001) and about 52.05 per cent (Census of Population 2001) to 59.84 per cent (NSS 1999-00) of the workforce is engaged in this sector. The fact that more than half of the workforce (NSS data) is engaged in the primary sector and that they get only 15.52 per cent share of the state income indicates a low level of productivity and incomes of the people engaged in the primary sector. Near stagnancy in agriculture has reduced the share of this sector, but the proportion of population dependent on agriculture has not declined. Lower achievements in human development in general and in rural areas in particular are linked to this phenomenon.

Performance of agriculture was relatively good during the 1960s and 1970s when

CARG in agriculture was 2.27 per cent and 4.15 per cent respectively. The growth in the 1960s was largely due to extensive cultivation and expanding irrigation facilities while growth in the 1970s came from the Green Revolution. Negative or low growth rate of agriculture in the 1980s and 1990s is largely because of the saturation of the earlier strategies and lack of a new approach based on new technology (Desai and Namboodiri 1997) on the one hand and increasing intensity and frequency of droughts on the other. That is, agriculture has stagnated, if not declined, during the recent decades largely because of lack of technology that can accelerate land/labour productivity in irrigated as well as rain-fed areas. In the irrigated areas, which have taken advantage of the Green Revolution, deceleration of agricultural growth has arisen due to technical constraints. Available new varieties seem to have lost their genetic potential. Some of the other inputs that have witnessed significant increase have not increased agricultural efficiency. This is aggravated further when use of these new inputs is not adequately combined with scientific knowledge of their application. In rain-fed areas, which constitute about 70 per cent of the cultivated area of the state, the situation is much worse as dry farming technology is still not well developed. Further, agricultural growth has spread mainly in the areas where there is assured water supply made available through irrigation facilities. Farmers, and particularly small and marginal farmers in rain-fed areas, still suffer from the vagaries of the monsoon; they experience highly fluctuating/unstable incomes, which result in indebtedness and poverty on the one hand and force them to migrate to distant places looking for work in the lean season on the other.

Across the districts there are wide differences in the performance of agriculture (Table 2.7 gives data for the old 19 districts). For example, the value of agricultural production per ha is highest in Surat (Rs. 15,661) and

TABLE 2.7

## Performance of Agriculture Sector

District	% Gross irrigated area	Rank	Fertilizer consumption kg/ha	Rank	Value of agri. production Rs./ha	Rank	Value of agri. prod. Rs. per capita	Rank	Overall rank
Ahmedabad	31.98	9	68.17	9	5618	14	655	18	14.0
Amreli	21.58	14	55.96	12	10779	5	4428	2	7.0
Banaskantha	37.59	6	41.34	15	3934	15	1794	9	13.0
Bharuch	17.72	18	51.69	13	2752	19	704	17	19.0
Bhavnagar	23.12	12	69.38	8	7736	7	2108	6	7.0
Dangs	0.53	19	1.20	19	7247	8	1301	12	16.0
Gandhinagar	72.61	1	57.66	10	6980	9	1026	16	10.0
Jamnagar	21.10	15	33.54	16	12259	3	5091	1	9.0
Junagadh	24.95	11	72.22	6	15241	2	4017	3	2.0
Kachchh	19.49	16	23.92	18	3039	18	1581	11	17.5
Kheda	60.68	2	127.97	2	5861	13	1036	15	5.0
Mehsana	53.12	3	56.18	11	6283	11	1883	8	7.0
Panchmahals	22.42	13	47.03	14	3069	17	549	19	17.5
Rajkot	31.55	10	70.24	7	10434	6	3369	4	4.0
Sabarkantha	40.15	5	94.68	3	3848	16	1080	13	11.5
Surat	46.24	4	167.69	1	15661	1	1914	7	1.0
Surendranagar	18.91	17	32.78	17	6230	12	3365	5	15.0
Vadodara	33.87	8	83.30	5	6352	10	1080	14	11.5
Valsad	37.45	7	88.52	4	11372	4	1624	10	3.0
GUJARAT	33.88		82.05		10188		2506		

Source: CMIE, Profile of Districts, October 2000.

Junagadh (Rs. 15,241), which is almost five times the figure in Panchmahals and Kachchh. Only seven districts have per ha value of output more than Rs. 10,000, while the rest have a value less than Rs. 7,000. This implies low productivity and low income in the majority of the districts.

Agricultural growth, including stabilization of agricultural incomes, is a major requirement for poverty reduction and human development in the state. This calls for committed efforts for better water and land management through improved water use efficiency, watershed development, wasteland development, improved cropping and better agricultural practices, which in turn requires R & D efforts, capacity building, institutions, and so on.

The share of government expenditure on agricultural infrastructure has declined in the past decade. There is an urgent need to raise funds for agricultural infrastructure in the state. Agro Vision 2010 and agricultural planning in the Tenth Five Year Plan have formulated agricultural strategy for the state. The Tenth Plan document has projected 5.78 per cent growth rate for agriculture. Though the strategy contains desirable components, it needs to be backed by required efforts in terms of technology, institutions and finances.

Animal husbandry and dairy development have emerged as an important sub-sector in the state. This sector contributes from 22 to 33 per cent (in drought years) to agricultural output. It has good potential for reducing highly fluctuating agricultural incomes,

particularly for the poor. But, this requires massive efforts in the areas of (a) fodder development, (b) controlling the large unproductive population of livestock, (c) increasing productivity of livestock through measures like improved breeding, and increased veterinary services, and (d) provision of fodder, particularly during droughts.

## Industrial Growth and Human Development

Gujarat is one of the most industrialized states in India. It contributes more than 13 per cent of national industrial production. As far as the state economy is concerned, manufacturing sector contributes 32.6 per cent of the state income and employs about 16 per cent of the workforce. This indicates that this sector enjoys a relatively high share in the state income and its workers enjoy higher productivity and income levels than

workers in the primary sector. This sector is important for human development because rapid industrial growth can raise employment, wages, and incomes of people directly and indirectly.

Gujarat state ranked 8<sup>th</sup> in industrial development among the major states in India when the state was formed in 1960. The favourable policies of the state government as well as the enterprising population pushed the sector up over the years, with the result that the state is at the forefront of industrial development today. The industrial base of Gujarat got increasingly diversified with petrochemicals and fertilizers, pharmaceuticals and drugs, dyestuffs, as well as engineering and electronics industries.

The process of industrialization has taken a new turn in the state since the introduction of the economic reforms in 1991. After the government of India announced

New Industrial Policy (NIP) in 1991 with the objective of implementing economic reforms in the industrial sector, the government of Gujarat responded favorably and announced its own industrial policies. The state industrial policy 1990-95 was already in operation when the New Industrial Policy was announced by the central government. The Gujarat government declared the **New Industrial and Incentive Policy 1995-2000** thereafter and **Gujarat 2000 AD and Beyond** in 1994 for accelerated industrial development. Though the policy declarations are essentially based on the general framework of the NIP, 1991, they are more aggressive in terms of promoting and facilitating new industrial investment. According to the government of Gujarat, the new climate of economic liberalization and globalization has opened new opportunities for the states to attract

TABLE 2.8

### IEMs filed in the major states in India (1991-2003)

States	August 1991 – January 2003			
	IEMs filed	% share in total	Investment (Rs. crore)	% share in total
Andhra Pradesh	3200	6.72	115368	11.06
Assam	232	0.49	5483	0.53
Bihar	138	0.29	3006	0.29
Delhi	469	0.98	6489	0.62
Gujarat	6058	12.72	168186	16.013
Haryana	2870	6.02	29322	2.81
Jammu & Kashmir	140	0.29	1136	0.11
Karnataka	1856	3.90	43121	4.42
Kerala	463	0.97	7990	0.77
Madhya Pradesh	1959	4.11	41825	4.01
Maharashtra	9689	20.34	230043	22.06
Orissa	377	0.79	24720	2.37
Punjab	2148	4.51	49107	4.71
Rajasthan	2354	4.94	39347	3.77
Tamil Nadu	4084	8.57	59256	5.68
Uttar Pradesh	4206	8.83	67907	6.51
Uttaranchal	315	0.66	6125	0.59
West Bengal	2348	4.93	40243	3.86
<b>INDIA</b>	<b>47640</b>	<b>100.00</b>	<b>1042889</b>	<b>100.00</b>

Source: CMIE Gujarat (2003), June, p.5.

industrial investments within India and abroad. The state's approach is "to compete not only with other Indian states, but also with the newly emerging high growth regions of Southeast and East Asian countries" in the industrial sector (Indext B 1996).

The aggressive policies have paid rich dividends in attracting industrial investment to the state, as shown by the data on IEMs (industrial entrepreneurs memorandums) filed in different states during the period August 1991 to January 2003 (Table 2.8). Gujarat has received 5991 IEMs (filed) and total investment of Rs. 168,186.00 crore between August 1991 and January 2003, which comes to about Rs. 14,736.00 crore/year as against Rs. 91,344.00 crore in India. That is, Gujarat has received 16.13 per cent share of investment under IEMs in India. Thus Gujarat is second (next to Maharashtra) among the major states in terms of attracting industrial investment in the reforms period. According to the latest data available, 3316 projects with Rs. 87,098 crore of investment have already been implemented in the state in the reforms period, and 1988 projects with Rs. 88,839 crore investment are under implementation. By any standards, this is huge investment.

The new industrial structure in the state has specific characteristics:

- ◆ There has been a quantum jump in industrial investment, from Rs. 2,672 crore a year in the pre-reforms period to Rs. 13,368 crore (or Rs. 14,736 crore if counted till January 2003) a year in the post reforms period (Table 2.9), implying more than five times increase in annual investment in the reforms period.
- ◆ Industrial investment has shifted to new areas of coastal Saurashtra and Kachchh. The share of industrial investments in these regions has

increased from 2.6 per cent in the pre-reforms period to 47.5 per cent in the post reforms period (Table 2.10).

- ◆ The new industries are highly capital intensive compared to those in earlier period, particularly in Saurashtra and Kachchh.
- ◆ The composition of industries has remained the same, with pollution-prone industries (oil and refinery, petrochemicals, dyes and chemicals, pharmaceuticals and drugs, textiles, paper, cement, and mineral based industries) having about 65 per cent of the share in total industrial investment.
- ◆ The new industries have increased export intensity in general, since many of them have a significant share in the national exports.

### Small-scale Sector

The small-scale sector shows a slightly different pattern of growth. No significant

TABLE 2.9

#### Industrial investment sanctioned in large and medium industries

States	August 1991 – January 2003			
	IEMs filed	% share in total	Investment (Rs. crore)	% share in total
Andhra Pradesh	3200	6.72	115368	11.06
Assam	232	0.49	5483	0.53
Bihar	138	0.29	3006	0.29
Delhi	469	0.98	6489	0.62
Gujarat	6058	12.72	168186	16.013
Haryana	2870	6.02	29322	2.81
Jammu & Kashmir	140	0.29	1136	0.11
Karnataka	1856	3.90	43121	4.42
Kerala	463	0.97	7990	0.77
Madhya Pradesh	1959	4.11	41825	4.01
Maharashtra	9689	20.34	230043	22.06
Orissa	377	0.79	24720	2.37
Punjab	2148	4.51	49107	4.71
Rajasthan	2354	4.94	39347	3.77
Tamil Nadu	4084	8.57	59256	5.68
Uttar Pradesh	4206	8.83	67907	6.51
Uttaranchal	315	0.66	6125	0.59
West Bengal	2348	4.93	40243	3.86
<b>INDIA</b>	<b>47640</b>	<b>100.00</b>	<b>1042889</b>	<b>100.00</b>

Source: Based on the Data from Indext B.

TABLE 2.10

**Pattern of Medium and Large Industries sanctioned in Gujarat (1983-2002)**

	1983 - 1990	1991- 1996	1997- 2002	1991- 2002
Total number of projects	886	4423	2529	6952
Number of projects per year	110.75	732	422	632
Total Investment (Rs. crore)	21386	170117	78938	249055
Investment/year (Rs. crore)	2672.22	28352.8	13156.40	13368.66
Total Employment (number)	141637	843673	195399	1039072
Employment/year (number)	17704	140612	32567	94461
Investment/ project (Rs. crore)	24.14	38.46	31.21	35.82
Employment per project	159.86	190.74	77.26	149.46

Source: Based on data from Index B.

*The benefits of rapid industrial development in Gujarat can spread to the state economy through proper functioning of land, labour, and capital markets*

improvement in the rate of increase in the SSI units is observed in the post reform period. On the contrary, there is a slight deceleration in the growth rate. CARG of the SSI sector was 10.19 per cent during 1980-90 and 8.09 per cent during 1990-95 (Table 2.11). SSI registration in the 1990s shows annual fluctuations, 13,027 in 1993-94, 14,437 in 1999-00 and 13,469 in 2000-01, with a CARG of 0.33 percent during the period 1993-2000 (Department of Economics and Statistics 2002). Official data also indicate that there has been a significant decline in the registration of SSI units; CARG showing negative growth in chemical and chemical products (-10.36), metal projects (-6.04), non-metallic mineral products (-9.06), basic metal industries (-8.44), transport equipments & parts (-6.77), tobacco and tobacco products (-7.95), wool, silk, and synthetic fibre textiles (-8.08), electrical machinery and appliances (-5.82) and miscellaneous manufacturing industries (-10.89). Increase rate has been observed only in 'other services' (16.96), cotton textiles (2.35), hosiery and garments (3.45) and repair services (3.84). Even the location and composition of SSI units does not show major changes.

The cottage industry sector, consisting of handicrafts, handlooms, village industries and

artisan groups, is another sector that is facing some problems in the post liberalization period. Its growth has been slow. This sector, as a whole, employs a large workforce, operates at a relatively low cost, and has a significant share in exports. But, it needs support in (a) infrastructural facilities, (b) access to credit, (c) market linkages, (d) ability to understand changing markets, and (e) improved productivity and skills.

### Major Issues in Industrial Development

Some major issues with respect to industrial development in Gujarat, particularly in the context of poverty reduction and human development are as follows:

◆ **Enrichment of hinterlands through factor markets:** The benefits of industrial development in a region are expected to trickle down to the hinterland through the functioning of factor markets. The benefits of rapid industrial development in Gujarat can spread to the state economy through proper functioning of land, labour, and capital markets. For example, a new industrial unit in a region should generate employment avenues for local people, directly and indirectly, and thereby integrate local labour into the labour market. This could be done by setting up technical schools for training local youths in required trades, linking existing schools with demand for new skills, and making special efforts to involve locals with the process of development. Efforts should be made to encourage new ancillary economic activities by forging strong backward and forward linkages with the local economy. Similarly, proper functioning of the land market should ensure market price of land to land sellers, including small and marginal farmers.

This, somehow, has not happened to a desirable extent. A study of the impact of

industrialization in the post-reforms period in Saurashtra shows that new industries tend to exploit the region through distorted land and labour markets. Segmented and distorted labour markets allow industrialists to use cheap local labour as casual labour without giving them adequate wages or social protection. No effort is made to train local labour and provide them remunerative employment in local units (Hirway and Shah 1998). Similarly, an imperfect land market, through the Land Acquisition Act, allows industries to acquire land at cheap rates and does not ensure a good market price to land sellers. Industries use natural resources at cheap rates and pollute land, water and air. Government should strictly enforce 'the polluter pays' rule. Clearly, there is a need to develop proper markets for natural resources in the state.

◆ **Model of industrial development:** The second issue is regarding the model of industrial development adopted by the state, particularly after the reforms. The question is whether it is sustainable and whether it can generate enough employment opportunities in the state. Since the rate of employment growth has declined in Gujarat, as in India, there is a need to promote employment-intensive industrial development. It must be noted that the state government is already trying to do so through various policies, including the industrial cluster approach. Looking at the needs, however, it is necessary to intensify efforts.

The massive industrial development encouraged in the state, strictly speaking, is not market friendly. Initially it was encouraged through huge concessions and subsidies in

TABLE 2.11

**Growth of SSI units over time by district, Gujarat**

	No. of registered SSI units						CARG		
	1980		1990		2000		1980-90	1990-00	1980-00
	Number	% to total	Number	% to total	Number	% to total			
Ahmedabad	10919	24.98	29661	25.71	58332	23.23	10.51	7.00	8.74
Bharuch	846	1.94	3815	3.31	11174	4.45	16.26	11.35	13.77
Dangs		0.00		0.00		0.00			
Kheda	2528	5.78	5669	4.91	12064	4.80	8.41	7.84	8.13
Panchmahals	761	1.74	2071	1.79	5825	2.32	10.53	10.89	10.71
Surat	5486	12.55	16764	14.53	36069	14.37	11.82	7.96	9.87
Vadodara	3020	6.91	6648	5.76	14209	5.66	8.21	7.89	8.05
Valsad	2305	5.27	6788	5.88	14981	5.97	11.41	8.24	9.81
Central and South Gujarat	25865	59.17	71416	61.89	152654	60.80	10.69	7.89	9.28
Banaskantha	543	1.24	1755	1.52	5003	1.99	12.45	11.04	11.74
Gandhinagar	40	0.09	843	0.73	2958	1.18	35.64	13.37	24.01
Mehsana	2312	5.29	5290	4.58	13030	5.19	8.63	9.43	9.03
Sabarkantha	800	1.83	2362	2.05	6497	2.59	11.43	10.65	11.04
North Gujarat	3695	8.45	10250	8.88	27488	10.95	10.74	10.37	10.55
Amreli	392	0.90	1426	1.24	3929	1.56	13.78	10.67	12.21
Bhavnagar	2465	5.64	5152	4.47	10613	4.23	7.65	7.49	7.57
Jamnagar	2894	6.62	5396	4.68	10413	4.15	6.43	6.79	6.61
Junagadh	1184	2.71	2632	2.28	6545	2.61	8.32	9.54	8.93
Rajkot	5088	11.64	14417	12.49	27874	11.10	10.98	6.82	8.88
Surendranagar	1480	3.39	2949	2.56	6792	2.71	7.14	8.70	7.92
Saurashtra	13503	30.89	31972	27.71	66166	26.35	9.00	7.54	8.27
Kachchh	649	1.48	1746	1.51	4780	1.90	10.40	10.60	10.50
<b>TOTAL</b>	<b>43712</b>	<b>100.00</b>	<b>115384</b>	<b>100.00</b>	<b>251088</b>	<b>100.00</b>	<b>10.19</b>	<b>8.09</b>	<b>9.13</b>

Source: Directorate of Economics and Statistics (2002).

*To promote economic reforms as well as human development, it is important to promote not only economic growth but also the links between economic growth and human development*

sales tax and other taxes. When this was banned by the central government, industrial growth has been encouraged through huge infrastructural subsidies. In addition, the state government provides several developmental and promotional services to new industries in the state. The subsidies and other concessions are market unfriendly, distort factor markets and misallocate resources.

◆ **Composition of industries:** The predominance of pollution-prone industries in the industrial structure of the state economy is largely because of historical developments. There is a now a need to go into non-polluting, knowledge-based industries. The state government has initiated some efforts in this area but it has a long way to go to achieve any rate of success.

◆ **Promotion of SSI and cottage industries:** In spite of the fact that cottage industries are employment intensive, contribute significantly to exports and have good potential for growth, they are gradually getting marginalized because of their poor access to credit, infrastructure, modern market information and market linkages. They are less professional in their management than is desirable. There is a need to protect and promote this sector as it is a major sector, after agriculture, in providing employment. It is also related to the national heritage and local creativity. Similarly, the micro, small and medium industry sector is also important from the point of human development. The importance of this sector has declined in the post-reforms period in spite of its significant contribution to national production, employment and exports. Promotion of this sector to make it viable and vibrant is a major issue.

There is a significant incidence of mortality and sickness in the SSI sector in the state. According to an official survey, about 27 per cent of SSI units closed down in the late 1990s and 9 per cent of units became sick. These numbers are expected to have in-

creased in the recent years. Some of the major reasons for the sickness are lack of competitive efficiency in the liberalized environment, less than satisfactory access to credit including working capital, inadequate infrastructural support, and so on. It is important that steps are taken to support this sector, which has strong links with employment generation and poverty reduction.

## **Economic Reforms and Employment: Some Issues**

There is a general agreement among economists and protagonists of human development regarding the desirability of pro-market reforms under the neo-liberal paradigm. To promote economic reforms as well as human development, it is important to promote not only economic growth but also the links between economic growth and human development. This implies that on the one hand it is important to provide adequate infrastructure facilities, mainly, power, port, roads, railway, etc.; adequate skilled and educated human resources; facilitative administration, etc. and remove distortion in factor markets such as land, labour and capital markets (including removal of inappropriate subsidies, concessions, taxations) and other fiscal supports, while on the other, it is also important to help small and marginal farmers to access benefits of globalization in agricultural and agri-business (by paying specific attention to strategy formulation, backed by institution and funds); to enable micro, small and medium scale units to be viable and to acquire competitiveness in the market through appropriate policy interventions; to promote factor markets to help the effect of economic growth to trickle down to the different sections of the population; and to integrate environment resources into policy making so as to receive right market signals for their optional allocation and use. It is also important to monitor closely the impact of economic

reforms on different sectors/regions, sections of people, and women in order to take appropriate steps when the reforms result in crises of livelihood and loss of employment on a massive scale. Economic reforms in the state should be promoted in such a way as to facilitate poverty reduction and human development.

### Employment and Labour

Generation of remunerative employment is an important requirement for poverty reduction and promotion of human development. Remunerative employment provides workers (and their households) enough income to access basic needs of life and move above the poverty line on the one hand, and enables them to access human capabilities for achieving higher human development on the other. It also gives them a sense of participation, dignity and self-esteem. Employment-intensive development tends to be participatory, poverty reducing, and relatively equitable compared to labour saving economic growth.

### Employment and Unemployment in Gujarat

According to the Census 2001, there are 212.47 lakh workers in the state in a population of 506.56 lakh. Of these, 170 lakh are main workers (79.8 per cent) and 43 lakh (20.2 per cent) are marginal workers.

A comparison of the 1981, 1991, and the 2001 censuses shows that the workforce participation rate (WPR) in the state has consistently increased from 37.24 per cent in 1981 to 40.23 per cent in 1991 to 41.94 per cent in 2001 (Table 2.12). The share of marginal workers in total workforce has also increased from 13.33 per cent in 1981 to 15.20 per cent in 1991 to 19.96 per cent in 2001, with the result that the WPR of main workers has declined marginally from 34.1 per cent in 1991 to 33.60 per cent in 2001.

The National Sample Survey (NSS) data on employment confirm this observation (Table 2.13). The rate of growth of the workforce has increased according to the usual status, but has declined according to the current weekly status, from 2.49 per cent CARG during 1983-1993/94 to 2.45 percent CARG during 1993/94-1999/00. Table 2.13 also shows that the decline in the rate of growth of employment in the state during the 1990s is much less than that at the all India level. Gujarat is in a relatively better position than the country with respect to overall employment.

As regards diversification of the workforce in the state; the share of agricultural employment (cultivators + agricultural labourers) has declined rapidly from 68.64 per cent in 1981 to 56.30 in 1991 to

*Generation of remunerative employment is an important requirement for poverty reduction and promotion of human development*

TABLE 2.12

#### Workforce in Gujarat

	1981		1991		2001	
	Population (in lakh)	% to total population	Population (in lakh)	% to total population	Population (in lakh)	% to total population
Population	341.00	-	413.09	-	506.56	-
Total Workforce	127.00	37.24	166.20	40.23	212.47	41.94
Main Workers	109.86	32.22	140.95	34.12	170.22	33.60
Marginal Workers	16.90	4.96	25.25	6.11	42.25	8.34
Non-Workers	214.00	62.76	246.89	59.77	294.09	58.06

Source: Population censuses.



52.05 per cent in 2001 (Table 2.14) - a decline of 16.59 percentage points in two decades. The share of agricultural labourers in the agricultural workforce has increased from 37.68 per cent in 1981 to 40.71 per cent in 1991 to 46.97 per cent in 2001. According to the latest agriculture census, about

55.3 per cent operational holdings are operated by small and marginal farmers who operate only 2.13 per cent of the cultivated area (Department of Economics and Statistics 2003). This share has been continuously declining over the past decades. On the whole, wage labourers are becoming important along with the increased share of small and marginal farmers in the number of farmers.

On the whole, employment growth in the 1990s has been greater than the growth of the labour force (Table 2.15), which indicates a satisfactory situation at least at the macro level. Public sector employment declined in absolute terms in the 1990s. The share of organized sector in total employment declined during the 1980s and 1990s.

### Employment Status of workforce

The share of self-employed declined in the state during 1983-1990/00 though there have been ups and down during this period (Table 2.16). The share is about 59 per cent in rural areas and 41 per cent in urban areas (1999-00). The share of casual workers has increased from 18.3 per cent to 24.9 per cent in urban areas and has declined only

TABLE 2.13

#### Growth of employment 1983-1999-00, Gujarat and India

	(CARG %)			
	Gujarat		India	
	1983-1993/94	1993/94-1999/00	1983-1993/94	1993/94-1999/00
Usual status	2.11	2.28		
Current weekly status	2.49	2.45		
Current daily status	2.55	2.31	2.70	1.07

Source: NSS Rounds, 1984, 1993-94 and 1999-00.

TABLE 2.14

#### Distribution of main workers by broad industrial categories, Gujarat (1981-2001)

Category	1981	1991	2001
Cultivators	41.45 (37.76)	47.04 (33.38)	46.93 (27.56)
Agricultural Labourers	25.13 (22.88)	32.31 (22.92)	41.71 (24.49)
Household Industries	2.96 (2.71)	1.97 (1.40)	3.18 (1.87)
Other Workers	40.30 (36.71)	59.63 (42.30)	78.48 (46.08)
Total	109.84 (100.00)	140.95 (100.00)	170.30 (100.00)

Note: Figures are in lakh.  
Figures in brackets indicate percentage of main workers.  
Source: Population censuses.

TABLE 2.15

#### Labour force and employment by sector, Gujarat (1983-2000)

Item	Employment (lakh)				Simple average annual growth rate (%)	
	1983	1987-88	1993-94	1999-00	1983-94	1994-00
Total labour force	133.18	149.05	167.83	207.36	2.6	3.9
Total employment	130.72	146.31	164.82	205.20	2.6	4.1
Public sector	8.00	9.15	9.75	9.32	2.2	-0.7
Private sector	6.39	6.47	7.20	7.95	1.3	1.7
Organized sector (3-4)	14.39	5.62	16.95	17.27	1.8	0.3

Source: (i) The estimates of labour force and total employment are obtained by applying the corresponding UPSS (Usual status principal + subsidiary status) workers' proportion of various NSS rounds to the projected figures of respective years.  
(ii) Employment figures of public and private sectors are from the Directorate of Employment and Training.

marginally, from 34.8 per cent in 1983 to 34.5 per cent in 1999-00 in rural areas with the share fluctuating during the period. Compared to other states, the share of casual labour is much higher in Gujarat.

Only 6.3 per cent of workers are regularly employed in rural areas, while the corresponding figure in urban areas is 34.1 per cent. This share declined significantly during the 1990s in both rural and urban areas. While overall employment in the state has improved, the share of regular employment has declined, particularly in the 1990s, and the share of casual employment has increased. The share of workers covered under social security schemes of the organized sector is much less than 10 per cent.

### Unemployment in Gujarat

Unemployment rate in Gujarat is lower than that in the country. Unemployment was 4.63 per cent (Current Daily Status), in 1999-00 compared to 7.29 per cent for the country. The incidence of unemployment is the highest in Kerala (20.97 per cent), followed by West Bengal (14.99 per cent), Tamil Nadu (11.78 per cent), and Assam (8.03 per cent) (Table 2.17).

Gujarat ranks tenth among major states of India with respect to unemployment rate. Gujarat, Haryana, and Karnataka are the only states where the incidence of unemployment declined in the 1990s. In the case of Gujarat the incidence declined from 5.70 per cent in 1993-94 to 4.55 per cent in

1999/00, whereas the country experienced an increase from 5.99 per cent in 1993/94 to 7.32 per cent in 1999/00 (Table 2.17).

Gujarat appears to be in a relatively better position with regard to overall employment. But there are several developments such as the increased share of marginal workers, declining WPR with respect to main workers, declining share of the organized sector, and the declining rate of growth of employment all of which will need the careful attention of policy makers.

### Women in the Workforce

Women's participation in the labour market is not measured adequately in developing countries. Gujarat (and India) is not an exception to it. Though the Census of Population (1991 and 2001) and the NSS Rounds on Employment and Unemployment (right from the 27<sup>th</sup> Round of 1972-73 to the 55<sup>th</sup> Round in 1999-00) have made serious efforts to capture 'work' of men and women in unorganized and informal sectors, the results do not seem to be fully satisfactory.

The female work participation rate (WPR) in Gujarat is 39.0 per cent (2001) or 41.3 per cent (1999-00) in rural areas which is much higher than in rural India (29.9 per cent in 2001) (Table 2.18). The female WPR in urban Gujarat, however, is marginally lower (13.5 per cent in 1999-00) than the all India rate of 13.9 per cent. Though special efforts were made to capture

*Women's participation in the labour market is not measured adequately in developing countries*

TABLE 2.16

**Distribution of employed persons, Gujarat (1983-2000)**

Type of employment	Rural				Urban			
	1983	1987-88	1993-94	1999-00	1983	1987-88	1993-94	1999-00
Self employed	597	478	502	592	418	388	383	410
Regular salary employed	55	88	68	63	399	421	409	341
Casual labourers	348	434	430	345	183	191	208	249
Total employed	1000	1000	1000	1000	1000	1000	1000	1000

Source: NSS 38<sup>th</sup>, 43<sup>rd</sup>, 50<sup>th</sup> and 55<sup>th</sup> Round UPSS estimates.

TABLE 2.17

**Employment scenario in major states in India, CDS basis**

States	Employment ('000) 1999-00	Employment growth (1993-94 to 1999-00)	Unemployment rate		Employment elasticity 1993-94 to 1999-00	GDP Growth (% pa) 1993-94 to 1999-00
			1999-00 (%)	1993-94 (%)		
Andhra Pradesh	30614	0.35	8.03	6.69	0.067	5.2
Assam	7647	1.99	8.03	8.03	0.737	2.7
Bihar	30355	1.59	7.32	6.34	0.353	4.5
Gujarat	18545	2.31	4.55	5.70	0.316	7.3
Haryana	5982	2.43	4.77	6.51	0.420	5.8
Karnataka	20333	1.43	4.57	4.94	0.188	7.6
Kerala	8902	0.07	20.97	15.51	0.013	5.5
Madhya Pradesh	28725	1.28	4.45	3.56	0.272	4.7
Maharashtra	34979	1.25	7.16	5.09	0.216	5.8
Orissa	11928	1.05	7.34	7.30	0.262	4.0
Punjab	8013	1.96	4.03	3.10	0.426	4.6
Rajasthan	19930	0.73	3.13	1.31	0.104	7.0
Tamil Nadu	23143	0.37	11.78	11.41	0.052	7.1
Uttar Pradesh	49387	1.02	4.08	3.45	0.185	5.5
West Bengal	22656	0.41	14.99	10.06	0.056	7.3
<b>INDIA</b>	<b>336736</b>	<b>1.07</b>	<b>7.32</b>	<b>5.99</b>	<b>0.160</b>	<b>6.7</b>

Source: Special group on targeting ten million employment opportunities per year, Government of India, Planning Commission, New Delhi.

women's work in the 2001 Census, the results do not seem to be very satisfactory as the rate is lower than that reported by the 55<sup>th</sup> Round of the NSSO (1999-00) in both rural and urban areas.

Recently, the CSO has made estimates of WPR in Gujarat using time use data (Table 2.19). By doing so, WPRs of men and particularly of women by current weekly status are much higher than that computed using the NSS data. The female WPR in rural areas is 58.17 per cent (against 35.50 of the NSS) and the female urban WPR is 25.71 per cent (against 12.50 per cent of the NSSO). The time use surveys show that women are much more active in the labour market than what is emerging from conventional employment surveys.<sup>1</sup>

The difference between the two rates can be largely attributed to the fact that women are predominant in 'difficult to measure' sectors like unpaid family work, home work, sub-

sistence work and other informal sector work. These are the activities with relatively low labour productivity, low technology, low wages/incomes, and almost no social protection (Hirway 2003). This indicates the poorer quality of employment of women in the state.

### Lower Status of Women Workforce in the Labour Market

As in India, the status of women workers in the labour market in Gujarat is much lower than men workers. Women workers enjoy much lower occupational diversification as compared to men workers (Table 2.20).

Rural women workers are predominantly employed in the primary sector. Their share in secondary and tertiary sectors put together is less than 10 per cent. In urban areas, women workers are predominant in the tertiary sector (petty services, petty

TABLE 2.18

**Male and female work participation rates, India and Gujarat (main + marginal)**

Year	India				Gujarat			
	Males		Females		Males		Females	
	Rural	Urban	Rural	Urban	Rural	Urban	Rural	Urban
1972-73*	54.0	50.2	31.9	13.4	52.2	47.6	37.9	12.2
1977-78*	54.5	50.6	32.7	15.3	55.1	48.3	38.4	12.9
1981**	53.8	49.1	23.2	8.3	54.2	50.2	26.9	6.5
1983*	55.2	51.7	34.2	15.2	55.0	51.6	40.6	14.1
1987-88*	53.9	50.6	32.3	15.2	55.9	57.0	38.1	11.2
1991**	52.5	48.9	26.7	9.2	54.9	51.1	35.6	7.2
1993-94*	55.3	52.0	32.8	15.4	57.4	53.5	39.6	14.2
1999-00***	53.1	51.8	29.9	13.9	58.4	53.6	41.3	13.5
2001**	52.4	50.9	31.0	11.6	55.6	54.1	39.0	9.1

Source: \* National Sample Survey Rounds, given in Hirway (1993).

\*\* Census of India.

\*\*\* Calculated from NSS data of the 55<sup>th</sup> Round (1999-00).

trade, retail, etc.) and one woman in every five employed is in the primary sector. The proportion of female workers in the primary sector in rural areas has not changed much over three decades. In 1993-94, the share reached 90.70 per cent. But, in 1999-00, there is once again, an increase of rural women workers in the primary sector (92.40 per cent). In essence, from about 94 per cent, rural female engagement in the primary sector has come down to 92 per cent in the three decades, which is not much of a change.

Urban women workers are more diversified than rural female workers, with more than half the workers, (male as well as female workers), diversifying into the tertiary sector. In 1999-00, 57 per cent of male workers and 59 per cent of female workers were in the tertiary sector. Among the marginal workers in rural areas, especially women, there is fair amount of diversification into non-primary sectors.

Further, women workers enjoy lower employment status in the labour market compared to men workers (Table 2.21). As against 9.7 male workers (which is quite low) enjoying regular employment in rural areas only 1.8 per cent women work-

ers enjoyed regular employment. In the case of urban areas, the figures are 35.6 per cent for men workers and 24.7 per cent for women workers (1999-00). Women workers are predominantly self-employed; 60 per cent in rural areas and 44 per cent in urban areas. Further, quite a high proportion of women workers are casually employed in rural and urban areas. But, in urban areas a much higher proportion of women workers are casually employed (31.5 per cent) than men workers (23.6 per cent) in 1999-00.

TABLE 2.19

**WPR in Gujarat based on the NSS (Current Weekly Status) and the Time Use Survey (1998-99)**

	NSS	Time Use Survey+
<b>Rural</b>		
Male	57.10	62.97
Female	35.50	58.17
Total	46.40	60.88
<b>Urban</b>		
Male	52.90	56.51
Female	12.50	25.71
Total	33.60	42.13
<b>Combined</b>		
Male	55.65	60.55
Female	27.57	46.35
Total	41.99	53.81

+ These are modified WPRs, which are comparable with the Current Weekly WPRs of the NSSO. Source: Saha (2003).

TABLE 2.20

**Occupational diversification of male and female workers, Gujarat**

Year	Rural			Urban		
	Primary	Secondary	Tertiary	Primary	Secondary	Tertiary
<b>Male</b>						
1971*	84.60	6.66	7.58	11.03	37.50	51.43
1972-73**	84.70	7.90	7.40	9.10	39.60	51.30
1977-78**	84.40	7.10	8.50	9.10	39.30	51.70
1981*	80.73	9.36	9.61	9.61	40.78	48.84
1983**	79.40	10.10	10.50	13.50	38.00	48.50
1987-88**	68.60	19.58	11.60	6.30	33.30	53.20
1991*	77.08	11.54	11.38	9.47	39.16	51.37
1993-94***	71.80	15.60	12.70	5.50	41.50	52.90
1999-00****	71.80	13.70	14.50	7.91	35.51	56.59
<b>Female</b>						
1971*	93.97	2.95	3.04	22.57	25.59	52.83
1972-73**	93.60	4.20	2.20	38.00	26.90	35.00
1977-78**	94.60	2.40	3.10	31.60	31.60	36.90
1981*	91.71	4.19	4.10	21.58	22.27	56.15
1983**	92.80	4.10	3.10	38.10	21.70	40.40
1987-88**	85.80	10.70	3.50	22.60	31.82	45.60
1991*	92.43	3.19	4.38	20.50	20.56	58.94
1993-94***	90.70	5.60	3.70	21.60	25.00	53.40
1999-00****	92.40	4.00	3.50	19.02	22.46	58.53

Note: The above figures must be read with following understanding. The population census workers' diversification is of main workers. In the NSS data, marginal workers, especially women, are underreported.

Source: \* Based on population Census, given in Hirway (1993).

\*\* Based on NSS, given in Hirway (1993).

\*\*\* NSS data, Sarvekshana (1997).

\*\*\*\* Calculated using NSS data.

There is an increase in self-employment among female workers from 1987-88 onwards in rural and urban areas. In urban areas, till 1983, quite a large proportion of female workers was self-employed, mainly because of their engagement in primary sector activities. From 1987-88 onwards, their engagement in self-employment is accompanied by increase in occupational diversification, more in the tertiary sector than in the secondary sector.

From 1993-94, regular employment among males and females in both rural and urban areas has declined. In fact, in rural areas, there is hardly any regular employment among females. In urban areas, between 20 and 25 per cent of women are in the regular employed category, if 1987-88 is excluded from the analysis. Among males in urban areas, the proportion of workers in regular employment

has come down from 50 per cent to 36 per cent over three decades.

Women in Gujarat are much more active in the labour market than the conventional surveys, census of population and NSS surveys on employment and unemployment indicate. The increased participation is mainly in the unorganized and informal sectors with low quality of employment. Women workers enjoy poorer occupational diversification and less favourable employment status in the labour market. Though some changes have taken place, not all are for the better. The Gujarat government has set up a special department for improving the status of women in different dimensions. Some of the activities of this department include setting up a gender resource centre, proposed gender equity policy, and the Swashakti Programme. These are discussed later in the chapter on "Gender Development and Distance."

TABLE 2.21

**Employment status of workers, Gujarat**

	Self employed		Regular employed		Casually employed	
	Male	Female	Male	Female	Male	Female
<b>Rural</b>						
1972-73	65.6	69.4	12.2	4.3	22.2	26.3
1977-78	63.2	66.9	7.3	1.4	29.4	31.7
1983	59.0	60.8	8.3	1.8	32.7	37.5
1987-88	46.2	40.2	12.8	4.5	41.0	55.3
1993-94	46.9	55.4	9.9	1.5	43.2	43.1
1999-00	50.4	59.8	9.7	1.8	39.9	38.5
<b>Urban</b>						
1972-73	38.9	48.3	50.7	28.2	10.4	23.5
1977-78	37.7	48.0	49.7	21.6	12.6	30.3
1983	40.3	47.6	44.1	22.3	15.6	30.0
1987-88	38.1	35.2	45.2	36.4	16.7	28.4
1993-94	37.3	42.6	44.9	24.1	17.8	33.3
1999-00	40.5	43.8	35.6	24.7	23.9	31.5

Source: National Sample Survey Organization.

**Unpaid Work of Women**

In the context of women's work, the situation with regard to their 'unpaid work', which is now captured through the time use survey, is useful. This survey shows that women who participate in economic activities spend, on an average, 17.6 hours on work per week and 39.08 hours on domestic work. The corresponding figures for men are 43.63 hours and 3.19 hours respectively. This means that women enter the labour market with a huge burden of domestic work and they are not able to compete with men on an equal footing. In fact, this burden becomes a handicap for women while competing in the labour market (Hirway 2001).

The estimated economic value of this work in the state comes to Rs. 21,922.21 crore, which is 21.45 per cent of the SDP. In other words, unpaid work (85 per cent of which is performed by women) contributes 21.45 per cent of total SDP. Women's contribution comes to about 18.14 per cent of SDP (Nath 2003). Women will never be integrated into the labour market and be able to access equal opportunities with men until the burden of unpaid work is distributed equally

between men and women or unless the burden is reduced through appropriate policies.

**Main Issues in Labour and Employment**

Some major critical issues in labour and employment that need urgent attention of the policy makers are as follows:

**Employment Generation for Un/underemployed**

Though the usual status-based unemployment rate in the state is not very high (1.23 per cent), the incidence of unemployment according to current daily status, which is 4.63, is not very low. The incidence for the prime age group (15-29 years) is particularly high at 6.7 per cent in rural areas and 8.5 per cent in urban areas. Considering the fact that the labour force in the state is going to increase rapidly in the coming years, (the projected labour force is 244.64 lakh for 2007 and 260.08 lakh for 2012), the state will have to generate employment for additional 10.67 lakh persons according to CDS by 2012. This is a big challenge for policy makers, particularly when the rate of growth

*Women will never be integrated into the labour market and be able to access equal opportunities with men until the burden of unpaid work is distributed equally between men and women*

of employment has been declining with the increasing rate of economic growth.

Today, about 20 per cent of the workforce in the state consists of marginal workers, a majority of whom are likely to be underemployed. Many of them are engaged in low productivity, low-income jobs. There is a need to either shift them to higher productivity jobs or to improve their productivity in their existing employment. As far as new jobs are concerned, there is not much scope in the public sector as government is not likely to provide employment on any significant scale in the coming years.

The industrial sector is growing rapidly in the post-reforms period. The number of factories increased from 17,561 in 1991 to 27,089 in 2001, an increase of more than 54 per cent. Employment in the factory sector has, however, increased only by 19 per cent during the decade, from 7.60 lakh in 1991 to 9.07 lakh in 2001. Again, about 20 per cent of the new factories employ less than 10 employees. The increased capital intensity of the factory sector has now lower labour absorbing capacity than before. Looking at the recommendations of the S.P. Gupta Committee (Planning Commission 2002) and the M.S. Ahluwalia Committee (Planning Commission 2001) as well as the specific situation in Gujarat, one can identify the following sectors for employment generation:

◆ **Agriculture and allied sectors:** About 52 per cent of the workforce in the state is employed in the primary sector, which contributes only about 15 per cent to state income. Hence, there is a need to improve productivity and incomes of the workforce in this sector and to shift some workers to secondary and tertiary sectors. The first task is to stabilize and improve productivity in agriculture. This can best be done by improving land and water management leading to drought proofing, which essentially means ensuring people access fuel wood, fodder, and water on the one hand and food security on the other.

Drought proofing, which will protect people from the vagaries of the monsoon and stabilize their incomes, is a highly labour-intensive activity. It will provide short-term one-time employment on a massive scale and generate sustainable long-term employment in the mainstream economy. Natural resource management through watershed development, forest management, and land development is an important step in generating productive employment of the agricultural population in the state (Hirway 1998). Though Gujarat has comparative advantage in non-agricultural sectors, it is important to stabilize agriculture to protect the incomes and employment of the agriculture-related population in the state.

◆ **Agro-processing and agri-business:** In order that agriculture-related population and particularly small and marginal farmers are able to access the benefits of globalization, it is important to develop agro-processing and agri-business units. Some of the important potential employment avenues in this context are horticulture and processing of fruits on a scale with modern technology; cultivation of crops on a scale, in collaboration with small and marginal farmers, and processing and exporting the products; processing of vegetables, food crops and other crops; development of grasslands on village common lands, wastelands and forest lands, whenever possible, to develop animal husbandry and dairy industry (the Amul model is a successful story in Gujarat); wasteland development by growing new crops on a scale and promoting agri-business by processing and selling the products (medicinal plants, inedible oil seeds, and so on), and forestry and agro-forestry development on a scale linked to agro-based industries, such as paper and pulp industries, bamboo based industries, medicines and pharmacy and several other non-timber forest produce (NTFP) based industries (NTFPs in the state have the potential of promoting several industries). By strengthening the linkages between agriculture and

*There is a need to either shift marginal workers to higher productivity jobs or to improve their productivity in their existing employment*

industry, the state can generate sustainable and substantial employment.

◆ **Micro, small and medium industries (MSMIS):** The share of organized sector in total employment in the state has declined from 11.0 per cent in 1983 to 10.1 per cent in 1993-94 and to 8.3 per cent in 1999/00. That is, about 92 per cent of the workforce in the state is employed in the unorganized sector. In spite of the high rate of growth of the industrial sector, there has been a decline in the rate of growth of employment in organized industries, from 1.8 per cent during 1983-1993/94 to 0.3 per cent in 1993/94 – 1999/00. Making the unorganized and informal sector viable and profitable by integrating it with the mainstream economy is therefore a major challenge for policy makers. Since the informal sector is heterogeneous, one cannot recommend any one approach, but a strategy of strengthening the informal sector will need to have the following characteristics:

(i) Experiences in promoting micro and small enterprises have shown that a small cooperative of producers or a small group of producers will find it difficult to be viable, as it will not be able to face competitive markets. It is important therefore to conduct an economic activity on a scale through forming a cooperative of cooperatives or a federation of cooperatives. The scale will allow small producers to adopt modern processing, modern marketing (quality control, brand name, etc.), and modern professional management, all of which will enable them to survive and thrive in a competitive market environment. Amul and Lijjat are good examples.

(ii) Quantum jump in technology and productivity will be another requirement for the survival of micro, macro, and medium enterprises. Marginal improvements in productivity and incomes can neither solve the problem of poverty of producers nor can it help them to become competitive in the market.

Informal units will have to take a big jump in productivity and incomes to be a part of the mainstream and access benefits of new opportunities.

(iii) A quantum jump in professional management is another requirement for the unorganized and informal sector units to be viable. Gone are the days when one thought that modern management is relevant only to the corporate sector. Even informal sector units will have to follow modern professional management methods to survive in the competitive market environment.

(iv) It will be necessary to adopt a project approach, rather than programmes or schemes, for promoting micro and small enterprises. Large projects will have to be planned comprehensively with infrastructure, skill training, entrepreneurship training, and general management training as well as market potential and financing. Small Industries Development Board of India (SIDBI) and National Bank for Agriculture and Rural Development (NABARD) have frequently used project approach for promoting micro and small enterprises.

(v) In addition to all these, several critical inputs are required: (a) skill training, (b) entrepreneurship development training, (c) micro-finance for micro enterprises, and (d) project planning and implementation. The role of professional organizations such as skill training institutes, entrepreneurship development institutions, banks and other financial institutes, professional NGOs, etc. will be critical.

◆ **Community Services:** Community services in the fields of (a) education and literacy, (b) health and nutrition, (c) welfare and related services, (d) ITC services and (e) tourism are likely to have good scope for generating additional employment avenues in the state. Social services in the state lack infrastructure as well as staff. In the field of education, for example, each

*Making the unorganized and informal sector viable and profitable by integrating it with the mainstream economy is therefore a major challenge for policy makers*



*The cluster development approach strengthens the competitive advantage of regions. Existing and potential clusters are identified and promoted systematically and comprehensively*

village needs an elementary school, which will require construction of school rooms, toilets, water-rooms, mid-day kitchen, and so on, on the one hand and school teachers, mid-day meal cooks, and supporting staff on the other. Similarly, there is good scope for employment generation in health and welfare facilities.

- ◆ **Tourism:** Tourism is another area with good potential for employment generation. Eco-tourism is very important for employment generation for a state like Gujarat. Similarly ITC sector and construction also have high potential. Construction of roads and bridges, ports, buildings for education, health, banks, marketing yards and godowns, major and minor irrigation facilities, and so on can generate large employment opportunities for people.

- ◆ **Cluster development:** It is important to mention the cluster development approach of the (central) state government for inducing and promoting industrial development and massive employment. This intervention primarily strengthens the competitive advantage of regions. Under this approach existing and potential clusters are identified and promoted systematically and comprehensively. The catalytic role of the government and public service providers (R & D, financial, regulatory, technology, designing, marketing, training, and so on) is to facilitate sustainable development of clusters. Assistance is usually not in terms of disbursing subsi-

dies for commercial activities but more in terms of contributing towards awareness generation, creation of common facilities and common branding/marketing, facilitating formation of networks, conducting demonstration projects, helping capacity-building of networks, etc. Once the ball gets rolling, the rest of the pieces fall into place automatically, without external support (Awasthi 2003). The state government has identified a few clusters for development. There is a need to scale up this programme.

### Unemployment of the Educated and Skilled Labour

Paradoxically, the state suffers from a shortage of skilled manpower on the one hand and the burden of educated unemployment on the other. The share of skilled workforce (with some skills – not necessarily acquired formally) is less than 10 per cent in rural areas and less than 15 per cent in urban areas (Table 2.22). If formal skills are considered, the percentage will decline to about 5 for both areas. Considering the rapid economic and particularly industrial growth in the state, the skill levels are very low.

Data on job seekers by level of education (Table 2.23) and registered with employment exchanges from 1980 to 2001 in Gujarat, indicate that there is a large number of educated job seekers who are either unemployed or employed in work or with wages lower than what is due to them according to their educational qualifications.<sup>2</sup> This is true even

though not all those on the live register are unemployed. Other observations regarding educated unemployed are:

- ◆ There are more than 10 lakh educated persons on the live register of employment exchanges in the state. There has been more than two times increase during 1980-2001. Though the rate of the increase has declined in the 1990s, the number has increased by 3.7 per cent a year during the decade.

TABLE 2.22

**Percentage distribution of workforce by possession of marketable skills in Gujarat, 1993-94**

Possessing	Rural		Urban	
	Male	Female	Male	Female
No Skill	89.9	93.7	80.4	88.8
Some Skill	10.1	6.3	19.6	11.2
Total	100.0	100.0	100.0	100.0
Persons Sampled	183,464	172,835	109,067	99,283

Source: Department of Industries, Gandhinagar.

TABLE 2.23

**Job seekers by level of education as registered with employment exchanges during 1980 to 2001, Gujarat**

S.No.	Level of Education	As on 31 <sup>st</sup> December						CARG	
		1980	1985	1990	1995	2000	2001	1980-90	1990-01
1	SSC	199,588	337,826	435,429	439,642	435,996	394,563	8.1	-0.9
2	Inter	23,906	55,404	81,724	127,454	230,074	271,455	13.1	11.5
3	Diploma	3,720	5,000	8,766	10,787	19,319	22,458	8.9	8.9
4	Graduates	39,489	45,986	55,007	76,483	144,952	172,255	3.4	10.9
	(a) Arts	14,891	15,721	16,443	29,366	59,314	75,554	1.0	14.9
	(b) Science	4,520	5,332	8,479	10,974	23,252	25,573	6.5	10.6
	(c) Commerce	13,239	17,695	20,584	22,603	44,825	52,414	4.5	8.9
	(d) Others	6,839	7,238	9,501	13,540	17,561	18,714	3.3	6.4
5	Engineering graduates	694	1,042	4,085	3,725	7,579	8,454	19.4	6.8
	(a) Civil	216	410	2,368	1,431	1,892	1,964	27.1	-1.7
	(b) Mechanical	232	290	681	630	1,689	1,987	11.4	10.2
	(c) Electrical	118	177	370	619	1,589	1,797	12.1	15.5
	(d) Others	128	165	666	1,045	2,409	2,706	17.9	13.6
6	Post Graduates	2,855	4,027	8,129	12,184	17,595	19,483	11.0	8.3
	(a) Arts	1,229	1,538	2,355	5,452	8,561	9,522	6.7	13.5
	(b) Science	686	1,117	2,050	2,369	3,369	3,626	11.6	5.3
	(c) Commerce	553	781	1,891	2,475	3,023	3,310	13.1	5.2
	(d) Others	387	591	1,833	1,888	2,642	3,025	16.8	4.7
7	Engineering post-graduates	1	3	15	6	2	1	31.1	-21.8
(i)	Total educated unemployed	270,253	449,288	593,155	670,281	855,517	888,669	8.2	3.7
(ii)	Total uneducated unemployed	200,635	284,550	363,826	241,901	212,234	204,901	6.1	-5.1
	Grand Total (i + ii)	470,888	733,838	956,981	912,182	1,067,751	1,093,570	7.3	1.2

Source: Directorate of Employment, Government of Gujarat.

◆ The highest increase during the 1990s has been in the group 'graduates' (10.9 per cent CARG), which includes graduates in arts, science, commerce, etc. Arts graduates top the list with a jump from 1.00 per cent CARG in the 1980s to 14.9 per cent CARG in 1990s. Since this group has a significant share in higher education and since this education is highly subsidized, there is a need to view the education policy carefully.

◆ It is a matter of concern that the number of diploma (engineering) holders seeking jobs has been increasing at almost 9 per cent CARG during the last four decades. Also, the number of engineering graduates seeking jobs is increasing at 7 per cent a year. This clearly reveals the high degree of mismatch between the supply and demand for technically qualified manpower in the state.

◆ Even if it is assumed that 56 per cent of the persons in the live register are unemployed and 12 per cent are students looking for work, (i.e. 68 per cent looking for work) and that the rest are looking for better employment, the numbers in all the categories are increasing rapidly in the state which broadly indicates a mismatch between the supply and demand for educated and skilled human resources.

### What is Wrong with Skill Training in Gujarat?

According to the 50<sup>th</sup> Round of the NSS (1993-94), workforce with some kind of skills constituted less than 7 per cent of the workforce in India. The corresponding percentage in Gujarat is not much higher. There is no doubt that the skill levels of the workforce in the state have to improve. This raises a question: What is wrong with skill training in the state now?

*With rapid economic growth of the state economy and diversification of the industrial structure, the demand for several new skills and trades is emerging for which there is inadequate supply of skills*

◆ The problem is that the increasing demand for new skills and trades is not met. With rapid economic growth of the state economy and diversification of the industrial structure, the demand for several new skills and trades is emerging, for which there is inadequate supply of skills. In rural areas, with the focus on better natural resource management and dry farming technology, there is an increasing demand for skilled human resources in watershed development, soil sciences, geo-hydrology, agronomy, forestry, and botany. The relatively rigid structure of the universities and training institutes does not respond adequately to the new demands, and keeps producing people with outdated skills. The second problem is that there has been a rapid increase in the demand for skilled production workers, and many times the required skills are not necessarily of very high level. ITI courses can be redesigned well to meet this fast growing demand. ITIs and technical schools are not able to generate the supply because:

(i) There is a high drop-out of students in the secondary schools. About 50 per cent of students drop out before they enter the secondary school and 33.33 per cent of those who do enter secondary school drop out between eight to tenth standard (1998/99) (Patel 2003). These students are incapable of entering ITIs and technical schools.

(ii) About 60 per cent of students drop out after 10<sup>th</sup> standard, mainly because they fail (1998-99) (Patel 2003). As a result, there is a large army of youngsters with less than secondary education without any training in any specific skill.

◆ There are many problems with ITI training in the state (as in India). (i) The rigid courses and curriculum generates supplies without adjusting to what is demanded in the market. (ii) The quality of training is so poor that they are not absorbed easily in industries. (iii) ITIs enjoy a low status in the society, with the result that they do not attract good students. Consequently, the links

between ITIs and the labour market are very weak. There are many problems with respect to quality of education in polytechnics as well as engineering colleges. The mismatch between what is demanded in the labour market and what is supplied is frequently very serious. Owing to poor interaction between the labour market and training institutes, the curriculum is frequently outdated. One major fault lies in the way skill training in the state is organized – in a centralized mode under the control of bureaucracy. There is a need to create scope for outside experts, industrialists, and others in the field of skill training and technical education. Decentralization and privatization may help considerably.

In addition to regular courses, the state government, in the different departments and corporations, organizes innumerable short-term skill-training programmes for the poor. A lot of this training appears to be wasted, as the level of skills imparted is low. Several studies have drawn attention to the wastage of vocational and skill training efforts in the state. A survey by ORG (1997) shows that 42 per cent of ITI trained students remained unemployed because their skills were not demanded. The demand was relatively high for fitters, turners, radios and TV mechanics, refrigeration mechanics, air conditioning mechanics, and so on (Patel 2003). A study by MGLI (1996-97) showed that about 45 per cent of ITI trained students could not get employment in the labour market (Patel 2003).

◆ The special Group on Employment Opportunities (2002) has made several important recommendations (Planning Commission 2002). Several other experts have also made relevant suggestions in this field (2003). Based on these, the following issues are highlighted:

(i) There should be universal exposure to basic skills for adolescents. While universal

primary education is a social goal, the retention of adolescents in high school up to class 10 is the foundation for a sustainable human resource policy for skill development and training (Patel 2003). Hence reduction in drop-out rates between eighth and tenth standards and orientation to skill development and training which is basic in nature, need to be recognized as a universal requirement for all students rather than as something for the poor and less intelligent ones.

(ii) Expansion of vocational training facilities for relevant skills and trade after proper study of the labour market. This calls for setting up institutions for better linkages between training and the labour market in a decentralized manner, preferably with strengthened linkages with the private sector.

(iii) Improvement in governance and management of training institutions from ITIs to universities appears to be a tall order in the present environment but it is a precondition for improving skills of the workforce in the state.

(iv) Focus on integrating local labour supply with local industries by organizing relevant training for local youths. Public sector-private sector partnership can be very important here.

(v) Training for informal sector workers is an important area. This involves careful study of the ground level realities as well as careful planning for upgradation of skills and productivity. Government's support is needed in setting up the right institutions, providing expert trainers and finances. Government will be the facilitator and not implementer.

A lot needs to be done to promote skills and productivity of workforce on the one hand and to strengthen linkages between demand and supply of skills on the other. This calls for commitment and appropriate policy and action, backed by finances and institu-

tions. It is not that the state is not doing anything in this area, but that what is being done is far from adequate.

## National Renewal Fund and Frictional Unemployment

Workers in Gujarat have suffered a lot in the past decades with the closure of a large number of textile mills (Patel 1996). Since industrial sickness and industrial mortality is likely to increase further in the reforms period resulting in frictional unemployment, it is important that policies and programmes are formulated for this category of workers.

Workers need support in several areas in the event of frictional unemployment: (a) income support in the form of unemployment insurance and retrenchment benefits, (b) information about available employment opportunities in the labour market, (c) counselling for using retrenchment funds, training and retraining opportunities etc, and (d) support in redeployment in wage employment or in self-employment.

The government of India set up a National Renewal Fund (NRF) in the 1990s to provide this support to unemployed workers. NRF suffered from several limitations, since it (a) focused mainly on public sector textile units (by giving workers benefits of the Voluntary Retirement Scheme - VRS) and neglected thousands of workers who had lost their jobs without receiving legal dues, (b) did very little in the field of training/retraining quantitatively and qualitatively, (c) did not introduce any unemployment insurance, (d) rehabilitated only a very small number of workers, and (e) neglected the regeneration part of NRF almost totally. Consequently, NRF could not develop into a programme that provided significant relief to workers of closed textile mills (Hirway 1996).

At present several industrial and business units in the state have closed down or are sick for

*Since industrial sickness and industrial mortality is likely to increase further in the reforms period resulting in frictional unemployment*

**Employment services help to match demand and supply in the labour market**

various reasons. A lot of the workforce is getting unemployed in the process. There is a need to help these workers by providing income support (whenever possible) through unemployment insurance, labour market information, training/retraining opportunities, and redeployment. Setting up a State Renewal Fund will help considerably. The state should also initiate action for promoting use of land and machinery of closed units for generating new employment.

It needs to be noted in this context that the government of Gujarat made a provision for retraining and redeployment of workers displaced from employment. It spent Rs. 10.71 lakh and Rs. 87.76 lakh on this in 2001-02 and 2002-2003 respectively. A provision of Rs. 65 lakh is made for the year 2003-2004. The state intends to extend the training benefits to workers of non-public sector units also.

### Employment Services

Employment services help the labour force in getting appropriate employment on the one hand and employers in getting the right kind of workforce to run their business on the other. Hence, these services help to match demand and supply in the labour market. These services include labour market information services for workers and employers on a continuous basis, information on demand and supply of skills and on skill training institutions, registration and recruitment services, and counseling services. Employment services also need strong partnerships with the private sector

to make them more useful to both workers and employers.

The importance of employment services has increased considerably in a competitive environment where industrial sickness and industrial mortality are common. Frictional unemployment requires that workers should be helped to protect their income levels through unemployment insurance, professional counseling about available employment avenues, and skill requirements in the labour market through a well designed labour market information system (LMIS) and through appropriate training and retraining facilities accompanied by support for redeployment. All these tasks can be performed well by efficient employment services, which are far better and wider in scope than the employment exchanges.

The government of Gujarat proposes to set up *Rojgar Sahay Kendra* (RSK) (Employment Support Centres) to provide information on vacancies and employment avenues in decentralized offices (Box 2.1). This is an excellent idea. But there is a need to widen the scope of these proposed centres to include information on the skills required and the skill training institutions that provide these skills. There is a need to organize these all over the state, in partnership with the private sector to improve their credibility and utility so that the centres become important places of information on different employment opportunities for job seekers and for employers.

### Food for Work and Employment Guarantee Scheme

As environmental resources in the state have experienced severe depletion and degradation, it is necessary to undertake massive programmes for ecological regeneration in degraded areas through wage employment. The degraded regions also have a high incidence of unemployment, particularly seasonal unemployment. This will stop or

BOX 2.1

#### Rojgar Sahayak Kendra

The government of Gujarat is considering setting up Rojgar Sahayak Kendras (RSKs) in the State. The main objective of RSK is to involve the private sector with official employment exchanges.

- ◆ RSK will collect information about employment avenues available in the

private sector.

- ◆ RSK will help registered employment seekers in getting employment in the public/private sector.
- ◆ RSK will charge beneficiaries for services provided.

Source: Department of Labour and Employment, Government of Gujarat.

reduce the seasonal and temporary migration from these regions by making enough work available in the region. The region will also become ecologically stronger. This will also generate sustainable long-term employment in agriculture, animal husbandry, fishery and allied activities, etc.

Wage employment programmes like the Employment Assurance Scheme (EAS) and the *Sampoorna Gram Swarojgar Yojana* (SGSY) are expected to provide such employment opportunities. Current programmes have proved inadequate in this context as: (a) funds are small, (b) planning for the programmes is weak, and (c) focus of the programmes is diffused. As a result there is continuing seasonal out-migration from many regions. At the same time, funds for the programmes are not well utilized. If 'guarantee' is added to these programmes, at least in selected backward areas, it will help the unemployed considerably.

The specific advantages of the guarantee element will be

- ◆ To restrict migration as the poor will have guaranteed work and they will not have to wait for the sweet will of administration to start work.
- ◆ To provide flexibility to the programme. The size of the programme may expand in drought years and decline during good years. Since the demand will determine the size, there will not be many situations where workers do not get work when needed.
- ◆ To ensure that environmental regeneration works and infrastructural programmes are taken up. In the long-run such asset formation will create sustained employment opportunities for the poor in the mainstream.
- ◆ The poor and particularly the poorest are very weak in our society, as they hold neither economic nor social nor political power. As a result, they become easy victims of exploitation. The guarantee element will give

them the power to demand work, which can have a significant impact on their status and bargaining strength.

- ◆ Once they get access to power, they will gradually organize and acquire power to fight the vested interests of PDS shopkeepers and others. In fact, access to power through the guarantee can have many far-reaching consequences.

The employment guarantee will improve the access of the poor to food security and will contribute to promoting development of degraded and backward regions in the state. Several lessons have to be learned from the EGS of Maharashtra to design a better scheme (Hirway and Terhal 1993).

In this context, it is necessary to mention the Shramyogi Scheme that the state government is planning to introduce (Box 2.2). This scheme mainly aims at uplifting the five poorest households, from each of the villages in the state, above the poverty line within a period of five years or so. The scheme involves a guarantee of some minimum support from the government (the guarantee card will be signed by the Chief Minister and the Minister for Rural Development along with others) as well as an undertaking from the identified households regarding their commitments. Though the objective of the scheme is good, there are a few points that require careful consideration. It will be a good idea if the scheme is discussed with stakeholders and experts before it is implemented.

### **Social Protection**

Only a small fraction of the workforce in the state enjoys a minimum package of social security. The rest of the workforce are served by scattered and isolated small social security schemes if at all. As a result, workers in the unorganized sector are without almost any social protection and social security. That is, they have no protection in the event of death, injury, sickness, old age,

*The poor and particularly the poorest are very weak in our society, as they hold neither economic nor social nor political power*

*Only a small fraction of the workforce in the state enjoys a minimum package of social security*

### Shramyogi Scheme

The government of Gujarat, through the department of Rural Development, is planning to introduce a new scheme, Shramyogi Scheme, with a view to bringing the five poorest households in each village in the state above the poverty line within a span of five years. The main features of this scheme are as follows:

- ◆ Five poorest households will be identified from each of the villages in the state with the help of village level workers. The list of these households will have to be approved by the village gram sabha.
- ◆ Each identified household will be given an identity booklet with the photograph of the household head attached to it. The cost of preparing the booklets will be borne by the state administration.
- ◆ Each identified household will sign an undertaking saying that (i) they will send their children to school, (ii) they will attend the gram sabha regularly, (iii) they will adopt family planning, (iv) they will immunize their children, and (v) they will not drink

liquor. The household will also commit to be 'an ideal citizen' and cooperate with the government to break out of poverty within two and a half years.

- ◆ On the other hand, the state government will give a guarantee (signed by the Chief Minister, Minister for Rural Development, District Collector, and District Development Officer) that they will (i) provide at least 150 days of employment to the household, (ii) give five fruit trees and a house (as per the government scheme), (iii) provide skill training to any one member of the household, and (iv) give a small animal (sheep, goat calf or poultry) to the household.
- ◆ The five identified households will form a group, form a saving society (SHG), access bank credit, and, when ready, undertake skill training and economic activities. With the help of other support, such as BPL ration card, pension scheme and loan for self employment, the families are expected to rise above the poverty line within two and a half to five years.

Source: Based on a note from the Rural Development Department, Government of Gujarat.

maternity and childbirth, unemployment, and other difficult situations.

Considering that the scope for increase in employment in the organized sector is extremely limited, there is a need to expand social security to cover the unorganized sector. There should be a minimum package of social security designed for the unorganized sector workers, which is implemented carefully.

The present schemes for social security for the unorganized sector are:

- ◆ **National old age pension scheme:** A central scheme that provides monthly pension to destitutes above 65 years, who have no source of income.
- ◆ **National family benefit scheme:** A central scheme that provides financial assistance to BPL families when there is loss of income owing to death of a major earning member.

- ◆ **National maternity benefit scheme:** A central scheme that provides financial assistance during pregnancy to women in the age group of 19-45 years for the first two live births.

- ◆ **Annpuerna scheme:** A central scheme that provides food security to destitute elder citizens above the age of 65 years with no source of income/financial assistance.

- ◆ **Group insurance scheme for landless agricultural labourers:** A state scheme that provides insurance for the unorganized labour in the age group of 18-60 years, implemented by the Gujarat Rural Workers Welfare Board (GRWWB) and Life Insurance Corporation (LIC) of India. The scheme is expected to cover 36 lakh workers in the state.

- ◆ **Group insurance scheme for fishermen:** A state scheme that provides insurance for the workforce in fisheries (in the age group of 18-60 years). The scheme is expected to cover 57,000 workers in the state. This scheme is implemented by GRWWB and LIC.

- ◆ **Group insurance scheme for the forest and plantation workers:** A state scheme that provides insurance for unorganized labour in the age group of 18-60 years. It is expected to cover 132,000 workers in the state. This scheme is implemented by GRWWB and LIC.

- ◆ **Group insurance scheme for salt workers:** A state scheme that provides insurance for the unorganized labour in the age group of 18-60 years. It covers 45,000 workers, and is implemented by GRWWB and LIC.

The government of Gujarat has set up special machinery to provide welfare and security to unorganized workers. So far 51 welfare centres have been set up for salt workers, 75 centres for tribal workers, and 365 centres in remote areas. The centres are designed to provide sports, cultural facilities, library, and primary health facilities, *Bahwadi*, etc. The government has drafted The Unorga-

nized Sector Workers Bill – 2003 based on the recommendations of the report of the Second National Commission on Labour and the bill drafted by the Government of India. This bill primarily aims at providing protection to unorganized workers in the event of death, old age, sickness, maternity, etc.

A study of CFDA (Hirway et al 2002) has shown that the actual coverage of the social security schemes at present is very limited in the state (Box 2.3). There is, however, a need to examine the working of welfare centres systematically.

Providing remunerative employment backed by minimum social protection appears to be a distant goal for the state at present. In spite of being ahead of some other states in employment generation, the state has a long way to go to ensure ‘decent work’ to its workforce. Once again, the need for an employment intensive and environment friendly growth path emerges as an important input in policy making.

## Income Poverty and Human Poverty in Gujarat

Poverty is multi-dimensional in nature, the multiple dimensions being income poverty, human poverty, vulnerability and insecurity, marginalization, and so on. Though the multiple dimensions of poverty are interrelated, they do not necessarily go hand in hand.

### Income Poverty in Gujarat

Poverty can be viewed as deprivation of a minimum level of income/consumption expenditure. According to the concept of income poverty prevailing in India, this minimum level basically ensures a minimum level of calorie consumption<sup>3</sup>. The Planning Commission, on a periodic basis, presents poverty statistics for India and the states and union territories. These are head count ratios (HCRs), which gives per cent of population below the poverty line.

According to the latest data (Planning Commission 2001), the incidence of poverty in Gujarat is 13.17 per cent in rural areas and 15.59 per cent in urban areas (Table 2.24). Gujarat ranks 5<sup>th</sup> in rural poverty as well as urban poverty among major states in India, which is one rank lower than the rank in per capita income. Punjab has the lowest poverty (6.35 per cent and 5.75 per cent in rural and urban areas respectively), followed by Haryana (8.27 per cent and 9.99 per cent respectively) and Kerala (9.38 and 20.27 per cent respectively).

The analysis of state-wise performance in income poverty reduction during 1973/74 and 1993-/94<sup>4</sup> indicates that the incidence of poverty in Gujarat has declined by 29.5 per cent during 1973-1983 and by 28.10 per cent during 1983-1993/94. The state ranks third in poverty reduction for the period 1973/94 – 1993/94 with Punjab at the top,

#### BOX 2.3

#### Evaluation of wage employment programmes

- ◆ These funds are a major source of corruption for not only Sarpanch and Talati, but also for taluka level and other state government officers and staff. The distribution of corruption varies from village to village, depending on the relative strengths of the local and taluka level officers.
- ◆ The norm of allocation of funds for individual assets of SC/ST is hardly observed. Village level assets like road paving also do not reach the localities of the poor.
- ◆ In spite of this, however, there is no doubt that villages have received assets under these programmes. School-rooms, road paving, water works, wells, community hall, etc are constructed in the villages.
- ◆ The funds are very small, particularly for small and backward villages. Allocation of 22.5 per cent to SC/ST from these meager funds also does not help at all.
- ◆ The Gokul Gram Yojana has not done well primarily because of the lack of funds. Villages have not received funds under this programme. Also, priorities in the programmes do not seem to be correct.
- ◆ It is difficult to say whether these programmes are for employment generation or for asset building. It seems that the impact of these programmes, including JRY, is very limited in employment generation for the poor because of (a) the small size of the programme, (b) the types of assets selected, (c) the contractors using their own skilled and unskilled labour, and (d) corruption and favoritism in selecting workers (selection of workers for these programmes is never done through any objective system, such as preparing a list of people wanting work and selecting them in some order).
- ◆ The Gokul Gram Yojana has not been very successful owing to (a) paucity of funds (b) lack of proper planning of works (the construction of the gate in Limaj, for example) and (c) corruption in the system. Even official reports have seen the GGY as more or less a failure.

Source: Hirway et al (2002).



TABLE 2.24

**Estimates of Incidence of Poverty (1999-2000)**

States	Rural		Urban	
	Official Poverty Ratio	Rank	Official Poverty Ratio	Rank
Andhra Pradesh	11.05	4	26.63	10
Assam	40.04	13	7.47	2
Bihar	44.30	14	32.91	13
Gujarat	13.17	5	15.59	5
Haryana	8.27	2	9.99	3
Karnataka	17.38	7	25.25	9
Kerala	9.38	3	20.27	7
Madhya Pradesh	37.06	12	38.44	14
Maharashtra	23.72	9	26.81	11
Orissa	48.01	15	42.83	15
Punjab	6.35	1	5.75	1
Rajasthan	13.74	6	19.85	6
Tamil Nadu	20.55	8	22.11	8
Uttar Pradesh	31.22	10	30.89	12
West Bengal	31.85	11	14.86	4
<b>INDIA</b>	<b>27.09</b>	<b>-</b>	<b>23.62</b>	<b>-</b>

Source: Planning Commission, Government of India, New Delhi.

followed by Andhra Pradesh. This is clearly an achievement for the state (Table 2.25).

Poverty estimates over time indicate that there is considerable decline in income poverty during the past few decades in rural and urban areas (Table 2.26). For example, the incidence of rural poverty declined by 16.55 per cent between 1972/73 and 1983 (from 46.35 per cent to 29.8 per cent) and by 7.62 per cent points between 1983 and 1993/94 (from 29.8 per cent to 22.18 per cent); while the incidence of urban poverty declined by 8.68 per cent between 1972/73 and 1973 (from 49.31 per cent to 40.63 per cent), and by 13.56 per cent between 1983-1993/94 (from 40.63 per cent to 27.07 per cent). This shows that there has been a deceleration in the rate of decline in rural poverty and acceleration in the rate of decline in urban poverty during 1983-1993. This is likely to be due to: (a) the negative agricultural growth rate during the 1980s and the early part of the 1990s, and (b) the high growth rates of secondary and tertiary sectors during this period.

It is not easy to comment on the trend in poverty after 1993-94, as there are several problems with respect to the comparability of NSS data of 1993-94 with that of 1999-2000 data. In fact, there is a big controversy about the trends in income poverty in the 1990s, and several alternative estimates of poverty have been presented by scholars (Srinivasan 2003, Sundaram and Tendulkar 2003a, Sundaram and Tendulkar 2003b, Deaton 2003, Bhalla 2003, Mahendra Dev and Ravi 2003, Drèze and Deaton 2002, Datt, Kozel and Ravallion 2003, and others). A common conclusion emerging from the debate is that there has been a decline in the incidence of poverty in India (Gujarat). Table 2.27 presents alternative estimates of poverty for Gujarat in the 1990s.

Most experts are of the opinion that reduction in poverty in the 1990s, according to the estimates of the Planning Commission, is overestimated. Based on the alternative estimates, one can say that poverty in Gujarat at present is around 17 to 19 per cent.

### Characteristics of the Poor

Rural poor constitute the major chunk of the poor by most estimates. According to most experts (Drèze and Deaton 2003, Dev and Ravi 2003, Bhalla 2003 and Datt, Kozel and Ravallion 2003), the incidence of rural poverty is higher than the incidence of urban poverty in the state (Figure 2.2). According to the Planning Commission's estimates, the rural poor constitute 64 per cent of the total poor in the state. Among the rural poor, the poorest are agricultural and rural labourers, particularly those belonging to SC and ST communities. In fact, agricultural and rural labourers belonging to scheduled tribes are the poorest in the state. Other poor groups in rural areas are marginal farmers and artisans, followed by small farmers mainly in arid areas.

TABLE 2.25

**Incidence of Poverty in 15 major Indian states, 1973-74 to 1993-94**

States	Percentage of poor			Percentage change		
	1973-74	1983	1993-94	1973-74 to 1983	1983 to 1993-94	1973-74 to 1993-94
Andhra Pradesh	49.25	29.88	23.08	-39.33	-22.76	-53.14
Assam	51.23	40.86	41.46	-20.24	1.47	-19.07
Bihar	61.78	62.51	56.44	1.18	-9.71	-8.64
Gujarat	47.21	33.27	23.92	-29.53	-28.10	-49.33
Haryana	35.24	21.24	24.21	-39.73	13.98	-31.30
Karnataka	54.34	38.47	33.18	-29.21	-13.75	-38.94
Kerala	59.71	40.91	26.82	-31.49	-34.44	-55.08
Madhya Pradesh	61.90	50.13	42.60	-19.01	-15.02	-31.18
Maharashtra	52.94	43.54	36.43	-17.76	-16.33	-31.19
Orissa	66.24	65.32	48.41	-1.39	-25.89	-26.92
Punjab	28.08	16.29	11.08	-41.99	-31.98	-60.54
Rajasthan	46.33	35.02	27.68	-24.41	-20.96	-40.25
Tamil Nadu	56.51	52.38	36.63	-7.31	-30.07	-35.18
Uttar Pradesh	56.98	47.19	40.99	-17.18	-13.14	-28.06
West Bengal	63.39	54.72	35.69	-13.68	-34.78	-43.70
<b>INDIA</b>	<b>54.93</b>	<b>44.76</b>	<b>36.31</b>	<b>-18.51</b>	<b>-18.88</b>	<b>-33.90</b>

Source: Planning Commission (1997).

With increasing urbanization, urban poverty is emerging as a major problem. The poor in urban areas are mainly casual unskilled workers and self-employed in the informal sector. Female-headed households belong to the poorest strata of urban centres. Also, the incidence of poverty is higher in smaller towns, and incidence declines with the increase in the size of the urban centre (Dubey and Gangopadhyay 1998). This is because smaller towns have poor economic base, low employment opportunities, and low skill levels.

Saurashtra and Kachchh are the least poor regions with 18.80 per cent incidence of poverty. The incidence of rural poverty in this region is 10.03 per cent, mainly because of high wage rates (predominantly cash crops), low population density, and 'money order economy', i.e. incomes received from migrant workers in distant urban centres like Surat, Mumbai, Ahmedabad, and so on, and countries in Africa, America, and Europe. It is important

to note that the incidence of urban poverty is quite high (34.04 per cent) in Saurashtra as it is dominated by small size towns and urban centres. The highest incidence of urban poverty is of course in the tribal region.

As far as the regional dimension of poverty is concerned, the tribal region is the poorest in the state (1993-94) (Table 2.28). This is followed by the dry region in the north. This seems to be because of low wage rates and drought proneness of the region. There is massive seasonal/temporary out migration from this region to other regions. The same

TABLE 2.26

**Poverty in Gujarat**

Year	Number in lakh			% to total population		
	Rural	Urban	Total	Rural	Urban	Total
1972-73	94.61	41.09	135.70	46.35	49.31	47.21
1977-78	92.53	41.33	133.86	41.76	43.13	42.17
1983	73.49	47.26	120.75	29.80	40.63	33.27
1987-88	75.95	52.63	128.58	28.67	39.63	32.33
1993-94	62.16	41.77	103.93	22.18	27.07	23.92
1999-00	38.87	24.80	61.66	12.20	13.76	12.78

Source: Planning Commission (1997) &amp; Planning Commission (2002).

TABLE 2.27

**Incidence of Poverty in Gujarat: Alternative estimates**

Estimates	Rural		Urban		Total	
	1993-94	1999-00	1993-94	1999-00	1993-94	1999-00
1. Planning Commission	22.18	12.20	27.07	13.76	23.92	12.78
2. Drèze & Deaton (2002)	32.5	20.00	14.7	6.4		
3. Mahendra Dev and Ravi (2003)		20.00		6.4		
4. Deaton (2003)	22.2	15.4	28.3	16.0		
5. Bhalla (2003)	29.3	12.5	37.3	15.0	33.33	17.1
	(1983)		(1983)		(1983)	
6. Datt, Kozel and Ravallion (2003)	35.4	22.7			33.7	19.9
7. Sundaram and Tendulkar (2003a & 2003b)						
- HCR on URP	30.20		29.44		29.93	
- HCR on MRP	26.68	18.89	25.82	16.81	26.38	18.12

Note: URP: Uniform reference period of 30 days for all items of Consumption expenditure.

MRP: Mixed reference period of 30 days for all items. Other than clothing, footwear, education, medical (institutional) and durables, which have a reference period of 365 days.

pattern can be seen for the state, where HCRs are much higher in small towns compared to metropolitan cities (population > 10 lakh) (Table 2.29).

### What are the factors responsible for reduction in poverty in Gujarat?

It appears that the high level of economic growth, and a relatively good position in employment are the factors responsible for the relatively low incidence of poverty in the state. The relatively rapid reduction in income poverty in the state also can be attributed to the

relatively high rate of economic growth. Whether the elasticity of poverty reduction with respect to economic growth has declined in the 1990s is a difficult question to answer. If it is accepted that the incidence of poverty in Gujarat is around 18 to 19 per cent, there is a clear decline in the elasticity in the 1990s.

Since agriculture has grown at a negative rate and the primary sector has grown

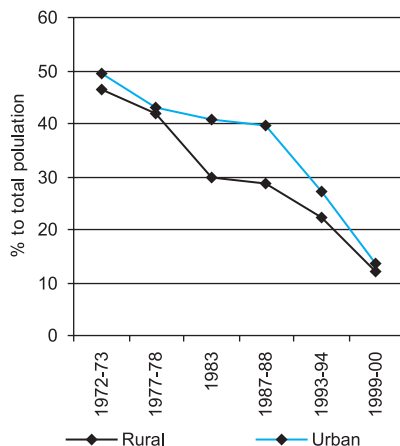
at less than one per cent CARG in the 1990s, the rate of decline in rural poverty has been much less than the rate of decline in urban poverty. That the majority of the poor are in the primary sector is also a consequence of almost stagnant agriculture in the state. It is clear that stabilization of agricultural incomes and agricultural growth are important for poverty reduction in the state.

Another important contributory factor is increased seasonal/temporary migration. Migration is emerging as a major coping strategy of people living in environmentally degraded regions with poor non-farm employment opportunities (Hirway et al 2002). Out migration is taking place from tribal regions, dry regions, coastal saline region, and even from small urban centres. Migrant population includes small and marginal farmers, landless labourers, casual workers, households engaged in animal husbandry, and rural artisan households. This migration seems to enable migrant households to survive in the lean season, which has helped in reducing the incidence of poverty in the state.

While, migration has helped in coping with income poverty, it has contributed to the deceleration of human development achievements in the state, as it has affected health and nutrition as well as education and

Figure 2.2

#### Poverty in Rural and Urban Areas in Gujarat



literacy status in the state. These aspects have been discussed elsewhere. UNDP has introduced the concept of human poverty (see Chapter 1). The reduction in income poverty in the state has not been accompanied by commensurate decline in human poverty.

Poverty alleviation programmes, have contributed only marginally and selectively, if at all, in poverty reduction. A recent study by CFDA (Hirway et al 2002) has shown that these programmes have worked, if at all, in better-off areas and for the better-off of the poor in these areas (Box 2.4, 2.5). The study also shows that the poor in remote and backward areas are yet to receive the benefits to the required extent (Hirway 2002). There is a need to take a fresh look at these programmes to reorganize them.

The incidence of income poverty has declined significantly in the state in recent decades. The state would have performed better if it had taken better care of agriculture and primary sector as well as of environmental resources. Also, the reduction in poverty has not always been achieved in a healthy manner. Stronger synergy between reduction in income and human poverty would help for sustainable achievements in poverty reduction.

According to the BPL survey conducted by the government of Gujarat (1998-2000), there are 31.54 lakh BPL households (rural) in the state, which comes to 52 per cent of the rural population.<sup>5</sup> This is a highly exaggerated estimate and suffers from both errors of exclusion (of the poor) as well as errors of inclusion (of the non-poor). The data are, therefore, highly unreliable. Unfortunately, they are used for implementing pro-poor programmes in the state.

TABLE 2.28

### NSS region-wise Incidence of Poverty

NSS Region	Incidence of poverty (%)*	
	1987-88	1993-94
<b>TOTAL</b>		
Gujarat Eastern	34.49	25.06
Northern Plains	29.03	24.58
Southern Plains	25.85	22.45
Gujarat Dry Regions	40.20	23.30
Saurashtra	28.18	18.80
<b>RURAL</b>		
Gujarat Eastern	34.19	24.12
Northern Plains	25.87	20.52
Southern Plains	22.85	23.51
Gujarat Dry Regions	46.95	22.52
Saurashtra	18.95	10.03
<b>URBAN</b>		
Gujarat Eastern	39.32	34.33
Northern Plains	34.23	30.05
Southern Plains	30.89	20.89
Gujarat Dry Regions	53.88	27.03
Saurashtra	53.77	34.04

\* EOPL estimate taken, which are based on the Expert Group's methodology. Source: Dubey and Gangopadhyay (1997).

Though Gujarat has experienced a reduction in the incidence of income poverty in the past two decades, the incidence is still significant, particularly in relation to the economic growth rate that the state has achieved. Special attention needs to be paid to casual rural and urban labour (informal sector) and marginal farmers, particularly belonging to STs and SCs, living in the tribal and arid areas.

## Human Poverty in Gujarat

Human poverty is another important dimension of poverty. It is defined as "absence of certain basic capabilities needed for human functioning". It is the absence of capabilities

TABLE 2.29

### Poverty by size-class of towns, Gujarat

Size-class (population)	1987-88	1993-94	1999-00
< 50,000	44.13	36.37	19.25
50,000 – 2 lakh	–	–	15.30
2 lakh – 10 lakh	–	–	–
> 10 lakh	32.43	25.35	10.80

Source: Mahadevia and Sarkar (2003).

### Long term impact of self-employment programmes in selected villages

- ◆ The self-employment schemes have been remained on paper. For example, there are eight beneficiaries of the fishing net scheme in Kansagar, but not a single net has come to the village under the programme. Half the names of the beneficiaries are bogus, and the other half does not seem to have seen any net. It appears that some rich in the village, along with the talati/VLW made easy money in the name of the scheme. Each 'beneficiary' was paid Rs. 500 for this favour.
- ◆ Many of the IRDP assets are dead, sold off or gone to the employers of the beneficiaries. In Limaj, 25 buffaloes that came under the scheme went to the Patel employers of the beneficiaries. It took quite some time for us to bring out this truth. The situation is better in the irrigated villages of Jadia and Ranol.
- ◆ The beneficiaries found it difficult to manage these programmes for long, primarily because there were pressing needs for consumption (food in the lean season, sickness or death, social function) and the schemes were doing badly – selling of the asset was an attractive option in such circumstances. However, the better-off among the poor and the non-poor beneficiaries could manage the schemes well.
- ◆ Those who took up the schemes to run them found that (a) it was difficult to get raw materials or to sell the product, (b) it was difficult to get working capital, and (c) it was difficult to run the scheme, given their limited techno-managerial capabilities.
- ◆ The local economy also could not provide much support in terms of market, raw materials, skills, etc. However, local linkages could be established in relatively prosperous villages.
- ◆ The only groups which showed some success in the long run, were the non-poor large farmers (belonging to higher castes), traders, or established businessmen, and the better-off of the poor.
- ◆ Self-employment programmes in backward and poor regions do not make much sense. In fact, it is indeed very difficult for the poor to run such schemes, with limited skills and capabilities, in a region which provides neither forward nor backward linkages. It is also observed that the newly structured SGSY also does not make much difference. The major weak points here are: (a) formation of groups as a mechanical exercise, without going through the process of social mobilization, (b) a great hurry to move to micro finance and economic activities, (c) lack of skills and training among group members, and (d) identification of economic activities without any comprehensive planning.

Source: Centre for Development Alternatives (2002).

to lead a long, healthy, and creative life, enjoy a decent standard of living, and access knowledge and education.

UNDP has developed a Human Poverty Index (HPI), which includes three indicators:

$P_1$  = Longevity deprivation captured by the indicator of persons not expected to survive beyond 40 years

$P_2$  = Composite indicator on educational deprivation

$P_3$  = Composite indicator on economic deprivations

$P_2$  is calculated as follows:  $P_2 = (ed1 * weight) + (ed2 * weight)$

where ed1 is the illiteracy rate for the population above 7 years and ed2 is the proportion of children in the age group 6-18 years not enrolled in schools.

$P_3$  includes four variables, namely (a) proportion of the population below the poverty line, (b) proportion of population not receiving medical attention at birth (or proportion of children not vaccinated in the age group 12 to 23 – 1991), (c) proportion of population living in *kachcha* houses, and (d) proportion of population not having access to basic amenities, viz. safe drinking water, sanitation, and electricity (Planning Commission 2002). Each of these variables gets equal weight in the composite index  $P_3$ . HPI is a composite index of  $P_1$ ,  $P_2$  and  $P_3$ .

HPIs for 15 major states have been calculated by the Planning Commission (2003). These are presented in Annexures 37, 38, and 39 for 1981 and 1991. For 1991, two HPIs are presented, one that is comparable with the 1981 HPI and one that is not comparable with the 1981 HPI.

◆ Gujarat ranks sixth among major states in terms of the incidence of human poverty (1991). About 28 per cent to 29 per cent of the population in the state lived in

## BOX 2.5

### Incidence of poverty by different criteria in selected villages

District/Village	NSS <sup>1</sup> (93-94)	BPL <sup>2</sup> Survey	Multiple <sup>3</sup> Criteria
<b>Bharuch</b>			
Kansagar	23.51	94(90.38)	40(35.08)
Limaj	23.51	89(78.07)	38(33.33)
<b>Dahod</b>			
Nasirpur	24.12	118(78.15)	52(34.43)
Bavka	24.12	914(92.14)	273(27.52)
<b>Banaskantha</b>			
Ranol	20.52	77(27.50)	48(17.14)
Jadia	20.52	286(36.86)	95(12.24)

Note: Figures in the brackets indicate percentages the official data on poverty.

<sup>1</sup> = As per the estimates by the Planning Commission.

<sup>2</sup> = As per the recent BPL Survey.

<sup>3</sup> = As per the study by CFDA.

Source: Centre for Development Alternatives (2002).

human poverty in 1991 as against 23.92 per cent living in income poverty. Gujarat's rank in human poverty has declined between 1981 and 1991, from 3<sup>rd</sup> to 6<sup>th</sup> among 15 major states in India. Maharashtra, Tamil Nadu, and Haryana have gone ahead of Gujarat in human poverty reduction.

- ◆ As in the case of India, the incidence of human poverty in Gujarat is higher than the incidence of income poverty. In the case of Kerala, Tamil Nadu, Maharashtra and Karnataka the incidence of income poverty is higher than that of human poverty.

- ◆ The incidence of human poverty is much higher in rural areas than urban areas of Gujarat. This is true with almost all the states in India. In the case of Gujarat, rural incidence of human poverty was 31.83 as against urban incidence of 20.87 (1991).

- ◆ The gap between income poverty and human poverty is more in rural areas than in urban areas in Gujarat. For example, the incidence of human poverty was 31.83 per cent (in 1991) and that of income poverty was 22.18 per cent (in 1993/94) for rural Gujarat, and while the corresponding rates for urban areas were 27.07 per cent and 20.87 per cent respectively. This indicates that reduction in income poverty has been achieved in rural areas without corresponding reduction in human poverty.

- ◆ Kerala has the lowest incidence of human poverty (22.73 per cent in 1993/94), followed by Maharashtra (24.73 per cent), Punjab (25.25 per cent), Tamil Nadu (26.45 per cent) and Haryana (27.41 per cent). Gujarat ranks sixth in human poverty among major states in India. Its rank in human poverty is 6<sup>th</sup> in rural areas and 7<sup>th</sup> in urban areas.

When per capita income, incidence of income poverty, and incidence of human poverty in major states are compared, it can be seen that Gujarat ranks 3<sup>rd</sup> in incidence of income poverty (1993-94), 4<sup>th</sup> in per capita income (1993-94), and 6<sup>th</sup> in human pov-

erty (1991) (Table 2.30). Kerala has the lowest incidence of human poverty, but it ranks 5<sup>th</sup> in income poverty and 6<sup>th</sup> in per capita income. In other words, Kerala has achieved a high level of human development at a relatively low level of income while Gujarat has achieved a low level of human development compared to its income.

Column 9 of the Table 2.30 presents the ratio of income poverty to human poverty. When the value of the ratio is above 100, it indicates higher achievements in human poverty reduction per unit of income poverty and vice versa. The ratio for Gujarat is 81.19, which indicates that reduction in income poverty by one per cent will reduce human poverty by 0.8 per cent. Kerala tops the list in converting income poverty reduction to human poverty reduction, as for one per cent decline in income poverty the state achieves 1.35 per cent reduction in human poverty. Gujarat ranks 12<sup>th</sup> in terms of this conversion, which implies a weak relationship between reduction in income and reduction in human poverty.

### Human Poverty in the 1990s

It has not been possible to compare HPI for Gujarat and other major states for 2001 owing to lack of data. Trends in some of the major variables in the 1990s are discussed below.

**Literacy and Education:** The two indicators of educational poverty are, P<sub>2</sub>, illiteracy of the population above 7 years and the population of children (6-18 years) not attending school. According to the Population Census 2001, the literacy rate in the state increased by a mere 8.38 per cent (from 61.29 per cent in 1991 to 69.67 per cent in 2001) (Table 2.31). As against this, the all India literacy rate increased by 13.17 per cent. Maharashtra experienced an increase of 12.40 per cent, Karnataka and Tamil Nadu experienced increase of more than 11.00 per cent while Rajasthan and

*The incidence of human poverty in Gujarat is higher than the incidence of income poverty*

*The gap between income poverty and human poverty is more in rural areas than in urban areas*

TABLE 2.30

**Per capita income, incidence of income poverty and incidence of human poverty in major states of India**

States	Per capita income		Incidence of income poverty		Incidence of human poverty		Incidence of human poverty		Ratio of income poverty to human poverty			
	1993-94	Rank	1993-94	Rank*	1991 (comparable with 1981)	Rank*	1991 (not comparable with 1981)	Rank*	(comparable with 1981)	Rank*	(not comparable with 1981)	Rank*
Andhra Pradesh	7447	8	23.03	2	39.78	8	38.34	9	57.89	14	60.07	14
Assam	5715	12	41.46	12	48.95	13	46.29	13	84.70	11	89.57	9
Bihar	3100	15	56.44	15	52.34	15	50.48	15	107.83	4	111.81	4
Gujarat	9796	4	23.92	3	29.46	6	28.05	6	81.19	12	85.28	12
Haryana	11090	3	24.21	4	28.55	3	27.41	5	84.80	10	88.33	10
Karnataka	7838	7	33.13	7	32.7	7	30.99	7	101.31	5	106.91	6
Kerala	7938	6	26.82	5	19.93	1	22.73	1	134.57	1	117.99	3
Madhya Pradesh	6577	10	42.6	13	43.47	10	40.79	10	98.00	6	104.44	7
Maharashtra	12183	2	36.43	9	29.25	4	24.73	2	124.55	3	147.31	1
Orissa	4797	14	48.41	14	49.85	14	45.22	12	97.11	7	107.05	5
Punjab	12710	1	11.08	1	25.06	2	25.25	3	44.21	15	43.88	15
Rajasthan	6173	11	27.68	6	46.67	11	44.73	11	59.31	13	61.88	13
Tamil Nadu	8943	5	36.63	10	29.28	5	26.45	4	125.10	2	138.49	2
Uttar Pradesh	5050	13	40.99	11	48.27	12	46.65	14	84.92	9	87.87	11
West Bengal	6756	9	35.69	8	40.48	9	37.35	8	88.17	8	95.56	8
<b>INDIA</b>			<b>36.31</b>		<b>39.36</b>		<b>37.42</b>		<b>92.25</b>		<b>97.03</b>	

\* Reverse Ranking.

Source: (i) Socio-Economic Review, Directorate of Economics and Statistics, Gandhinagar.

(ii) Planning Commission, Poverty Estimates for 1993-94.

(iii) Planning Commission (2002).

Madhya Pradesh experienced more than 20.00 percentage point increase. As a result, the rank of state in effective literacy rate declined from 4<sup>th</sup> in 1991 to 6<sup>th</sup> in 2001. The performance was particularly poor with respect to female literacy (see annexures).

With regards to children not attending school, the performance of the state has not been very satisfactory during the 1990s. According to the NSS data (1993-94 and 1999-00), the net enrolment rate of children in elementary school in the state has increased only marginally, from 69.56 per cent in 1993-94 to 72.66 per cent in 1999-00, implying an increase of 3.1 per cent while that of girls increased by 4.98 per cent (Table 2.32). Gujarat's rank has

moved from 4<sup>th</sup> in 1993-94 to 6<sup>th</sup> in 1999-00 with respect to net enrolment of children (6-14 years).

Since both indicators show a relatively low performance, the education component of the human poverty index shows low progress of the state on the one hand and a declining rank among the major states on the other.

**Health and Nutrition:** The major indicators of deprivation in health and nutrition, namely  $P_1$  in HPI, is the percentage of population not expected to survive beyond 40 years. In the absence of required data, two indicators, the life expectancy at birth (LEB), and the infant mortality rate (IMR), can be used.

TABLE 2.31

**Effective literacy rates by state, 1991 and 2001 and net enrolment rates by state, 1999-00**

States	1991			2001			Percentage point change		
	Male	Female	Persons	Male	Female	Persons	Male	Female	Persons
Andhra Pradesh	55.13	32.72	44.09	70.85	51.17	61.11	15.72	18.45	17.02
Assam	61.87	43.03	52.89	71.93	56.03	64.28	10.06	13.00	11.39
Bihar	52.49	22.89	38.48	60.32	33.57	47.53	7.83	10.68	9.05
Gujarat	73.13	48.64	61.29	80.23	58.29	69.67	7.10	9.65	8.38
Haryana	69.10	40.47	55.85	79.25	56.31	68.59	10.15	15.84	12.74
Karnataka	67.26	44.34	56.04	76.29	57.45	67.04	9.03	13.11	11.00
Kerala	93.62	86.17	89.81	94.20	87.86	90.92	0.58	1.69	1.11
Madhya Pradesh	58.42	28.85	44.20	76.80	50.28	64.11	18.38	21.43	19.91
Maharashtra	76.56	52.32	64.87	86.27	67.51	77.27	9.71	15.19	12.40
Orissa	63.09	34.68	49.09	75.95	50.97	63.61	12.86	16.29	14.52
Punjab	65.66	50.41	58.51	75.63	63.55	69.95	9.97	13.14	11.44
Rajasthan	54.99	20.44	38.55	76.46	44.34	61.03	21.47	23.90	22.48
Tamil Nadu	73.75	51.33	62.66	82.33	64.55	73.47	8.58	13.22	10.81
Uttar Pradesh	55.73	25.31	41.60	70.23	42.98	57.36	14.50	17.67	15.76
West Bengal	67.81	46.56	57.70	77.58	60.22	69.22	9.77	13.66	11.52
<b>INDIA</b>	<b>64.13</b>	<b>39.29</b>	<b>52.21</b>	<b>75.85</b>	<b>54.16</b>	<b>65.38</b>	<b>11.72</b>	<b>14.87</b>	<b>13.17</b>

Source: Population census.

LEB in Gujarat in 1991 was 61.7 years for males, 64.3 years for females, and 62.9 years for both. The corresponding rates for the country were 62.2 years, 63.3 years and 62.7 years respectively. In 1996-2001, however, LEB in Gujarat was 61.7 years for males (indicating stagnancy) and 62.77 years for females again indicating stagnancy. In the case of India, a marginal increase to 62.4 years for males and 63.4 years for females was observed. At the all-India level as well as in Gujarat, a kind of stagnation in LEB is observed.

As regards IMR, Gujarat shows a small decline of 4 per cent during 1991-01 (Table 2.33). The decline has been much less in rural areas (3 per cent). This decline is much lower than the all-India decline, which is 12 per cent. The highest decline has been resulted in Orissa (-26), followed by Madhya Pradesh (-23), Karnataka (-14) and West Bengal (-14). Gujarat ranks second from the bottom in terms of this de-

cline, which indicates not only a lower performance by the state in this decade, but also lower rank in the IMR in 2001 (from the fifth rank in 1991-93 to seventh rank in 2001).

On the whole, the state's performance with respect to  $P_1$  in HPI appears to be lower in the 1990s compared to the 1980s. The state has also gone down in its rank owing to its relatively poor performance compared to other major states.

The third component of HPI,  $P_3$ , refers to economic deprivation. As seen above, economic deprivation includes proportion of population living below the poverty line, population of children not receiving medical attention at birth, proportion of population living in *kachcha* houses, and proportion of population lacking access to the basic amenities (i.e. drinking water, sanitation and electricity). Data on poverty are controversial and therefore cannot be



TABLE 2.32

**Enrolment Rates (age 6-14 years) by NSS Regions, Gujarat, 1993-94 and 1999-00**

NSS region	1993-94	1999-00	Percentage point change
	Net enrolment in elementary school	Net enrolment in elementary school	
<b>Male</b>			
Eastern region	70.46	75.87	5.41
Plains-Northern region	81.44	82.20	0.76
Plains-Southern region	76.86	81.48	4.62
Dry region	63.04	64.37	1.33
Saurashtra	79.55	75.72	-3.83
Rural	73.52	75.45	1.93
Urban	80.87	80.47	-0.40
Gujarat	75.70	76.98	1.28
<b>Female</b>			
Eastern region	60.10	68.20	8.10
Plains-Northern region	68.23	71.73	3.50
Plains-Southern region	63.56	76.03	12.47
Dry region	45.01	48.66	3.65
Saurashtra	68.23	66.69	-1.54
Rural	57.35	63.95	6.60
Urban	74.89	77.48	2.59
Gujarat	62.82	67.80	4.98
<b>Persons</b>			
Eastern region	65.75	72.19	6.44
Plains-Northern region	75.01	77.07	2.06
Plains-Southern region	71.00	79.01	8.01
Dry region	54.31	57.46	3.15
Saurashtra	73.92	71.47	-2.45
Rural	65.90	69.95	4.05
Urban	77.95	79.12	1.17
Gujarat	69.56	72.66	3.10

Source: Calculated on NSS data.

used for calculating HPI. Since the 2001 Census data are not analysed as yet, other variables are not available. It is not possible to compute the value of  $P_3$  for 2001 at the moment.

The trends in  $P_1$  and  $P_2$  of HPI indicate that (a) there has been a deceleration (and even stagnation) in the state in the rate of improvement of these components in the 1990s and (b) Gujarat's performance compared to the performance of other major states has been less satisfactory leading to a declining rank for the state with respect to these components.

## Concluding Observations

Gujarat is one of the developed states in India ranked fourth in per capita income among major states in the country. The state has experienced a rapid rate of growth during the past few decades, and particularly after the introduction of the economic reforms in 1991. The state has, through its aggressive policies in the field of industry, power, ports, and other infrastructure tried to take advantage of the new opportunities to attract investment and to achieve a high rate of growth with good amount of success. The enterprising population, supported by state policies and interventions, have done fairly well in raising the rate of economic growth. It is on the forefront in industrial development and its population, which constitutes five per cent of the population of the country, enjoys more than 13 per cent of the national industrial output.

In spite of these achievements, the state is lagging behind in human development. It appears that there are several distortions in the growth path that the state has chosen for itself, which create

obstacles to growth resulting in poor human development. The first distortion is the lagging agricultural sector and the weakening of the links between agricultural and non-agricultural sectors. The second distortion is the depletion and degradation of environmental resources on which a significant proportion of the population depends. The third is factor market distortions (i.e. land and labour markets) that do not allow benefits to trickle down to different regions and to different sections of the population. Specific inputs needed to link the reforms with the masses, and particularly the poor are not adequately addressed by policy makers.

The state has made considerable gains in different dimensions of human development such as literacy and education, health and nutrition, welfare and social security, etc. These gains are much less than the gains in the SDP. Also, there is a deceleration in the rate of achievement in the 1990s. The weakening of the links between economic growth and human development in the 1990s is a matter of serious concern.

The regional dimensions of growth and human development have emerged clearly in our discussion. The eastern tribal belt seems to be a major problem region, followed by the northern dry region. Both regions enjoy a high incidence of income poverty and human poverty. Also, these regions have poor agricultural development and poor industrial investment. It seems that both these sectors (i.e. agriculture and industry)

have been neglected in the two regions. They are also at the bottom in terms environmental depletion and degradation.

Small urban centres and towns have a relatively high incidence of urban poverty as they have poor economic base, poor infrastructural facilities and poor employment opportunities. These centres also lack finance for improving the situation. Small and medium towns are emerging as an important problem from the point of poverty reduction as well as human development.

On the whole, there is a need to modify the growth path to strengthen the linkages between growth and human development on the one hand and to design specific interventions in specific sectors and regions to strengthen the synergies that promote human development on the other.

TABLE 2.33

**Infant Mortality Rates in India and in 15 Major States, by place of residence**

States	1991-93			2001			Point Change 1991/93-2001		
	Total	Rural	Urban	Total	Rural	Urban	Total	Rural	Urban
Andhra Pradesh	69	75	48	66	74	39	-3	-1	-9
Assam	79	81	54	73	76	33	-6	-5	-21
Bihar	71	73	45	62	63	52	-9	-10	7
Gujarat	64	70	51	60	67	42	-4	-3	-9
Haryana	70	74	53	65	68	54	-5	-6	1
Karnataka	72	83	43	58	69	54	-14	-14	11
Kerala	15	16	12	11	12	9	-4	-4	-3
Madhya Pradesh	109	116	71	86	92	53	-23	-24	-18
Maharashtra	56	66	36	45	55	27	-11	-11	-9
Orissa	116	121	72	90	94	60	-26	-27	-12
Punjab	55	60	40	51	55	37	-4	-5	-3
Rajasthan	84	89	56	79	83	57	-5	-6	1
Tamil Nadu	57	66	41	49	54	35	-8	-12	-6
Uttar Pradesh	96	100	73	82	86	62	-14	-14	-11
West Bengal	65	70	39	51	53	38	-14	-17	-1
<b>INDIA</b>	<b>78</b>	<b>85</b>	<b>50</b>	<b>66</b>	<b>72</b>	<b>42</b>	<b>-12</b>	<b>-13</b>	<b>-8</b>

Source: SRS Bulletin, Registrar General of India, New Delhi.

## Notes

<sup>1</sup> The conventional surveys are not able to capture women's (and the poor's) work adequately because (i) the work is frequently intermittent and scattered, (ii) it is frequently mixed with household work and it becomes difficult to separate it, (iii) housewives frequently suffer from socio-cultural biases and do not report themselves as workers, and (iv) investigators, sometimes suffering from such biases, do not report women's work adequately. The time use survey technique is able to avoid these problems and biases to a considerable extent (Hirway 2003).

<sup>2</sup> A recent study conducted by the DGE&T (of Government of Gujarat) has shown that 56 per cent of the persons on live registers are unemployed, 32 per cent are looking for better employment, and 12 per cent are students looking for work.

<sup>3</sup> Poverty level was first defined in India as the poverty line by Pitamber Pant (1962) at the consumption expenditure of Rs. 20 per capita per month at 1960-61 prices. The first working group to determine the poverty line was set up by the Planning Commission in 1962. It determined the poverty line at Rs. 20 and Rs. 25 per capita per month consumption expenditure at

1960-61 prices for rural and urban areas respectively. Several task forces, study groups and expert groups have been set up since then to revise, refine, and update the poverty line in India.

The latest in the series has been the Expert Group on Estimation of Proportion and Number of Poor set up by the Planning Commission in 1993 under the chairmanship of D.T. Lakadwala (Planning Commission 1993). This Committee has made two major departures from the earlier methods: firstly, it has estimated state poverty lines using state level prices and secondly, it has estimated proportion of the poor directly from the NSS data on household consumption expenditure without any adjustments with the CSO data on national income.

<sup>4</sup> As there are problems of comparability of these data with the 1999-00 estimates of poverty, the table does not cover 1999-00 data.

<sup>5</sup> According to the first BPL survey, there were 19.80 lakh poor households and according to the second BPL survey there were 23.29 lakh BPL households in the state. Both the surveys were conducted during 1998-2001.



# Government Expenditure on Social Sectors

Successful Slum Development through Partnerships



The National Highway

## Chapter 3





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## Government Expenditure on Social Sectors

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3

Public action is an important component of any strategy for achieving higher levels of human development. Its nature and extent is determined by the size and composition of public expenditure, particularly the expenditure on social sectors. The proportion of a state's public expenditure allocated to social sectors indicates the importance of the social sector in the state or the state's commitment to these sectors. This commitment is very important, especially during times when state governments are spending an increasing proportion of their income on debt servicing. The size of public expenditure in a state depends on public income, which in turn depends on the state's own revenue income as well as on transfers from the central government. The size of central transfers in a federal set-up such as India depends on several factors, such as the recommendations of the Finance Commissions, central schemes for welfare and development, central aid in disasters and calamities, and so on.

Public expenditure is likely to influence the status of human development in several ways. In the areas of health, nutrition, education, public distribution system, social welfare, and other social services, public expenditure can directly contribute to human development if appropriate public policies and/or programmes are designed and adequate funds allocated. Indirectly, public expenditure influences the pace and course of economic growth that determines, to a considerable extent, the sustainability of

development on the one hand and funds available for spending on social sectors on the other. For example, sustainable agricultural growth will improve the livelihoods of a large portion of the state's population and therefore their well-being and human development.

### Measures of Public Expenditure on Human Development

The Human Development Report 1991 (UNDP 1991) has introduced four expenditure ratios to monitor and plan public spending on human development. The four ratios are:

- ◆ **Public Expenditure Ratio (PER)** percentage of national income that goes into public expenditure. For the states in India, it is the percentage of NSDP that goes into public expenditure
- ◆ **Social Allocation Ratio (SAR)** percentage of total expenditure earmarked for social services
- ◆ **Social Priority Ratio (SPR)** percentage of social expenditure devoted to human priority concerns, such as elementary education, preventive healthcare (water supply and sanitation), and nutrition
- ◆ **Human Expenditure ratio (HER)** percentage of national income devoted to human priority concerns. It is expressed as the product of the three previous ratios.

The HDR 1991 has also provided some norms for these ratios derived from

*The proportion of a state's public expenditure allocated to social sectors indicates the importance of the social sector in the state*

Figure 3.1

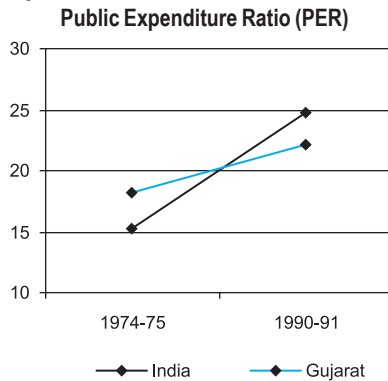


Figure 3.2

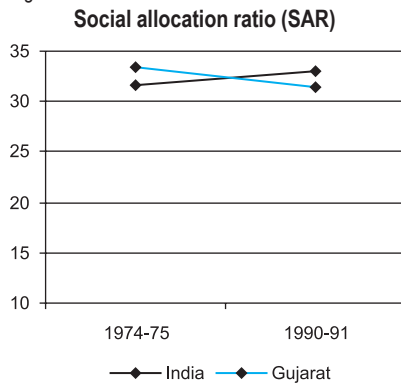


Figure 3.3

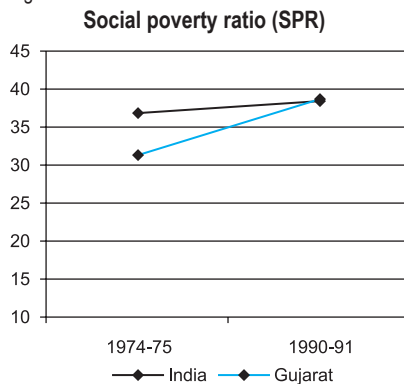
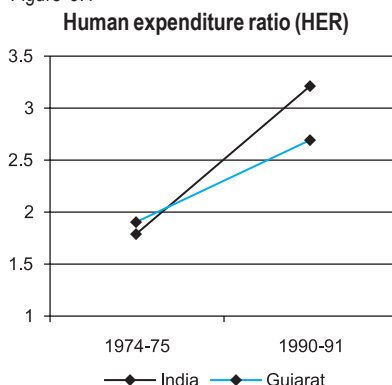


Figure 3.4



empirical evidence across countries. Since adherence to these norms has given positive results in several developing countries, it is expected that fulfilment of these norms will lead to higher levels of human development. According to the HDR 1991 (UNDP 1991), HER should be around 5 per cent if a country wishes to do well in human development. This can be achieved if PER is around 25 per cent, SAR around 40 per cent, and SPR more than 50 per cent (UNDP 1991).

### Ratios in Gujarat Till 1990

Prabhu and Chatterjee (1993) have computed these four ratios for the 15 major states in India for four years; 1974-75, 1980-81, 1985-86, and 1990-91.

**PER:** With regard to PER, there is a good amount of progress at the all-India level, with the ratio increasing from 15.29 in 1974-75 to 24.79 in 1990-91 (Fig 3.1). However, the ratio was still below the norm of 25.00. The performance of Gujarat has been less than satisfactory with the ratio increasing from 18.23 in 1974-75 to 22.18 in 1990-91, moving from better than the national average to worse than the national average. Consequently, the state's relative position has declined over the years, from being at the top in 1974-75 to going down to the 10<sup>th</sup> place among the major states in India in 1990-91. In 1990-91, about eight states met the target of 25.00. Gujarat was not one of them.

**SAR:** This ratio has only marginally improved at the all-India level, from 31.56 in 1974-75 to 32.99 in 1990-91, still lower than the norm of 40

(Fig 3.2). In Gujarat, the ratio has fluctuated widely during the study years and there is an overall decline from 33.51 in 1974-75 to 31.40 in 1990-91, quite contrary to the all-India trend. Only three states – Kerala, West Bengal, and Tamil Nadu – met the norm of 40.00 in 1990-91. Gujarat ranked 9<sup>th</sup> among the 15 large states, indicating a low level of effort by the state government on the social sector front.

**SPR:** In most states and for the country, SPR has remained far below the norm. There has been only a marginal increase during the period 1974-75 to 1990-91 (from 36.83 to 38.39) and no state had achieved the norm of 50 (Fig 3.3). Gujarat's performance has been slightly better than that of the country, the value increasing from 31.26 in 1974-75 to 38.79 in 1990-91. The rank has improved from 11<sup>th</sup> position in 1974-75 to 7<sup>th</sup> in 1990-91 among the 15 major states in the country.

**HER:** The country as a whole does show improvement in HER from 1.79 in 1974-75 to 3.21 in 1990-91 (Fig 3.4), an almost 80 per cent increase. Gujarat shows much less improvement, with the ratio moving up from 1.91 to just 2.70, a 42 per cent improvement, and its rank moves down from 4<sup>th</sup> in 1974-75 to 10<sup>th</sup> in 1990-91.

Gujarat is far from reaching the norms of the four expenditure ratios indicating its relatively low level of efforts in the social sector. In fact, Gujarat, which was ranked among the top four states in these ratios among the 15 major states in India in the mid-1970s, has slipped down in 1990-91 in all the four ratios.

### Ratios in the Post – Reforms Period

In the post-reforms period, these ratios do not show any radical improvement. PER shows wide year-to-year fluctuations (Table 3.1) and a long term increasing trend from 22.18 in 1990-91 to 62.78 in 2001-02. In two years, 2000-01 and 2001-02, the ratio

exceeded 25 per cent. Increase in PER can happen if public expenditure increases or NSDP decreases. In Gujarat, it is the latter; NSDP has decreased, particularly in 2001-02. This ratio, however, is not so critical.

SAR also shows wide fluctuations, with a declining long-term trend. The ratio declined from 31.70 in 1990-91 to 13.02 in 2001-02. The ratio remained at around 30 per cent till 1999-00, and since then there is a very rapid decline.

SPR shows an increasing trend up to 1996-97. In fact, the ratio reached the norm of 50.00 in 1996-97. Since then, the ratio has declined sharply to 46.95 in 1997-98. HER has remained almost constant with figures going slightly above or below 2.70 against the norm of 5.00 till 1999-00. In 2000-01, the ratio moved to 3.39 and then plunged to 2.05 in 2001-02.

The state has not met any of the norms set by the UNDP with regard to social sector and public expenditure ratios either before or after the reforms. The situation has worsened in the case of all ratios except SPR, which met the norm in one year, 1996-97. This clearly needs careful attention of the state government.

## Outlays and Expenditures in Critical Sectors

What kind of priority is given to social services in the five year plans in Gujarat? Once again, there has been a fluctuating trend in the proportion of outlays to social services. There is a clear decline from 20.80 per cent in the Third Plan to 14.25 per cent in the Fourth Plan. In the Fifth Plan, an increase to 20.70 per cent is observed. In the Sixth and Seventh plans, once again, there is a decline to 15.24 per cent and 15.00 per cent respectively. Some improvements are observed in the Eighth Plan with social services getting a share of 19.00 per cent. Finally, in the Ninth

TABLE 3.1  
Expenditure ratios in Gujarat, 1990-91 to 2001-02

Year	PER	SAR	SPR	HER
1990-91	22.18	31.70	38.79	2.72
1991-92	29.80	25.84	40.74	3.13
1992-93	25.02	24.61	41.09	2.53
1993-94	23.70	26.94	41.71	2.66
1994-95	20.08	30.16	41.04	2.48
1995-96	21.86	30.21	41.95	2.77
1996-97	19.48	27.92	50.26	2.73
1997-98	20.08	29.52	46.95	2.78
1998-99	21.44	30.78	-	-
1999-00	24.85	30.69	35.24	2.69
2000-01	33.81	28.19	36.61	3.49
2001-02	62.78	13.02	25.05	2.05
HDR 1991 norms	25.00	40.00	50.00	5.00

PER Public Expenditure Ratio  
SPR Social Priority Ratio  
SAR Social Allocation Ratio  
HER Human Expenditure Ratio

Plan serious efforts towards social development are observed, with the outlay to the social sector increasing to 34.00 per cent.

Decomposition of actual expenditure on various components of the social sector is very useful. Firstly, the proportion of expenditure on health and education sectors has been computed for the period from mid-1980s till recent years. The health sector expenditure, which includes expenditure on health and family welfare, social welfare<sup>1</sup>, and nutrition, shows a consistent decline in terms of its percentage share between the mid-1980s and mid-1990s. The percentage share has declined from 30.66 per cent in 1986-87 to 22.07 per cent in 1996-97 on revenue account and from 3.94 per cent in 1986-87 to 2.62 per cent in 1995-96 on capital account (Table 3.2). On the other hand, there has been an increase in the share of the education sector in revenue account during this period from 48.14 per cent in 1986-87 to 59.8 per cent in 1996-97. Since the mid-1990s, the percentage share has increased for the health sector on revenue account (44.97 per cent in 2001-02) but has decreased on capital account to 1.60 per cent in 2001-02. In 1998-99, the health sector's share on the capital account went up to 7.61 per cent. In the case of expenditure on

*The state has not met any of the norms set by the UNDP with regard to social sector and public expenditure ratios either before or after the reforms*



TABLE 3.2

**Trends in expenditure on health and education, Gujarat**

Item	As percentage of expenditure on social services								
	1986-87	1990-91	1995-96	1996-97	1997-98	1998-99	1999-00	2000-01	2001-02
<b>Health (health, family welfare, social welfare and nutrition)</b>									
Revenue	30.66	25.49	21.82	22.07	27.32	23.45	26.38	35.61	44.97
Capital	3.94	2.78	2.62	3.41	6.64	7.61	5.68	2.41	1.60
<b>Education</b>									
Revenue	48.14	56.75	59.79	59.90	54.00	57.47	54.47	47.59	42.19
Capital	1.70	4.92	11.51	5.18	6.19	3.36	2.76	1.17	0.63

Source: Directorate of Economics and Statistics, Annual Budgets, Government of Gujarat.

education, one does not observe any clear increase in capital account, as there are wide year-to-year fluctuations from the mid-1980s to mid-1990s. There is a clear decline in the percentage share of education on capital account since the mid 90s.

Prabhu and Chatterjee (1993) have also calculated three-year averages of real per capita expenditure of the major 15 states at two time points, 1975-76 and 1990-91, which are mid-year points of the three-year series, 1974-75 to 1976-77 and 1989-90 to 1991-92 respectively. The expenditures are at 1982-83 prices. Gujarat ranked third among the major 15 states in India in 1975-76 in per capita social expenditure (Rs. 111) as well as in per capita expenditure on education (Rs. 53). But the rate of growth of expenditure in real terms was much lower in Gujarat than in some other states for the social sectors together, for education and particularly for health. In both 1975-76 and

1990-91, Gujarat ranked eight among the 15 major states in the health sector. In education, the state's rank has slipped to fourth in 1990-91.

A further decomposition of the expenditure on education and health sectors is given in Table 3.3. The education sector has been divided into five parts: elementary, higher secondary, university and higher education, adult education, and technical education. The health sector has been divided into four parts: medical, public health, water supply and sanitation, and family welfare.

In the education sector, the largest share goes to elementary education, around 53 per cent. This share, which was 60.70 per cent in 1985-86, declined over time and reached 53.86 per cent in 2001-02. The balance has tilted towards secondary and university education, which in itself is not negative if the total budget size increases in real terms and which

TABLE 3.3

**Expenditure pattern in education sector, Gujarat**

Year	As percentage of education expenditure on				
	Elementary education	Secondary education	University & higher education	Adult education	Technical education
1985-86	60.70	27.60	8.60	0.50	2.60
1990-91	52.40	35.20	10.50	0.80	2.80
1995-96	53.10	33.24	9.31	0.33	4.02
1996-97	55.16	32.42	8.26	0.14	4.03
1997-98	55.96	31.70	8.40	0.08	3.86
1999-00	48.72	36.95	11.23	0.03	3.06
2000-01	53.47	31.87	11.54	0.03	3.10
2001-02	53.86	33.42	9.89	0.03	2.80

Source: Prabhu (1997), Directorate of Economics and Statistics (1999) and Budget Publication No. 4, for the years 2001-02, 2002-03 and 2003-04.

was the case till 2000-01. With the advance of development, public expenditure on higher levels of education should increase. The share of university and higher education was 8.60 per cent, in 1985-86, which increased to 11 per cent in 1999-00 and 2000-01, and then decreased to 9.89 per cent in 2001-02. There are no norms for distribution of expenditure across various levels in the education sector and it is difficult to assess whether the expenditures are adequate on each of the sub-heads.

Even though education sector expenditure has increased in a real sense, SAR and SPR ratios for the state are not so good and, hence, there is an overall deficiency of public expenditure on education. Further, the literacy rates in the state, especially among women, are quite low compared to other states in India. In such a situation, the balance tilting towards higher education is not totally desirable.

In the case of the health sector the composition has changed in such a way that a relatively higher amount is spent on medical side (Table 3.4). As against this, expenditure on public health as percentage of total health budget shows a noticeable decline while expenditure on family welfare has drastically decreased. The share of water and sanitation in the health sector has increased, which is a very welcome development.

The pattern of expenditure on the social sector in Gujarat does not reflect consistency in proportionate allocations to the components of this sector. It should be added that expenditure by itself does not reveal the entire picture as its composition and efficient use are equally important. The normative level of expenditure is a necessary, but not sufficient, condition for improving social sector development. Further, the composition of health and education expenditure does not indicate a sharp focus on human development. The state government is under constraint since the state's financial status

TABLE 3.4

**Expenditure pattern in health sector, Gujarat**

Year	Percentage of expenditure on			
	Medical	Public health	Water & sanitation	Family welfare
1985-86	41.40	16.30	24.80	17.60
1990-91	51.10	11.60	24.60	12.70
1995-96	53.65	15.19	17.86	13.29
1996-97	56.50	15.51	15.64	12.34
1997-98	57.22	14.10	22.06	6.62
1999-00	37.48	8.31	41.32	12.89
2000-01	30.39	5.70	57.04	6.87
2001-02	49.17	9.34	32.73	8.76

Source: Prabhu (1997), Directorate of Economics and Statistics (1999) and Budget Publications No. 1, 11, 18 and 24, for the years 2001-02, 2002-03 and 2003-04.

started deteriorating from 1985-86, a deterioration that has accelerated in recent years.

**Financial Status of State Government**

Expenditure on the social sector, to a considerable extent, depends on the financial status of the state government. Some characteristics of which are discussed below:

- ◆ The state has a high revenue deficit. This deficit in the year ending 2000-01 stood at Rs. 6,302 crore, up by 78 per cent over the previous year (CAG Report, Civil, 2001: XVII). The previous five years (1996-2001) also ended with high revenue deficits. Fiscal deficit too increased by 19 per cent (pp. 18) in 2000-01 over the previous year. Revenue deficit started in 1985-86, at Rs. 69.91 crore. State finance has worsened, especially after the economic reforms in 1991 (except 1993-94 and 1994-95), with revenue deficit ranging from Rs. 126.71 crore in 1988-89 to Rs. 702.00 crore in 1990-91. Capital account has been continuously in deficit all through the 80s and the 90s. As a result, the finances of the state have remained in deficit during this entire period. Dholakia (1999) argues that one of the important factors that has caused the fiscal crisis in the state has been the centre-state fund devolution policy adopted by the central government from 1984-85 onwards, which failed to give sufficient

*The normative level of expenditure is a necessary, but not sufficient, condition for improving social sector development*

TABLE 3.5

**Claim of various downward rigid items on revenue receipts and expenditure**

Percentage claim on revenue expenditure	1980-81	1990-91	1996-97 (R.E)	1997-98 (B.E)
Wages and salaries	13.49	15.23	14.00	18.02
Interest	4.70	9.74	12.31	12.65
Transfers	25.20	29.11	24.46	24.47
Subsidies	4.20	6.40	14.30	9.68
TOTAL (1 TO 4)	47.59	60.48	65.07	64.82
% claim on aggregate revenue receipt	63.33	95.85	85.09	84.43
% of aggregate revenue available for other purpose	36.67	4.15	14.91	15.57

Source: Sharma (1999).

incentives for good fiscal performance while encouraging fiscal indiscipline.

- ◆ Another feature of state finance is that current expenditures have generally outpaced revenue income growth. This, argues Sharma (1999), does not augur well for fiscal deficits. Not only that, revenue expenditure has crowded out capital expenditure, which has slowed down creation of new facilities.

- ◆ A large part of the government budget goes towards payment of interest, wages, and salaries, subsidies and transfers. Sharma (1999) found that while these items accounted for around 48.0 per cent of the state's revenue

expenditure in 1980-81, by 1997-98 their share had increased to nearly 65.0 per cent (Table 3.5). These four items demanded as much as 63.0 per cent of the state's revenue receipts in 1980-81, which burgeoned to a massive 84.3 per cent in 1997-98 and has "set the limit of the allocative powers of the state government to allocate its non-debt receipts for any effective intervention elsewhere" (Sharma, 1999). In view of the financial constraints facing the government and low political commitment towards human development, allocation in the budget for the social sector has been low.

TABLE 3.6

**Growth of non-development expenditure in Gujarat**

Year	Actual in current prices (Rs. crore)				As percentage of non-development expenditure		As percentage to total expenditure	
	Adminis- trative services	Interest payment & debt servicing	Non- development expenditure	Total expenditure	Adminis- trative services	Interest payment & debt servicing	Interest payment	Non- development expenditure
1980-81	97.02	188.76	358.29	1499.46	27.08	52.68	12.59	23.89
1985-86	186.98	497.23	884.05	2814.44	21.15	56.24	17.67	31.41
1987-88	234.16	810.26	1395.89	4485.26	16.77	58.05	18.06	31.12
1988-89	272.21	1349.96	1929.61	5103.51	14.11	69.96	26.45	37.81
1989-90	323.69	791.20	1471.69	4978.73	21.99	53.76	15.89	29.56
1990-91	373.73	943.47	1749.21	5712.84	21.37	53.94	16.51	30.62
1991-92	384.19	1863.94	2701.59	7785.48	14.22	68.99	23.94	34.70
1992-93	436.44	2065.98	3026.97	8688.22	14.42	68.25	23.78	34.84
1993-94	478.42	2328.40	3354.73	9298.14	14.26	69.41	25.04	36.08
1994-95	545.51	1581.48	2972.40	9612.70	18.35	53.21	16.45	30.92
1995-96	629.95	1646.19	3107.67	10810.58	20.27	52.97	15.23	28.75
1996-97	656.72	1956.25	4305.74	13025.90	15.25	45.43	15.02	33.06
1997-98	788.24	2318.71	4503.28	15126.37	17.50	51.49	15.33	29.77
1998-99	974.26	2882.10	5533.93	19255.99	17.61	52.08	14.97	28.74
1999-00	1019.67	4512.19	7594.81	22550.14	13.43	59.41	20.01	33.68
2000-01	1041.57	6312.04	11483.62	31144.24	9.07	54.97	20.27	36.87
2001-02	1008.64	22712.95	27625.68	65931.55	4.44	82.22	34.45	41.90

Source: Based on Budgets in Brief, Government of Gujarat.

- ◆ The share of non-development expenditure (which includes the wages and salaries, interest payments and transfers) in total expenditure has been continuously increasing from 23.89 per cent in 1980-81 to around 31.00 per cent in 1985-86 and 1990-91, to 33.06 per cent in 1996-97 and 41.90 per cent in 2001-02 (Table 3.6). In 1997-98 and 1998-99 there was a dip in the share, but there has been a continuous increase thereafter. In 2001-02, there is a 141 per cent increase in non-development expenditure because of debt servicing and a jump in interest payment of 3.5 times.

- ◆ On revenue account, there has been a continuous increase in the share of non-development expenditure, from 24.47 per cent in 1985-86 to nearly 29.00 per cent in 1990-91, more than 30.00 per cent in 1996-97 and 1997-98, and 31.38 per cent in 2001-02. More than 70 per cent accounts for administrative services (salaries and wages) and interest payments and debt servicing. In the case of capital account, no clear long-term trend in the share of non-development expenditure can be discerned. There is an increase till 1993-94, a decline thereafter, and a very drastic increase in 2001-02.

- ◆ Non-developmental expenditure has been growing at a faster rate than development expenditure and the difference between the two has grown rapidly in the 1990s. Non-development expenditure grew at 26.17 per cent yearly during the period as against

22.38 per cent increase in development expenditure. Further, non-development expenditure has grown rapidly on both revenue and capital accounts.

- ◆ Another item of major expenditure is subsidies. Dholakia's (1999) study estimates that Gujarat, compared to other states, had the highest per capita subsidy of Rs. 1,402 a year in 1993-94 and this has almost doubled in 1998-99. This is largely because of the extremely poor revenue receipts for a given cost of capital. Dholakia finds that Gujarat with a cost recovery rate of around 2 per cent, ranks second lowest amongst the major states. The poor cost recovery rate (CRR) is seen in both social and economic sectors (CRR is lower in the social sector) and the situation has worsened in the last few years with per capita subsidies increasing by almost 100 per cent. Moreover, nearly 60 per cent of the subsidy flows to the economic sector, revealing again the low priority given to the social sector. However, the trend seems to be changing with a larger share going to the social sector in the last two years (Table 3.7).

- ◆ Another interesting feature of the nature of subsidies brought out by Dholakia's study (1999) is the fact that the subsidy is large in "non-merit areas" (for example, subsidies in higher education and tertiary health to higher income groups) than in "merit areas" (the former accounting for 70 per cent of the subsidy). This is noticeable even within the social sectors where, except in 1993-94

*Non-development expenditure has grown rapidly on both revenue and capital accounts*

TABLE 3.7

**Government subsidies in Gujarat, 1993-94 to 1999-2000**

Items	1993-94	1995-96	1996-97	1997-98	1998-99 (RE)	1999-2000 (BE)
Total subsidies (in Rs. crore)	6155	8037	9161	10956	13201	13232
Per capita subsidies (in Rs.)	1422	1794	2013	2354	2784	2739
Cost recovery rate	2.21	2.18	1.63	2.11	2.10	2.91
Subsidy as % to NSDP	15.69	13.89	13.70	15.54	15.21	13.26
% of social sector subsidy to total subsidies	39.38	41.63	39.35	39.24	45.22	46.03
% of economic sector subsidy to total subsidies	60.62	58.37	60.65	60.76	54.78	53.97

Source: Dholakia (1999).

*While the government has made successful efforts in raising tax revenue through state taxes, its performance in non-tax revenue is still low*

and 1997-98, “non-merit” subsidy accounted for more than 50 per cent, while in the economic sectors the “non-merit subsidy” as accounts for 90 per cent of the subsidy in the sector.

◆ While the government has made successful efforts in raising tax revenue through state taxes, its performance in non-tax revenue is still low. The state tax revenue increased rapidly after 1985-86, and particularly after 1990-91, from Rs. 720.69 crore in 1980-81 to Rs. 1,354.2 crore in 1985-86 to Rs. 2,680.09 crore in 1990-91, and Rs. 843.01 crore in 1997-98 (at current prices). The share of state taxes in total revenue receipts has increased from 51.00 per cent in 1980-81 to 59.97 per cent in 1990-91 and to more than 65.00 per cent in 1996-97. This is a positive development. On the other hand, in the case of non-tax revenue collection, Gujarat has the lowest contribution, accounting for only 25 per cent of the state’s own revenue. This has been attributed to the less than 15 per cent contribution of revenue generated out of all publicly provided economic and social services, which in

turn has lead to low and obsolete user charges, poor recovery, etc. (Dholakia 1999).

◆ The share of capital expenditure in total expenditure has declined from 36 per cent in 1978-79 to 19 per cent in 1995-96, remaining at the same level till 1998-99, and once again increasing to 30 per cent in 2000-01. In 2001-02 the share went to 66 per cent, not because of an increase in development expenditure on capital account, but for non-development expenditure, mainly towards paying the internal debt of the state government. The share of non-development expenditure on capital account stood at around 59 per cent in 2000-01 and 47 per cent in 2001-02. Thus, capital assets creation has slowed down in the state in the last 15 years.

◆ Between the two, social services and economic services in revenue account, the former has maintained a higher share as compared to the latter in many of the years till 1995-96 (Table 3.8). Since 1995-96, the share of social services has either remained at par or less than that of economic services. The exceptional year is 1999-00 when the share of social services in revenue account was higher. On capital account, economic services bag a far greater share than social services. Together, the share of economic services has been higher than that of the social services in the state.

◆ The CAG Report (Civil) (CAG Report, Civil, 2001), for the year ended March 2001 had to say the following about the state’s finances:

- a) Non-plan revenue expenditure increased to Rs. 19,040 crore in 2000-01 from Rs. 14,836 crore in 1999-00. This is partly attributable to (Rs. 497 crore) to the relief and assistance provided to the victims of the earthquake. (p.xvii)
- b) The financial condition of the state government has worsened considerably

TABLE 3.8

**Percentage share of social and economic services**

Year	Revenue Account		Capital Account	
	Social Services	Economic Services	Social Services	Economic Services
1980-81	39.83	33.17	6.46	51.50
1985-86	43.81	31.07	9.62	41.66
1987-88	38.78	38.32	10.43	39.11
1988-89	38.04	35.21	5.95	34.05
1989-90	38.77	32.91	6.08	59.44
1990-91	39.36	31.19	4.84	60.43
1991-92	36.24	36.00	4.46	43.62
1992-93	32.31	38.88	5.30	43.67
1993-94	33.65	38.10	7.29	32.59
1994-95	35.83	32.56	13.08	48.81
1995-96	36.68	31.48	7.68	57.62
1996-97	33.36	34.16	7.76	55.39
1997-98	34.92	34.53	7.53	64.10
1998-99	34.84	34.40	2.55	12.33
1999-00	35.56	31.56	3.07	10.90
2000-01	35.01	37.21	3.41	8.44
2001-02	33.99	34.38	1.99	2.09

Source: Annual Budgets of Government of Gujarat.

TABLE 3.9

**Public debt of Gujarat, 1996-97 to 2000-01 (Rs. crore)**

Year	Internal debt	Loans & advances from central government	Total public debt	Other liabilities	Total liabilities	Ratio of debt to GSDP**
1996-97	2,019.09	9,956.92	11,976.01	5,048.64	17,024.65	0.20
1997-98	2,478.44	11,580.64	14,059.08	6,080.04	20,139.12	0.22
1998-99	3,104.02	13,975.64	17,079.66	7,677.70	24,757.36	0.23
1999-00	4,021.13	17,054.52	21,075.65	10,485.49	31,561.14	0.29
2000-01	11,669.02	15,870.63	27,539.65	12,467.81	40,007.46	0.34

Source: CAG Report, Civil, 2001 &amp; 2002.

during the last five years because of mounting revenue and fiscal deficits. While the decline in the year 2000-01 was partly attributable to the increased revenue expenditure mainly on account of the earthquake, the overall decline can be attributable to the increase in debt burden and consequent increase in interest payments, Narmada Project and Gujarat Electricity Board subsidies. (p. 25-26). This needs careful examination.

c) More and more borrowed funds have been used over the years for meeting the revenue expenditure at the cost of capital expenditure. If revenue expenditure is not controlled, not only will capital formation suffer but more and more borrowed funds would be applied for meeting non-productive

expenditures, thereby worsening the fiscal situation of the state (p. 18).

◆ During the five-year period, the total liabilities of the Government had grown by 135 per cent (Table 3.9). This was on account of 478 per cent growth in internal debt, 59 per cent growth in loans and advances from Government of India and 147 per cent growth in other liabilities. During 2000-2001, Government borrowed Rs.559.26 crore in the open market at interest rates of 11.85 and 12.25 per cent per annum.

◆ The CAG Report discusses the state of Gujarat's finances from three perspectives: sustainability, flexibility and vulnerability, using financial indicators to represent each of these. Sustainability is the degree to which a

TABLE 3.10

**Financial indicators for Government of Gujarat**

	1996-97	1997-98	1998-99	1999-00	2000-01	2001-02
<b>Sustainability</b>						
BCR (Rupees in crore)	22	(-) 22	(-) 1222	(-) 1759	(-) 4246	(-) 6048
Capital outlay/Capital receipts	0.86	0.72	0.64	0.62	0.32	
Total Tax receipts/GSDP	0.08	0.09	0.09	0.09	0.09	0.09
State Tax Receipts/GSDP	0.07	0.07	0.07	0.08	0.08	0.08
<b>Flexibility</b>						
Capital repayments/Capital borrowings	0.19	0.18	0.15	0.15	0.10	-
Debt/GSDP	0.20	0.22	0.23	0.30	0.35	0.38
<b>Vulnerability</b>						
Revenue Deficit (RD) (Rupees in crore)	592	1,018	2,863	3,546	6,302	6,732
Fiscal Deficit (FD) (Rupees in crore)	2,359	3,002	5,617	6,705	7,965	6,511
Primary Deficit (PD) (Rupees in crore)	749	1,118	3,355	3,897	4,834	2,305
PD/FD	0.32	0.37	0.60	0.58	0.61	0.35
RD/FD	0.25	0.34	0.51	0.53	0.79	1.03
Outstanding Guarantees/revenue receipts	0.72	0.61	0.60	0.63	0.81	1.01
Assets/Liabilities	0.97	0.92	0.83	0.76	0.65	0.74

Source: CAG Report, Civil, 2001 &amp; 2002.

State government has increasingly relied on borrowings and surpluses from public account to meet its deficit and has not paid sufficient attention to improve tax compliance

Debt ratio increased sharply from 0.20 in 1996-97 to 0.34 in 2000-01

government can maintain existing programmes and meet existing creditor requirements without increasing the debt burden. Flexibility is the degree to which a government can increase its financial resources to respond to rising commitments. This can be done by either expanding its revenues or increasing its debt burden. Vulnerability is the degree to which a government becomes dependent on and therefore vulnerable to sources of funding outside its control or influence, both domestic and international. The financial indicators are given in Table 3.10.

◆ From the three aspects, sustainability, flexibility and vulnerability, the report states as follows:

a) *Balance from current revenues (BCR)*, defined as revenue receipts minus plan assistance grants minus non-plan revenue expenditure, had been positive in 1996-97 and negative thereafter. A positive BCR shows that the state government has surplus from its revenues for meeting plan expenditure. In 2000-2001, the negative balance increased steeply by 141 per cent over the previous year mainly owing to stagnant growth in tax and non-tax revenue and significant increase in the non-plan expenditure. As a result of increasingly negative BCR, a large part of the non-plan expenditure had to be met by borrowed funds thus affecting the sustainability of government operations.

b) *Capital outlay/capital receipts*, indicates to what extent the capital receipts are applied for capital formation. A ratio of less than 1 would not be sustainable in the long term as it indicates that a part of capital receipts are being diverted to unproductive revenue expenditure. On the contrary, a ratio of more than 1 would indicate that capital investments are being made from revenue surplus as well. The table shows that there was constant decline in the ratio from 0.86 in 1996-97 to 0.32 in 2000-01, and there was sharp decline from 0.62 in 1999-2000 to 0.32 in 2000-2001 indicating that a large part of

capital receipts are utilized for activities other than capital expenditure.

c) *Ratio of Tax receipts to Gross State Domestic Product (GSDP)*. Tax receipts consist of state taxes and state's share of central taxes. The higher the tax receipts the more the financial sustainability. It also means low flexibility as a high ratio would mean that the government may not be able to increase its tax rates beyond a point. The ratio stagnated at 0.07 from 1996-97 to 1998-99 and marginally increased to 0.08 during 1999-2000 and 2000-2001. This stagnation has been because of poor tax compliance. These two ratios indicate that the state government has increasingly relied on borrowings and surpluses from public account to meet its deficit and has not paid sufficient attention to improve tax compliance.

d) *Capital Repayments/Capital Borrowings* ratio indicates the extent to which capital borrowings are available for investment, after repayment of capital. The lower the ratio, the higher would be the availability of capital for investment. In the case of Gujarat, this ratio declined from 19 per cent in 1996-97 to 10 per cent in 2000-2001 as availability of funds increased because of increased borrowings in recent years.

e) *Debt/Gross State Domestic Product (GSDP)* ratio increased sharply from 0.20 in 1996-97 to 0.34 in 2000-2001 indicating a significant decline in the financial position of the state. GSDP is the total internal resource base of the state government, which can be used to service debt. An increasing Debt/GSDP ratio would signify a reduction in the government's ability to meet its debt obligations and therefore increasing risk for the lender. It also has a negative impact on the sustainability and flexibility of the state's financial condition.

f) *Revenue deficit/Fiscal deficit* is very important. Revenue deficit is the excess of revenue expenditure over revenue receipts and represents revenue expenditure financed by

borrowings, etc. Obviously, the higher the revenue deficit, the more vulnerable is the state. Fiscal deficit represents the aggregate of all borrowings. This ratio indicates the extent to which borrowings of the government are being used to finance non-productive revenue expenditure. The higher the ratio, the worse-off the state, because that would indicate that the debt burden is increasing without adding to asset creation and the repayment capacity. There was a more than three-fold increase in the ratio (from 0.25 in 1996-97 to 0.79 in 2000-2001) showing an extremely unfavourable trend and position of fiscal stress.

g) *Primary deficit/Fiscal deficit* is another important ratio. Primary deficit is fiscal deficit minus interest payments. The lower the ratio the lower the availability of funds for capital investment. This ratio has increased from 0.32 in 1996-97 to 0.61 in 2000-2001. Over the years increased level of borrowings and thus higher availability of borrowed funds vis-à-vis interest payments led to the increase in the value of the ratio. Even though large amount of funds were available in the short run, the implication of increased borrowings will adversely impact on the availability of funds.

h) *Guarantees/Revenue Receipts* ratio indicates the risk of the state government to outstanding guarantees and degree of vulnerability of state revenues to such liabilities. Outstanding guarantees, including letters of comfort issued by the government are for various borrowings. This ratio has increased from 0.63 in 1999-00 to 0.81 in 2000-01.

i) *Assets/Liabilities* ratio indicates the solvency of the government. A ratio of more than 1 would indicate that the state government is solvent (assets are more than liabilities) while a ratio of less than 1 would be a negative indicator. Owing to the huge increase in liabilities and slower rate of asset formation relative to growth in liability, this ratio declined from 0.97 in 1996-97 to 0.65 during 2000-2001. This is an indication of

significant decline in the solvency of the state government.

The analysis of the state's financial indicators suggests that state finances are under a high level of duress. In these conditions, the state government is often forced to cut down on its expenditures and necessary borrowings, especially for long-term asset creation. Financial planning in such a situation becomes short-term. This would lead to a reduction in capital investments for expansion of social facilities. And this seems to have happened in Gujarat. Since 1998-99, the proportion of capital expenditure incurred on social services has drastically fallen from already low levels in the early 1990s, to below 3.5 per cent. On the revenue account, around one-third of total expenditures have been on social services, a ratio that may fall with worsening financial situation. The challenge before the state government is how to improve social sector facilities badly needed in the state. Should the social sector be privatized to get much needed capital investments? The state government has already set up the Social Infrastructure Development Board (SIDB), which will have to look for an appropriate answer (Box 3.1).

*The analysis of the state's financial indicators suggests that state finances are under a high level of duress*

## Financial Status and Human Development

In the final analysis, the financial dimension of human development in Gujarat calls for attention to the following aspects:

- ◆ The management of public finances in general has created certain basic financial constraints for the government, which does not leave enough resources for the social sectors. There is, therefore, a need to revamp overall finance such that more finance is available for the social sector. Some of the steps suggested by the Planning Commission recently such as cutting down on revenue expenditure, reducing undesirable subsidies, exploring revenue generating possibilities,



adopting a uniform approach to sales tax subsidies, reducing public borrowings, etc. are very important in this context.

- ◆ Issues related to vertical and horizontal transfers through the Finance Commissions need to be looked into carefully.
- ◆ The deterioration of the overall financial status of the state is cause to rethink about the expenditure pattern on one hand and efficiency and governance on the other. Care will have to be taken to see that the financial aggregates are not improved by cutting expenditure on the social sector. This requires strong political understanding and commitment.
- ◆ There is a need for a better appreciation of the goals of social development on the part of state leadership so that the sector receives high priority and higher financial allocations.

- ◆ There is a need to ensure that state expenditure reaches women.
- ◆ The synergy within the social sector as well as synergy of the social sector with other sectors is not incorporated systematically in planning. As a result, benefits from social expenditure are not maximized. There is a need to identify and create such synergies through well-planned interventions.

### Transfer of Funds to Gujarat Under Finance Commissions

It has been argued that one reason for the low expenditure on the social sector is that the state does not receive a fair share from central transfers. The Tenth Finance Commission recommended 29 per cent and the Eleventh Finance Commission recommended 29.5 per cent of net proceeds of the union taxes to be shared with states. This is very low compared to the 52.53 percent of expenditure the state governments incur in the total national level expenditure.

Secondly, Gujarat does not receive its fair share because of the criteria fixed by the recent Finance Commissions regarding distributing central funds among different states. By giving a higher weightage to equity as against efficiency, the Finance Commissions have not only given less funds to Gujarat compared to the state's contribution to the central kitty, but the low quantum of funds have generated a financial crunch in the state, which has resulted in low investment in the social sector (Dholakia 2003). It has been suggested, very correctly, that there is a need to reorganize the criteria for distribution of funds so as to make the criteria fair and just to those states which are showing better performance in terms of economic growth and which are showing better fiscal discipline.

Though a higher quantum of funds may not improve the composition of expenditure in the social sectors (because changes in the composition requires strong political commitment), it will at least leave more funds at the disposal of the state government for

#### BOX 3.1

#### Privatizing infrastructure development

The government of Gujarat has set up two independent boards - Gujarat Infrastructure Development Board (GIDB) and Social Infrastructure Development Board (SIDB) – to attract capital investments in economic and social services respectively. GIDB was set up in 1995 to facilitate higher flow of funds into the infrastructure sector and to ensure coordination among various government agencies on infrastructure.

GIDB itself does not develop infrastructure services but acts as a catalyst for their development. It focuses on; (i) overall planning, (ii) coordination between various sector specific departments, (iii) concession agreements which detail the risk allocation in a public-private partnership, (iv) project preparation by conducting pre-feasibility and feasibility studies through reputed consultants, (v) selection of developers through international competitive bidding and challenge route, (vi) monitoring progress of projects, and (vii) building capacity of human resources and organizations in infrastructure sectors compatible with international benchmarks. Of the 22 infrastructure sectors, the Board is currently focusing on Ports, Power, Roads, Railways, Airports, Urban

Infrastructure, Water Supply, Information Infrastructure, Industrial Parks, Gas Grid and Tourism.

The Social Infrastructure Development Board (SIDB), to be developed on the same lines as GIDB, focuses on Education, Health, Environment, Housing, Women's Development, Social Welfare, Water Supply and Sanitation, and Employment and Labour. The Vision Statement is:

“Gujarat aims at becoming a model state on all fronts of human development. Together we shall create a state which would stand out for its achievements in agriculture, infrastructure, industry and last, but not least, human development. This should make Gujarat a benchmark for development not only for all the states in India but also for other developing countries. Every single person in the state of Gujarat, irrespective of gender, caste or creed would:

- Be literate and healthy
- Have shelter and clean environment
- Have drinking water and sanitation
- Be gainfully employed
- Be able to live without fear
- Have equal opportunities”

directing it to the social sector. Nonetheless, it still remains true that economic growth does not automatically get translated into human development. Sustained human

development calls for right interventions and right expenditure patterns in a sustained manner. Management of public finance becomes a very critical input in this area.

## NOTES

<sup>1</sup> The Budget in Brief documents give data in this manner. There is one head called 'health and family

welfare' and another head called 'social welfare and nutrition'.





# The Status of Environment in Gujarat

Social forestry



Migratory birds

## Chapter 4





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## The Status of Environment in Gujarat

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The need for a separate chapter on the status of environment in Gujarat emanates from two reasons: (1) the status of environment in a region has close linkages with the level of human development in that region and (2) Gujarat has undergone considerable environmental depletion and degradation in recent decades which seems to have affected the status of human development in the state in more than one way. It is important, therefore, to examine the nature of this depletion and degradation and understand its impact on human development.

### Human Development and Environment

Synergy of environment and economic growth tends to strengthen the linkages between economic growth and human development. As long as the environment provides resources needed for economic activities in a sustainable manner and functions as a 'sink' for the garbage generated through economic activities, there is no question of a decline in the status of natural resources, and therefore no hindrance to sustainable development. The problem arises, however, when natural resources are overused, that is, the rate of use is more than the rate of regeneration and when the discharges from economic activities are more than the abating capacity of the nature. In both cases, natural resources are depleted, degraded or polluted, which puts limits to the growth process. Non-renewable natural resources are bound to be used in the process of economic

growth, resulting in their depletion and degradation. However it is important that (a) the rate of depletion be lower than the rate at which their substitutes are generated and (b) the depletion and degradation not reach a level that brings irreversible losses to the environment and ecology. If these rules are not adhered to, development becomes non-sustainable. This further leads to non-sustainable human development.

Apart from the sustainability dimension, environment affects human development in many other ways, particularly in a developing economy like Gujarat where environmental resources provide employment and livelihood to a significant proportion of the population. Some of the important linkages between environment and human development and the likely adverse impact of environmental degradation on the status of human development (Hirway 1999) are discussed below.

◆ **Environment friendly growth tends to be employment intensive:** Natural resources like land, water, forests, and vegetation are the backbone of the economy and support economic activities in the primary sector. More than half the working population in Gujarat is in the primary sector and depends directly on these resources for employment and livelihood. Although this sector contributes less than 20 per cent to the NSDP, its contribution is quite crucial since it produces foodgrains, provides wage goods for those employed in the secondary and tertiary sectors, generates demand for consumer goods

*Synergy of environment and economic growth tends to strengthen the linkages between economic growth and human development*

and services, and supplies raw materials to several important industries.

An important implication of the above is that management of natural resources is critical for generating adequate incomes and employment for population. If use of natural resources is broad based and sustainable, consequent development will be employment-intensive and poverty-reducing. For example, if agricultural growth in the state spreads to large arid and semi-arid areas through proper land-water conservation measures (watershed development) and a well-designed dry farming technology, agriculture can generate large scale employment and incomes for the masses of small and marginal farmers in the state. Such growth can also reduce the instability or year-to-year fluctuations in agricultural incomes, which, in turn, can reduce the poverty and indebtedness of the agricultural population.

On the other hand, if agricultural growth is promoted through incentives and subsidies for irrigation and other infrastructural facilities only in selected regions that are favourably endowed with water resources, which has been the experience of Gujarat, it will lead to overdrafting of groundwater, overuse of surface/canal water, and generate employment avenues only in limited areas. Such growth, which causes depletion of water resources, will not be sustainable. This will lead to reduction in agricultural activities, long periods of unemployment, decrease in incomes, use of children in economic activities, and lowering of literacy rates.

The relationship between environment and employment/incomes can be seen from another angle also. Works that control the process of environmental degradation and promote regeneration of the ecology are highly labour-intensive, for example, afforestation and plantations, land development, watershed development, minor irrigation works, and so on. These works generate large scale

employment and thus incomes, which improves the access of larger sections of the population to a minimum standard of living. These activities also promote sustainable employment intensive economic activities in the second stage; activities such as animal husbandry, dairy farming, fishery and many other activities relating to the processing of these products. Together, they generate and sustain large-scale employment in the mainstream economy.

◆ ***Environmentally sustainable development tends to be equitable:*** Environmentally sustainable development tends to be broad based and equitable. If degraded forests are regenerated, open lands are afforested, village lands are converted into village forests, and saline wastelands are reclaimed by suitable vegetation, a large number of people will improve their employment and income, which will have a positive effect on the state's economy. A large number of people will be thus able to participate actively in the process of economic development.

i) If land–water management is improved, rain water is harvested through small water harvesting structures and groundwater is recharged with suitable small localized schemes, it will improve the asset base of a large number of small and marginal farmers. The economic activities thus taken up are called first stage economic activities which will be followed by economic activities in the second and third stages. Increase in income of the farmers will promote second stage activities such as self-employment of a significant number of people, which, in turn, will promote their incomes and asset base. The sum total is promotion of equitable development.

ii) If appropriate institutions are promoted for ensuring equitable ownership and use of these improved natural resources, the asset base of the poor will be strengthened considerably and their participation in the development process will improve significantly.

*If use of natural resources is broad based and sustainable, consequent development will be employment-intensive and poverty-reducing*

Several NGOs in Gujarat and elsewhere have shown this successfully.

iii) If economic activities in the second and third stages promote large-scale self-employment and small enterprises through provision of appropriate infrastructural facilities, including credit and marketing, the poorer sections of the population will experience a big jump in their assets and income levels.

Environment friendly economic growth is likely to strengthen those who are weak and are marginalized today.

◆ ***Environment friendly growth will ensure better quality of life for people:*** To put it differently, environmental degradation and depletion affects the quality of life of people adversely.

i) Environmentally degraded regions tend to increase the drudgery of women who collect fuel, fodder and water for the family, since women have to walk long distances to collect them. This is likely to impact adversely on women's health as well as safety.

ii) Lack of adequate potable water can have a direct impact on the health of the population, in terms of increased morbidity and mortality emanating from waterborne diseases.

iii) Since there is not enough employment in the environmentally-degraded regions throughout the year, the poor from these regions are frequently forced to migrate to distant places, at least seasonally, in search of work, and put in hard work when and wherever it is available. This migrant life has an impact on their access to decent wages, nutrition, and general welfare facilities.

iv) Seasonal migrants have been found living in precarious conditions and their children are observed to be frequently affected by pollution on work sites as well as because of unhygienic living conditions. This has been observed particularly in the case of construction workers, brick kiln workers, salt-pan workers, etc.

v) Owing to depletion of usual variety of bio-fuels, the population depending on these frequently replace them with low quality bio-fuels that emit a higher amount of pollutants. For example, fuel wood is replaced by agricultural waste and so on. This leads to increase in indoor air pollution, which has an adverse impact on health, particularly of women and young children who remain around their mothers.

◆ ***Environmental degradation tends to affect education and literacy levels of people adversely:***

i) As children and particularly girls are frequently responsible for collecting fuel, fodder, and water for the family, they are either not enrolled or drop out very soon from school, once they are required to spend more time in collection of these goods. In drought affected regions, when women go to work on relief sites, girls are left with the responsibility of looking after their younger siblings, filling water from water tankers that come at unspecified times, and so on. Girls then do not attend school.

ii) Seasonal migration does not allow children of the migrating household to remain in school for the full year. Such populations are unable to access the benefits of several social welfare and social security programmes because they do not stay in one place for long.

iii) Environmentally degraded regions are often backward regions where school teachers are not willing to go. Schools here tend to remain under-staffed, which leads to decline in the quality of education.

◆ ***Environmental pollution and degradation affects the health status of the population adversely:*** Inadequate control of pollution can have an adverse impact on the health status of population. When pollution is not controlled adequately, as is the case in Gujarat, it can affect not only the health of workers but also the health of the general population in the region in multiple ways.

*Lack of adequate potable water can have a direct impact on the health of the population, in terms of increased morbidity and mortality emanating from waterborne diseases*

*Migrant populations are unable to access the benefits of several social welfare and social security programmes because they do not stay in one place for long*



One of the most direct links between environmental degradation and public health is between air pollution and respiratory diseases

Workers who work in the polluting industries or in mines, are likely to suffer from various occupational diseases and injuries. Some air pollutants such as benzopyrene, which is emitted from the combustion of fossil fuels, is carcinogenic. In the state of Gujarat, which has chemical and petrochemical industries, which emit toxic wastes into the environment, there are likely to be debilitating effects on the population such as increased disability rates.

Water depletion leads to increase in elements such as fluoride, arsenic and so on in water, depending on the geological conditions in the region. This can lead to diseases such as fluorosis. Salinity ingress increases salinity of water, which results in higher salt intake, which can cause heart ailments, kidney stones, etc.

Polluted air generated from vehicles, factories, power plants and domestic fuel is likely to impact on human health in several ways. One of the most direct links between environmental degradation and public health is between air pollution and respiratory diseases.

## Environment and Ecology in Gujarat

Gujarat has a great diversity of physiography, climate and hydrology. There is a hilly eastern belt with relatively thick forests, particularly in South Gujarat; an arid region in the north and north-west of the state; long sea coast of 1,600 km with two gulfs, viz. Gulf of Khambhat and Gulf of Kachchh, and plains in the central region and some parts of the south. Rainfall in the state varies from 350 mm in Kachchh to 2000+ mm in South Gujarat. Physiographically, Gujarat can be divided into five regions.

◆ **North Gujarat:** This region comprises the districts of Ahmedabad, Banaskantha, Mehsana and parts of Surendranagar. The area is arid and semi-arid with annual average rainfall of about 450 mm to 500 mm. The area is also flat and saline in some parts

with deposits of alluvium. This region has a good store of groundwater, which has become depleted after three decades of exploitation without any recharge. Groundwater tables have gone down here and water quality has degraded. Drinking water is a major problem here and, agriculture, which is dependent on groundwater, is not sustainable for long.

◆ **Central and South Gujarat:** The central region covers the districts of Kheda, Vadodara, and parts of Bharuch and South Gujarat. South Gujarat covers parts of Surat, Valsad, and Navsari districts. The climate here is semi-arid with 800 mm to 2000 mm of average annual rainfall. The region has major perennial rivers like Narmada, Tapi, Mahi, and Purna. It is fertile in most parts except in coastal areas where there is low rainfall and saline lands.

◆ **Eastern Tribal Belt:** This region starts from Banaskantha (east) to Sabarkantha in the north to Valsad and Dangs in the south. The region is hilly, with some forest cover, and is mostly inhabited by tribals. The average annual rainfall is 1000 mm to 2000 mm. The northern part has dry deciduous forests and the southern part has moist deciduous forests.

◆ **Saurashtra:** Saurashtra peninsula can be broadly divided into two sub-regions: coastal Saurashtra and inland Saurashtra. This region covers the districts of Bhavnagar, Amreli, Rajkot, Junagadh, Porbandar and Jamnagar. Annual average rainfall in the region is about 500 mm to 600 mm. Since the region is hilly (a plateau), it has short rivers, which dry up in the summer. The coastal region has low rainfall and is mostly saline.

◆ **Kachchh:** Kachchh is the largest district of Gujarat and is located in the north-western part of the state. The region is highly arid with only 300 mm to 350 mm annual average rainfall. The Rann of Kachchh which ecologically is a vast wasteland, is located here.

On the whole, Gujarat has been endowed with highly heterogeneous physiographical conditions and a variety of environmental resources. It is necessary to manage these resources well to protect and promote employment and economic growth in a sustainable way. This is necessary also for promoting sustainable human development.

One important reason for the neglect of the environment has been the almost complete exclusion of environmental resources from national statistical systems, with the result that no data were available for giving right signals in the market to lead to their efficient allocation. For example, depletion and degradation of water, forests, land, and coastal resources, or pollution were never (adequately) reflected in state accounts, and as a result the market could not ensure their efficient allocation. This has been a problem in national policy making as well. Another reason has been greater emphasis on economic growth as against human well-being, which is, in turn, dependent on environmental well-being. No State Environmental Policy has been announced so far. This is particularly noteworthy as more than half the population of the state at present depends on the primary sector, which is closely related to the environmental health of the state.

## **Anthropocentric Pressures and Changing Status of Environmental Resources in the State**

The following paragraphs discuss the anthropocentric pressures on environmental resources and some of the major changes that have taken place in the environment in the state during the past two decades, based on recent studies (Hirway 2000, 2002).

### **Water Resources**

As far as water resources are concerned, the pattern of agricultural growth through subsidised irrigation facilities, without ad-

equately attention to recharge, seems to be a major cause of their depletion and degradation. On the one hand, construction of wells, tube-wells, and bore-wells was supported by providing subsidized loans with free or cheap energy to withdraw groundwater. Canal water was provided with a high element of subsidy. In the absence of volumetric water charges, water was used and misused freely resulting in rapid depletion and degradation of groundwater and overuse of canal water leading to waterlogging and land salinity. This overuse of water, accompanied by its highly unequal distribution across regions, socio-economic groups and for different uses, has created serious shortages of water over space and time (Hirway and Patel 2000).

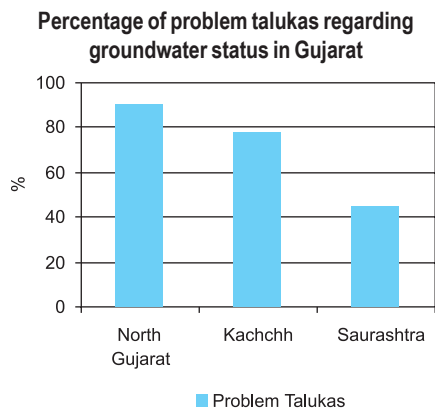
Since land and water management under rainfed agriculture was more or less neglected, there has been depletion and degradation of these resources. The quality of water has also suffered in the state as (a) over drafting of groundwater in many areas has led to withdrawal of water with more salts and impurities, (b) over withdrawal of groundwater in coastal areas has led to intrusion of sea water into groundwater and (c) indiscriminate discharges from industries, human settlements, and agriculture has polluted surface and groundwater in many areas.

The major changes in the status of water resources affecting human development in the state are as follows:

- ◆ There has been a decline of 26 per cent in the total utilizable groundwater, from 17,365.40 mcm (million cubic metres) in 1984 to 12,848.27 mcm in 1997.<sup>1</sup> The decline is 35 to 40 per cent in North Gujarat and some of the tribal districts (Table 4.1).
- ◆ In the level of development of groundwater, the state has experienced a quantum jump from 30.81 per cent in 1984 to 75.57 per cent in 1997, an increase of more than 145.00 per cent. The state as a whole thus

*Overuse of water, accompanied by its highly unequal distribution across regions, socio-economic groups and for different uses, has created serious shortages of water over space and time*

Figure 4.1



falls into the 'grey' category of groundwater exploitation where 65 per cent to 85 per cent of the recharged water is extracted, which is a dangerous situation indeed (Table 4.2). Three districts, Mehsana, Banaskantha and Gandhinagar fall in the 'overexploited' category as the levels of groundwater development here are above 100.00 per cent.

The number of 'safe' talukas, i.e. 'white' talukas, where groundwater exploitation is less than 65 per cent, has declined drastically from 162 in 1984 to 95 in 1997. That is, the problem talukas have increased more than four times, from 22 to 89 during 1984-1997 implying that more than half of the talukas of the state are in the 'unsafe' category as regards groundwater develop-

ment. The worst affected region is North Gujarat where 90 per cent of talukas are problem talukas (half of which are OE), followed by Kachchh, which has 78 per cent problem of talukas and Saurashtra, which has of 45 per cent problem talukas (Fig 4.1).

◆ General depletion of groundwater resources in the state has been accompanied by a rapid deterioration in the quality of groundwater (Box 4.1). Data of the Central Groundwater Board of 1997 (the latest year for which these data are available) show that the quality norms for irrigation are mostly not observed. Though there are some region-wise variations with respect to the values of the four parameters (pH, Na, Cl and  $SO_4$ ), on the whole, the main observation remains. However, the districts of Saurashtra, Kachchh, and North Gujarat show higher deviations from the

TABLE 4.1

### Utilizable groundwater reserves, Gujarat

District	Total utilizable groundwater (in mcm/yr)			Absolute percentage change		
	1984	1991	1997	1984-1991	1991-1997	1984-1997
Ahmedabad	1066.02	765.83	757.55	-28.16	-1.08	-28.94
Amreli	699.29	635.21	679.65	-9.16	7.00	-2.81
Banaskantha	1232.64	873.70	795.84	-29.12	-8.91	-35.44
Baroda	1008.50	758.31	772.75	-24.81	1.90	-23.38
Bhavnagar	1180.26	797.86	750.67	-32.40	-5.91	-36.40
Bharuch	714.13	406.44	399.47	-43.09	-1.71	-44.06
Valsad	971.70	746.39	719.94	-23.19	-3.54	-25.91
Dangs	122.64	105.76	72.07	-13.76	-31.86	-41.23
Gandhinagar	104.41	84.85	89.26	-18.73	5.20	-14.51
Jamnagar	844.50	658.23	652.77	-22.06	-0.83	-22.70
Junagadh	1063.44	868.26	969.83	-18.35	11.70	-8.80
Kheda	1352.19	926.55	928.21	-31.48	0.18	-31.36
Kachchh	682.51	439.50	501.60	-35.61	14.13	-26.51
Panchmahals	948.63	573.36	529.33	-39.56	-7.68	-44.20
Rajkot	1157.42	840.36	984.19	-27.39	17.12	-14.97
Sabarkantha	1079.14	746.52	769.46	-30.82	3.07	-28.70
Surat	1666.16	1090.12	1111.34	-34.57	1.95	-33.30
Surendranagar	737.16	489.40	502.12	-33.61	2.60	-31.88
Mehsana	734.66	470.99	862.22	-35.89	83.07	17.36
<b>GUJARAT</b>	<b>17365.40</b>	<b>12277.64</b>	<b>12848.27</b>	<b>-29.30</b>	<b>4.65</b>	<b>-26.01</b>

Source: Narmada and Water Resources Department (1986, 1992, 1998).

water quality norms than other districts (Hirway 1999).

◆ According to official data (Table 4.3), about 15 per cent of villages suffer from excessive fluoride content in groundwater, about 6 per cent villages suffer from excessive salinity, and about 5 per cent villages suffer from excessive nitrates (Box 4.2).

◆ Per capita availability of water is very low in Gujarat. It has declined from 1,322 m<sup>3</sup> in 1991 to 1,137 m<sup>3</sup> in 1999-2000 against the norm of 1,700 m<sup>3</sup>. Availability is 427 m<sup>3</sup> in North Gujarat, 734 m<sup>3</sup> in Saurashtra and 1932 m<sup>3</sup> in south and central Gujarat (IRMA 2000). Clearly, this is too low for healthy living in these regions.

◆ There is a considerable gap between supply and demand for water in the state. As

BOX 4.1

Excessive Salinity	
According to WHO, the permissible limit for TDS is 500 mg./l. According to official data, however, about 15 districts of the state are so saline that local groundwater development for supplying potable water is not possible. Such saline areas cover about 35,000 sq. km. in the state. They cover hard rock areas, alluvial areas, coastal areas and fringe areas of the little Rann of Kachchh. In such areas, either upper aquifers are saline or salinity is observed at depth. About 5.5 per cent of villages in the state have excessive salinity in groundwater. The salinity percentage varies widely from 31.6	per cent in Bhavnagar, 15.4 per cent in Kheda, 10.8 per cent in Mehsana, 11.2 per cent in Ahmedabad, and 2.8 per cent in Sabarkantha. Salinity in Banaskantha (parts), Kachchh, Mehsana, Surendranagar, and Jamnagar is mainly because of the vicinity of the desert while in Rajkot, Junagadh, Jamnagar, Amreli, Bhavnagar, and Banaskantha etc. salinity is caused by groundwater mining. In Kheda, Vadodara, etc. salinity is largely because of the excessive application of (canal) irrigation water that leads to waterlogging and then to salinity (Barot 1995).

estimated by the Tahal Committee (1997), supply of water was about 800 mcm/yea in the state against the demand of 1,462.2 mcm/year. Unless storage of water increases and water use efficiency improves

TABLE 4.2

Taluka-wise level of groundwater development

District	Number of talukas in each category														
	1984					1991					1997				
	W	G	D	OE	S	W	G	D	OE	S	W	G	D	OE	S
Ahmedabad	6	0	0	0	0	2	0	0	4	0	2	0	2	3	0
Amreli	7	2	1	0	0	9	0	0	1	0	9	0	0	1	0
Banaskantha	11	0	0	0	0	5	2	1	3	0	1	1	2	4	3
Baroda	12	0	0	0	0	11	0	1	0	0	10	1	0	1	0
Bhavnagar	12	0	0	0	0	12	0	0	0	0	10	2	0	0	0
Bharuch	11	0	0	0	0	9	0	1	1	0	6	2	0	3	0
Valsad	8	0	0	0	0	8	0	0	0	0	7	1	0	0	0
Dangs	1	0	0	0	0	1	0	0	0	0	1	0	0	0	0
Gandhinagar	1	0	0	0	0	0	1	0	0	0	0	0	0	1	0
Jamnagar	9	1	0	0	0	8	2	0	0	0	7	3	0	0	0
Junagadh	9	4	2	0	0	8	4	2	1	0	3	8	2	2	0
Kheda	10	0	0	0	0	6	1	2	1	0	4	4	0	2	0
Kachchh	9	0	0	0	0	2	4	1	2	0	2	3	0	4	0
Panchmahals	11	0	0	0	0	8	3	0	0	0	10	1	0	0	0
Rajkot	8	4	0	1	0	10	2	0	0	1	5	7	0	0	1
Sabarkantha	10	0	0	0	0	5	3	1	1	0	1	6	2	1	0
Surat	13	0	0	0	0	13	0	0	0	0	13	0	0	0	0
Surendranagar	8	0	0	0	1	4	4	0	0	1	4	4	0	0	1
Mehsana	6	2	3	0	0	0	0	1	10	0	0	0	0	9	2
GUJARAT	162	13	6	1	1	121	26	10	24	2	95	43	8	31	7

W = White; G = Grey; D = Dark; OE = Overexploited; S = Saline.  
Source: Narmada and Water Resources Department (1986, 1992, 1998).

### Excessive Fluoride

High content of fluoride is found usually at the foot of high mountains and in areas with geological deposits of marine origin. Excessive fluoride is dangerous to health as it can lead to (a) non-skeletal manifestations like muscular, allergic, gastrointestinal, or neurological problems, (b) skeletal manifestations such as inability to walk, bending of back etc., (c) dental fluorosis.

At the all India level, Gujarat falls in category 3 with respect to excessive fluoride, which implies that more than 50 per cent of

districts are affected by it. About 15 per cent of villages in the state have groundwater with excessive fluoride. These have resulted in high incidence of skeletal and non-skeletal fluorosis in these areas. The highest percentage is in Mehsana district (where half the villages have excessive fluoride in groundwater), followed by Banaskantha (26.86 per cent), Ahmedabad (25.31 per cent), Kheda (22.61 per cent), and Gandhinagar (21.43 per cent). Only two districts, namely, Valsad and Dangs do not have this problem (Hirway 1999).

drastically, the state is going to face a serious water crisis.

The net result is a serious shortage of potable water supply in the state. Saurashtra, Kachchh and North Gujarat are the worst affected regions. In drought years (which are fairly frequent), 75 to 80 per cent of villages and more than half the towns in the state

suffer from shortage of potable water. This severely impacts the health status of the population.

### Forest Resources

Forest resources are important for ecological and economic reasons, which include maintaining ecological balance and providing support to forest-dependent economic activities. Livelihoods, especially of the tribals, depend on forests to a considerable extent in the past and even now. Forests gave them enough water supply (through streams and rivulets that flowed throughout the year), fish, fruit, forest products, grasses for animals, and grains from some land under cultivation. Tribals also owned forests historically, which was taken away under the forest laws enacted by the British. Depletion and degradation of forests therefore, tend to affect livelihoods as well as human development of people depending on forests.

TABLE 4.3

#### Status of water quality in Gujarat

District	Total no. of villages surveyed	No. of villages having excess			Per cent of villages having excess		
		Fluoride	Nitrate	Salinity	Fluoride	Nitrate	Salinity
Ahmedabad	786	199	12	88	25.31	1.53	11.20
Junagadh	1071	77	11	51	7.19	1.03	4.76
Rajkot	854	38	7	30	4.45	0.82	3.51
Surendranagar	652	63	1	47	9.66	0.15	7.21
Amreli	623	80	68	10	12.84	10.91	1.61
Bhavnagar	919	109	109	29	11.86	11.86	31.56
Jamnagar	693	25	23	47	3.61	3.32	6.78
Gandhinagar	96	31	1	Nil	21.43	1.02	-
Sabarkantha	1847	337	143	52	18.25	7.74	2.82
Banaskantha	1556	41	58	74	26.86	3.73	4.76
Bhuj	997	74	5	64	1.40	0.50	4.41
Mehsana	1646	522	23	113	49.90	2.20	10.80
Baroda	1651	293	50	65	17.75	3.03	3.94
Kheda	973	220	85	150	22.61	8.74	15.42
Bharuch	1123	33	42	108	2.94	3.74	9.62
Surat	1190	27	26	42	2.27	2.18	3.53
Panchmahals	1895	336	114	56	17.73	6.02	2.96
Valsad	826	14	6	42	-	0.73	5.08
Dangs	311	Nil	1	Nil	-	0.32	-
<b>TOTAL</b>	<b>19111</b>	<b>2826</b>	<b>785</b>	<b>1048</b>	<b>14.79</b>	<b>4.11</b>	<b>5.48</b>

Source: GWSSB, Gandhinagar.

According to the latest estimates of the Forest Survey of India (FSI), Gujarat has about 6.6 per cent area under actual forest cover though the recorded forest area constitutes about 10 per cent of total geographical area of the state (Table 4.4). The dense forest cover in the state covers only about 3 per cent of the total forest area (Table 4.5).

Gujarat is not particularly well endowed with forest resources. The arid and semi-arid environment in most parts of the state has created and supported relatively small areas under forest cover (Box 4.4). The main forest areas in the state are located in the eastern tribal belt, central Saurashtra (Gir forests) and rich mangrove forests around the Gulf of Kachchh.

It has been frequently argued that tribals have overused forests leading to their depletion and degradation. However, factors like timber extraction by saw mills, paper and pulp mills, and extraction of raw material by other industries as well as encroachment on forests by mines and quarries, dams and other mega infrastructure projects etc. have been largely responsible for the decline in forests in the state (Hirway 1999, 2002).

Some of the major changes in the status of forests in the state are listed below:

- ◆ The actual forest cover constitutes only 6.4 per cent of the geographical area of the state, and dense forests cover only about 3 per cent (Fig 4.2) of the state (FSI 2001). These are well below the norms.<sup>1</sup>
- ◆ The recorded area under forests (as per land use data) has declined from 19,655 sq. km. in 1980-81 to 18,590 sq. km. in 1999-00 (about 5 per cent decline), which is mainly

BOX 4.3

Excessive Nitrates	
Excessive nitrates in groundwater are observed in about 4.11 per cent of villages. The reasons for this are unplanned disposal of discharges from fertilizer use, domestic effluents, sewerage sludge, industrial discharge, decayed vegetables, and animal matter. Excessive nitrates are observed mainly in these zones in the state: (a) agriculturally	potential zone – Kheda, Sabarkantha and Mehsana, (b) arid zone – (due to geological formation) – Panchmahals, Banaskantha and Surendranagar, (c) canal rich area – high rainfall washes away nitrates into water – Surat, Valsad, and Dangs and (d) salinity zone – relatively low nitrate problem – Saurashtra and Kachchh (Hirway 1999).

because of encroachment of forest areas by different economic activities (Hirway 1999).

- ◆ Forest cover in the state, after declining from 11,991 sq. km. in 1987 to 11,907 sq. kms in 1991, has increased to 12,965 sq. km. in 1999. Though 2001 FSI data are available, these are not used for temporal comparison because of change in scale of mapping these data. But, available comparable data shows that, there was some improvement in the 1990s because of the efforts of the forest department and social forestry projects.

- ◆ Available data on forests are not adequate to understand the qualitative changes in the forest area. The latest survey by the FSI shows considerable increase in the forest cover (FSI 2001), largely because of increase in the area under dense *Prosopis Juliflora* (Ganda Baval), which is frequently taken as forest cover in satellite imagery. However, increase in the area under *Prosopis Juliflora* cannot be considered as an increase in real forest cover, as it does not perform the functions that forests are supposed to perform. This is

Figure 4.2

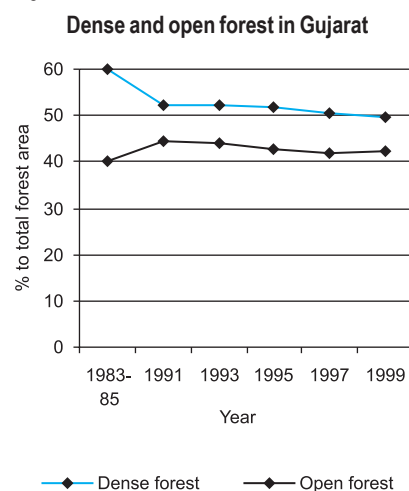


TABLE 4.4

Actual forest cover in Gujarat (sq. km.)

	1983-85	1991	1993	1995	1997	1999
Total geographical area	196024	196024	196024	196024	196024	196024
Forest cover	13600	11907	12044	12320	12578	12965
% forest cover to total geographical area	6.94	6.07	6.14	6.28	6.42	6.61

Sources: Forest Survey of India (1991, 1993, 1995, 1997).

### Types of forests in Gujarat

Types of Forests	Distribution
Moist Deciduous Forests	Dangs and Valsad districts
Slightly Moist Teak Forests	Surat and Bharuch districts
Dry Teak Forests	Vadodara, Panchmahals and drier part of Bharuch district
Very Dry teak Forests	Gir and Girnar area of Junagadh
Dry Deciduous Scrub Forests	Eastern Gir falling in Junagadh, Rajkot, Amreli, Bhavnagar, Banaskantha and Sabarkantha districts
Savannah Forests	Grasslands in the Saurashtra Peninsula
Mangrove Forests	Kachchh and Jamnagar districts

Source: Gujarat Forest Statistics, 1996.

particularly applicable to Gujarat where large areas of *Prosopis Juliflora* have made inroads into the forest cover.

◆ Secondly, 'dense forest' includes all the forest cover with 40+ crown density, which hides the degradation in crown density within the group (for example, it does not report decline in crown density from 60 to 40 or from 70 to 50). Similarly deterioration of forest quality within the 'open forests' (up to 40 crown density) also is not reported. Thirdly, data on production and productivity of non-timber forest products (NTFPs) indicates a decline several of them, which also indicates declining productivity of forests (this observation is based on the official data on NTFP - Hirway 2002).

Summing up, though there has been some increase in the forest cover in the state, there are problems with respect to the quality of

forests.. There is a need to have more disaggregated data, preferably accompanied by micro studies, to come to any firm conclusion about the exact nature and extent of the changing status of forests in the state. The available evidence does suggest that the long term decline in the forest resources in the state have impacted adversely on life and livelihood of tribals. One major fall out of this has been massive out migration of tribals, which has affected their achievements in health and education adversely.

### Land Resources

Land is one of the basic components of the environment. It performs three major functions: (i) land based economic functions, i.e. supporting agriculture and vegetation, providing fuelwood and fodder to human beings and animals, providing raw material to industries, (ii) ecological functions, i.e. retention of water and moisture, retention of soil nutrients, supporting vegetation cover, maintaining geological properties of land etc., and (iii) non land based economic functions, i.e. providing space for human settlements, industries, trade etc. It is important that land is allocated among various uses in an optimal and sustainable manner.

The major pressures on land resources in Gujarat are:

◆ Deforestation of vegetation cover in the state which has exposed large areas of land to wind and water erosion, leading their degradation (Gujarat Ecological Commission 2003) (Box 4.5).

TABLE 4.5

#### Dense and open forests in Gujarat (sq. km.)

	1983-85	1991	1993	1995	1997	1999
Total forest cover	13600	11907	12044	12320	12578	12965
Area under dense forest	7900	6224	6301	6369	6337	6430
% dense forest to total forest area	59.85	52.27	52.32	51.70	50.38	49.60
Area under open forests	5300	5286	5324	5262	5250	5504
% open forests to total forest area	40.15	44.39	44.20	42.71	41.74	42.45

Sources: Forest Survey of India (1991, 1993, 1995, 1997).

- ◆ Over drafting of groundwater in the coastal region which has resulted in sea water intrusion, leading to increased salinity of land. Other reasons for increased salinity in coastal areas are destruction of mangroves, discharges by human settlements and industries, reduced flow of fresh water from rivers in the downstream (owing to dams), and salt-pan discharges on the sea coast.
- ◆ Overuse of canal water for crop cultivation which has led to waterlogging and salinity of land in many command areas of irrigation projects.
- ◆ Overexploitation of natural resources through overgrazing, over irrigation practices, deforestation, and poor natural resource management in general which has led to desertification of several areas in north and northwest (GEC 1997).

The available data on land resources in the state show that about 54,335 sq. km. area is put under 'wasteful' categories, which include the land use categories of (a) barren and uncultivable land, (b) cultivable waste, and (c) permanent pastures (Table 4.6 & 4.7). This comes to 27.7 percent of the geographical area (1998-99). These wastelands exclude forest wastelands and degraded land under cultivation. Land put to wasteful use has increased by 9 per cent between 1980-81 and 1996-97 (excluding Kachchh district where the land classification has changed owing to changes in the definition).

Several estimates of degraded lands or wastelands have been made by different organizations<sup>3</sup>. But it is difficult to estimate a trend, as the estimates of different organizations are not strictly comparable with each other. The two broadly comparable estimates are those of the National Wasteland Development Board (NWDB) and NBSS and LUP, which suggest that wastelands in Gujarat have increased during the period from 1985 to 1994.

#### BOX 4.5

### Desertification in Kachchh and North Gujarat

Desertification results from over-exploitation of natural resources, through over-cultivation, over-grazing, over-irrigation practices, deforestation, and poor natural resource management in general. It has been observed that deserts are gradually advancing and encroaching upon large areas of Kachchh, Banaskantha, and northern Saurashtra. The Gujarat Ecology Commission (GEC) study on process of desertification in Kachchh and Banaskantha during 1961-1991 shows that the process of desertification is dangerously rapid and needs to be controlled urgently.

Deserts are characterized by erratic precipitation, low humidity, fluctuations in temperature, strong winds and frequent droughts. These regions have a low threshold for sustainability and whenever the threshold

is exceeded due to human and animal pressures, desertification takes place. In the northern Gujarat and northern Saurashtra human activities (including animal husbandry) have substantially exceeded the threshold for sustainability or the carrying capacity of natural resources. The same is true for many other areas of the state. Consequently, all these areas are under the grip of desertification.

Arid zones in Gujarat are located in about eight districts: Kachchh (100 per cent arid), Jamnagar (80 per cent), Surendranagar (29 per cent), Junagadh (20 per cent), Banaskantha (18 per cent), Mehsana (7 per cent), Ahmedabad (6 per cent) and Rajkot (6 per cent). This desertification is man-made; that is, it is largely an outcome of human activities (GEC 1995).

Source: Gujarat Ecology Commission, 1995.

Another source of wasteland data is the area covered under DPAP (Drought Prone Area Programme) and DDP (Desert Development Programme). An increase in the area under these programmes during 1980-81 and the late 1990s has been observed. Official statistics reveal that the number of blocks covered under DPAP in the state has increased from 43 to 52, while blocks covered under DDP have increased from 8 to 47 (Table 4.8). That is, the number of

TABLE 4.6

#### Land under wasteful use, Gujarat (excluding Kachchh), 1980-81 to 1996-97

Source	Year	Wasteland in lakh ha
National Commission on Agriculture	1976	175.00
Directorate of Economics and Statistics GoG	1978-79	38.40
NWDB, MoEF	1985	123.00
SPWD* and Government of India	1988	71.53
NBSS & LUP**	1994	81.34
Land utilization Statistics***	1995-96	75.50
NRSA	1988-95	75.50

Source: As mentioned in the table.

Notes: \* Covers non-forest area – according to this estimate by Bhumbala and Khare 24.17 lakh Ha. of this wasteland is located in net sown area.

\*\*Covers Non-forest area & excludes salt flat/Rann areas.

\*\*\*Covers non-forest area and excludes cultivated area.

MoEF= Ministry of Environment and Forests

NWDB= National Wasteland Development Board

SPWD= State Wasteland Development Board

NBSS= National Bureau of Soil Survey

LUP= Land Use Planning

NRSA= National Remote Sensing Agency



TABLE 4.7

**Estimates of wastelands in Gujarat (lakh ha.)**

	1980-81	1990-91	1995-96	Change 1980-81 to 1995-96
Barren & uncultivable land	7712	8999	10180	2468
Cultivable waste	3793	3036	3033	-760
Permanent pastures	7771	7771	7770	-1
<b>Total</b>	<b>19275</b>	<b>19806</b>	<b>20983</b>	<b>1708</b>

Source: Land utilization data, Department of Agriculture, Government of Gujarat.

blocks under the two programmes together has increased from 51 in 1980-81 to 99 in 1999-00. While the area has increased by more than 62 per cent during the period.

There have been several anthropocentric pressures on land, which have led to its degradation. However, owing to the paucity of data, it has not been possible to measure degradation based on satellite imagery. NRSA data, based on satellite imagery, do not provide any time series data to estimate trends.

**Droughts in Gujarat**

Generally drought is seen as “a situation where human welfare is adversely affected by shortage in rainfall”. This is too general a definition. Technically speaking, there are several definitions of ‘drought’ presented by different disciplines. Meteorologically, drought is “a situation when the total rainfall drops by 25 per cent or more”. But this definition is not adequate as crops depend not only on rains but also on soil-moisture. The agricultural definition of drought therefore is that it is “a situation when there is a shortage of water for crop growth, or when there is consistently high soil moisture deficiency”. Alternatively, it is “a meteorological situation in which the amount of water required for maximum evapo-transpiration exceeds the amount available for rainfall”. Droughts are also defined ecologically as “a situation, which occurs when primary

TABLE 4.8

**Area and number of talukas under DDP and DPAP, 1980-81 to 1999-00**

Districts	1980-81						1999-00					
	No. of talukas			Area in sq. km.			No. of talukas			Area in sq. km.		
	DPAP	DDP	Total	DPAP	DDP	Total	DPAP	DDP	Total	DPAP	DDP	Total
Ahmedabad	2	0	2	4432.2	0	4432.2	2	0	2	4432	0	4432.2
Amreli	8	0	8	5361.1	0	5361.1	9	0	9	6183.4	0	6183.4
Banaskantha	0	6	6	0	6820.1	6820.1	0	7	7	0	7985.4	7985.4
Baroda	0	0	0	0	0	0	5	0	5	3513.7	0	3513.7
Bharuch	0	0	0	0	0	0	7	0	7	5686.4	0	5686.4
Bhavnagar	3	0	3	2590.9	0	2590.9	7	0	7	105.6	0	6105.5
Dangs	0	0	0	0	0	0	1	0	1	1723.6	0	1723.6
Jamnagar	2	0	2	2135.4	0	2135.4	0	9	9	0	8822.4	8822.4
Junagadh	0	0	0	0	0	0	7	0	7	4891.7	0	4891.7
Kachchh	7	0	7	19822.0	0	19822.0	0	9	9	0	22135.4	22135.4
Mehsana	0	2	2	0	1916.7	1916.7	0	2	2	0	1916.7	1916.7
Panchmahals	7	0	7	6622.7	0	6622.7	10	0	10	7863.3	0	7863.2
Rajkot	5	0	5	3954.4	0	3954.4	0	11	11	0	9296.9	9296.9
Sabarkantha	0	0	0	0	0	0	1	0	1	368.4	0	368.4
Surendranagar	9	0	9	10468.7	0	10468.7	0	9	9	0	10468.7	10468.7
Valsad	0	0	0	0	0	0	3	0	3	2606.4	0	2606.4
<b>TOTAL</b>	<b>43</b>	<b>8</b>	<b>51</b>	<b>55387.4</b>	<b>8741.8</b>	<b>64129.2</b>	<b>52</b>	<b>47</b>	<b>99</b>	<b>43374.5</b>	<b>60625.5</b>	<b>103999.9</b>

Source: Hirway and Mahadevia (1999).

productivity of natural or managed ecosystems falls significantly owing to reduced precipitation”, or socio-economically as a situation, owing to the features mentioned above, not sufficient to meet the need of human activities.

Droughts have multiple consequences, all of which impact on human development. Droughts are likely to result in production loss in agriculture because of shortage of water. With increased frequency and intensity of droughts, agriculture may show low growth or no growth in the long run. The spread-effect of this production loss to different sectors like agro-processing and agriculture-based industries/activities may affect growth of other sectors adversely. Similarly, the reduced purchasing power of agricultural and rural population may have adverse secondary and tertiary impact on economic activities. Droughts are also likely to reduce consumption expenditure of the bottom 20 per cent population, particularly of women and children. Coping strategies of farmers and of agricultural population (such as, mortgaging or selling assets, changing food habits, reducing consumption, migration, and so on) may worsen their situation in the long-run. Thus droughts tend to affect livelihood and employment of people adversely.

Droughts are likely to impact on human development, mainly health, nutrition and education adversely. Drought induced migration may also reduce the access of the affected population to welfare and developmental programmes. Also, droughts tend to impact on environment and ecology adversely in the long run; particularly water resources, vegetation, livestock, fisheries etc. which are likely to be affected badly by consecutive droughts. In long run, thus, droughts tend to have an adverse impact on regional economic growth and development.

Gujarat is a highly drought prone state. Out of 184 talukas (old talukas), 52 talukas are under DPAP and 47 talukas under the DDP.<sup>4</sup>

That is, about 99 talukas having more than 60 per cent of the area are subjected to frequent droughts. In major drought years, some additional areas also suffer from poor rainfall. The incidence of droughts is quite high in the state. Two to three years out of every five are drought years and every ten years there are 2-3 severe and widespread droughts, which are frequently consecutive. In normal years also about 10 to 15 per cent of talukas are declared drought affected and scarcity works are undertaken here.

It has been observed that droughts are fairly frequent in Gujarat. However, deaths due to famines are almost eradicated, as foodgrains are made available to drought-affected people. Some deaths have been reported on scarcity works due to other reasons. Droughts are now accompanied by serious drinking water shortages. This is because of severe depletion of water resources in the recent decades. Till about the 1960s and 1970s it was possible to dig wells/bores/tubewells to access drinking water.

Droughts tend to have a highly adverse impact on the economy and people of the state. Firstly, there are shortages of water, fodder, fuel-wood and also food to a certain extent. Secondly, droughts result in loss of production, which result in wide year-to-year fluctuations in farm incomes. The usual coping strategies of people are mortgaging and selling of assets, incurring debt, reducing consumption, migration etc., all of which tend to worsen their condition in the long run. These households take years to come back to their original position, but by then a new drought cycle starts. And thirdly, all this has a far reaching adverse impact on economic development of drought-affected regions, as farmers have few resources left to invest in agriculture or other economic activities. In the long-run, droughts also have a highly adverse impact on (a) health and nutrition of people, (b) education and literacy achievements and (c) environmental resources of

*Droughts have multiple consequences, all of which impact on human development*

*It has been observed that droughts are fairly frequent in Gujarat*

the drought affected regions, which experience depletion and degradation of water resources, vegetation and land. Frequent droughts are a big drain on the state exchequer as the government is forced to spend up to Rs. 1,000 crores (in 2000-1) on drought relief programmes in severe drought years.

## Government Policy for Fighting Droughts in Gujarat

There is no comprehensive drought related policy except for the Relief Manual of the government. The most important component of the drought policy seems to be the drought relief works, which are organized once drought is announced. This is done as per the Relief Manual. The Manual is outdated in its approach as it is difficult to provide adequate relief to affected people or ensure effective drought proofing as per the Manual (for details refer to Hirway 2001). It is being revised at present.

Another policy intervention seems to be in the area of drought proofing though in a limited way. The need for conducting research for developing drought resistant varieties of crops which use less water and for encouraging farmers to grow these crops to minimize fluctuations in crop production, though recognized by policy makers, has received low priority in terms of funds and organizational inputs. There is a need to strengthen this policy by making efforts during droughts to provide timely information to farmers about expected rainfall, etc. so that they can take appropriate decisions about crop diversification, crop variety diversification, input use, etc. to reduce costs and to minimize production losses. Recently, the central government has taken up a project in selected areas to achieve limited concept of drought proofing, where drought proofing aims at ensuring fuel-wood, fodder, and water locally by undertaking local environmental works. This project has just started in a limited number of districts.

Two areas that need the urgent attention of policy makers are: (a) to understand the long term impact of droughts on environmental degradation, i.e. decline in biodiversity of plants and animals, land fertility, water resources, forests etc. and (b) to understand the long term impact of droughts on human development, i.e. health and nutrition of men, women and children, literacy and education of children, vulnerability of the poor etc. One more area that requires in-depth study is the coping strategies of the drought-affected population. These strategies can be divided into two broad categories; individual or household level strategies and community level strategies. The former refer to strategies like mortgaging or sale of assets, changing or reducing consumption, migration, and so on while the latter refer to collective and community based strategies like formation of grain banks, seed banks, self help groups (SHGs), natural resource management projects, etc. While the former tend to worsen the situation of the affected population, the latter tend to strengthen their position. Data/information on coping strategies of people in drought affected areas is also not available. In short, systematic research is required in the area of drought policy. There is a need to review the existing policy, identify gaps and prepare a policy framework for a sound drought policy.

## Reshaping Drought Relief Works

Drought relief works at present are managed by the revenue department. The present approach of providing relief is based on the premise that drought is a natural disaster that occurs once in a while owing to the erratic behaviour of the rains. Drought relief works include works for employment and wages, water supply, fodder for animals, and if necessary organizing cattle camps. The focus of these works is on providing short-term relief to the affected people. The ma-

*The most important component of the drought policy seems to be the drought relief works, which are organized once drought is announced*

major components of drought relief therefore should be: (a) efficient information system to provide early signs of droughts, assess the spread and extent of droughts, estimate the need for relief and to monitor the relief as per the changing needs; (b) organizing effective relief by setting up scarcity works, ensuring drinking water and food grains, providing fodder to animals and *tagavi* loans to farmers, distributing cash doles and taking general care of the affected people, and (c) ensuring funds, equipment and tools and staff for implementing relief works. These tasks are undertaken by the revenue department with the support of the staff at the village level (*talati* and *sarpanch*), taluka level (circle inspector, *mamlatdar* and the taluka development officer), and district level (collector, district development officer and others). Departments that are consulted for providing information and help are agriculture, animal husbandry, public works department (roads and building, small and medium irrigation), etc.

As far as ensuring timely relief to drought stricken people is concerned, there are several obstacles at the ground level. Firstly, there is no guarantee that scarcity works will start as soon as they are needed. Usually scarcity is declared in a district or a taluka after the district collector sends his/her report (based on the reports of *talatis*, *mamlatdars*, *talukas* development officers, as well as reports from district officers in charge of agriculture, animal husbandry, etc.) recommending declaration of scarcity. Relief works are initiated by the collector thereafter. Frequently, there are delays in this declaration as time is spent in preparing and submitting reports from different levels. Since villagers have no legal right to demand scarcity works, they have no option but to wait for the administration to initiate action. Of late, collectors have been given powers to start at least 'test relief works' in drought affected areas without the approval of higher authorities.

Secondly, it is not necessary that the supply (of employment, water, fodder, etc.) will always meet the needs of people. It may happen that the budgetary sanctions are not adequate to meet the needs. It may also happen that the sanctioned amount gets over before the drought, as the response of people is very high and funds are not enough to pay wages to all. Thirdly, the wages paid on relief works are not the minimum wages. Wages are computed using SORs (Statement of Rates) of the PWD and payments are thus made on the basis of the quantum of work done by workers. It is possible therefore that the actual wages are less than the minimum wages, particularly in the case of women and old workers who cannot put in hard work. And finally, according to the scarcity manual, the works on relief sites have to be unskilled manual work, like digging, breaking metal, carrying soil from one place to another, removing *Ganda Bavai*, construction of *Bori Bandh*, etc. Not all the drought affected people are capable of undertaking such work. The recent inclusion in a small way, of handicrafts like embroidery in drought works is a positive step in this context.

There are also some in-built weaknesses in the drought relief approach that do not really promote drought proofing under relief works. (for example, works can be undertaken only during droughts, they should be such that they can be brought to a safe stage at the end of the drought etc). According to the Relief Manual, works to be taken up under drought relief could be: (a) medium and minor irrigation, (b) afforestation, (c) road repair, broadening of roads and construction of new roads, (d) metal breaking, (e) land development, soil conservation, bunding etc., (f) village level tanks, ponds, wells etc., and (g) *khadi* and *ambar charkha*. A shelf of projects for these sectors is to be kept ready in by every drought prone districts so that any of the works can be taken up when the time comes. But such a shelf of projects (if at all it exists) is prepared in

*Of late, collectors have been given powers to start at least 'test relief works' without the approval of higher authorities*

*Once droughts are accepted as an internal phenomenon, occurring at almost regular intervals and affected by policies related to the management of natural resources, it would not be necessary to worry only about providing relief when the rainfall is erratic, and planning for relief for a limited period*

an ad hoc manner without long term strategies. As a result selection of an irrigation project or a natural resource project for example from such a shelf does not necessarily contribute to systematic land and water development in the region.

Again, the Manual recommends that the selected works should be such that: (a) they can be taken up at short notice, (b) the time period required for completion should be, preferably, the duration of the scarcity, (c) they should generate employment for unskilled manual work, (d) the share of (unskilled) labour component in the total cost should be at least two third of the total cost, implying, material component should be less than one third of the total, and (e) the works should not continue if less than 50 workers are involved. According to the Manual, the duration of each work undertaken under drought relief is for one drought season only (up to 4 to 6 months), without any guarantee of its continuation in the next season. With these restrictions, it is difficult to undertake any systematic drought-proofing under drought relief. Also, the Manual does not define in detail what drought proofing is and does not monitor the progress made in drought proofing.

There is therefore a need to develop an alternative approach to drought relief and drought proofing. For this, the perspective of looking at droughts needs to change. If linkages between relief and drought proofing are developed, it is possible to combine relief and drought proofing. The first step in this context is to stop treating drought as a natural disaster that occurs randomly and to be treated on year to year basis. Droughts are a fairly regular phenomenon in drought prone areas. The frequency and intensity of droughts depend considerably on the management of land, water and vegetation in the region. Mathur and Jayal (1993), for example, observe that the frequency and intensity of droughts have

increased in the recent years largely because of (a) depletion and degradation of water resources, (b) loss of vegetation including forests, (c) land degradation, and (d) overall depletion and degradation of environmental resources. Late or low rainfall, therefore, leads to severe shortages in the overall degraded environment.

Once droughts are accepted as an internal phenomenon, occurring at almost regular intervals and affected by policies related to the management of natural resources, it would not be necessary to worry only about providing relief when the rainfall is erratic, and planning for relief for a limited period. This means that planning for drought proofing needs to be undertaken at the regional level keeping in mind the regional constraints and potential. Drought proofing should be integrated with watershed development programmes aimed at restoring ecological balance in the region. Such an approach, taken up on a long-term basis will ensure drought proofing of drought prone areas in the long-run. Instead of financial resources and hard work of drought affected people being wasted under so-called temporary 'relief', if will be possible to use these fruitfully in the process of systematic drought proofing. This approach will generate massive employment in drought prone areas throughout the year, at least in the initial period; as such works are highly labour intensive. This will increase employment and local wages and hence improve standards of living. This may also reduce massive seasonal migration of people to distant areas in search of work, which, in turn, will have an additional advantage of improved access of these families to health, education and welfare programmes. This will result in better human development in these regions.

Drought proofing, taken up as a long-term programme set into a decentralized framework to ensure consistency in macro and micro watershed development, will be a use-

ful strategy for fighting droughts (Box 4.6). This programme should be linked with the ongoing programmes on watershed development which should be scaled up to meet the overall needs of the state. It needs to be noted that complete drought proofing is not possible as vagaries of the monsoon are bound to result in low or erratic rainfall in some years, and some people are bound to be affected adversely by it. However such programmes will ensure that: (a) drought-hit people have access to drinking water and fodder and (b) there will be options for work other than digging, breaking metals, or constructing roads in the hot sun.

### Coastal Resources

Gujarat has a long coastline of more than 1,600 km, which is endowed with two gulfs—the Gulf of Khambhat and the Gulf of Kachchh. This is an important eco-region, rich with a variety of eco-systems like mangroves and other vegetation, sea weeds, coral reefs, salt marshes, marine life including fisheries and wetlands. The region is also attractive for a wide range of economic activities such as, ports, shipping and trade, ship building and ship breaking, fisheries and aquaculture, salt production, mining industries, tourism, navy and defence. There is a need to maintain a balance between ecology and economy in this region.

Coastal areas in Gujarat have been under tremendous pressure as a result of economic growth. The first major pressure came when the government promoted irrigated agriculture by subsidizing wells/tubewells as well as energy without paying much attention to groundwater recharge. When the green revolution was promoted in the coastal areas, there was a big jump in withdrawal of groundwater (Table 4.9), which encouraged seawater ingress, resulting in salinization and deterioration in the quality of groundwater (Box 4.7). This, along with deforestation in coastal areas,

BOX 4.6

#### Resolution on Drought – Revenue Department, 28-12-2002

- ◆ *These rules are Integrated and Long Term Rules formed under Drought Policy.*
- ◆ *Increased powers in the hands of District Collectors for sanctioning scarcity works.*
  - District Collectors can undertake works up to Rs. 50 lakhs after the sanction of the District Relief Committee.
  - District Collectors can undertake works up to Rs. 25 lakhs with the expectation that District Relief Committee will give sanction.
- ◆ *Increased powers of Executive Engineers regarding technical sanction for drought works.*

Executive Engineers can now give technical sanction for works upto Rs. 10 lakhs.
- ◆ *Wage rates on scarcity works.*
  - The maximum wage rate on scarcity works will be Rs. 42 per day as per the SOR.
  - The SORs have been fixed for different kinds of digging operations on relief works
- ◆ *Working hours, rest and allowances :*

All workers on scarcity works will work for six days and rest for one day for which Rs. 4 per day allowance will be given. The working hours will be six
- hours, which will be fixed by District Collectors.
- ◆ *Workers per family :*

A family with upto 5 members can send only 2 workers for scarcity works. A family with more 6 persons can send 3 persons for scarcity works.
- ◆ *Cash Doles for the Old, Disabled and Pregnant Women.*
  - Old and disabled members will get cash doles of Rs. 10 per day.
  - Cash doles to children up to 14 years will be Rs. 5 per day, to be given only up to 2 children per family.
  - Pregnant women can get Rs. 20 per day after the 5<sup>th</sup> month of pregnancy for the first two children only.
- ◆ *Facilities on Scarcity Works :* The facilities to be given on scarcity works include: shade for resting, drinking water and medical help. These costs will be borne by Panchayat bodies.
- ◆ *Payment of Wages:* Wages on scarcity works will be paid on weekly basis. If the payment is delayed beyond two weeks, it will be necessary to inform the District Collectors.

increased salinization of land as salty winds and seawater could enter the lands easily. All these developments have created excessive salinity of land and water, and consequently multiple degradation of land, water and vegetation in several parts of the coastal region.

*Industrial development*, particularly after the introduction of the economic reforms, has created additional pressure on the coastal region. Some of the factors which have encouraged industrial development are: (a) promotion of mineral extraction and mineral-based industries, (b) development of industrial parks and estates to feed ports to promote port-based development, (c) special loans and subsidies for industrial units to acquire water, land, raw material etc., and (d) setting up special pipelines to supply water to industries in coastal areas.

TABLE 4.9

**Area of depletion in groundwater level in coastal talukas**

S. No.	District	Taluka	1984	1997	Depleted talukas	Area in hectare
<b>North Gujarat</b>						
1	Ahmedabad	Dholka	White	Dark	Dark	271,841
<b>Saurashtra</b>						
2	Jamnagar	Okha-andal	White	Grey	Grey	71,911
3	Jamnagar	Khambhalia	White	Grey	Grey	121,625
4	Jamnagar	Jodiya	White	Grey	Grey	89,439
5	Rajkot	Malia	Saline A.	Saline A.	Saline	76,988
6	Bhavnagar	Bhavnagar	White	Grey	Grey	146,233
7	Amreli	Kodinar	Dark	OE	OE	53,658
8	Junagadh	Malia-Hatina	Grey	Grey	Grey	53,974
9	Junagadh	Mangrol	Dark	Dark	Dark	56,818
10	Junagadh	Porbandar	Grey	Dark	Dark	114,137
11	Junagadh	Ranavav	Grey	Grey	Grey	58,800
<b>South Gujarat</b>						
12	Kheda	Khambhat	White	Grey	Grey	118,959
13	Bharuch	Bharuch	White	Grey	Grey	63,424
14	Bharuch	Ankleshwar	White	OE	OE	44,024
15	Bharuch	Jambusar	White	OE	OE	109,827
<b>Kachchh</b>						
16	Kachchh	Mundra	White	Grey	Grey	88,805
17	Kachchh	Mandvi	White	OE	OE	142,538
18	Kachchh	Abdasa	White	Grey	Grey	240,544
19	Kachchh	Bhachau	White	OE	OE	458,123
20	Kachchh	Anjar	White	OE	OE	135,298
<b>Total Coast</b>					20	2,586,021

Source: Hirway and Mahadevia (1999).

In addition, Free Trade Zones (FTZs), Export Parks, Special Economic Zones (SEZs) etc. have been set up in coastal areas to promote industries. The share of Saurashtra and Kachchh in industrial investment was 9.9 per cent in 1986, 8.1 per cent in 1991, and

48 per cent in 1996 (Fig 4.3). Most of these industries discharge their untreated or semi-treated effluents into the sea, release gases that pollute air, use up mine and quarries without bothering about their regeneration, and use up precious land and water re-

BOX 4.7

**Salt affected areas in Gujarat 1960 to 1998**

S. No.	Salt affected area (sq. km.)	% to state geographical area	Reference year	Survey methodology	Agency
1	12164	7.15	1960	Soil Survey	GLDB, GOG
2	16900 (38.93)	8.62	1980	Soil Survey & Remote Sensing	CSSRI, Karnal
3	32000 (89.34)	16.30 (89.09)	1986	Remote Sensing	NRSA, Hyderabad
4	35984 (12.45)	18.30	1988	Soil Survey (Soil Texo)	NBSS & LUP, Nagpur
5	50638 (40.07)	30.00	2001	Projected	Gujarat Ecology Commission

Source: Gujarat Ecology Commission (1997).

sources creating shortages in an already scarcity region. While the question is not about desirability or undesirability of industrial development in this region, it is about where industries should be located, what type of industries should be allowed, and how industrial pollution should be controlled. (Table 4.10, Box 4.8)

*Infrastructural policy* of the Government of Gujarat, as reflected in *'The Gujarat Infrastructure Agenda: Vision 2010'* is "a ground vision with hard and practical economic planning". It is a vision that aims at taking 'a quantum jump' or 'an economic take off' in industrial and economic growth in the state. The major sectors, namely, power, ports and industrial parks, have been 'identified' as 'drivers' of the economy, and the rest of the infrastructure; transportation (roads, railways and pipelines), urban infrastructure, water supply, airports, gas grid, and information infrastructure are supportive sectors. This approach looks at coastal regions primarily as areas with great potential for economic growth.

Emanating from the infrastructure policy, a major pressure on the coastal region would be the *port policy* of the government that aims at port-led development. Accord-

ing to the plan of the Gujarat Maritime Board (GMB), there will be about 42 ports in the state. There will be 2 intermediate and 11 minor ports in South Gujarat, 7 intermediate and 22 minor ports in Saurashtra and 1 intermediate and 3 minor ports in the Kachchh region (Table 4.11). There is only one major port, Kandla, at present. Ports, jetties, shipping (making and breaking of ships), trade, etc. pollute the environment in several ways. They destroy the environment and ecosystems on the land and water; they affect marine life like corals and sea weeds adversely; destroy mangroves; affect wetlands adversely; destroy vegetation, including forests; and put a huge pressure on the natural resources like water and land. Shipping of oil and oil refineries may discharge effluents, including oil-spills that might affect marine ecosystems adversely.

There is no question about the desirability of ports. The question is: (a) location of ports and (b) number of ports. Looking at the impact of ports and port related activities, attempts should be made to minimize their number and the location should be such that it hurts the ecology the least.

Figure 4.3

Percentage share of Saurashtra and Kachchh in industrial investment

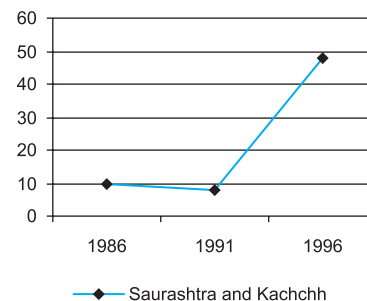


TABLE 4.10

**Industrial investments by regions**

Region	1986			1991			1996		
	Inv.	No. of units	Emp.	Inv.	No. of units	Emp.	Inv.	No. of units	Emp.
Kachchh (% to total Guj)	10614 (1.73)	57 (11.20)	6283 (7.33)	11219 (0.35)	64 (5.06)	6413 (2.54)	1223110 (5.44)	122 (2.04)	25774 (2.43)
Saurashtra (% to total Guj)	50140 (8.19)	49 (9.63)	9637 (11.24)	248671 (7.75)	204 (16.14)	43723 (17.30)	9354046 (42.58)	976 (16.75)	248682 (23.42)
South Gujarat (% to total Guj)	354725 (57.94)	205 (40.28)	33974 (39.56)	2372509 (73.64)	605 (47.86)	117468 (46.47)	13345200 (59.32)	3263 (55.79)	573922 (54.05)
<b>Total Coast (% to total Guj)</b>	<b>392858 (64.17)</b>	<b>288 (56.58)</b>	<b>45263 (52.79)</b>	<b>2518712 (78.49)</b>	<b>774 (61.23)</b>	<b>146545 (57.98)</b>	<b>19459789 (86.49)</b>	<b>3891 (66.76)</b>	<b>728880 (68.64)</b>
<b>Total Gujarat</b>	<b>612211</b>	<b>509</b>	<b>85744</b>	<b>3208760</b>	<b>1264</b>	<b>252761</b>	<b>22498519</b>	<b>5828</b>	<b>1061910</b>

Source: Commissionerate of Industries, Gandhinagar.



### Coastal Zone Management

Gujarat has taken the lead in the country in preparation of the Coastal Zone Management Plan as per the provisions of the Coastal Regulatory Zone (CRZ) Notification, 1991. The Coastal Zone Management Plan (CZMP) of the State has been approved by the MoEF, Government of India, and is being implemented by the State Government as well as the Gujarat Coastal Zone Management Authority (GCZMA).

The State has also taken the lead in preparation of the Coastal Zone Manage-

ment Information System (CZMIS) as a part of the Integrated Coastal Zone Management Plan (ICZMP) in the GIS based computer environment with the help of the Space Application Centre, Ahmedabad. The CZMIS is ready and the ICZMP is under preparation and would be available to general public on receipt of approval of the MoEF, Government of India. Gujarat is the first state in the country to take such initiatives to prepare the ICZMP on GIS (geographic information system) based computer environment.

The coastal region in the state is under pressures from several sources:

- ◆ Population pressure owing to high level of urbanization: 41 per cent of the coastal population lives in urban centres as against 36 per cent for the state.
- ◆ Given the total number of ports existing or proposed, there will be, on an average, one port for every 40 km of the seacoast.
- ◆ About 66.76 per cent of the industrial investment, in large and medium industries is along the seacoast. This implies that solid and liquid wastes are dumped into the sea.
- ◆ Pipelines have been laid from inland areas to the coast for the purpose of disposal of industrial waste. Agricultural discharges also have added to this.

These pressures have brought about the following changes:

- ◆ Groundwater depletion and degradation, leading to excessive salinity of groundwater.
- ◆ Degradation of land, frequently resulting in excessive salinity of land.
- ◆ Destruction of coastal ecosystems like mangroves, coral reefs, wetlands, seaweeds etc.
- ◆ Sea coast erosion owing to destruction of mangroves and coastal vegetations.
- ◆ Pollution of sea owing to discharge of industrial, domestic and other wastes.
- ◆ Depletion and degradation of coastal seawater.
- ◆ General decline in several flora and fauna in the region.

### Pollution Pressures and Pollution of Air, Water, and Land

Pressure on the environment in Gujarat also comes from pollution prone activities as described below:

- ◆ Industrialization, including generation of power and other infrastructural industries, is likely to discharge gases, solid waste and effluents, which can affect the quality of land, water, and vegetation adversely.
- ◆ The process of extraction of minerals through mines and quarries is likely to generate dust, noise and vibrations; result in the loss of limited non-renewable resources, which are, and reduce land productivity owing to degeneration of land in used-up quarries and mines.
- ◆ Use of chemical fertilizers and pesticides in agriculture is likely to affect the structure of land/soil adversely and flows of used water from farms are likely to pollute land, water, and vegetation.

TABLE 4.11

#### Major and minor ports located near coast

Coastal Districts	Number of ports in the district			
	Major	Intermediate	Minor	Total
Kachchh	1	1	3	5
Rajkot	-	1	-	1
Jamnagar	-	3	5	8
Junagadh	-	2	4	6
Amreli	-	1	2 + 1	3 + 1
Bhavnagar	-	1	3	4
Kheda	-	-	1	1
Bharuch	-	1	1	2
Surat	-	1	1	2
Valsad	-	-	8 + 1	8 + 1
Total	1	11	28 + 2	40+2

Source: Statistical Outline Of Gujarat -1996.

- ◆ Vehicular emission of carbon monoxide and dioxide and other gases is likely to pollute air directly.
- ◆ Indiscriminate disposal of solid waste of humans and animals as well as other solid wastes from hospitals, etc. are likely to pollute land, water and air.
- ◆ Indoor pollution in homes and factories.

**Industrial pollution:** As far as industrial pollution is concerned, the share of pollution prone industries, viz. petrochemicals, oil refineries, drugs and pharmaceuticals, dyes and dyestuffs, textiles, mineral-based industries, and other chemicals, is very high (60-70 percent). The Central Pollution Control Board (CPCB) has identified 18 industries as highly polluting industries in India.<sup>6</sup> All these industries are well developed in Gujarat. The Labour Commissionerate in Gujarat has identified 46 chemicals as extremely toxic and hazardous (which should be monitored extremely carefully or banned if necessary). There are about 313 factories (small-scale industries - SSI units are excluded) that produce these chemicals in the state.

CPCB has identified 51 industries as highly air polluting in India. About 7,000 factory units in (South) Gujarat belong to this category. There are many more SSI units that emit gases that pollute air.

Gujarat also has industries that produce highly hazardous waste, i.e. waste other than radioactive waste, which is toxic, explosive, or reactive causing damage or likely to cause damage to health or environment, whether alone or when coming in contact with other waste or environment. A CPCB study in 1996, which covered 15 industrial estates of the five most industrialized districts of India, showed that all the 15 industrial estates produce hazardous waste. Some of the most polluted industrial zones (sensitive zones and high risk zones) as identified by CPCB are located in Gujarat, particularly in the 'Golden Corridor' in South Gujarat.

Consequently, water bodies in the state are highly polluted. The Gujarat Pollution Control Board (GPCB) collects water samples from several rivers and analyses them for quality on a regular basis. These rivers are Sabarmati, Mahi, Narmada, Tapi, Damanganga, and many others mostly located in the 'Golden Corridor'. In addition, the Board also collects data from the Bhadar river in Saurashtra. The analysis of these data published by the GPCB shows the following (GPCB 1995):

- ◆ Sevalia and Valsad on Mahi, Garudeshwar and Bharuch on Narmada, Dharoi Dam and V.N. Bridge on Sabarmati, Ukai and Kathore on Tapi, and Kachigaon on Damanganga, are some of the most polluted centres.
- ◆ As regards organic pollutants, dissolved oxygen (DO), bio-oxygen demand (BOD) and chemical oxygen demand (COD), most centres do not observe the norms. Ahmedabad and Kachigaon are the most polluted centres where none of the observations have been within the limits during the 1980-1995.
- ◆ As regards physical pollutants measured in Narmada at Bharuch and Garudeshwar, the situation is the worst.
- ◆ With regard to mineral/inorganic pollutants or inorganic pollutants such as inorganic salts, metal compounds, mineral acids, metallic complexes, trace elements and organic-metallic compounds, Sabarmati at Ahmedabad is the worst. For example, against the norm of 60 ppm of sodium, Ahmedabad has around 400 ppm sodium content. Kachigaon is even worse as the sodium content here is 9,800 ppm.
- ◆ River water fares the worst with respect to biological pollutants of different kinds. Ahmedabad is considerably higher than the norms. Against the upper limit of 20,000 mpn (most probable numbers) of coliforms, Ahmedabad (Sabarmati) has 50 to 70 lakh

*Some of the most polluted industrial zones as identified by CPCB are located in Gujarat, particularly in the 'Golden Corridor' in South Gujarat*

*Suspended particulate matter (SPM) levels were critically high in the residential areas of all the six cities and high or critically high in the industrial areas of two of the six cities*

coliforms. Narmada at Garudeshwar also is bad in this respect.

Increasing air pollution, especially in cities, is another major problem. Industrial emissions, mainly from thermal power plants and vehicular pollution, are the main sources of air pollution in urban areas. GPCB data (1996) show that, in some of the major industrial areas of the state, pollution levels are high or even critical. SO<sub>2</sub> emissions were high in five of the six large cities in the state. In four of the six industrial cities, SO<sub>2</sub> emissions were high or critical even in residential areas. Suspended particulate matter (SPM) levels were critically high in the residential areas of all the six cities and high or critically high in the industrial areas of two of the six cities. The latest data from CPCB (2003) indicate that these cities have high levels of pollutants in the air and Ahmedabad is the most polluted city in India, as it has the highest level of SPM in the country.

It can thus be seen that industries located in Gujarat emit and discharge gases, as well as solid and liquid wastes in huge quantities, which pollute air, water and land. It is extremely important to control three units carefully and urgently.

**Vehicular Pollution:** Pollutants from vehicles are a major source of pollution in urban centres in the state. Vehicular pollution is frequently described as deadly poison resulting in slow murder of urban population. It is a highly complex problem and cannot be resolved only by enforcing vehicular norms with respect to pollution. Vehicular pollution is a result of the following pressures (Agarwal 1996):

- ◆ Quantum jump in the number of vehicles<sup>7</sup>
- ◆ Bad vehicular technology
- ◆ Too many old vehicles on roads
- ◆ Poor quality of fuel
- ◆ Poor vehicular maintenance
- ◆ Poor transportation planning where public transport is unreliable and poor

◆ The rising vehicular pollution is manifested in high levels (much above the standard norms) of CO, lead, SO<sub>2</sub>, NO<sub>x</sub>, HC, and SPM in the ambient air in many urban centres. Since vehicular pollution is not controlled, it has led to serious health problems on the one hand and expenditure on vehicular pollution control on the other

◆ Air pollution is intensified because of bad roads and poor traffic planning

**Indoor Pollution in factories:** Pollution within factory buildings is a serious problem in Gujarat where pollution-prone industries are dominant. The National Institute of Occupational Health (NIOH) has undertaken several studies to examine the extent of indoor pollution generated by different types of industries in the state. These studies have shown that indoor pollution is high in (a) asbestos and cement factories, (b) ceramic and pottery works, (c) textile mills, (d) agate grinding, (e) ginning factories, (f) aluminium industry, (g) dyes and dye-stuffs, and (h) diamond cutting and polishing. Workers in these factories suffer from serious illnesses such as chronic cough, pain in chest, backache, chronic constipation, etc. (NIOH 1998).

**Indiscriminate disposal of solid wastes in rural and urban settlements:** The fourth major source of pollution of natural resources in the state is less than satisfactory methods of solid waste disposal in rural and urban settlements. The major pressures that have raised the quantity of wastewater and solid waste are as follows:

- ◆ Rising population and increasing urbanization in the state without proper facilities for waste disposal.
- ◆ Rapid increase in solid and liquid waste per capita is also because of increasing consumption levels in the state and with that, rising consumption of plastics, paper, packaging, glass, food items, etc. In the case of Ahmedabad, the quantity of solid waste per

capita has increased from 133 kg in 1980-81 to 203 kg in 1998-99.

- ◆ Increasing institutional waste from hospitals, schools, restaurants, and such public organizations.
- ◆ Lack of proper collection system of waste, poor/low recycling of waste and lack of productive use of waste (Asnani 1999).

**Indoor air pollution in residences:** It has been estimated that the predominant source of fuel for cooking in Gujarat is still fuel wood and chips and cow dung. About 63 per cent of households in Gujarat use these two sources for cooking (CMIE 2000), and are therefore are subjected to indoor pollution. In rural areas about 76 per cent of households use firewood and chips while 15 per cent of households use cow dung as fuel, implying that more than 91 per cent of households use fuel that generates indoor pollution. Of the rest 3.77 per cent use kerosene, 3.38 per cent use gas/coal/oil; 0.97 per cent use *gobar* (bio) gas, and 1 per cent use charcoal, coke/coal, or electricity. In the case of urban areas 17.15 per cent of households use fuelwood and chips and 5.34 per cent use cow dung, implying about 23 per cent of urban households suffer from indoor pollution. Of the rest, 40 per cent of households use gas or coal, 31 per cent use kerosene, 4.23 per cent use charcoal, and the rest use coke/coal, electricity, or *gobar* gas (CMIE 2000).

The use of fuelwood and chips as well as cow dung generates pollutant gases like carbon monoxide (CO), sulphur dioxide (SO<sub>2</sub>), nitrogen dioxide (NO<sub>2</sub>), and SPM, which are harmful to human health. According to a study by NIOH in Gujarat: (a) the proportion of SO<sub>2</sub>, NO<sub>2</sub> and SPM were observed at dangerous levels in houses that use polluting fuels; (b) people exposed to this indoor pollution suffered from higher incidence of respiratory complaints like cough, dyspnoea, and cough with expectorant as compared

to that of the control group, and (c) x-ray findings of the exposed persons showed that they had a much higher incidence of bronchitis, emphysema, tuberculosis, trachea abnormality, etc. compared to the control group (NIOH 1998).

**Mining and Quarrying:** Mining and quarrying is an important economic activity, as it provides raw material and energy for promoting economic growth. However, it creates a pressure on the environment.

- ◆ When mines and quarries are located in coastal areas, extraction of minerals may create space for the intrusion of seawater in the coastal region. This may result in salinization of groundwater and land in coastal regions. Extraction of limestone in the coastal Saurashtra region is believed to have promoted salinization of the coastal land and groundwater.

- ◆ Large-scale extraction of minerals is likely to create a huge space – vacuum – underground which is likely to disturb the geology and hydrogeology of the region. The Geological Department of Gujarat (and India) has laid down detailed rules regarding mining and quarrying, which says, for example, that topsoil or waste rock and other material, which are recovered while quarrying, should be put back after the mineral is extracted. These rules regarding mining and quarrying are not followed in practice (Hirway and Shah 1998).

- ◆ The process of extraction of minerals itself can pollute the surrounding environment if proper care is not taken. For example, blasting of mines and quarries with the help of dynamite may generate noise, dust, and tremors which can affect the life of people living in surrounding areas adversely. Studies have shown that the dust affects vegetation or agricultural crops adversely, which in turn adversely affects the health of human beings as well as animals (Hirway and Shah 1998).

◆ Though used-up mines and quarries are expected to be regenerated, in practice this is usually not done. This is because on the one hand, the mine owners are not interested in their regeneration and on the other the Department of Mines and Minerals usually fails in strictly enforcing these rules.

Gujarat is not a very mineral rich state. However, it produces a significant proportion of certain important minerals. For example, in 1996-97, the state produced 24 per cent of the country's lignite (the production of lignite in Gujarat being 5.39 million tones), 19.12 per cent of the crude oil (Gujarat produced 6.02 million tones), 13.39 per cent of natural gas (Gujarat produced 2,439 mcum), 100 per cent of agate (388 tones), and 12.54 per cent of the bauxite (Directorate of Economics and Statistics 1998).

**Agricultural inputs and pollution:** Chemical input, such as chemical fertilizers and pesticides in agriculture tends to pollute land and water resources. Excess nitrate found in river water and groundwater in Gujarat is largely

due to the use of chemical fertilizers, and excessive use of pesticides. The agricultural policy recommends use of HVY varieties of seeds, chemical fertilizers and pesticides on irrigated farms. Implementation of this strategy was promoted by low rates of (canal) irrigation and subsidized well/tubewell irrigation, subsidized power supply, and subsidized inputs. As a result, consumption of chemical fertilizers and pesticides has increased considerably in the state, from 351,868 MT in 1981 to 753,498 MT in 1995 - more than double the consumption in 15 years. Per hectare consumption has also doubled in the same period from 32.12 kg in 1981 to 68.53 kg in 1995. Similarly, use of pesticides has also shown a rise. This increased use has manifested itself in the increased pollution of water resources in several regions. (Box 4.9)

A recent study by the Centre for Science and Environment (Aggarwal 1997) has shown that there has been overuse of pesticides in agriculture, resulting in much higher levels of pollutants than the norms. This has resulted in slow poisoning of people, particularly women, children, and the poor. Another study by CSE (Narain 2003) has also shown that residues of chemicals used in farming pollute groundwater to dangerous levels.

## Government Policy and Machinery for Pollution Control

The state government has passed several laws and set up an elaborate network of machinery for pollution control in the state (Table 4.12).

**Gujarat Pollution Control Board (GPCB):** GPCB, a major institution for pollution control in the state, was set up in 1974. With a new act on environment protection (1986), the Board has acquired more powers and

BOX 4.9

### Water pollution levels at selected sites

**Table A: Water quality in Kharicut canal at village Lali**

Year	pH	BOD	COD
1993-94	1.6	534	827
1994-95	2.0	416	1614
1995-96	4.8	320	1450
Standard	6.5-8.5	100	100

Source: Kolhatker (1999) in Mahadevia (1999).

**Table B: Water pollution due to Ankleshwar GIDC estate**

Monitoring Station No.	pH	COD	BOD	TDS
1	2 - 4	500 - 3000	100 - 1000	5000 - 25000
2	5 - 7.5	500 - 2000	200 - 1200	1000 - 8000
3	3.5 - 7	1000 - 8000	250 - 3500	2000 - 18000
4	2 - 7.5	1500 - 7000	200 - 1800	3000 - 28000
5	4 - 7	500 - 4000	300 - 1700	2000 - 7000
6	4.5 - 7	500 - 2000	100 - 700	1500 - 4500
7	2 - 7.5	250 - 4000	100 - 800	2000 - 15000
8	3.5 - 7	500 - 3000	200 - 6000	2000 - 8000
Standard	6.5 - 8.5	100	100	1500

Note: The data covers period from 1993 to 1997. Yearly readings are available, which have been summed up.  
Source: Based on Vyas (1998), in Mahadevia (1999).

has become more active. The main objectives of GPCB are pollution control and protection of environmental quality in the state. In order to achieve these objectives, GPCB performs several functions<sup>8</sup>. The first major function is the enforcement of the following environmental acts:

- ◆ The Water (Prevention and Control of Pollution) Act 1974
- ◆ The Water (Prevention and Control of Pollution) Cess Act 1977
- ◆ The Air (Prevention and Control of Pollution) Act 1981
- ◆ Relevant sections/provisions of the Environment (Protection) Act 1986

Major activities under the Acts include monitoring the status of natural resources, providing technical inputs and guidance, creating awareness, and implementing rules and regulations. The GPCB has its state and regional offices, manned by staff to perform activities.

Some of the other institutions and organizations involved in pollution control in the state are:

- ◆ Gujarat Industrial Development Corporation (GIDC)
- ◆ Department of Industries and Mines
- ◆ Department of Environment and Forest
- ◆ Municipal Corporation and other local bodies
- ◆ Central organizations/ministries like Ministry of Environment and Forest, Central Pollution Control Board etc.,
- ◆ Minor organizations like the Gujarat Environment Management Institute (GEMI) (See Box 4.10)

### Threefold Approach

The state government has adopted a threefold approach to control pollution in the state:

- ◆ Organizing disposal of pollutants through end of the pipe (EOP) solutions. This includes promotion of treatment plants and

TABLE 4.12

#### Environment and Pollution Control Scheme-wise outlay in Eighth Plan

Scheme No.	Scheme name	Eighth Plan outlay				
		1992-97	1992-93	1993-94	1994-95	1995-96
<b>Environment</b>						
EPC 1	Grant in aid to GEER Foundation	120	35	32	17	17
EPC 2	Environment Education	15	0	2	0	0
EPC 3	Training of officers and staff in the field of Environmental Planning and Conservation	15	0	1	0	0
EPC 3 A	Environmental Awareness Programmes (Grant in Aid to ecology commission)	83	25	11	10	10
EPC 3 B	Border Area Development Programme	0	0	0	0	10
<b>Sub total I</b>		<b>233</b>	<b>60</b>	<b>46</b>	<b>27</b>	<b>37</b>
<b>Water Pollution Control</b>						
EPC 4	Strengthening of existing and opening of new Regional offices	377	48	73	25	23
EPC 5	R & D Projects	100	35	16	3	3
EPC 7	World Bank Aided project	240	37	45	10	12
EPC 8	Environmental Monitoring in major cities and Industrial areas of Gujarat	0	0	0	0	28
EPC 9	Common Effluent Treatment Plants	0	0	0	0	210
<b>Sub total II</b>		<b>717</b>	<b>120</b>	<b>134</b>	<b>38</b>	<b>171</b>
<b>Grand total</b>		<b>950</b>	<b>180</b>	<b>180</b>	<b>65</b>	<b>208</b>

Source: Development Programme, GoG, General Administration Department Planning Division.

### Responsible agencies under Environmental Laws

Act/Rules	Department/Agencies
The Coastal Zone Regulation-Declaration Notification, 1991	MoEF/DoFE
Ecomark – Resolution, 1991	MoEF/CPCB
The Environmental Clearance Including EIA- (Environmental Impact Assessment) for Expansion/Modernization of Activity of New Projects – Procedure Notification, 1994	MoEF/DoFE/GPCB/District Collector
The Environmental Public Hearing Rules, 1997	MoEF/DoFE/GPCB/District Collector
The Bio-Medical Waste (Management and Handling), Rules, 1998	MoEF/DoFE/GPCB/Local Bodies
Rules for the Manufacture, Use, Import, Export and Storage of Hazardous Micro-Organism Genetically Engineered Organism Cell, 1989	MoEF/CPCB/DoEF/Customs
The Recycled Plastic Manufacture and Usage Rules, 1999	MOEF/CPCB/DoFE/GPCB/District Collector/Local Bodies
Utilization of Fly Ash Notification of Direction, 1994	GPCB/Department of Energy/ GEB/AECo/Thermal Power Plants/Department of Road & Building/Irrigation/Collector/DDO/Etc.
The Noise Pollution (Regulation and Control) Rules, 2000	MoEF/CPCB/DoFE/GPCB/Small Scale Registering Authority
The Municipal Solid Waste (Management and Handling Rules, 2000)	MoEF/CPCB/DoFE/GPCB/Urban Development Department/District Collector/Local Bodies
The Batteries (Management and Handling ) Rules, 2001	MoEF/CPCB/DoFE/GPCB, Customs

MoEF = Ministry of Environment and Forests  
CPCB = Central Pollution Control Board

DoFE = Department of Forests and Environment  
GPCB = Gujarat Pollution Control Board

common treatment plants, organizing pipelines and sites for disposal of treated waste, organizing collection and treatment of hazardous waste, and identifying their disposal sites, etc.

- ◆ Promotion of clean technology of production so as to minimize the generation of pollutants.
- ◆ Encouraging recycling and reuse of wastes of industrial units by encouraging setting up of production units that use discharged materials of industries.

There are several schemes and programmes to implement the above approaches. It appears that the government basically relies on the EOP approach. However, the government has initiated several activities under other approaches as well. It has set up a Gujarat Clean Production Centre and taken steps for recycling and reuse of discharges.

***Treatment of Solid and Liquid Discharges:*** Under the EOP approach, the state government has undertaken several steps to organize effluent treatment, effluent disposal, solid (hazardous) waste disposal etc.

A bird's-eye view of the pollution related infrastructure is presented in Table 4.13. It shows that the GPCB has taken several steps, at the unit level as well as at the group level, to control pollution in the state. At present there are 4357 effluent treatment plants and 15 common effluent treatment plants (CETP) in operation in the state. In addition, there are 3182 units with specialized air pollution control measures and six common treatment stabilization disposal units. Also, there are eight common bio-medical waste facilities.

GPCB introduced the Common Effluent Treatment Plant Scheme in the second half of

the 1990s for treating polluted water (after primary treatment at the unit level) through a common treatment plant. At present there are 15 CETPs in the state, located in Ahmedabad (6), Valsad (2), Bharuch (2), Surat (2), Vadodara (1), Junagadh (1) and Kalol (1). Though these efforts are noteworthy, it is clear that the coverage is far less than required, considering the number of industrial estates and industrial units generating pollution in the state (Table 4.14).

In addition, GPCB has set up twelve underground effluent collection schemes in GIDC chemical estates and organized five treated effluent disposal schemes, again in GIDC estates. It is in the process of setting up infrastructure for solid waste management in nine GIDC estates and developing 26 hazardous disposal sites (GPCB 2003).

**Actions Plans for Cities:** As far as vehicular pollution is concerned, GPCB has taken several steps. The main air pollutants emitted by vehicles are SO<sub>2</sub>, CO, NO<sub>2</sub>, and SPM. GPCB is expected to monitor ambient air quality of major cities like Ahmedabad, Vadodara, Surat, etc. under the National Ambient Air Quality Management (NAAQM) project. It has formulated several rules, regulations and programmes to control vehicular pollution: (a) issuing pollution under control (PUC) certificate to vehicles, (b) setting up testing stations, (c) vehicle checking for pollution and monitoring (d) promoting sale of lead free petrol and (e) use of media to generate awareness among people.

In addition, the state government and GPCB jointly prepared an action plan for control of air pollution in Ahmedabad city in August 2002. In this action plan, various tasks such as short and long-term measures have been identified and institutional mechanism devised for implementing the action plan. A three-tier monitoring system right from the level of the district collector to the chief sec-

TABLE 4.13

**Bird's-eye view of pollution related infrastructure**

	No.
Effluent treatment plant in operation	4357
Common effluent treatment plants in operation	15
Specialized air pollution control measures in operation	3182
Common treatment stabilization disposal facilities in operation for hazardous waste	6
Individual treatment stabilization disposal facilities in operation for hazardous waste	12
Incinerators in operation for hazardous waste	36
Common bio-medical waste facilities in operation	8

Source: Note prepared by GPCB, July 2003.

retary has also been devised by the state. In addition to various other proactive actions, as part of this Action Plan, the State has planned to introduce cleaner fuels like LPG and CNG for automobiles. The Gujarat State Petroleum Corporation has been designated as the nodal agency for implementation of the CNG programme for automobiles in the state. This plan is under implementation and the chief minister's office is monitoring the progress.

**Cleaner Production Technology:** GIDC has adopted the concept of pollution prevention at the source to minimize generation of pollution. It has set up the Gujarat Cleaner Production Centre (GCPC) with the technical support of UNIDO and the National Cleaner Production Centre (NCPC). The objectives of GCPC are primarily to promote use of cleaner technology in industries by generating awareness through workshops and meetings, providing guidance as well as technical services and generating material in this field. The centre received Rs. 50 lakh for three years (1998-2001) for this work.

Cleaner production employs a broad array of process and technology driven innovations to enhance the environmental performance of entire systems of industrial processes without compromising the economic development needs of an area or facility. To balance regional environmental and economic needs, the DoFE under the World

*In addition to various other proactive actions, the State has planned to introduce cleaner fuels like LPG and CNG for automobiles*



TABLE 4.14

**CETP subsidy by Industrial Commissionerate**

S. No.	Name of CETP Companies	Year	District	Project cost	Eligible cost	Subsidy sanctioned	Subsidy disbursed
1	The Green Environment Services Co-op. Soc. Ltd., GIDC, Vatva, Ahmedabad	1998	Ahmedabad	2327	2261	565.47	565.47
2	Odhav Environmental Project Ltd., GIDC Ind. Estate, Odhav, Ahmedabad	1998	Ahmedabad	501.81	425.24	83.91	83.91
3	Sachin Infra Environment Ltd., GIDC, Sachin, Surat	1999	Surat	1980	1811	452.75	333.75
4	Vapi Waste & Effluent Management Co. Ltd., GIDC, Vapi	1999	Valsad	2040	1415	353.75	272.49
5	Perfect Enviro. Control Systems Pvt. Ltd., GIDC, Sarigam, District Valsad	1999	Valsad	129	126.83	32	28.1
6	M/s. Panoli Enviro. Tech. Ltd., GIDC, Panoli, Ankleshwar	2000	Bharuch	335	312	78	26.01
7	M/s. Globe Envirocare Ltd., GIDC., Sachin, District Surat	2000	Surat	500	490	122.5	66.45
8	M/s. Naroda Enviro. Projects Ltd., Ph. I, GIDC, Naroda, Ahmedabad.	2001	Ahmedabad	795	620.25	155.06	50
9	Sanand Eco. Project Ltd., 172, Ajanta Ind. Estate, Vasna - Iyaava, Taluka. Sanand	2001	Ahmedabad	542.17	284.78	71.19	11.24
10	M/s. Enviro. Infrastructure Co. Ltd., Umaraya, Taluka. Padra, District. Vadodara.	2001	Vadodara	505.48	479.67	119.92	119.92
11	Gujarat Vepari Mandal Sahakari Audyogic Vasahat Ltd., Odhav, Ahmedabad	DNA	Ahmedabad	195	88.34	22.08	5.5
12	GIDC, Veraval, District Junagadh	DNA	Junagadh	771.1	699		
13	Enviro. Technology Ltd., GIDC, Ankleshwar	DNA	Bharuch	550	371.86	131.2	131.2
14	Kalol GIDC Ind. Association GIDC., Kalol	CR	Gandhinagar	31.84	—	—	—
15	Odhav Green Enviro. Project Ltd., GIDC, Odhav, Ahmedabad	CR	Ahmedabad	71.65	—	—	—
	<b>Total</b>			<b>11275.05</b>	<b>9384.97</b>	<b>2346.24</b>	<b>1694.04</b>

DNA = Date not available

CR = Case rejected

Source: Industrial Commissionerate, Year 2001.

Bank assisted EMCB-TA project had undertaken the promotion of cleaner production practices in the industries throughout the state through waste minimization, pollution prevention, recycling, and community based environmental protection approaches. Under this study the department is promoting the concept of cleaner production practices in industries throughout the state by organizing training and awareness programmes and practical cleaner production implementation in select units/sectors through demonstration projects.

The impact of GCPC has been very small. So far the Centre has provided consultancy services to 10 units in textiles, pharmaceuticals, etc. for clean technology. Further, the Centre has not been able to reach various industrial units in the state. It is not yet economically viable as there is not much demand yet for its consultancy services. The Centre needs much more funds and needs to make much more efforts to make an impact.

To sum up, the state government has initiated several steps to control pollution of different kinds. Being a major industrial state, it

is a leading state in pollution control also. The task at hand, however, is not easy. On the one hand polluting units consider these costs as additional costs, which according to them, affect their competitiveness adversely, while on the other hand the government's resources are limited which hampers monitoring and enforcement of regulations. As against the norm of 5 per cent of SDP to be spent on pollution control, the state government is spending around 1 per cent. There are also problems of implementation of rules. It is clear that the challenge in front of the authorities is formidable.

**Research and Studies:** Research and studies on pollution control are conducted by Gujarat Ecology Commission, GEER Foundation, and research laboratories in the department of forests and environment. *Gujarat Ecology Commission (GEC)* was set up in 1992 and has been operational since 1993. The mandate of GEC is to (a) plan and work for restoration of ecologically degraded areas, (b) arouse ecological consciousness among the people, (c) undertake restoration of disturbed ecosystems of the State, (d) create necessary institutions and organization, and (e) accredit various NGOs eligible for funding and allocate funds to various non-governmental agencies for ecological restoration programmes. GEC has undertaken the following model restoration projects: State Environmental Action Plan (SEAP), Banni grassland in Kachchh (1,100 ha.), and restoration of mangroves ('Cher') in coastal areas (ICEF – Integrated Coastal Environment Facility).

## Impact of Depleted and Degraded Environment on Human Development: Evidence

Several studies as well as official and non-official statistics show that the depleted and degraded environment has impacted ad-

versely on different dimensions of human development.

## Impact on Health and Nutrition

**Shortage of potable water and human health:** Shortage of potable water is one of the major problems as discussed earlier. There is enough evidence to suggest that the incidence of waterborne diseases has increased significantly in the state, mainly because of the shortage of potable water. In rural areas people are frequently forced to drink water with excessive salinity, excessive fluoride and excessive nitrites, as there are no options available. This has raised the incidence of diseases like fluorosis, gastroenteritis, etc. Discussion and data on their incidence has been covered in the chapter on health. Untreated water supply also causes amoebic and bacillary dysentery, cholera, diarrhoea, hepatitis, typhoid, and guinea worm infestation in rural areas. Apart from this, insufficient water for bathing and cleaning/washing has given rise to skin diseases like ringworms and scabies in the state (GOG Social Sector Vision 2010, 2000).

Excessive fluoride is found in groundwater of almost all the regions of the state. Mehsana district in the North Gujarat is the worst affected with half the villages having excessive fluoride in water. It is followed by Banaskantha district and Ahmedabad district, both in North Gujarat, with almost one-fourth of the villages suffering from excessive fluoride in groundwater, and Amreli district in Saurashtra. The lowest incidence of excessive fluoride is in South Gujarat. Fluorosis is rampant in about 2,800 villages of the state resulting in non-skeletal manifestations like muscular, allergic, gastrointestinal, or neurological problems in the initial stages, followed by skeletal manifestations (i.e. inability to walk or bend) and dental fluorosis (Hirway 1999, Down to

*As against the norm of 5 per cent of SDP to be spent on pollution control, the state government is spending around 1 per cent*

*High salinity and high nitrates have led to increase in the incidence of kidney diseases, arterial stiffness, heart diseases, digestive problems, etc.*

Earth 2003). (See box on fluorosis in the chapter on health.) High salinity and high nitrates have led to increase in the incidence of kidney diseases, arterial stiffness, heart diseases, digestive problems, etc. (CERC 2000). In addition, indiscriminate industrial discharges and agricultural inputs (such as pesticides, chemical fertilizers) have led to heart diseases, kidney and liver related diseases, cancer, and so on.

In urban areas there is poor maintenance of water pipe lines and mixing of drinking water with waste water. Water polluted by industrial discharges, water contaminated by indiscriminate disposal of industrial and domestic wastes, etc. have given rise to innumerable diseases like hepatitis, amoebic and bacterial diseases, etc. (Paryavaran Suraksha Samiti - PSS 1998, Consumer Education Research Centre - CERC 1997, GOG 1999). In the major cities there are repeated outbreaks of waterborne epidemics come the monsoon.

The monetary cost of these diseases has been calculated by Hirway (2003), which includes the medical costs along with the cost of hospitalization due to waterborne diseases, cost of loss of life (calculated in loss of wages/income), and loss of income or wages owing to sickness. This cost has been estimated to be Rs. 12,056.5 million for the year 1999-00, or Rs. 241.00 per head.

**Impact of polluted air on human health:** Polluted air leads to respiratory diseases. The results are divided into premature deaths (mortality) and sickness (morbidity), some cases of which involve hospitalisation. Hirway (2003) has given monetary value to the health costs incurred owing to respiratory diseases. Here, the value of premature death is calculated based on the value of a statistical life, as determined using either a human capital approach (which values an individual's life according to the net present value of his/her productivity) or a willingness to pay approach (which measures the value society places on an individual distinct

from an individual's wage earning capacity). The first of these approaches tends to give lower values than the second. In valuing the costs of morbidity, three types of costs can be considered: (a) medical expenses, (b) lost wages, and (c) individual disutility (discomfort, suffering and the opportunity cost of time). Only the first two categories are estimated by Hirway (2003). It has been estimated that the annual cost of air pollution in the state was Rs. 21,846 million for the year 1999-2000.

**Other health impacts:** The other health impact of environmental depletion and degradation is on the health and nutrition status.

- ◆ Studies have shown that there has been a significant decline in the nutrition status of people who suffered from droughts for two consecutive years, as they could not eat green vegetables and other healthy food (UNICEF 2001). Studies have also shown that low wages and delayed payment of wages on relief works have affected the health status of tribals very adversely (Eklavya 2002).
- ◆ Migration appears to be a major coping strategy of the poor in the areas with degraded environment. However, low wages, unhealthy living conditions, unhealthy housing conditions, poor access to water and sanitation facilities, etc. in place of migration tend to affect the health status of migrants very adversely (Hirway 2001).
- ◆ Degraded environments imply harder work for women and children for collecting fuel-wood, fodder and water. It has been observed by the time use study in Gujarat that women and children spend long hours on these activities, which increases their labour and drudgery (Government of Gujarat 2000). This also has implications for women's safety and security.
- ◆ Problems of drinking water in coastal areas have affected the health status of people adversely. High incidence of fluorosis, dysentery, etc. in these areas is indicative of this.

◆ The incidence of occupational diseases is very high in the state. There are innumerable studies conducted by NIOH, National Environment Engineering Institute (NEERI), and CPCB, which show this clearly.

### **Impact on Education and Literacy**

There is clear evidence to show that environmentally degraded regions have (a) low enrolment rates and (b) high drop-out rates, leading to low retention rates in schools and to lower levels of literacy.

### **Impact on Livelihood and Employment**

Environmental degradation and depletion has impacted significantly on the employment and livelihood of people in the state. First of all, it has increased the intensity and frequency of droughts in the state; which has increased the instability of employment and livelihood of the agricultural population. Wide fluctuations have raised their indebtedness and vulnerability, and have pushed people to migrate in search of work and wages. A recent study on Participatory Poverty Assessment in Gujarat (Hirway et al. 2002) has shown that the incidence of migration is quite high in Gujarat, with people migrating from tribal areas, arid and semi-arid areas, forest areas, irrigated areas, and from small towns and urban centres in search of work. This distress migration is high among landless labourers, small and marginal farmers, people engaged in animal husbandry, rural artisans, slum dwellers in urban centres as well as from other households. Distress migration tends to have a significant impact on the opportunities for development available to people which has far reaching consequences on their health, nutrition, education, literacy and welfare.

The discussion above shows that the EOP strategy to control pollution is not adequate and the government needs to be more

effective in implementing pollution related rules, with the result that the incidence of pollution is quite high in many industrial and urban centres.<sup>9</sup> This had led to a large number of public interest litigations in the Gujarat High Court. While these litigation cases have been successfully disposed off, pollution remains, as evident from the data presented in this chapter. The government should depend less on the EOP approach and more on other approaches, namely promotion of clean technology and promotion of recycling of pollutant discharges. Though the government has made a beginning in these areas, the achievements are too low to make an impact at the macro level (Hirway 2002).

### **Natural Resource Management and Promotion for Human Development: Some Micro Level Evidence**

#### **State Policies**

The state government has taken several steps to fight depletion and degradation of environmental resources. It has participated in the central government programmes of DPAP and DDP right from their inception. With the changing focus and contexts of these programmes, the government has added new programmes to promote better management of land and water resources. The major schemes in this context are watershed development programmes, water cooperatives, and participatory irrigation programmes. Secondly, the state has made efforts to improve water use efficiency through promoting drip irrigation, sprinklers, and so on as well as through PIM.

The government has made several efforts to protect the environment and to promote ecological regeneration of water, land, forests, coastal resources, etc. For example, in the water sector, steps have been taken (a) to improve water use efficiency in

*Distress migration tends to have a significant impact on the opportunities for development available to people which has far reaching consequences on their health, nutrition, education, literacy and welfare*

irrigation by promoting formation of PIM (Participatory Irrigation Management), water cooperatives and drip irrigation; (b) to encourage rain water harvesting through check dams, recharge of wells/tube wells, tanks, ponds etc., (c) to promote land and water management through watershed development programmes, and (d) to improve quality of water supply through quality improvement programmes. Similarly, efforts are being made to expand areas under forest through promoting afforestation in forest and non-forest areas, and through JFM (joint forest management) (Box 4.11) and village forest schemes under social forestry; and land development is taken up through area development programmes like DPAP, DDP, and so on through wasteland development programmes and watershed devel-

opment programmes (Box 4.12) and also through specially designed programmes like programmes for fighting salinity, desertification, etc. In addition, there are special programmes for coastal areas (i.e. coastal zone management programme) for water-logged areas. This list is not exhaustive.

In the case of the JFM programme, the state government has helped in forming 1340 JFM committees that would cover 1,570 sq. km of the forest area. It appears that the forest department is highly ambitious for the future of the programme. The major proposed initiatives of the department include combating desertification, planting of a shelter-belt for mangroves, development of biosphere in Kachchh, planting medicinal plants, development of grass lands, and creating buffer stocks of

BOX 4.11

### Salient Features of the Joint Forest Management in Gujarat

Date of issue	13.03.1991
Amendments	27.06.1994
Forest category	Degraded forests
Participants	Village community (at least 60% families of the village should be members)
Management unit	Village
<u>Executive committee</u>	Village committee
A. Peoples' representation	2 women members, one representative from concerned village panchayat, other members having interest in protection
B. FD representation	Yes
C. Others	NGOs
<u>Tenure of committee</u>	-
Committee registered under Societies/Co-operative Act	Yes
<u>Power of committee</u>	
1. Punish/Fine	-
2. Cancel membership	-
3. Frame rules	-
4. Distribute benefits	-
<u>Power of forest department</u>	
1. Cancel membership	-
2. Dissolve FPC	Yes
<u>Share of members</u>	
1. Fuelwood, NTFP, others	Dry fallen branches and MFP - as per agreement; Cut back operations-fuelwood will be given free, timber will be given at half the scheduled rate as per requirement of villagers Cleaning - small timber will be given in lieu of wages for members Thinning - 25% poles as compensation for members as wages
2. Timber	50% to village community after deducting expenditure on harvesting
State level coordination/steering/working group	Yes

Source: Joint Forest Management Update, 1998.

grasses and strengthening research in the department.

**Gujarat Ecological Education and Research (GEER) Foundation:**

GEER is an autonomous body, set up by the Government of Gujarat (1982) and is registered as a Society (Indian Societies Registration Act) and a public trust (Bombay Public Trust Act). It is also registered as a scientific institute by the Department of Science and Technology, Government of India. It is a member of the International Union for Conservation of Nature (IUCN). The objectives of the GEER are:

- ◆ Ecological education and research, creating public awareness and sensitising people about nature and environment
- ◆ Carrying out ecology, ecosystem and environment related studies
- ◆ Information dissemination regarding natural history
- ◆ Promoting the cause of conservation

The Gujarat Ecological Commission has also formulated the SEAP (State Environmental Action Plan), which has been sponsored by the World Bank. This plan has assessed major environmental problems in the state and has initiated an action plan for strengthening the environment in the state. The state government has set up NEAF (NGO Environment Action Plan) to involve NGOs in environmental protection and regeneration.

These efforts indicate the concern of the government regarding environmental degradation and its intention of preventing the degradation and promoting ecological regeneration. Though there is a long way to go for reaching sustainable use of natural resources, one can only hope that commitment will soon be backed by funds.

**Micro Level Evidence**

There are several micro level studies which have shown that natural resource manage-

BOX 4.12

**Watershed projects in Gujarat**

Sanctioned projects	4300
Completed projects	1266
Ongoing projects	3034
Total area covered	21.50
Total area covered by completed projects	6.33
Total area covered by Ongoing Projects	15.17
Total fund allocation	369.10
Total expenditure (up to Dec. 2002)	295.64

Note: Area in lakh hectares and funds in Rs. crore.  
Source: Department of Rural Development, Government of Gujarat.

ment promotes human development. Natural resource management essentially means stopping the process of depletion and degradation of environmental resources, and promoting their restoration and regeneration. This could be undertaken by watershed development, social forestry on village commons, joint forest management in degraded forest areas or afforestation, wasteland development, provision of sustainable sources drinking water, construction of checkdams or undertaking groundwater recharge through different means or by promoting moisture conservation on farm lands. Such programmes are implemented under government departments and by NGOs and grassroots organizations (See Box 4.13). Unfortunately, the quantitative impact of such programmes is not yet very significant at the macro level.

Most of the natural resource management programmes are group-based and they include the weaker sections of the population, frequently along with non-poor households. Documentation of several successful cases has shown that proper natural resource management tends to have the following impact on people and on the economy:

- ◆ These programmes have generated immediate employment for people. Since the activities involved in these programmes (digging trenches, land development, nursery, plantation, construction of water harvesting structures, etc.) are highly labour intensive,

*Micro level studies suggest that natural resource management promotes human development*

### Social Forestry

Total no. of trees planted under different models (of all age groups) - 179.0 crores  
 No. of established and matured trees (considering 30 per cent average survival) - 280.0 lakhs

The above mentioned established trees have the potential of producing the following:

Small timber ('000 cmt.)	- 3,482
Poles ('000 nos.)	- 41,013
Fuelwood ('000 tonnes)	- 5,186

(The above benefits are in addition to benefits in the form of fodder, fruits and other usufructs.)  
 Source: Department of Environment and Forests, Government of Gujarat.

the programmes have generated considerable employment and incomes.

- ◆ In the next stage, new assets generated have contributed towards stabilization of employment and livelihood of people. For example, watershed development programmes have promoted watersheds plus programmes like animal husbandry and dairying, improved crop cultivation, better forests with higher production of non-timber forest produce, fisheries, etc., which have generated sustainable livelihoods for people in some successful cases. Similarly, wasteland development can promote plantations, which can help people in maintaining their livelihood.

- ◆ Some natural resource management programmes have helped in the production of fuelwood and fodder locally. Promotion of local water harvesting structures have reduced the drudgery of getting water from long distances. Assurance of fuel, fodder, and water can go a long way in improving the life of people.

- ◆ Easy availability of the basic necessities, such as fuel, fodder, and water have also had highly favourable impact on health and literacy of people in some cases. It has improved women's health and provided some free time to them. It has allowed children to attend school and improved health of animals and their productivity.

- ◆ Better management of natural resources has reduced distress migration of the poor in some cases, as employment opportunities

– short term as well as sustainable – are made available locally. This reduction in migration helps them in accessing better health and nutrition, education, and overall welfare.

- ◆ The net effect of all the above points is that natural resource management promotes employment intensive and sustainable economic development of the region. It tends to generate economic activities, which promote employment in the mainstream economy and raise the rate of economic growth.

Some of the micro level success stories are discussed below. They indicate the strength of the relationship between natural resource management and human development.

**Sadguru Water and Development Foundation (SWDF):** With a mission of “developing and expanding environmentally, technically, and socially sound natural resource interventions leading to poverty alleviation, through community participation, and empowering women and other disadvantaged groups, to ensure equitable and sustainable development,” N. M. Sadguru Water and Development Foundation covers more than 550 villages mainly in the macro watershed of the Mahi river.

The organization has also implemented the government watershed programme in Gujarat along with Rajasthan and Madhya Pradesh as the project implementation agency (PIA) since 1995. Five NABARD supported watershed projects are being implemented in Dahod district. The results of these programmes are mind-blowing and set an example for future planning.

- ◆ The programme led to increasing yields in dry land agriculture in many cases to the extent of 50 to 70 per cent.

- ◆ Water tables in all the villages has gone up and even in the third consecutive drought year, a large number of wells provided drinking water.

- ◆ Integration of water resources has increased the yield manifold. Due to irrigation, additional crops are sown, increasing the yields to more than 300 per cent.
- ◆ Availability of irrigation water to unreached, undulated uplands has been made possible through lift irrigation systems in a number of villages.
- ◆ With better irrigation facility, villagers are not required to work in fields of others; instead, they are engaged on their own fields with guarantee of enough foodgrains.

**Bharatiya Agro Industries Foundation (BAIF):** Gujarat is one of the five states where BAIF is implementing water resource management in selected village clusters. Integrated watershed development in Gujarat, sponsored by the District Rural Development Agency (DRDA), has been implemented by BAIF in a network of 100 micro watersheds on more than 50,000 hectares in eight districts of the Saurashtra region.

- ◆ As a result of suitable entry point activities, local water resource development, construction of field structures and formation of people's organizations, more than 20,000 families have benefited from this programme.
- ◆ Community mobilization has been very effective and this is reflected in the contribution of participants by way of labour through *sharamdan* (sweat equity) and funds.
- ◆ Groundnut, an established cash crop, is grown by most of the families in the watershed area.
- ◆ At Ravni village, fertile land and irrigation facility have enabled the community to fence the land and take up intensive cultivation of fodder sorghum.
- ◆ Interesting interventions on community land are evident. At village Kothi, a group of teenagers have established a tree plantation on the village common land.
- ◆ In order to conserve water, especially during summer, 29 check dams, 163 farm ponds, 117 recharged wells and 10 percolation tanks have been constructed.

- ◆ Soil conservation measures include establishment of farm and contour bunds and gully plugging. Silvi-pasture has been developed on 81 ha.

This successful model is being replicated in other operational areas in the state as well ([www.biaf.com](http://www.biaf.com)).

**Mozda Collective, Juna Mozda, Dediapada:**

Dediapada, a tribal taluka in Narmada district has witnessed severe depletion and degradation in its natural resources in recent times. Deforestation, drying up of natural streams, depletion of common property resources etc. have been the major features. Mozda Collective, an NGO, is working in the watershed development programme in nine villages of the taluka with 700 farmers actively participating. These villages come under the jurisdiction of the Surpaneshwar Sanctuary, a reserved area, which was once a very dense forest area. The villages include Mozda, Vedchha, Anadu, Nani Singloti, Gadh, Matha Bhat, Danda Wadi, Matha Mogar, and Gumina (Patvali). Training in watershed techniques is being conducted in Mozda village. Major watershed activity includes field bunding and planting of saplings (Swati and Michael 2003).

- ◆ After the first heavy shower in 2002 it was noticed that one and a half feet of soil had collected on the bunds in many places. Had the bunds not been in place, this soil would have been washed away. This way about 1425 acres of soil was protected from erosion in 9 villages.
- ◆ Agricultural productivity has increased, local employment has been created, and incomes have been enhanced.
- ◆ This activity has checked outmigration.
- ◆ People from new/adjacent villages have started thronging monthly meetings of the Mozda Collective and have expressed their willingness to join the organization and want soil and water conservation work in their villages too. The organization has already



People realize that the watershed development programmes create employment without migration, improve soil conditions, increase productivity and income and compensate their labour

brought three new villages under the programme. There are around 10 or 12 more villages wanting to join and the villagers have been attending monthly meetings regularly.

- ◆ People realize that the watershed development programmes create employment without migration, improve soil conditions, increase productivity and income and compensate their labour.

**Watershed Development and Drought:** A study during the drought year of 2000 was conducted by the Development Support Centre (DSC) to see whether watershed programmes helped villages during a drought year. Accordingly a study was carried out in May - June of 2000 in 16 villages (8 watershed and 8 non-watershed) in drought affected districts of Kachchh, Rajkot, Jamnagar, Bhavnagar, Amreli, Banaskantha, Sabarkantha and Surendranagar. The study aimed at comparing the impact of drought in two categories of villages with similar socio-economic and topographic attributes: one set, which has benefited from watershed programmes taken up during last 4-5 years and termed “watershed villages” and the second set, without the benefits of the watershed development programmes, termed “control” villages. The overall impact was not only positive but also impressive (Shah 2000).

- ◆ Only 1 out of 8 watershed villages required water supply by tankers whereas four non-watershed villages needed it.

- ◆ Five out of 8 watershed villages were able to save the *kharif* crop and also grew the rabi crop in this drought year and only 2 villages reported total crop failure. In non-watershed villages, only 1 out of 8 villages could save the kharif crop and grow the rabi crop.

- ◆ In 3 watershed villages, there was no decrease in crop area and yields. In 4 non-watershed villages, yields went down by 75 per cent, and in the remaining villages there was total failure of crops.

- ◆ Seven watershed villages had moderate or no shortage of fodder. All the non-watershed

villages faced severe shortage of fodder. The watershed villages could save more animals, particularly bullocks, and maintain milk yields.

- ◆ Five watershed villages could maintain local employment opportunities throughout the drought period. The less fortunate were 4 non-watershed villages that had no employment opportunities, 2 provided low employment opportunities and only 2 villages could provide average employment opportunities. The result was large-scale out migration in 2 out of 8 non-watershed villages. Four out of 8 watershed villages hardly required relief employment whereas 7 out of 8 non-watershed villages required employment work from February 2000.

- ◆ Foodgrain availability was comfortable in 6 out of 8 watershed villages. In non-watershed villages the problem was acute in one village and serious in 7. Moreover, in 4 watershed villages even during the drought period, houses were being renovated, there was 100 per cent loan recovery by the service cooperative, hand pumps continued to yield water, and villagers spared water for a neighbouring non-watershed village. People in non-watershed neighbouring villages could not afford a daily bath and change of clothes.

**Aga Khan Rural Support Programme's Watershed Programmes - The Way Forward:**

Watershed programmes have provided a ray of hope in extremely degraded parts of Gujarat. The Aga Khan Rural Support Programme India (AKRSP I) works in four major drought-prone and environmentally degraded districts of Gujarat. These are Bharuch, Narmada, Junagadh and Surendranagar. It has adopted a watershed approach to the development of natural and human resources. In the case of Surendranagar it has adopted construction of percolation tanks, one of the important components of watershed management.

The intervention has led to several impressive outcomes (Khanna et al 1996):

- ◆ Overall there has been a dramatic rise in the water table.
- ◆ Area under cultivation has increased dramatically after construction of tanks.
- ◆ There has been change in cropping patterns giving more income to farmers and yield per hectare as a result of assured water and better agricultural inputs.
- ◆ Consequent to these outcomes, outmigration of villagers has been significantly checked.
- ◆ There is positive impact on health, access to education, and other necessities of life.
- ◆ Women have better access to drinking water. In some areas it is observed that special places for women to wash and bathe have been constructed.
- ◆ Livestock of all the families have access to water for drinking and bathing.

In yet another intervention of AKRSP (I) under the micro watershed programme, the treatment of wada lands (open lands adjacent to houses where vegetables and other horticultural crops are grown) in the Khabji village (Bharuch district) has yielded encouraging results. Women in the village claimed that the Wada land, which earlier had a low productivity, became a means to ameliorate their miseries. Vegetable yield data of the six wada lands were collected before and after the treatment, and the analysis showed a significant increase in productivity. The yield of *bhindi* (okhra) went up from 28 kg to 145 kg, *chauri* (beans) from 27 kg to 128 kg; and chilly from 7 kg to 51 kg in a year. Additionally, the women were able to harvest 61 kg of *mal-papri* (common bean) and 28 kg of *guar-sing* (cluster bean), which were not grown earlier. In a significant change, the women who earlier were dependent on the market for purchase of vegetables began growing all their own vegetables, and could also augment family income by selling their surplus produce.<sup>10</sup>

***Vikas Centre for Development - Turning wasteland into a productive asset: VIKAS***

with the support of SAVE has helped in forming about 79 village level organizations of agricultural labours as well as small and marginal farmers in Jambusar taluka. Bhathuji co-operative society of Neja is one of these organizations. This village level organization started a movement for getting land on lease from the state government in 1995 under the scheme of Integrated Wasteland Development (IWLD). IWLD, as the name suggests, aims at improving wasteland in all possible ways and in an integrated manner so that it can be used as good agricultural land as well as provide short-term employment to the rural poor and property to the rural community. Initially they could not get land because most parts of land, which they demanded, were under salt-pans. However, village people did not lose hope and asked for land, which was not under salt-pans. They even organized a rally with the help of VIKAS and other co-operatives. However, many villagers were not able to join the rally as they had committed themselves as *chakers* (bonded labour) to the rich community of the village. At last, after much struggle, in 1997, they received 165 acres of saline wasteland located on the seacoast under the anti-poverty programme. The quality of land was very poor.

Various activities like construction of check dams, land-levelling, and contour bunding were carried out to make the wasteland suitable for agriculture. The villagers cultivated cotton, in addition to other economic activities like fishery and making compost fertilizer. These activities helped the poor in getting employment worth Rs. 248,098. There were other benefits like reduction in the dependency of backward classes on upper caste people, water availability which saved almost 20 per cent of work time otherwise used to fetch water, and increase in milk production. VIKAS has also applied the systems of collective decision-making,

implementation, reporting, and review of work for generating confidence in socially deprived people when they deal with upper caste people.

***Vivekanand Research and Training Institute (VRTI) - Technological revolution:***

VRTI has used the technology of constructing sub-surface dykes along with small check dams and percolation wells to make water available throughout the year. This has been done in the Nagmati river flowing between Zarpara and Bhujpur villages, which has changed the life of people. This asset is built on public property and maintained by stakeholders through local participation. The immediate objective of this construction was to check the flow of groundwater for a while for recharging the aquifers. By constructing this work, short-term employment was generated for the local people. Long-term objectives of the construction included improvement in the groundwater level and quality as well as prevention of marine ingressions. One of the positive aspects of this work is that there is no risk of water evaporation as well as wastage during the utilization period as water goes directly to the wells of farmers through the aquifers. In addition to this, the construction has more capacity of water harvesting than any other water harvesting structures. The village committee of 13 members looked after the construction work. They are responsible for the maintenance and repair of the asset. The committee is the owner of the asset.

VRTI is a major NGO working on natural resource management in Kachchh district. The organization has undertaken several watershed development projects, wasteland development programmes, and agriculture/horticulture programmes in the district. The strength of VRTI lies in its capacity to provide technological and institutional inputs. One example is construction of dykes to control salinity and provide

good water for agriculture. A study has shown that as a result, water level has increased in a radius of two km in the surrounding region. This has led farmers to harvest more than one crop in a year. The impact of the construction is seen more effectively during the normal years. The water level in 1994 was 33 metres, which came up to 28.3 metres in 1998. Thus, there is an increase of 4.7 metres in four years. TDS in groundwater reduced from 1,980 ppm in 1994 to 1,248 ppm in 1998, a fall of 740 ppm. Almost 25 per cent of farmers have adopted multi-layer cropping pattern. Cultivated land area has increased from 562 acres in 1993 to 1050 acres in 1998. In some of the farms, groundnut yield has increased from 28 kg in 1993 to 100 kg in 1998. It has also increased the income from farming activity by Rs.1,000 per acre between 1993 and 1998. The practices of horticultural farming have been accepted by farmers to use the available water in a judicious manner. This has made forward linkages of the farm products stronger and wider. Most of the horticultural products are sold in the Mumbai market. Agricultural labourers get work within the village and do not have to migrate seasonally. Wages have also increased. If this technology spreads to other coastal areas, it will benefit the coastal economy.

## **Concluding Observations**

Gujarat has experienced considerable depletion and degradation of its environmental resources in the recent decades. Though no state can avoid depletion of natural resources in the process of economic growth and though some pollution is bound to be generated with economic growth, there is a need to ensure safe drinking water, clean air and clean surroundings to all. The state has a lot to do in this area.

One major cause of the depletion and degradation of the resources in the state seems

to be the development path chosen by the state through its various policies, programmes, subsidies, incentives and other interventions. The path seems to be heavily focused on economic growth. For example, water resources were developed by the government (through direct interventions and through indirect ways – supporting and promoting policies) as well as by farmers for raising agricultural production; industries were invited and promoted through various policies and concessions and incentives to raise industrial production, and use of mines and minerals was encouraged to raise gross production from mines and mineral-based industries. However, while promoting economic growth, not enough attention has been paid to the environmental consequences of the growth.

It seems that the environment comes under the purview of policy making only when economic growth is observed to be impacting adversely on environmental resources or on the economy. This is clearly not a policy towards sustainable development. Sustainable development is essentially a shift from dealing with environment after its depletion/degradation to focusing on integrating it in policy formulation. That is, it is a process that strengthens the relationship between

environment and development. Instead of looking at environment as a source that depletes and degrades with growth, efforts should be made to integrate it into the mainstream economic development, so that both economy and environment grow together.

The issue of sustainable development can be addressed through three different approaches, implemented simultaneously:

- (1) to take care of environmental problems (pollution, depletion and degradation of resources) when they are created,
- (2) to strengthen links between development and ecological resources through developmental programmes and
- (3) to choose a development path that promotes environment friendly development as well as human development. That is, human development concerns and environmental concerns are at the centre of the development process.

Several NGOs have shown that human development and natural resource management can go hand in hand. However, these programmes are operating on a very small scale. There is a need to scale them up, which calls for a major shift in the policy backed by serious commitment to this sector.

*Instead of looking at environment as a source that depletes and degrades with growth, efforts should be made to integrate it into the mainstream economic development, so that both economy and environment grow together*

## Notes

<sup>1</sup> The government of Gujarat is in the process of setting up a new committee to assess groundwater resources in 2003. The latest data are for 1997.

<sup>2</sup> The standard norm of 33.33 per cent of area under forests cannot be made applicable to all the situations. For example, in hilly or mountain areas where rainfall is likely to erode soil very fast, the norm is 60 per cent or higher forest cover. In the case of plains the norm goes down to 20 per cent. In the case of Gujarat, the norm would be anywhere between 20 and 30 per cent.

<sup>3</sup> There are the National Commission on Agriculture, National Wasteland Development Board (NWDB), Society for Promotion of Wasteland De-

velopment (SPWD), NBSS and LUP, National Remote Sensing Agency (NRSA), etc.

<sup>4</sup> The number of talukas has now increased to 225.

<sup>5</sup> Recently, this limit has been raised to Rs. 25-50 lakhs.

<sup>6</sup> These are: aluminum smelters, caustic soda units, cement plants, copper smelters, dyes and intermediate manufactures, fermentation units, fertilizers, integrated iron and steel plants, leather (tanneries), oil refineries, pesticide manufacturers, petrochemicals, pulp and paper, pharmaceutical, sugar, sulphuric acid plants, thermal power plants, and zinc smelters.

<sup>7</sup> The number of vehicles has increased at a very high rate. The number of diesel/petrol consuming

vehicles has increased from 4.58 lakh in 1980 to 49.76 lakh in 1999, an increase of more than 10 times in two decades. The highest increase has been in the number of two wheelers.

<sup>8</sup> For details see Hirway *et al.* (2002).

<sup>9</sup> Ahmedabad is rated as the most polluted city of India with respect to PM 10 and SPM; which implies that it is the worst city for airborne respiratory diseases.

<sup>10</sup> From the half yearly progress report (January-June) 1997 of the Aga Khan Rural Support Programme.



# Health and Nutrition

Immunization - polio drops



Mid-day meal

# Chapter 5





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## Health and Nutrition

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# 5

Since the Alma-Ata Conference of 1978, which declared health as a fundamental human right, health and nutrition have been accepted as important national concerns in the developing countries. In the Indian federal system, health is the concern of state governments, though some of the important health programmes are funded by the central government.

Health policies in developing countries, including India, have focused on the issues related to population growth - common diseases, nutrition, disability, newly emerging diseases like AIDS, occupational diseases, mental diseases, and so on. Reducing population growth rates continues to be a very important goal of the health sector owing to the high fertility rates in many states. Malaria, tuberculosis, waterborne diseases, respiratory diseases, and diseases related to mal and under-nutrition continue to trouble the population. Nutritional deficiencies among women, children and the poor; particularly deficiencies of basic minerals, some vitamins, and proteins resulting in stunted growth of women and children, is a major concern. New health problems have emerged. AIDS has become a new threat with its high incidence among migrants, particularly among single male migrants and circular migrants. There are new challenges because of environmental pollution and increased exposure to toxic substances in everyday life. Increasing urbanization has thrown up new health challenges emanating from crowded living conditions. While new challenges keep emerging, the earlier health agenda contin-

ues to require attention. The challenges in the health sector are thus multiple. This chapter discusses vital statistics and nutrition related issues; health policies, programmes, health care system and health expenditures by the government and the household sector; and socio-economic factors that influence the health status and sanitation and drinking water related issues.

### Importance of Health

Health is defined by the World Health Organization (WHO) as “a state of complete physical, mental, and social well-being and not merely the absence of disease or infirmity.” This definition was accepted by all the signatories to the Alma Ata Declaration on health adopted by the Thirty-first World Health Assembly in 1978. This Declaration gave the call of ‘Health for All by 2000 AD’ and accepted that primary health care was a key to attaining this goal. The purpose of this definition was to bring the positive concept of general well-being into focus rather than a negative definition of absence of disease. The human development concept of UNDP is based on the ethics of life claims. Good health is towards universalization of life claims (UNDP 1995). ‘Health is wealth’ goes the old saying in India.

At the Alma Ata Conference, the joint report of the Director - General of WHO and the Executive Director of UNICEF stated. “...health systems are all too often being devised outside the mainstream of social and economic development. These

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**Better health status leads to demographic transition, steadying the population growth rate essential for sustainable development**

systems frequently restrict themselves to medical care, although industrialization and deliberate alteration of the environment are creating health problems whose proper control lies far beyond the scope of medical care.” (Tejada-de-Rivero 1981:35). Keeping this in mind this report discusses the impact of macro level issues on health.

Health is important in three distinct ways: (a) it has intrinsic importance, (b) it has an instrumental importance at personal and social levels, and (c) it promotes empowerment of people. In the intrinsic sense health is important, because it is a direct measure of human well-being. It is a fulfilment of life. Being healthy is a valuable achievement in itself. The ‘basic needs approach’ considers health as a basic need along with food, clothing, shelter, and education. Starting with Pigou, the basic needs approach is utilitarian, “because and only because fulfilment” of basic needs “contributes to utility” (Sen 1985:25). Sen, however, disagrees with this utilitarian approach. He argues that, “value of the living standard lies in the living” (1985:25) and better health is better living. Health is important because it is better living and not because it is an *instrument* for better living or has a *utility*.

Better health can have interpersonal benefits. There are many externalities of morbidity. Continuous illness can stifle the options for a family. More often than not, it is the woman, who is socially obliged to take the responsibility of a sick person in a patriarchal family. In the instrumental sense, good health has an economic rationale. It leads to reduced medical costs of the government and households. The more the public sector expenditure on preventive health, the less the household sector expenditure on curative health.

Ill health may lead to loss of income for poor families subsisting on daily income. This may push the family to hunger and malnutrition. It may also increase the debt burden of the family, which in turn can lead to dis-

stress sale of their assets. The limited budget of the family is usually spent on the treatment of male members, neglecting female members. Improvement in health leads to gains in worker productivity. A healthy worker works more and increases the household income as well as GNP.

Better health status of the population also leads to reduced mortality and higher life expectancy as well as decline in infant and child mortality. With increase in chances of child survival, fertility rates tend to decline, which leads to lowering of population growth rates. Thus, better health status leads to demographic transition, steadying the population growth rate essential for sustainable development. Health therefore has many instrumental roles at the personal and social levels.

In the case of children, better health leads to better attendance in school and to higher level of knowledge attainment, which leads to better paid jobs and larger benefits to future generations. Nutritional deficiency in children, on the other hand, leads to irreversible and long-term disabilities such as blindness, reduction in cognitive functions, mental retardation, etc. Nutritional deficiency of the girl child has a much longer chain of impact, discussed in the section on Women and Health.

## **Factors Affecting Health Status**

Health status is the outcome of a large number of factors:

- ◆ Poverty, food security, food pricing and malnutrition
- ◆ Environmental pollution and degradation
- ◆ Occupational health problems
- ◆ Reproductive health problems
- ◆ Household economy and wages
- ◆ Economic development; represented by per capita income, urbanization and industrialization

- ◆ Social development; especially literacy rates
- ◆ Prices of private health care system
- ◆ Public health care delivery system.

Some of these issues are briefly discussed here in the context of the health status in Gujarat. Poverty or lack of food security leads to malnutrition, which results in diseases of poverty. The factors that lead to malnutrition are low production and low availability of foodgrains, poor level of nutritional knowledge, high level of illiteracy and ignorance, bad consumption habits, unequal distribution of income and food, low levels of employment or high levels of unemployment or underemployment, unsafe drinking water, poor sanitation facilities, and non-availability of health services. Good nutrition not only gives adequate calories for functioning but also increases the ability to resist diseases and infections. People living below the poverty line lack resources to get adequate calories and live in unhygienic environmental conditions, which increases their vulnerability to infections and diseases. This, in turn, leads to high infant and child mortality and hence high birth rate. A vicious cycle, therefore, sets in.

Improvement in the health status is considered a by-product of economic growth and of increase in per capita income. In developed countries, the health status of people has improved with industrialization and economic growth. It is argued that per capita income is the best indicator of quality of life and hence of the health status of a population (McGillivry 1991). But this relationship has not been one to one. Some countries have achieved a relatively high health status at low levels of incomes while others have not achieved higher health status in spite of high incomes. In developing countries, urban areas tend to have better health facilities than rural areas resulting in better health status in urban than rural areas (Murthi, Guio, and Drèze 1995:9).

Literacy, especially of females, is considered essential for improving the rate of child survival, bringing down the IMR and ultimately leading to demographic transition. Educated women demand better quality maternal care and are better able to access health care facilities. Education of women, thus, helps in improving the health status of the family. Murthi, Guio and Drèze (1995:4-5) have given a number of explanations for the inverse relation between female literacy and fertility. Educated women are more likely to voice resentment against burden of repeated pregnancies. They may have other sources of fulfilment than reproductive performance. They have alternative use of their time, and hence may not desire to spend their time in activities such as childbearing and rearing. They are likely to be less dependent on sons for social status and old age security. They have higher aspirations for their children and perceive a large family as a hindrance to this. Maternal education also reduces infant and child mortality. Educated women are more aware of immunization programmes and family nutrition, health, and hygiene and are more likely to use health care facilities in the event of sickness of their children. Better child survival tends to reduce the desire for a large family. Female education is important for maternal health also. Hence, female education is more likely to affect infant and child health and population stabilization than male education (Murthi, Guio and Drèze 1995).

Access of women to health and nutritional services is, to a great extent, determined by socio-cultural and economic factors. Several of their health problems get compounded because of reproductive health issues. Women are, therefore, constantly under health stress. During childhood, they are subjected to discriminatory child care, sex selection and sometimes even sexual abuse. During their adolescence, they are exposed to sexual abuse, early marriage and associated physical and mental health risk, abor-

*Some countries have achieved a relatively high health status at low levels of incomes while others have not achieved higher health status in spite of high incomes*

*Women as well as men are exposed to environmental and occupational health problems, but their impact is much more on women because of malnutrition*

tions for unintended pregnancy, and STDs and AIDS<sup>1</sup>. During their reproductive years, unplanned pregnancy and unsafe delivery, unsafe abortions, pregnancy related complications, reproductive tract infections, STD, AIDS and malnutrition are the major health problems. Pregnancy exacerbates certain conditions such as anaemia, malaria, PEM, diabetes, hepatitis, tuberculosis and heart diseases. Because of biological factors, women have a higher risk than men of becoming infected by STDs and HIV. The incidence of genital cancer is observed to be higher in women than in men. In the post-reproductive years, there are many physical conditions caused or aggravated by menopause.

Women as well as men are exposed to environmental and occupational health problems, but their impact is much more on women because of malnutrition. Women also suffer from the impact of indoor air pollution, which causes lung and heart diseases including cancer. Smoke, if inhaled during pregnancy, leads to either low-weight babies or stillbirths (Smith and Youchang 1993).

Women's health status should be monitored keeping their special conditions in mind. An improvement in women's health is an improvement in society's health not only because women comprise half of humanity but also because a society that cares for women is a healthy society.

Environmental health is emerging as a new area of concern, particularly in a state like Gujarat. Urban areas face pollution problems largely because of high concentration of people, inadequate infrastructure to deal with waste and uncontrolled and unregulated industrial activity. Now rural areas are also affected by industrial pollution. Simultaneously, unquenchable and ever expanding consumption, largely of the urban population, reduces national resource availability, leading to disastrous outcomes in rural areas.

Urban areas basically face two types of environment related health problems; problems relating to air and water pollution, and problems related to lack of adequate sanitation. Air pollution is caused by vehicular traffic, thermal plants within cities, polluting industrial units, etc. Studies show that in Indian cities, air pollution levels far exceed the WHO standards (Environment 1988). Air pollution damages human respiratory and cardio-respiratory systems. The elderly, children, smokers and those with chronic respiratory and cardiovascular problems are more susceptible to damages because of air pollution. Provision of basic services such as water supply and sanitation do not keep pace with the rate of urbanization, which leads to pervasiveness of water-borne diseases such as amoebic and bacillary dysentery, cholera, diarrhoea, hepatitis, typhoid, gastro-enteritis, and infectious diseases such as skin diseases.

Indoor pollution in India is observed to be a result of use of polluting fuels in cooking. The rural population and a section of the urban population use biomass fuels for cooking and heating water inside the house which leads to high concentration of carbon monoxide (CO), nitrogen oxides (NO<sub>x</sub>), suspended particulate matter (SPM), benzopyrene, etc. These result in acute respiratory problems such as pneumonia, other lung diseases, burning of eyes, headache, tiredness, nausea, drowsiness, throat irritation, and discomfort (Wadden and Scheff 1983) among women and children who spend the longest time inside the house and suffer greatest exposure. Women also suffer from adverse pregnancy outcomes such as still births (World Bank 1993a).

Occupational health problems arise mainly from poor working conditions in industries and units undertaking extraction and harvesting of natural resources, such as (open and closed mines). There is a long list of hazardous industries whose working con-

ditions pose health hazards to workers. Those engaged in the petty service sector, such as vending and repairing by the roadside, are constantly exposed to motor vehicle fumes. In addition, there are other diseases that occur when any occupation requires working in a constant posture, working with great concentration, or using only some particular part of the body. Examples of these are: carrying heavy head loads, diamond polishing, garbage picking, and so on. Those working in the heat of the sun during the summer months often suffer from sunstroke and dehydration, which can even lead to death.

The health status of a population is an outcome of a large number of factors. Some of these factors do not come under the purview of health departments. A sound approach to good health, therefore, addresses problems inside as well as outside the health department. This is important to understand for Gujarat State.

## Health Status in Gujarat

### Vital Statistics

Gujarat's performance is better than all India aggregates with regard to all vital statistics (Table 5.1, Box 5.1). The crude birth rate (CBR) is 25.2 in Gujarat against 25.8 in India (2000), crude death rate (CDR) is 7.5 against 8.5 in India, the infant mortality rate (IMR) is 62 against 68 in India, and the child mortality rate (CMR) is 85.1 as against 94.9 in India. The neo-natal mortality (NNM), post neo-natal mortality (PNNM) and peri natal mortality rates are also lower in Gujarat than in India according to the National Family Health Survey (NFHS)-2 conducted in 1998-99. The gap between the NNM in Gujarat and that for the country, however, is of just one point. The estimated maternal mortality rate (MMR) in Gujarat was far lower (3.89) than in India (4.58) in 1992-93.

TABLE 5.1

### Health status, Gujarat and India

Health Status Indicators	Gujarat	India
Crude Birth Rate, 2001*	24.9	25.4
Crude Death Rate, 2001*	7.8	8.4
Maternal Mortality Rate 1992-93*	3.89	4.58
Infant Mortality Rate, 2001*	60	66
Life Expectancy at Birth, 1996-2001 - Male*	61.53	62.36
Life Expectancy at Birth, 1996-2001 - Female*	62.77	63.39
Neo-natal Mortality Rate 1998**	44	45
Peri-natal Mortality Rate 1998*	38	42
Post Neo-natal Mortality Rate 1998**	21	27
Child Mortality Rate (0-5 years) 1998*	85.1	94.9
General Fertility Rate 1998*	98.7	106.5
Total Fertility Rate 1998*	3.0	3.2
Gross Reproduction Rate 1998*	1.4	1.5

Note: Data given by the health department of Government of Gujarat.  
Source: \*From SRS Bulletins.  
\*\*PRC and IIPS (1994).

According to the SRS data MMR for Gujarat has reduced to 2.9 in 1997 (SRS bulletin, April 1999). The total fertility rate (TFR) in Gujarat is lower (3.0) compared to that for the country (3.2) in 1998.<sup>2</sup> The only vital statistics where Gujarat falls behind the all-India average is the Life Expectancy at Birth (LEB).

IMR has dramatically declined in India and Gujarat between 1971 and 2001. In the case of India it has declined from 200-225 per 1000 live births at the time of Independence to 129 in 1971 and to 66 in 2001. In the case of Gujarat it has declined much faster, from 145 in 1971 to 60 in 2001. This decline has been brought about by the decline in neo-natal mortality (NNM), achieved by widespread immunization programmes in the country. The decline was the highest in 1980s, followed by the decade of the 1970s. In the

BOX 5.1

### Health sector achievements in Gujarat

- ◆ IMR in the state has come down from 145 to 63 deaths per thousand live births during 1973-99. However the state is far behind Kerala whose IMR is 14.
- ◆ MMR in the state was 3.89 in 1992-93, which is high as compared to Kerala's figure (0.87) per 1000.
- ◆ TFR has declined from around 6 to 3 during 1951-98. The population policy intends to bring it down to 2.1 by 2010.
- ◆ The couple protection rate (CPR) has increased from 10.4 per cent to 44 per cent in 1999.

TABLE 5.2

## IMR and CDR in Gujarat and India\*

Year	Gujarat						India					
	IMR			CDR			IMR			CDR		
	Total	Rural	Urban	Total	Rural	Urban	Total	Rural	Urban	Total	Rural	Urban
1971	145	155	110	14.9	18.1	13.1	129	138	82	15.0	16.4	15.0
1981	116	123	89	12.0	12.4	10.7	110	119	62	12.5	13.7	12.5
1986	107	124	66	10.5	11.3	8.6	96	105	62	11.1	12.2	11.1
1990	72	79	54	8.9	9.6	7.2	80	86	50	9.7	10.5	9.7
1991	69	73	57	8.5	8.8	7.9	80	87	53	9.8	10.6	9.8
1992	67	71	54	9.2	9.5	8.3	79	85	53	10.1	10.9	10.1
1993	58	65	42	8.2	8.9	6.8	74	82	45	9.3	10.6	9.3
1994	64	70	51	8.7	9.6	6.9	74	80	52	9.3	10.1	9.3
1995	62	68	47	7.6	8.3	6.2	74	80	48	9.0	9.8	9.0
1996	61	68	46	7.6	8.3	6.3	72	77	46	9.0	9.7	9.0
1997	62	69	46	7.6	8.3	6.2	71	77	45	8.9	9.6	8.9
1998	64	71	46	7.9	8.6	6.4	72	77	45	9.0	9.7	9.0
1999	63	70	45	7.9	8.8	5.9	70	75	44	8.7	9.4	8.7
2000	62	69	45	7.5	8.3	5.8	68	74	44	8.5	9.3	8.5
2001	60	67	42	7.8	8.8	5.6	66	72	42	8.4	9.0	8.4

\* India excludes Jammu and Kashmir

Source: SRS data, based on Commissionerate of Health, Medical Services and Medical Education (1994), Table 2.5, p. 21.

1990s, there has been deceleration in the decline (with almost stagnant IMR between 1995 and 2002) with the decline being only 9 points in the decade. The same is the case with CDR (Table 5.2). By contrast, the decade of the 1990s witnessed a very rapid decline in IMR in India.

There is a difference in the values of IMR for Gujarat according to NFHS-2 and SRS data. Though the total IMR of 63 per 1000 live births is the same according to both sources (1994-98), there is a discrepancy in the estimates of urban and rural IMR in the two sources. For example, rural IMR was 74 according to NFHS-2 as against 69 according to SRS data, and urban IMR was 42 according to NFHS-2 against 47 according to SRS data. According to NFHS-1 and 2 (Table 5.3), rural IMR has increased because of the increase in NNM and PNNM during the period, while the urban IMR has declined because of sharp decline in NNM and PNNM. In rural areas, there is a big decline in mortality of children in age 1-4 years in NFHS-2 to 21.9 from 40.9 in NFHS-1.

Interstate comparison puts Gujarat in the middle order among the major 15 states as far as vital statistics are concerned. Gujarat stands ninth with respect to CBR (24.9) with Kerala on top (17.2) followed by Tamil Nadu (19.0), West Bengal (20.5) and Maharashtra (20.6). There is a big gap between the rural CBR (26.6) and urban CBR (21.5) in the state (see Annexures).

The state stands eighth with respect to CDR (2001), which is 7.8, as against 8.4 in India (see Annexures). It ranks tenth in rural CDR and first in urban CDR along with Andhra Pradesh. Gujarat ranks seventh in the overall IMR, with IMR at 60 in 2001. It ranks seventh in rural IMR and ninth in urban IMR. It is worth noting that though the state is at the top on urban CDR, it ranks far below in the urban IMR among the large states. There is, thus, a problem of high CBR and high IMR in urban areas of Gujarat. In the 1990s, the state fared badly, with very low rates of change compared to most states, including Kerala that already had low IMR in the beginning of the 1990s.

With respect to NNM, the state ranks eighth among the 15 large states surveyed

*Interstate comparison puts Gujarat in the middle order among the major 15 states as far as vital statistics are concerned*

TABLE 5.3

### Infant and Child Mortality trends, Gujarat

Years prior to survey	NNM	PNNM	IMR	CM 4	CM 5
<b>NFHS-1</b>					
Urban					
0-4 years (1987-91)	39.3	26.1	65.4	30.8	94.2
5-9 years (1982-86)	39.0	18.5	57.5	22.0	78.3
10-14 years (1977-81)	40.7	19.0	59.7	24.3	82.6
Rural					
0-4 years	43.6	26.6	70.2	40.9	108.2
5-9 years	55.1	32.7	87.7	30.7	115.7
10-14 years	59.2	36.9	96.1	33.2	126.1
All Areas					
0-4 years	42.3	26.4	68.7	37.9	104.0
5-9 years	49.9	28.1	78.0	27.8	103.6
10-14 years	52.9	30.8	83.7	30.2	111.3
<b>NFHS-2</b>					
Urban					
0-4 years (1994-98)	28.6	13.6	42.2	27.2	68.3
5-9 years (1989-93)	38.2	14.9	53.1	16.5	68.7
10-14 years (1984-88)	45.5	26.0	71.4	21.0	90.0
Rural					
0-4 years	46.0	28.5	74.4	21.9	94.7
5-9 years	47.7	26.1	73.8	42.1	112.8
10-14 years	65.9	30.4	96.3	43.3	135.4
All Areas					
0-4 years	39.6	23.0	62.6	24.0	85.1
5-9 years	44.2	21.9	66.1	32.3	96.2
10-14 years	58.1	28.7	86.8	34.6	118.5

Source: PRC and IIPS (1993), p. 133 and IIPS (2001), p. 122.

by NFHS-2. The state ranks ninth in PNNM, tenth in child mortality (1-4 years), eighth in under 5 mortality, and tenth in CMR. The NNM and PNNM rates have improved from NFHS-1 to NFHS-2 in urban areas but not in rural areas. A common observation of all the studies is that there is an overall improvement in child mortality (i.e. it has declined), but at a low rate (also see Box 5.1). By contrast, Maharashtra, another urbanized state having similar economic characteristics as Gujarat, is performing well with respect to child health as are the states of south India, particularly Kerala, which is way ahead of Gujarat in all vital statistics.

#### BOX 5.2

### Lok Swasthya Sewa Mandali

*Lok Swasthya Sewa Mandali Ltd.* is a public health workers' cooperative working in Gujarat. It has been initiated by SEWA.

*Lok Swasthya Sewa Mandali* works towards providing quality health care to women at their doorsteps. The collective performs seven tasks in an integrated manner. These are: (i) primary health care that includes occupational health, maternal health, child health and other general health services such as assisting slum women in availing individual latrines in their homes in cooperation with the Ahmedabad Municipal Corporation, medical check-up camps, etc.; (ii) health education for women

in the areas of primary care, child health, women's health problems, and occupational health problems; (iii) running fair-price medical shops; (iv) hospital attendant training classes in cooperation with the Indian Medical Association and the Gujarat Women's Economic Development Corporation; (v) mid-wife training school for safe deliveries; (vi) health research in the areas of women's problems, public health, occupational health, and public distribution system; and (vii) advocacy with the government specially in the area of family planning.

Source: SEWA 2003.

TABLE 5.4

**District-wise Health Indicators**

District	CBR (1991)*	Rank	CDR (1989-90)**	Rank	TFR (1991)*	Rank	IMR (1991)*	Rank	CMR-5 (1991)*	Rank
Ahmedabad	30.52	2	12.67	19	3.55	3	64	9	78	4
Amreli	32.95	8	5.20	1	4.23	11	64	10	97	10
Banaskantha	38.22	18	8.44	13	5.29	19	85	17	116	17
Bharuch	30.28	1	9.71	15	3.63	4	49	1	86	8
Bhavnagar	34.98	16	7.29	6	4.56	15	54	4	59	1
Dangs	39.19	19	9.71	16	5.04	18	87	18	112	16
Gandhinagar	32.93	7	8.13	9	3.76	5	78	12	102	13
Jamnagar	31.42	9	7.02	14	4.01	8	51	2	66	2
Junagadh	30.89	5	7.77	5	3.99	6	63	8	78	5
Kachchh	34.37	4	7.80	7	4.39	13	79	14	98	11
Kheda	33.74	13	10.09	8	4.14	9	84	16	117	18
Mehsana	34.31	10	8.42	17	4.14	10	89	19	122	19
Panchmahals	34.37	12	6.49	12	4.70	17	79	15	111	15
Rajkot	32.17	14	8.39	3	4.00	7	54	5	66	3
Sabarkantha	34.72	6	6.02	11	4.26	12	75	11	104	14
Surat	30.64	5	6.63	2	3.45	2	60	7	88	9
Surendranagar	33.86	3	8.22	4	4.43	14	78	13	98	12
Vadodara	35.27	11	10.45	10	4.61	16	51	3	82	6
Valsad	28.96	17	7.83	18	3.43	1	55	6	83	7
GUJARAT	33.56		8.80		4.20		78		101	

\* Based on 1991 census data.

\*\* Civil Registration System data, which is an under-representation.

Note: Data in this table are for 19 districts before some of them were bifurcated.

Source: Commissionerate of Health and Medical Services (Health).

**Vital Statistics – by Districts**

Vital statistics by districts in the state are available mainly for the 1991 census. This nonetheless shows that there is a high disparity among the districts in each of the vital statistics (Table 5.4). CBR is highest in Dangs (39.19), followed by Banaskantha (38.22), Vadodara (35.27), Bhavnagar (34.98), Sabarkantha (34.72) Kachchh (34.37), Panchmahals (34.37) and Mehsana (34.31). Birth rates are high even in an industrialized district such as Vadodara, the relatively more urbanized district of Bhavnagar, and the agriculturally advanced district such as Mehsana. Valsad, part of which has a high tribal population and part of which is industrialized, has the lowest CBR. Bharuch has the second lowest CBR and Ahmedabad the third lowest. Thus, birth rates

are not related to level of economic development in the districts. But in all tribal dominated or tribal majority districts high CBR is reported.

The CDRs of the civil registration system are shown in Table 5.4. Registration is better in urbanized districts and hence CDRs are highest in Ahmedabad, Vadodara, and Kheda districts. Amreli, Sabarkantha, and Panchmahals have lowest CDRs. This may not mean that they indeed have such low CDRs. At least, not all these three districts have low IMR. Panchmahals has high IMR of 79 but Amreli has low IMR of 64. Mehsana (89), Dangs (87), Banaskantha (85), and Kheda (84) have high IMRs. Dangs is a tribal district. Banaskantha is an environmentally degraded district. But,

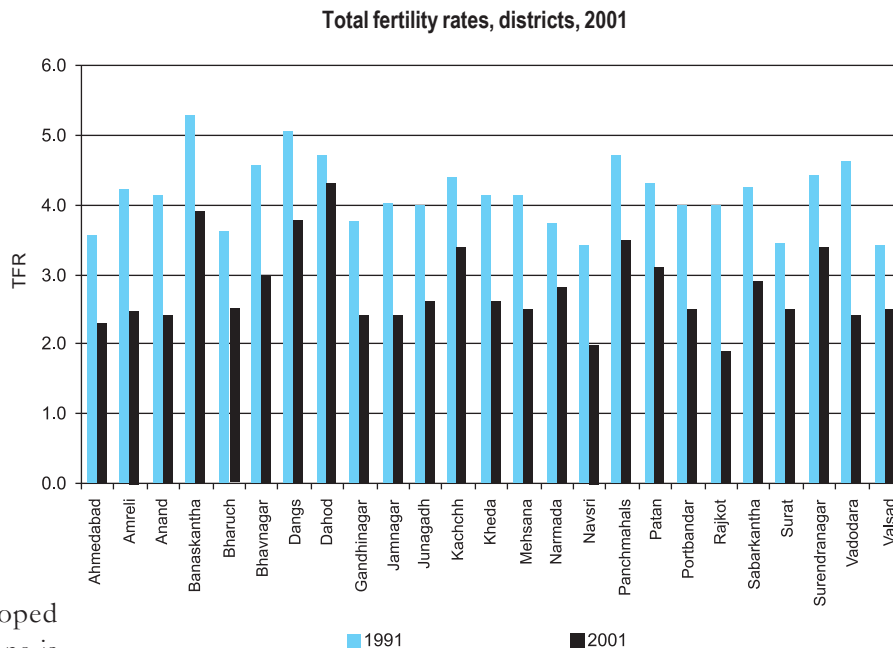
Kheda and Mehsana are agriculturally developed and prosperous districts. Bharuch (49), Jamnagar (51), Vadodara (51), Bhavnagar (54) and Rajkot (54) have lowest IMRs. Ahmedabad and Gandhinagar, the most developed districts, do not have low IMRs. Districts with lowest IMRs are the ones in the Saurashtra region.

With regard to under-five mortality, Mehsana (122) is the worst, followed by Kheda (117), Banaskantha (116), Dangs (112), and Panchmahals (111). Districts that have high IMR as well as high under-five mortality are common. Among the five worst districts, two are agriculturally developed districts, two are tribal districts, and one is an environmentally stressed district. The best ones are those in Saurashtra. It is necessary, therefore, to study in greater depth the causes of such a regional pattern.

In 1991, highest TFR was reported in Banaskantha (5.29); followed by Dangs (5.04), Panchmahals (4.70), Vadodara (4.61) and Bhavnagar (4.56). The best districts are Valsad (3.43), Surat (3.45), Ahmedabad (3.55), Bharuch (3.63), and Gandhinagar (3.76). In 2001, however, these figures are much lower (Fig 5.1)

Dahod, Banaskantha, Dangs, Panchmahals, and Surendranagar reported high TFR in 2001. Kheda, Mehsana and Vadodara, which reported high TFR in 1991, witnessed a high decline in the fertility rates during the decade. In other words, the tribal districts and environmentally degraded districts continue to report high TFR, which explains the high population growth rate recorded in these districts in the 1990s. For population stabilization, therefore, specific focus on tribal and environmentally degraded regions is necessary. Why these districts and regions have poor vital statistics and high fertility rates is an issue that needs a careful study.

Figure 5.1



### Morbidity

Data on morbidity pose problems of interpretation. High morbidity rates can be because of better reporting of illness by literate and aware population or because of high prevalence of diseases. With decline in mortality, sickness prevalence rates go up, as observed in a study of four developed countries - USA, United Kingdom, Japan, and Germany (Riley 1990). Scholars have argued that high morbidity rates in Kerala are a result of decline in mortality rates (Rajan and James 1993). Further, with an increase in the level of development, prevalence of communicable diseases comes down and that of chronic illnesses goes up. In Gujarat, a study by the National Council of Applied Economic Research (NCAER) in the early 1990s found the contrary; the prevalence rates of serious communicable diseases were higher and that of chronic diseases were lower than the respective rates for rural and urban areas in India as a whole (Table 5.5).

Prevalence rates of a few specific diseases are available from NFHS-1 and NFHS-2 data (Table 5.6 & 5.7). NFHS-1 collected limited

*For population stabilization, therefore, specific focus on tribal and environmentally degraded regions is necessary*



TABLE 5.5

**Morbidity in Gujarat**

Morbidity Indicators	Gujarat	India
<i>Morbidity rate per '000 population (rural)</i>		
- Total	75.8	106.7
- Male	71.6	105.5
- Female	80.8	108.1
<i>Morbidity rate per '000 population (urban)</i>		
- Total	84.3	103.0
- Male	95.0	98.2
- Female	74.5	108.4
<i>Prevalence of illness by type</i>		
Rural - Serious communicable diseases	21.0	15.6
- Acute illness	49.6	77.9
- Chronic illness	5.2	13.2
Urban - Serious communicable diseases	18.8	14.0
- Acute illness	52.8	70.6
- Chronic illness	12.7	18.4

Notes: Reference period is one year. All India figures include State/Union Territories of Goa, Meghalaya, Pondicherry, Chandigarh and Delhi Rural.  
Source: Based on Sundar (1995).

data on five morbidity conditions: partial and complete blindness, tuberculosis, leprosy, physical impairment of limbs and malaria. NFHS-1 data showed higher prevalence rates for all diseases, except physical impairment of limbs in rural areas as compared to urban areas, for all age groups and for both males and females. The incidence of physical impairment of limbs is higher in urban areas than rural areas because of its incidence in age 60+ in the former. NFHS-1 data also showed that the morbidity rates increased with age and were higher among females than males. Of particular concern is that 7 out of 1,000 children in urban areas and 10 out of 1,000 children in rural areas suffered from partial or complete blindness, caused by Vitamin A deficiency.

TABLE 5.6

**Prevalence rates of specific health problems, Gujarat, NFHS-1**

		Persons per 1,000 population suffering from					
		Blindness		Tuberculosis	Leprosy	Physical impairment of limbs	Malaria during last 3 months
		Partial	Complete				
<i>Urban</i>							
Age	0-14	1.7	5.6	0.4	-	3.8	30.4
	15-59	12.8	3.5	2.1	-	4.6	25.5
	60+	201.5	17.3	1.9	-	15.4	15.4
Sex	Male	20.5	5.6	2.1	-	4.8	22.9
	Female	25.4	4.7	0.9	-	5.6	30.1
Total		22.9	5.2	1.5	-	5.2	26.4
<i>Rural</i>							
Age	0-14	3.3	6.3	0.4	-	5.0	32.1
	15-59	19.5	1.0	5.4	0.4	4.8	34.5
	60+	235.5	16.6	8.3	2.8	12.9	56.3
Sex	Male	28.2	4.5	5.3	0.3	6.6	36.7
	Female	33.8	3.7	2.4	0.6	4.3	34.0
Total		31.0	4.1	3.9	0.4	5.5	35.4
<i>All Areas</i>							
Age	0-14	2.8	6.0	0.4	-	4.6	31.5
	15-59	17.1	1.9	4.2	0.2	4.7	31.3
	60+	224.4	16.8	6.2	1.9	13.7	43.0
Sex	Male	25.5	4.9	4.2	0.2	6.0	31.9
	Female	31.0	4.1	1.9	0.4	4.8	32.7
Total		28.2	4.5	3.1	0.3	5.4	32.3

Note: Denotes less than .05 per 1000 population.  
Source: PRC and IIPS (1993), Table 8.1, p. 126.

TABLE 5.7

## Prevalence rates of specific health problems, Gujarat, NFHS-2

Demographic Characteristic	Persons per 1,000 population suffering from					
	Asthma	Tuberculosis*	Medically treated tuberculosis	Jaundice during past 12 months	Malaria during past 3 months	
<i>Urban</i>						
Age	< 15	3.66	0.82	0.82	17.20	32.29
	15-59	12.56	3.43	3.05	9.56	34.11
	60+	58.27	5.31	3.56	3.54	37.14
Sex	Male	11.84	2.81	2.57	13.11	34.09
	Female	14.34	2.77	2.26	9.58	33.44
Total		13.04	2.79	2.42	11.41	33.78
<i>Rural</i>						
Age	< 15	4.27	0.50	0.50	10.82	40.65
	15-59	24.28	7.74	6.39	10.91	53.26
	60+	112.45	10.73	6.40	10.82	91.15
Sex	Male	25.18	7.55	6.03	12.16	45.54
	Female	23.82	3.35	2.64	9.52	58.75
Total		24.51	5.50	4.38	10.87	51.99
<i>All Areas</i>						
Age	< 15	4.04	0.62	0.62	13.23	37.49
	15-59	19.18	5.87	4.94	10.32	44.94
	60+	92.21	8.71	5.34	8.10	70.98
Sex	Male	19.64	5.58	4.59	12.55	40.79
	Female	19.95	3.11	2.49	9.55	48.42
Total		19.79	4.38	3.57	11.09	44.49

\* Includes medically treated tuberculosis.

Source: Based on IIPS and MEASURE DHS+ (2001), p. 128.

NFHS-2 collected data on two more diseases, asthma and jaundice, and discontinued data collection on blindness and physical impairment of limbs. It also collected data on medically treated tuberculosis of the total incidence of tuberculosis. These data also show that except for jaundice, the incidence of other diseases is higher in rural areas for all the age groups. Further, incidence of different diseases, except tuberculosis, is higher among females than males. The prevalence rates of asthma and tuberculosis are almost double in rural areas compared to urban areas. But, medical treatment of tuberculosis is higher in urban areas and hence the gap between prevalence of tuberculosis and prevalence of medical treatment of tuberculosis is higher in rural areas than urban areas. Of the reported (diagnosed) tuberculosis cases, 86.7 per cent are medically treated in urban

areas as against 79.6 per cent for rural areas. While all reported cases of tuberculosis among children are treated, only about 61.3 per cent cases (67.0 per cent in urban areas and 59.6 per cent in rural areas) are treated in the case of the age group 60+ years. There is slightly higher proportion of treatment of reported tuberculosis cases among males (82.3 per cent on the whole, 91.5 per cent in urban and 79.9 per cent in rural areas) than females (80.1 per cent on the whole, 81.6 per cent in urban and 78.8 per cent in rural areas).

The prevalence rate of jaundice is nearly the same across all age groups in rural areas but in urban areas the prevalence rate among children is much higher than in other age groups, a major public health and hygiene concern. Prevalence of malaria and tuberculosis has increased in the state between

Figure 5.2

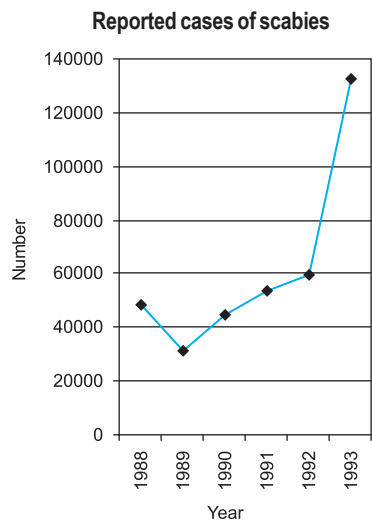


Figure 5.3

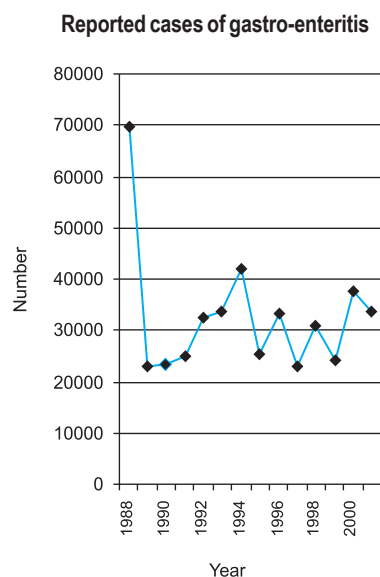
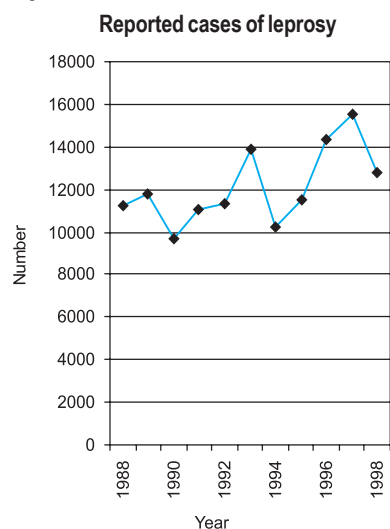


Figure 5.4



NFHS-1 and NFHS-2. For example, the prevalence rate of malaria has increased from 32.3 per 1,000 in NFHS-1, to 44.5 per 1,000 in NFHS-2, an increase of 37 per cent. The increase is 48 per cent for women and 28 per cent for men. In the case of children (age <15 years) the prevalence rate has increased by 19 per cent. The prevalence rates show much higher increase in rural areas - 47 per cent for men and 73 per cent for women.

Prevalence rate of tuberculosis has increased from 3.1 to 4.38 between the NFHS-1 and NFHS-2. The corresponding rates for women and children are 1.9 and 2.49 (for women) and 0.40 and 0.62 (for children). Clearly, the increase has been significant! The increase has been much higher for tuberculosis than for malaria. Tuberculosis is a respiratory disease caused by air pollution and malnourishment. Hence, although the prevalence rate of tuberculosis remains higher in rural areas as compared to urban areas, the latter areas have witnessed much higher increase in the prevalence rate between early and late 1990s. Of great concern is the high increase in prevalence of tuberculosis among children and the elderly (60+) and females in urban areas. These data on tuberculosis, however, need to be taken with care as there will be some under-reporting because of the stigma attached to the disease on the one hand and higher reporting due to mistaking of other diseases as tuberculosis owing to similar symptoms on the other. The increased incidence of the disease in the state reflects on both state of air quality and state of nutrition of the population.

Prevalence of blindness due to vitamin A deficiency and prevalence of goitre owing to iodine deficiency are observed to be high in Gujarat. According to the National Goitre Control Programme, now called the Iodine Deficiency Disorder Control Programme, Gujarat forms part of the endemic goitre belt (National Foundation of India 1983, as quoted by Ali 1992). Prevalence of blindness due to Vitamin A deficiency is the highest in Gujarat among all the states in India as per the NFHS-1 data (based on PRC and IIPS 1994). As per the NFHS-2 data, Gujarat comes in bottom five (at 12<sup>th</sup> position) among the 15 large states in India with regards to prevalence of malaria (See Annexures at the end of the report). This is true for both rural and urban areas. In the case of jaundice and tuberculosis, the state comes in the middle five, for jaundice it is placed 7<sup>th</sup> and for tuberculosis it is at 6<sup>th</sup> position. The State is at the 7<sup>th</sup> position with regard to prevalence of medically treated tuberculosis. For asthma and tuberculosis, Gujarat's rural areas rank 7<sup>th</sup> and 8<sup>th</sup> among 15 major states (see Annexures).

According to the data on diseases collected by the Health Commissionerate (Table 5.8), malaria is the most widely prevalent disease in Gujarat. Its incidence is high in tribal districts. The second most prevalent disease is tuberculosis. Scabies too was widely prevalent. But, reporting on scabies has stopped since 1994 (Fig 5.2). Scabies, which is a result of water scarcity, is a communicable disease, spreads rapidly in drought prone regions. Incidence of tuberculosis and scabies has increased since 1989. In 1992, incidence of scabies increased significantly and that of malaria declined. Cases operated for cataract too are on the increase. Incidence of malaria has come down significantly over last 15-year period (Fig 5.5). Incidence of gastro-enteritis has also come down over time (Fig 5.3), while that of leprosy has increased (Fig 5.4). Incidence of tuberculo-

sis has increased over time (Fig 5.6) but it is difficult to say whether that is because of better detection or higher incidence. Since, the Health Commissionerate collects data on incidence of diseases to set targets for treating them, it is possible that higher cases reported means that the health department is able to detect and treat more cases.

According to the 2001 Census, 70.15 per cent of total households in Gujarat (89.34 in rural areas and 40.10 in urban areas), use biomass and kerosene for domestic use. Indoor pollution levels are high in households using biofuels and coal. A study carried out in an industrial area of Ahmedabad showed that among households using cattle dung, the indoor levels of TSP, CO, HCHO, NO and SO<sub>2</sub> were higher by a factor of 6, 10, 10, 3 and 3 respectively. Among the biofuels used in these households, cattle dung is the most polluting fuel (Table 5.9). A medical check-up of the women in the age group 12 - 60 years was carried out to assess their pulmonary function tests (PFT's) like vital capacity (VC), forced vital capacity (FVC), peak expiratory flow rate (PEFR) two hours after cooking. In the households using the traditional fuels, values of the pulmonary function tests, were lower than in households using modern fuels. This means that the pulmonary functions deteriorated when the households used polluting fuels. As a result, prevalence of respiratory complaints (common cold, cough, breathlessness etc.) was

higher in households using traditional fuels. Even in the age group of less than 20 years, the prevalence rate of respiratory complaints in households using traditional fuels was higher by a factor of 3.3 than those using modern fuels. In the age group of 60 years and above, this factor was 3.7 (Patel and Raiyani, 1997, 79-80).

### Morbidity – by Districts

Morbidity data for districts should be interpreted keeping in mind that these are only reported figures (Table 5.10). Surat had a very high morbidity rate (of 123.60) in the early 1990s, followed by Panchmahals with a morbidity rate of 97.85 and Dangs with morbidity rate of 83.77 per 1000 population. The lowest morbidity rate was in Mehsana (20.12 per 1000 population), followed by Jamnagar (20.97 per 1000 population) and Bhavnagar (22.00). Banaskantha too has low morbidity rate. Some of the districts that had high infant and child mortality rates in 1991 had low morbidity rate in the early 1990s. But those

Figure 5.5

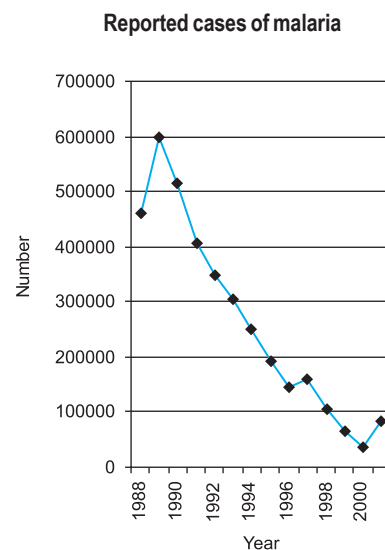


Figure 5.6

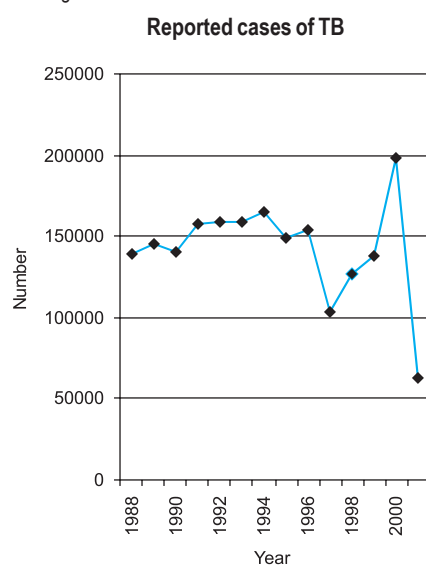


TABLE 5.8

### Reported cases of different diseases over time, Gujarat

Disease	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Gastro-enteritis	69615	23096	23413	25071	32389	33600	42035	25164	33173	23081	30966	24067	37481	33858
Scabies	48127	30944	44843	53548	59675	132789	-	-	-	-	-	-	-	-
TB	139435	145272	139863	157303	158928	159471	165254	149376	153872	103621	126769	137494	197910	62779
Cataract	83425	93793	94001	112239	124898	153255	187332	229596	248681	274243	291030	-	-	-
Hepatitis	7793	11939	8095	6817	4407	8825	7701	4780	6282	5824	5523	-	-	-
Leprosy	11249	11782	9697	11082	11338	13911	10278	11514	14303	15567	12778	-	-	-
Malaria	460683	598653	515926	404735	348532	304109	248624	191028	143817	159652	106825	64130	36712	84131
Cholera	1207	274	144	107	246	265	572	65	200	49	121	81	181	118

Source: Commissionerate of Health, Medical Services and Medical Education (1994, 1996, 2002) & data from Commissionerate of Health and Medical Services (Health).

TABLE 5.9

**Mean values of pollutants**

Types of Fuel	TSP (mg/m <sup>3</sup> )	CO (mg/m <sup>3</sup> )	HCHO (µg/m <sup>3</sup> )	NO <sub>2</sub> (µg/m <sup>3</sup> )	SO <sub>2</sub> (µg/m <sup>3</sup> )
Cattle Dung	2.75	144	670	319	159
Wood	1.98	156	652	325	155
Coal	1.10	94	109	147	185
Kerosene	0.46	108	112	133	87
LPG	0.46	14	68	124	51

Source: Patel and Raiyani (1997), 74.

Note: TSP - Total Suspended Particulate; CO - Carbon Monoxide; HCHO - Formaldehyde; NO<sub>2</sub> - Nitrogen Dioxide; SO<sub>2</sub> - Sulphur Dioxide.

that had low infant and child mortality rates, mainly the districts of Saurashtra, had low morbidity rates. High morbidity rate in Surat district could be because of Surat city, which has rapidly industrialized and witnessed very high population growth rate in the 1980s and 1990s. Suspected plague hit the city in early 1995. The city has improved its environmental conditions, which could have led to lowering of morbidity rates in the

city and the district. However, more recent data was not available.

**Causes of Death**

More than 25 per cent of deaths in rural areas of Gujarat is caused by respiratory diseases. The percentage is more or less the same in India (Table 5.11). Senility is another major cause of death in Gujarat and India and afflicts persons aged 60 years and above. Its share went up to 37 per cent in 1994, after which it has come down to 17 per cent. Fevers, which include malaria and typhoid, contributed about 7 per cent of total deaths in the early 1990s but this had come down to 4 per cent towards the end of the decade. Deaths from disorders of the circulatory system, such as heart attack, have increased in Gujarat from 10 per cent in the early 1990s to 13 per cent in the late 1990s. Other diseases of affluence such as diabetes which have clear symptoms, do not contribute as much to deaths in the state.

**Nutrition****Nutrition-related diseases**

Gujarat is part of the endemic goitre belt in India (Nutrition Foundation of India 1983, as quoted in Ali 1992). Goitre arises from iodine deficiency and affects mainly infants, pre-school children, the girls, pregnant and lactating mothers, landless labourers, urban slum dwellers, and tribal communities. The NFHS-2 survey found that 56 per cent of households in Gujarat were using iodized cooking salt at the recommended level of 15 ppm (parts per million) or more, but according the latest data (1994), about 30 per cent did not use iodized salt at all, and 14 per cent used inadequately iodized salt. The use of iodized salt is relatively low in scheduled caste

TABLE 5.10

**Morbidity rates, districts**

District	Morbidity per 1000 population (1992-94)
Ahmedabad	28.63
Amreli	40.90
Banaskantha	31.00
Bharuch	67.14
Bhavnagar	22.00
Dangs	83.77
Gandhinagar	33.52
Jamnagar	20.97
Junagadh	39.69
Kachchh	61.34
Kheda	68.55
Mehsana	20.12
Panchmahals	97.85
Rajkot	52.29
Sabarkantha	34.88
Surat	123.60
Surendranagar	48.29
Vadodara	54.87
Valsad	40.39
GUJARAT	55.00

Source: Commissionerate of Health, Medical Services and Medical Education (1994).

TABLE 5.11

**Distribution of deaths by major cause-groups, Gujarat and India**

Causes	India		Gujarat**									
	1990*	1993*	1987	1990	1991	1992	1993	1994	1995	1996	1997	1998@
Coughs (Disorders of respiratory system)	18.8	19.2	23.8	19.3	20.4	21.6	19.7	19.4	19.9	23.0	27.4	27.1
Disorders of circulatory systems	11.1	10.6	11.2	9.8	8.3	9.0	10.7	9.2	10.8	10.4	13.9	13.3
Digestive disorders	6.2	6.8	4.4	3.5	3.0	2.0	2.1	3.0	3.8	4.5	3.9	4.0
Fevers	7.3	6.7	8.2	8.7	6.7	6.3	5.2	5.8	3.6	4.4	4.4	4.0
Other clear symptoms	8.5	8.9	11.1	7.9	10.1	8.0	8.6	9.3	10.1	9.6	12.2	12.6
Causes peculiar to infancy	9.8	11.0	9.8	8.9	9.1	7.7	7.3	9.1	11.6	9.4	8.9	8.1
Childbirth and pregnancy	1.0	1.3	0.8	0.9	0.9	0.4	1.0	0.6	0.4	0.6	0.4	0.2
Senility	24.4	22.9	21.5	29.9	29.5	33.5	34.2	36.6	26.7	25.0	15.6	16.8
Disorders of central nervous system	4.3	4.2	3.8	3.4	4.4	3.6	3.1	3.2	2.7	3.4	4.3	4.4
Accidents and Injuries	8.5	8.4	5.4	7.7	7.6	7.9	8.1	7.8	10.4	9.7	9.0	9.5
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Source: \* Rajan and James (1993), based on Government of India, 1990, p. 1889.

\*\* Based on data from Commissionerate of Health Medical Services (Health). This data is for rural areas.

@ Commissionerate of Health, Medical Services and Medical Education (2002), pp. 50-51.

households (30 per cent), scheduled tribe households (54 per cent), and other backward caste households (IIPS and MEASURES DHS+ 2001:173-4). This explains why tribal areas form a part of the endemic goitre belt of the country.

### Nutritional status of children

Though comprehensive data are not available for all diseases of malnutrition in Gujarat, some data are available on the extent of malnutrition among women and children. A state government document shows that more than 60 per cent of children under the age of 5 are either moderately or severely malnourished (Table 5.12).

About half of them are in the moderate category and 12 per cent are severely malnourished. The proportion of malnourished children, as per the same document, is higher in Gujarat than in India. Also, severe malnourishment is higher among girls than boys. It is to be noted that the ICDS programme has reduced malnourishment among under 5 children to 4-6 per cent in the severe category and 25-30 per cent in moderate category.

Malnourishment is reflected in three anthropometric indices, which are expressed in standard deviation (SD) units from the reference median. Children more than two SDs below the reference median on any

TABLE 5.12

**Proportion of malnourished children (1-5 years), Gujarat and India**

	Moderate				Severe			
	Gujarat		India		Gujarat		India	
	1994*	1998-99**	1994*	1998-99**	1994*	1998-99**	1994*	1998-99**
Total	50.8	25.1	45.1	N.A.	11.9	1.3	11.1	N.A.
Boys	54.8	23.6	45.6	N.A.	9.6	1.0	11.6	N.A.
Girls	45.7	26.7	44.6	N.A.	14.7	1.7	10.2	N.A.

Source: \* Government of Gujarat (1994).

\*\* Data from Commissionerate of Health and Medical Services (Health).

N.A. Not available.

TABLE 5.13

**Nutritional status of children by background characteristics, NHFS-2**

	Weight-for-age		Height-for-age		Weight-for-height	
	% below -3SD	% below -2SD	% below -3SD	% below -2SD	% below -3SD	% below -2SD
Urban	9.4	38.1		38.5	2.1	11.3
Rural	20.2	49.3	26.0	46.7	2.6	19.2
Male	14.7	40.3	20.6	42.0	2.4	13.9
Female	17.7	50.0	26.1	45.3	2.4	18.6
Scheduled Caste	17.7	45.4	29.0	48.9	3.1	12.3
Scheduled Tribe	24.1	56.6	29.2	46.9	3.4	21.7
OBC	18.8	49.0	26.4	46.5	2.5	18.8
Illiterate mother	25.9	57.0	34.1	55.9	3.7	20.1
Total	16.2	45.1	23.3	43.6	2.4	16.2

Source: IIPS and MEASURES DHS+ (2001):170.

*Poor nutritional status is more among the rural population than the urban population, among female children than male children, among children whose mothers are illiterate and among ST and SC households*

of the indices are considered to be *undernourished* and children who fall more than three SDs below the reference median are considered to be *severely undernourished*. The reference median is based on the International Reference Population.

NFHS-1 and NFHS-2 both computed these indices for children under 3 years of age. NFHS-2 data are presented here (Table 5.13). Weight-for-age is a composite measure that takes into account both chronic and acute under-nutrition. Children who are more than two SDs below the reference median on this index are considered to be underweight. About 45 per cent of children in the state are *underweight*, and of these 16 per cent are severely underweight. Percentages for female children are 50 and 18 and for rural population 49 and 20 respectively. The height-for-age index measures linear growth retardation. Children more than two SDs below the median of the reference population are considered short for their age or *stunted*. In Gujarat, 44 per cent of children under 3 years of age are stunted, and 23 per cent are severely stunted. The weight-for-height index examines body mass in relation to body length. Children who are two SDs below the median are considered too thin or *wasted*. About 16 per cent of children under 3 years of age are

wasted in Gujarat and in them 2 per cent are severely wasted.

Poor nutritional status is more among the rural population than the urban population, among female children than male children, among children whose mothers are illiterate and among ST and SC households. On the whole, the extent of undernourishment among children aged 3 years and below is quite high in Gujarat. NFHS-2 notes that there is hardly any change between NFHS-1 and NFHS-2 with regard to the extent of underweight and severely underweight, stunting and severe stunting (IIPS and MEASURES DHS+ 2001:168). What has declined is prevalence of wasting and severe wasting among children.

In inter-state comparison, Gujarat's position among the 15 large states with regard to nutrition status is in the middle (see Annexures). The state ranks eighth in undernourishment, seventh in severe undernourishment, eighth in stunting, and ninth in severe stunting. Even in the case of wasting and severe wasting, the state is placed at ninth and eighth positions respectively in spite of an improvement in NHFS-2 compared to NFHS-1 (also see Box 5.3).

About 75 per cent of children in the age group 6-35 months have anaemia; 7 per cent

of the children in this age group are severely anaemic (< 7.0 grams/decilitre), 44 per cent are moderately anaemic (7.0-9.9 g/dl), and 24 per cent are mildly anaemic (10.0-10.9 g/dl). Among the 15 large states, Gujarat is placed eighth with regard to presence of any anaemia among children in this age group. States in South India, West Bengal, and Punjab are doing better than Gujarat and there is a need for improvement here.

### Nutritional status of women

Nutritional status of women is measured by the weight and height of women. The cut-off point for height, below which a woman can be identified as nutritionally at risk, varies among population, but it is usually considered to be in the range of 140-150 cm (IIPS and MEASURES DHS+ 2001:155). In Gujarat, the mean height of women is 152 cm, which is in the acceptable range, just 10 per cent of women are under 145 cm. Another measure relating a woman's weight to her height the Body Mass Index (BMI) and which can be used to assess thinness as well as obesity. BMI is defined as weight in kilograms divided by height in meters squared (kg/m<sup>2</sup>). The index excludes pregnant women and those who have given birth during the last two months preceding the survey. The mean BMI for women in Gujarat is 20.7 (Table 5.14), which is above the norm of 18.5. BMI below 18.5 is called a situation of chronic energy deficiency. In Gujarat, 37 per cent of women have a BMI below 18.5. Among SC women, 55 per cent and among rural women 48 per cent are severely undernourished, having BMI less than 18.5.

The third indicator of nutrition is the extent of anaemia among ever-married women in the age group 15-49 years. The NFHS-2 shows that 46 per cent women in the state had any anaemia, but just 2.5 per cent of women were severely anaemic

### BOX 5.3

#### Nutrition goals in Gujarat

- ◆ To reduce malnutrition of all types, including underweight and micro-nutrient deficiencies amongst children, adolescent girls and women in child bearing age.
- ◆ To provide the conceptual framework and broad guidelines for the population with particular emphasis on pregnant and lactating women, children and adolescents, through appropriate programmatic changes in existing programmes as well as new initiatives
- ◆ To improve the capacity of communities, families and individuals to understand their own nutrition problems in terms of practical actions and address them at their own level through appropriate behaviour and action.
- ◆ To sensitise and involve government departments, NGOs and academic institutions in operational issues related to malnutrition and define their specific roles.
- ◆ To reduce the incidence of low birth weight (2.5 Kg or less) from the existing 30% (estimated) to less than 10% by 2000.
- ◆ To eliminate Iodine Deficiency Disorders (IDD).
- ◆ Reduction of iron deficiency anaemia in pregnant and lactating women from existing 50% (estimated) to less than 10% by 2000.
- ◆ Virtual elimination of blindness due to Vitamin A deficiency among children 0-5 years of age by 2000.
- ◆ Promoting the practice of exclusive breast feeding for infants upto 4 to 5 months after birth.

Source: Commissionerate of Health and Medical Services (Health) 1994.

(< 7.0 g/dl). Another 14.4 per cent were moderately anaemic (7.0-9.9 g/dl) and 29.5 per cent were mildly anaemic (10.0-10.9 g/dl for pregnant women and 10.0-11.9 g/dl for non-pregnant women) (Table 5.15). Gujarat is fourth among the 15 large states with respect to percentage of women with any anaemia. But it is placed thirteenth with regard to percentage women with severe anaemia and sixth with regard to percentage of women with moderate anaemia (see Annexures).

TABLE 5.14

Nutritional status of women, Gujarat, NFHS-2

	Height		Weight-for-height*	
	Mean height in cm	% below 145 cm	Mean body mass index (BMI)	% with BMI Below 18.5 kg/m <sup>2</sup>
Urban	151.9	10.3	22.5	22.8
Rural	151.8	10.0	19.4	47.7
Illiterate	151.2	12.4	19.5	47.9
Scheduled Caste	150.8	13.2	19.7	45.0
Scheduled Tribe	150.9	12.9	19.0	55.0
OBC	151.5	11.2	20.3	40.4
Total	151.8	10.2	20.7	37.0

Source: IIPS and MEASURES DHS+ (2001): 156.



TABLE 5.15

**Anaemia among women, Gujarat, NFHS-2**

	Percentage of women with anaemia	Percentage of women with		
		mild anaemia	moderate anaemia	severe anaemia
Urban	39.5	26.9	11.0	1.7
Rural	51.3	31.4	16.8	3.1
Illiterate	50.9	31.1	16.6	3.2
Scheduled Caste	48.4	33.0	11.8	3.6
Scheduled Tribe	55.5	34.0	18.6	3.0
OBC	45.0	26.7	15.1	3.2
Gujarat	46.3	29.5	14.4	2.5

Source: IIPS and MEASURES DHS+ (2001): 158-9.

The common diseases of malnutrition which need to be monitored are anaemia, goitre, nutritional blindness, cataract, tuberculosis, stunted physical and mental growth, disability, etc. Some of these are monitored in the state. It is worth noting that the state has done well in terms of achieving the targets of nutrition programmes (Table 5.16). For example, the target achievement for Vitamin A for children is between 72 per cent and 96 per cent during 1994-95 to 2001-02 and nearly 100 percent targets are achieved in the Special Nutrition Programme.

**Nutrition by Regions**

Eleven districts of the state have endemic prevalence of goitre arising from iodine deficiency (Table 5.17). However, no district

in the state is free from Iodine Deficiency Disorder (IDD). Three districts out of the eleven surveyed by the health department - the Dangs, Valsad and Bharuch - have severe IDD. Tribal areas, therefore, are more prone to prevalence of IDD than other areas (also see Box 5.4).

**Sanitation**

The census of India has brought out two publications in 1981 and 1991 on housing, electricity and toilet facilities.

While the 1981 report provides information for urban areas, the 1991 report is for both urban and rural areas. According to the census findings, only 23.55 per cent of households in rural and urban areas combined had toilet facilities in 1991. In rural areas only 9.48 per cent of households had toilet facilities in 1991.

The results of the NSS 1989 survey indicated that around 11 per cent of rural households had access to latrines while according to the reports available with the government; the sanitation coverage through official programmes was not more than 3 per cent. This 8 per cent difference could be attributed to households constructing latrines on their own without any subsidy. After account-

TABLE 5.16

**Targets achieved in the nutrition programmes, Gujarat**

Percentage target achieved for	1994-95	1995-96	1996-97	1997-98	1998-99	1999-00	2000-01	2001-02
Vitamin A first dose to children	95.89	87.43	79.53	79.00	72.08	84.37	89.98	81.04
Vitamin A second dose to children	84.65	78.00	69.57	72.99	83.66	84.84	86.44	89.60
ICDS program	89.46	88.85	88.39	89.36	97.48	105.82	87.95	91.45
Special nutrition program	94.57	77.55	77.79	77.21	103.27	103.75	95.03	99.96
Wheat based nutrition program*	119.79	107.94	105.46	97.38	86.48	88.74	86.19	-

\* This program is being run only in Sabarkantha and Kheda districts.

Source: Data from Commissionerate of Health and Medical Services and Medical Education (1994, 2002).

ing for non-government and private initiatives, the total coverage as on date is 18.4 per cent in rural areas, with 81.60 per cent of the Indian population remaining uncovered. Moreover, according to the Planning Commission, 20 per cent latrines are connected to sewers, 14 per cent connected to septic tanks, and 33 per cent are dry latrines. UNFPA estimates (1995) set rural sanitation coverage in Gujarat at 10 per cent and urban coverage at 66 per cent, corresponding closely to national figures. The NSS survey in 1998 raised these Gujarat estimates to 20 per cent and 79 per cent respectively. The GIDB in its Vision 2010 for the social sector sets a target of 80 per cent coverage within the next decade, or reaching almost 51 lakh families from a coverage of some 8 lakh families in 2000 (National Institute of Design 2000).

Households having toilet facilities in urban areas formed 60.11 per cent and 65.71 per cent for 1981 and 1991 respectively. According to GIDB (GIDB 1999), 23 per cent of towns in 25 districts of the state have been covered under this facility.

Mahadevia and Sarkar (2003), using NSS data, observe that in 1998 (NSS 54<sup>th</sup> Round which was on facilities), 17.4 per cent of households in urban areas in the state had no access to drainage facility, while this figure for all India was 20.6 per cent. Also 58.1 per cent of the households had connection to *pucca* covered drains, as against just 31.2 per cent at all India level. According to this data, 21.1 per cent of households did not have latrine facilities in urban Gujarat whereas this figure for all India was 25.5 per cent. Thus, 78.9 per cent of households in urban Gujarat had access to latrines in 1998. Of these, 73.8 per cent of households had individual access and 89 per cent households had latrines

TABLE 5.17  
**Regions of iodine deficiency**

District	1994		1996 Resurvey***	
	TGR * (%)	IDD Status **	TGR * (%)	IDD Status **
Dangs	44.00	Severe	R.N.R.	-
Valsad	36.59	Severe	R.N.R.	-
Bharuch	31.70	Severe	R.N.R.	-
Sabarkantha	25.80	Moderate	R.N.R.	-
Surat	22.70	Moderate	R.N.R.	-
Panchmahals	22.40	Moderate	7.18	Moderate
Vadodara	16.83	Mild	3.76	Mild
Amreli	14.00	Mild	R.N.R.	-
Mehsana	7.40	Mild	2.19	Mild
Kheda	6.49	Mild	6.49	Mild
Ahmedabad	7.84	Mild	3.43	Mild
Surendranagar	5.88	Mild	R.N.R.	-

\* TGR is the Total Goitre Rate, which is the rate of goitre prevalence among school - age children

\*\* IDD status classification  
- Mild IDD - TGR range 5% - 19.9%  
- Moderate IDD - TGR range 20% - 29.9%  
- Severe IDD - TGR range > 30%

\*\*\* Resurvey in 1996

R.N.R Report not received

Source: Government of Gujarat (1994) & Commissionerate of Health and Medical Services (Health) (1994).

within premises. In 1993 (49<sup>th</sup> NSS Round), households in urban Gujarat not having access to latrine facility formed 27.4 per cent. Thus, there is a 10-percentage point improvement in the five year period (1993-98). Since, 37 per cent of the state's population is living in urban areas, improvement in urban sanitation is important and achievements here are noteworthy.

#### BOX 5.4

#### Bent under the burden of fluorosis

About 20 to 25 villages in Lathi and Lilya talukas of Amreli district have a high rate of fluorosis among the inhabitants. Affliction with fluorosis is because of high fluoride content in the water. This has caused physical deformities among the people. In extreme cases, the upper portion of the body is permanently bent from the waist. Hunchbacks are a common sight in these villages. This disease causes extreme pain in the joints. The disease starts by affecting the teeth, which turn yellow, then it causes pain joints and then the deformities start, leading to the severe condition of hunchback position (Gujarat Age of *Asian Age*, May 18, 2003).

The disease is irreversible and hence prevention is necessary. Prevention req-

uires information, education and communication. The health department does not yet address this health burden which is increasing in other parts of the state also, such as Mehsana district. Excessive fluoride content in the water is a problem caused by decline in ground-water tables. The health department might consider it to be a problem to be addressed by the water supply department, which indeed is responsible for provision of drinking water. However, there are methods available for treating fluoride rich water and this can become the responsibility of the health department. In any case, this increasing problem cannot be left unattended.

## Gokul Gram Yojana

Realizing the importance of sanitation, the Government of Gujarat has introduced the Gokul Gram Yojna, under which individual latrines are constructed in Gokul Grams (villages). The programme is implemented by the rural development department, through the Gujarat Gram Vikas agency, which in turn has appointed five nodal agencies, one of which is to execute this work with the help of NGOs working in rural areas. The government provides a subsidy of Rs. 1,500 to each family belonging to SC, ST, and handicapped categories and Rs. 1,200 to each family belonging to other categories under this programme.

## Community Rural Sanitation Programme (CRSP)

Gujarat has implemented a low-cost sanitation programme in urban centres beginning in 1986 with World Bank assistance. This has been extended to rural areas as well. The results of this programme have been encouraging. Construction of low-cost latrines in rural areas has been taken up under the Minimum Needs Programme (MNP) since 1993. GWSSB implements this programme and has constructed 247,828 low-cost latrines till March 1998. Out of these, 64,039 latrines have been constructed in urban areas and 183,789 latrines in rural areas, which include 82,111 latrines under CRSP. Year-wise physical and financial details are given in Table 5.18.

The rural sanitation programme started in 1989. The programme was purely need-based. Although the actual cost of construction was higher than the subsidy provided to the beneficiary, people came forward to adopt this technology, which is clear from the achievements during these years. In 1980-90 only 11,000 latrines had been constructed. The number reached 26,758 by 1997-98 (NID 2000). This showed the acceptance of the programme in rural areas. The central and state governments have encouraged this programme with adequate funds for implementation.

According to the latest data (Census of Population 2001), only 21 percent of rural households and 82 percent of urban households have an access to sanitation. Clearly, there is a need to work harder in the coming years. To provide all the houses with latrines in 20 years, it is necessary to construct 188,000 latrines per year. Government would be required to provide finance to the tune of Rs. 37.6 crores as subsidy each year (at a rate of Rs. 2000 per latrine) as against present investment of a few crores (NID 2000).

## Role of municipal authorities

There are six municipal corporations and 143 municipalities in Gujarat at present. The Gujarat Municipalities Act, 1963, prescribes that each municipality shall provide latrines and urinals in municipal limits for public use. Under Article 167, the chief officer of the municipality can direct the owner of a house

to provide a latrine with a water closet or convert a dry latrine into a water sealed latrine. Thus, municipal corporation and municipalities have a major responsibility in providing latrines in slum areas and public places.

The urban poor, who live in *chawls* and slums and do not have their own sanitation facilities, use public latrines or open ground for defecation. The Ahmedabad Municipal Corporation

TABLE 5.18

### Latrine construction in Gujarat

Agency	Latrines in rural areas	Latrines in urban areas	Total
CAPART	14,000	--	14,000
E.S.I.	165,557	33,199	198,756
GWSSB	--	30,871	30,871
UNICEF & Others	48,888	13,440	62,328
TOTAL	228,445	77,510	305,955

Source: NID (2000:45).

(AMC) has constructed 2,258 blocks consisting of 10,348 latrines so far. In the past, AMC had introduced a subsidy scheme popularly known as IDA-1642 N Scheme, under which a beneficiary had to pay 20 per cent of the total cost and 80 per cent would be borne by the AMC, provided the beneficiary's yearly income did not exceed Rs. 10,000. Now the Slum Networking Programme (SNP), an innovative partnership programme, is being implemented successfully by AMC for providing sanitation in slum areas. SNP has been given a United Nations Habitat award (Box 5.5).

## Health Policy

### National Health Policy

The general consensus is that the government's involvement in the health sector is important. However, there are differences regarding the nature and extent of government's involvement. Debate about public versus private involvement in the health sector is ongoing. The Alma Ata<sup>3</sup> Declaration of 1978, which accepted comprehensive primary health care system as a means to achieve Health for All by 2000, entrusted governments with this responsibility. Much before the Alma Ata conference, the Bhore Committee (1946) in India had emphasised the importance of government's role in primary health care. Experience has, however, shown that this approach was too expensive for governments to succeed. Instead, selective or targeted primary health care approach has been found more acceptable. WHO, which organized the Alma Ata conference, and UNICEF have all along been supporting the comprehensive approach. They too, over time, have accepted this partial approach because of practical exigencies (Werner 1995).

Health is a state government subject in India. However, the central and state governments jointly share the responsibility. The state governments, while following the policies laid

BOX 5.5

### Slum Networking Programme

Because urban slums are seen in isolation rather than as an integral part of city systems, there is a need to look afresh at slums as a resource and as stressed areas of the city. The slum networking programme (SNP) is an innovative concept which uses linkages between the slums and natural drainage paths to influence urban infrastructure and the environmental fabric of the city. Thus slums, instead of being a resource-draining liability as in the conventional approach, actually become opportunities for a quantum change in infrastructure levels and environmental quality. SNP is an initiative driven primarily through community control. Within a holistic frame that converges scales, activities, agencies and resources, the programme is a sustainable and cost effective improvement in the quality of life of a large section of urban dwellers.

The GIDB (GIDB 1999) has set a target of 100 per cent urban coverage in sanitation

by 2010, with sewage systems fully installed. A supporting action plan calls for central assistance, which can ensure underground drainage systems for urban centres having a population over 50,000. A separate utility is suggested to manage the sewage system on a no profit/no loss basis. The second phase should cover centres with low-cost sanitation systems. The plan includes subsidies to stimulate acceptance. The Board estimates the resource requirement for urban sanitation until 2010 at Rs. 5270 crore. The total resource requirement for water supply and sanitation is estimated at Rs. 19,228 crore (water supply Rs. 11,585 crore; rural sanitation Rs. 2373 crore and urban sanitation at Rs. 5270 crore). Resources are to be raised mainly from state and central allocations supplemented by donor assistance, loans from financial institutions, and other schemes.

down by the central government, pursue some autonomous goals and objectives. Hence there are wide variations in the health sector programmes across states. Each state government has varying levels of involvement in the health sector, depending on its ideology and political pressure from the people.

One of the important goals of the national health policy is improvement in the health

BOX 5.6

### School sanitation

The education department of the government of Gujarat has taken an initiative to ensure latrines in all schools in the state. In cooperation with the rural development department, 34,000 schools are to be covered, with a minimum facility of a toilet block equipped with one toilet and two urinals, at an approximate cost of Rs. 9,000. By 2000, some 6,000 schools had been covered. Sustaining this momentum is a task that must involve all sections of society, and strong NGO support. Over 21,000 schools are to be covered by 2006 at a cost of Rs. 20,000 per unit (60 per cent of this amount is to be met through central assistance with the state

government contributing 30 per cent), and parent-teacher associations mobilising the balance 10 per cent. These basic facilities can help ensure that hygiene education in schools has practical application, and spreads from school children to parents and households. In addition, functional latrines can help end the severe problem of drop-outs and non-attendance, particularly by girl children. Latrines for girl students were constructed with the involvement of over 70 NGOs, and at a cost of 295 lakhs. The school-wide programme is an initiative that demands a massive state-wide mobilization campaign (NID 2000).

status. Another important goal is reduction in the population growth rates. Both are to be achieved through the comprehensive primary health care system. The National Health Policy of 1983 has adopted a supply-oriented approach, with targets for coverage and achievements. The targets for India, set by the central government and for Gujarat, set by the state government, are summarized in Table 5.19.

### Health Policy Of Gujarat

The state government targets are mostly at par with the central government targets, though in some areas the Gujarat targets are higher. The state government is in the process of formulating a State Health Policy.

The proposed health policy appears to be well designed (Box 5.7). It is hoped that it will soon be adopted officially.

### Public Health Expenditures

An earlier study based on 1990-91 data found that Gujarat incurred lower per capita expenditure on health than the all-India average. But, the all India expenditure of Rs. 63.51 was not much higher than the Gujarat average of Rs. 52.18 (Reddy and Selvaraju 1994). Also, Gujarat ranked third among the 15 large states, with respect to per capita expenditure on nutrition, eighth with respect to expenditure on medical & public health, and water supply and sanitation, and ninth in family welfare. On the

TABLE 5.19

#### Health goals, India and Gujarat

Indicator	Goals				
	1985	1990	2000		
	India	India	India	Gujarat	
1 Infant Mortality Rate	106	87	< 60	< 60	
2 Crude Death Rate	12	10.4	9	< 9	
3 Child (1-5 years) Mortality	20-24	15-20	10	10	
4 Maternal Mortality Rate	34	2-3	< 2	< 2	
5 Life Expectancy at Birth (yrs)	Male	55.1	57.6	64	-
	Female	54.3	57.1	64	-
6 % Babies Born with Weight Below 2500 gms	25	18	10	< 10	
7 Crude Birth Rate	31	27	21	< 21	
8 Effective Couple Protection (%)	37	42	60	-	
9 Net Reproduction Rate (%)	1.34	1.17	1.0	1.0	
10 Annual Growth Rate (%)	1.90	1.66	1.20	1.2	
11 Family size	3.8		2.3	-	
12 Pregnant Women getting Antenatal Care (%)	50-60	60-75	100	100	
13 Deliveries by Trained Birth Attendants (%)	50	80	100	100	
14 Immunization Status (% Covered)					
a TT (for pregnant women)	60	100	100	100	
b TT (for school children)					
-10 years	40	100	100	-	
-15 years	60	100	100	-	
c DPT (Children below 3 years)	70	85	100	100	
d Polio (Infants)	50	70	100	100	
e BCG (Infants)	70	80	100	100	
f DT (for new school entrants 5-6 years)	80	85	100	-	
g Typhoid (for new school entrants 5-6 years)	70	85	85	-	
15 Leprosy (% of cases arrested out of those detected)	40	60	100	-	
16 TP (% of cases arrested out of those detected)	60	75	100	-	
17 Blindness - Incidence (%)	1	0.7	0.3	0*	

\* For children up to age 5.

Source: For India, World Bank (1994) and for Gujarat, Health and Family Welfare Department (1999).

## The State Health Policy - Proposed

The Gujarat Government is in the process of formulating the State Health Policy. The Policy sets the goals and discusses the mechanisms of achieving these goals.

### Approach for the State Health Policy

- ◆ Improving access to, and utilization of, health services

- ◆ Reorganizing and restructuring of existing health care infrastructure and delivery systems, (a) at primary, secondary and tertiary levels; (b) with the responsibility of serving population in a well defined geographical area and with appropriate referral linkages and (c) with appropriate delegation of powers to PRIs (Panchayati Raj Institutions) and Health Officials

- ◆ Expanding health care system to include Indian System of Medicine (ISM) and Homeopathy through (a) mainstreaming of these systems and increasing their utilization and coverage; (b) appropriate orientation and skills upgradation of the health care providers in these systems, (c) ensuring local availability of good quality of ISM drugs and Homeopathic drugs at affordable prices and (d) preservation, promotion and cultivation of medicinal plants and herbs.

- ◆ Integration of vertical programmes, which includes supplies, monitoring, Information, Education and Communication (IEC) services, and training and administration and aiming to set up a single Health and Family Welfare Society at the district level and then at the state level.

- ◆ Continuing free of cost primary health care and emergency life saving services, national disease control programmes and national family welfare programmes. These programmes will be based on the needs and not on the ability to pay.

- ◆ Evolving a suitable strategy to collect user charges from people above the poverty line for public health services and utilizing the funds thus collected for improving the level and quality of the public health services

- ◆ Evolving appropriate mechanisms for cost recovery from cases of hospitalization and severe illnesses getting treatment from public

hospitals at affordable rates, to be borne by the individuals or organizations in such a manner that there is an aspect of cross-subsidy at the local level, pooling of risk among the institutions, and availability of social insurance and health loans that would cover such cost.

There are specific policies under consideration for specific dimensions of health given the lacunae in achievements. Specific considerations for some specific areas are listed below.

### Nutrition

- ◆ To address Protein Energy Malnutrition (PEM) and micronutrient deficiencies

- ◆ To improve the food security of the population, especially of those belonging to Below Poverty Line (BPL) group by increasing the availability of coarse grains, pulses and vegetables at affordable costs in rural as well as urban areas.

- ◆ To continue with programmes such as giving iron and folic acid to children in toffees, supply of Vitamin A in mild pouches, ensuring use of iodine in salt through legislation, promotion of local production of cereals that are nutritious such as Nagli in the Dangs and promotion of systematic and scientific IEC.

### Mental health

- ◆ Regulation of Mental Health Clinics

- ◆ Increasing the role for clinical psychologists in treating mental health patients

- ◆ Giving a bigger role to the voluntary sector and the NGOs

- ◆ Integration of mental health with general health

- ◆ Undertake pilot survey with regard to the status of mental health in various districts of the State. This survey has already been announced by the state government and will be sponsored by WHO. This is a very ambitious survey, that would cover the whole state. Four centres of mental health would be involved in the survey (*The Times of India, Ahmedabad, June 10, 2003*).

### Disaster preparedness and response

- ◆ Developing a State Health Sector Continuity Plan, which will have a bottom-up

participatory approach, standing operative procedures with regard to responsibility, accountability and authority and an Emergency Health Information System (EHIS).

- ◆ Setting up of Resource Networking, with regard to Blood Banks, Ambulances, Health Centres and NGOs.

- ◆ Setting up of Emergency trauma care centres, which will have pre-hospital care as well as trauma management.

- ◆ Setting up of linkages to districts through satellites.

### Improving the facilities through filling up of staff vacancies

- ◆ To ensure a medical officer at each PHC, by (a) integration of modern and traditional medicine, introducing motivational packages for the staff of public health facilities, like housing and loans, reserved post-graduate quota for in-service doctors, linking clinically with the CHC and many other incentive schemes, (b) making special efforts to fill up vacancies in the tribal and remote areas, (c) setting up mobile dispensaries and (d) through contractual jobs.

- ◆ Making specialists available at CHC level through contractual arrangements with private doctors, with Samay Daan (time contribution) scheme, linking of CHCs with District Hospitals or Medical Colleges, and other means.

### Increasing participation of NGOs and community in health care

- ◆ To make an inventory of NGOs in the state (which has been done in the past and hence is ready).

- ◆ To set up an NGO co-ordination forum.

- ◆ To develop community based models.

With respect to point number two mentioned above, there is already a rethinking going on with regards to appointment of one specialist at the CHC level that can serve three to four PHCs so that the local population is able to take benefit of the services of the specialists. Currently, people are forced to go to large cities to avail the services of a specialist.

whole, Gujarat ranked sixth among the 15 large states. Tamil Nadu was at the top with per capita expenditure of Rs. 77.18 followed by Kerala, with per capita expenditure of

Rs. 73.66. Gujarat incurred only 75 per cent of the per capita expenditure incurred by Tamil Nadu. In 1990-91, the state was only spending 1.63 per cent of its NSDP on the

*LEB in the developing countries would have been eight years less in the 1970s without the contribution of new and inexpensive public health technologies such as vaccinations and nutrition supplements*

health sector, while Kerala was spending 3.17 per cent of NSDP and India was spending 2.18 per cent of GDP on health (Reddy and Selvaraju, 1994). When ranked for the proportion of NSDP spent on health, Gujarat ranked 4<sup>th</sup> from the bottom among the 25 states and union territories in 1990-91. The high NSDP of Gujarat was not reflected in high government spending.

In 1990, the public sector in all the established market economies spent 5.6 per cent of GDP on health (World Bank 1990:211). Except for the United States, in all these established market economies government burden in the health sector was higher than the private burden (World bank 1993:211). This was true for most Sub-Saharan African, Latin American, Caribbean, Middle Eastern, and former socialist block countries. Except China, in all Asian countries the private sector's involvement was higher than the public sector's in the field of health care (World Bank 1993:210-1).

The results of government's involvement are there to see in terms of gains in life

expectancy and reduction in overall, child, and infant mortality rates in the world. Pitts (1993) while quoting a World Bank study (1980b), has observed that LEB in the developing countries would have been eight years less in the 1970s without the contribution of new and inexpensive public health technologies such as vaccinations and nutrition supplements, even without much improvement in overall nutrition, hygiene, housing, and income in the developing countries (Pitt 1993, 137). If the latter aspects had improved, the health statistics of the developing world would have been far better. Gujarat spent about 8 per cent of the state budget and 2.16 percent of NSDP on the health sector in the mid-80s (Table 5.20). By the mid-1990s, the figure came down to about 6 per cent. From 1997-98 onwards, the share of health in the total budget has increased, reaching about 9 per cent in 2000-01 before dropping to 5.3 per cent in 2001-02. A disturbing aspect has been the declining allocation on revenue and capital account till 1996-97. Since then, there

TABLE 5.20

**Trends in health sector expenditure in the last decade, Gujarat**

Year	Expenditure on health as percentage of						Total Budget	NSDP
	On revenue account			On capital account				
	Social services	Development expenditure	Revenue budget	Social services	Development expenditure	Capital budget		
1986 -87	30.7	15.9	12.1	3.9	0.8	0.3	8.0	2.16
1987 -88	32.0	16.1	12.4	1.4	0.3	0.2	8.6	2.78
1988 -89	28.2	14.6	10.7	1.6	0.2	0.1	7.1	1.86
1989 -90	25.4	13.8	9.9	1.6	0.1	0.1	7.4	1.72
1990 -91	25.5	14.2	10.0	2.8	0.2	0.2	7.2	1.70
1991 -92	25.3	12.7	9.2	2.1	0.2	0.1	6.2	1.86
1992 -93	22.0	10.0	7.1	2.6	0.3	0.1	5.1	1.27
1993 -94	22.7	10.7	7.6	1.7	0.3	0.1	5.7	1.36
1994 -95	22.7	11.4	7.9	0.8	0.2	0.1	6.2	1.15
1995 -96	21.8	11.1	7.8	2.6	0.2	0.2	6.3	1.19
1996 -97	22.1	10.9	7.4	3.4	0.4	0.3	5.9	1.14
1997 -98	27.3	13.7	9.5	6.6	0.7	0.5	7.8	1.56
1998 -99	23.4	11.8	8.2	7.6	1.3	1.0	6.8	1.46
1999 -00	26.4	14.0	9.4	5.7	1.2	0.8	7.5	1.85
2000 -01	35.6	17.3	12.5	2.4	0.7	0.3	8.9	3.01
2001 -02	45.0	18.6	15.3	1.6	0.5	0.0	5.3	3.32

Note: Expenditure on heads (i) health and family welfare and (ii) social welfare and nutrition considered here.  
Source: Based on state annual budgets.

have been attempts to improve this situation. On the revenue side, the share has increased to reach 18 per cent in 2001-02. On the capital side also the allocation has increased. Prior to 1997-98, while allocation to the health sector declined, that on the education sector increased in real terms. There is a high increase in 2001-02 on expenditure on the health sector (Box 5.8). In short, one observes an increase in the health expenditure in the state in the recent years. This is mainly because of the increase in the nutrition component. Though as a proportion of the total budget, the health sector expenditure in Gujarat continues to attract much lower expenditures than other states in India, one heartening trend is that as a proportion of the NSDP, the share of health sector has continued to increase, till it has reached 3.32 per cent in 2001-02 (also see Fig 5.7, 5.8 and 5.9).

## Health Facilities

Though per capita healthcare expenditure in the state is much lower than that for the country, the state has a much higher level of health facilities (Table 5.21). The number of hospitals and dispensaries per lakh population is more than three times the national average. But the difference between Gujarat and India is not high when the health sub-centres, beds per lakh population and doctors and nurses per lakh population are considered. With respect to primary health centres (PHCs), Gujarat's performance is lower. Thus Gujarat's performance is better in high order health facilities, which are generally located in urban areas (also see Box 5.9).

Urban-rural difference in high order health facilities is quite high in the state compared to all-India figures (Table 5.21). For example, the number of hospitals per lakh population in urban areas for Gujarat is 16 times

BOX 5.8

### Expenditure on health (current prices)

S.no.	Year	Total health on education (Rs. crore)		
		Revenue	Capital	Total
1	1991-92	481.36	2.39	483.75
2	1992-93	441.59	3.46	445.05
3	1993-94	530.28	2.99	533.27
4	1994-95	595.18	2.23	597.41
5	1995-96	682.83	3.59	686.42
6	1996-97	755.16	7.33	762.49
7	1997-98	1,158.48	14.93	1,173.41
8	1998-99	1,274.73	37.38	1,312.11
9	1999-00	1,643.57	39.26	1,682.83
10	2000-01	2,748.11	25.64	2,773.75
11	2001-02	3,472.99	13.78	3,486.77

Source: Annual budgets from Directorate of Economics and Statistics.

higher than in rural areas. For India the difference is only six times. With respect to beds per lakh population, urban-rural difference is 11 for Gujarat as well as for India. Gujarat stands second (after Kerala) among 15 large states with respect to hospitals per lakh population (based on Duggal et al, 1995) and first with respect to dispensaries per lakh population. Once again, the share is higher in urban areas than in rural (Box 5.10, 5.11 & 5.12).

The good spread of high order health facilities in Gujarat is supported by public expenditure. However, the private, voluntary sector, and charity institutions are also playing an important role. A number of hospitals and dispensaries have been set up in the past by princely states, especially Vadodara and the states of the Saurashtra region. Many of these are either run by charity trusts or have been handed over to the public sector. The presence of charity established and run health facilities in urban areas is quite noticeable.

Figure 5.7

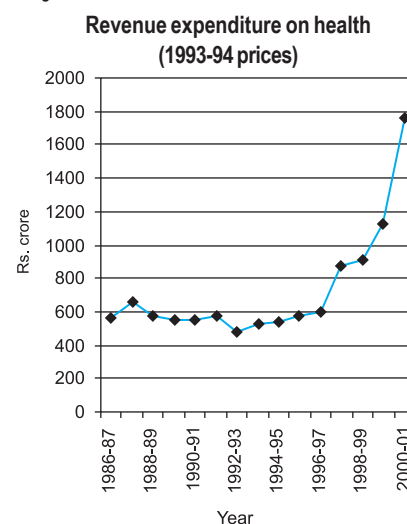


Figure 5.8

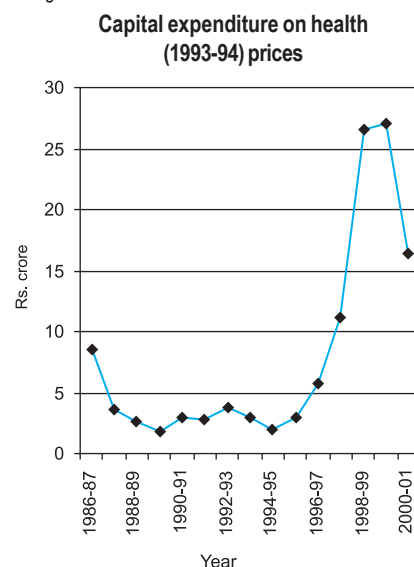




Figure 5.9

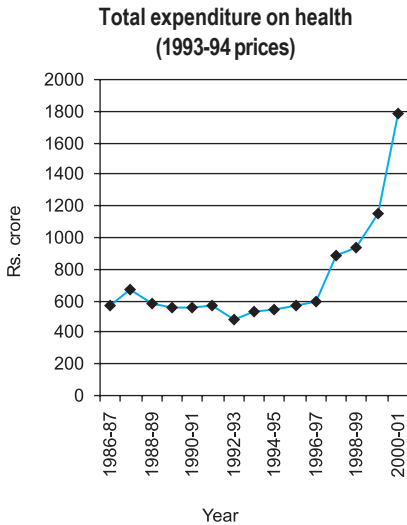
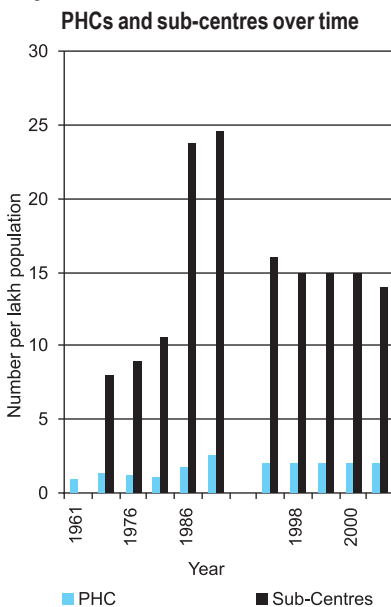


Figure 5.10



The major problem with regard to health facilities in the state is primary health facilities. Gujarat ranks tenth among the 15 major states in PHC facilities and ranks seventh and fifth respectively with regard to number of doctors and nurses per lakh population (Duggal et al 1995). (Also see Fig 5.10, 5.11 & 5.12, Table 5.22)

### Utilization of Public Health Facilities

Utilization of public health facilities depends on many factors such as availability of facilities, recurring expenditure on these facilities (which affects the availability of doctors, nurses and medicines), quality of health care provided, and so on. Utilization is usually higher in rural areas than in urban areas as private facilities are less developed in rural areas.

A study conducted by NCAER in 1994 on utilization of health care facilities in Gujarat found that people, both males and females, depended more on private facilities in rural and urban

areas (Table 5.23). Dependence on the private sector for hospitalization cases is a common feature in the state. This is contrary to the all India trend as well as the general understanding about the utilization of health care facilities (Purohit and Siddiqui 1994). Hospitalization involves higher expenditure than outpatient treatment. For outpatient treatment people are likely to reject public facilities. Long waiting period, non-availability of medical staff on time, and non-availability of quick treatment in government hospitals and dispensaries discourages people from using public facilities. They, therefore, turn to the private sector. Dependence on public facilities is likely to be high in cases of prolonged treatment of chronic illnesses, as well as for hospitalization that is expensive in private hospitals. The higher use of private hospitals in Gujarat can be explained by the fact that Gujarat probably has a large number of charitable trust hospitals providing hospitalization at reasonable prices, which makes them more popular than government hospitals.

One reason for the low utilization of public health care facilities in Gujarat is the large number of staff vacancies in CHCs, PHCs, and SCs. The CHC does not even provide for medical specialists. Also, there is a gap

between specialists required (as per the norms), positions sanctioned and positions filled. The situation is expected to change if the proposed health policy, in which provisions have been made for specialists at the CHC and even PHC level, is finalized.

At the lower end, with respect to paramedical staff, there is not much difference between the staff required and position sanctioned, but there is a significant gap in the case of doctors between positions sanctioned and positions filled. Towards the end of the 1990s, the government made comprehensive effort to fill in the po-

TABLE 5.21

#### Health facilities in Gujarat and India, 1991

Facilities per lakh population	Gujarat	India
Hospitals - Total	4.34	1.32
- Rural	0.70	0.57
- Urban	11.26	3.51
Dispensaries - Total	15.22	3.25
- Rural	9.33	1.86
- Urban	17.78	5.38
Primary Health Centres	3.24	3.55
Sub-Centers	26.41	20.90
Beds - Total	145.76	78.70
- Rural	31.34	22.26
- Urban	363.95	241.96
Doctors	52.98	47.19
Nurses	59.00	36.88

Source: Based on Duggal et al (1995).

sitions in rural and remote parts of Gujarat. But, the problem continues to linger on and the proposed health policy for the state has acknowledged this problem.

Distribution of health facilities across the districts is highly uneven. Dangs has the lowest percentage of villages having health centres. The second lowest is Kachchh, followed by Bhavnagar, Surendranagar, and Sabarkantha. Since the norms for setting up PHCs and sub-PHCs are based on population, sparsely populated regions seem to have lower facilities.

Availability of potable drinking water is an important precondition for good health. Our recent study in Gujarat has shown that many areas in the state experience a shortage of potable water in the summer season, particularly in drought years (Hirway and Lodhia 2004). According to the Census of Population, 2001, about 46 percent of households in the state (29 percent in rural areas and 73 percent in urban areas) have a drinking water facility within the premises, while 38 percent households (50 percent in rural areas and 20 percent in urban areas) have it near the premises. About 15 percent households (21 percent in rural areas and 7 percent in urban areas) have to walk a long distance to fetch water. Water scarcity leads to a number of diseases, including water-borne diseases and skin diseases. Malaria epidemics can also break out in the dry regions due to storage of water. Gujarat is a high malaria prone zone, as discussed earlier.

CFDA (Hirway et al 2002) examined, as a part of a larger study on poverty, why the poor at the bottom fail to access health facilities. This study was carried out in a representative sample of 90 villages and 30 urban centres and the focus was mainly on poor households (Table 5.24 & 5.25). Major observations of the study are as follows:

### 1 Primary health services

- Primary health facilities are surprisingly poor in rural areas compared to their need.

#### BOX 5.9

### Health care delivery system in Gujarat

The health care delivery in Gujarat is organized in a three tier system:

- (i) At the primary level, there are primary health centres (PHCs) and sub-centres.
- (ii) At the intermediate level, there are community health centres (CHCs), taluka hospitals, and district hospitals. About 3-4 PHCs are affiliated to a CHCs. It has been planned to develop CHCs as a first referral

units (FRU), because they are scattered all over the state and can provide hospital services at the doorstep of the patient. Almost all CHCs are located in taluka headquarters or other important towns of a taluka. There is at least one operational hospital in each district headquarters.

- (iii) The tertiary or referral level facilities are affiliated to medical colleges and specialized hospitals.

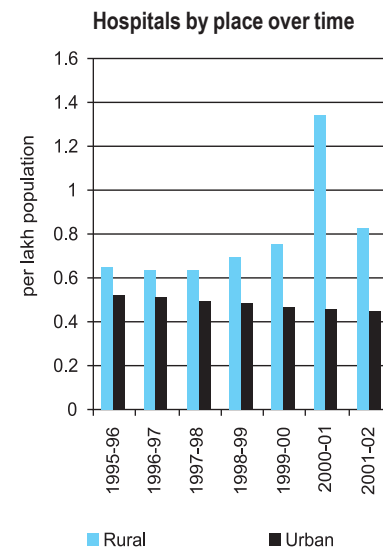
#### Norms for health facilities are:

PHC	all areas	one per 30,000 population
PHC	tribal, hilly & inaccessible areas	one per 20,000 population
Sub-Centre	all areas	one per 5,000 population
Sub-Centre	tribal, hilly & inaccessible areas	one per 3,000 population
CHC	all areas	one per 100,000 population

Source: Health and Family Welfare Department (1998).

As there is one sub-PHC for 5000 population, many small villages have no health facility available within a manageable distance. However, these villages reported that a nurse visits them once in 10 days, 15 days or a month. Different villages gave different frequency of visits. The nurse, according to people, gives tablets (mainly for malaria), and offers health care to women. It was felt by the poor that the utility of the nurse was limited because (a) he/she was not available in emergencies, (b) he/she could help only in limited

Figure 5.11



#### BOX 5.10

### Health facilities in urban areas

Though not mandatory, urban local governments provide health facilities in cities. In Ahmedabad, the largest city of the state, the Ahmedabad Municipal Corporation (AMC) runs 3 general hospitals, 13 maternity hospitals, 25 dispensaries, 5 referral hospitals, 1 eye hospital, 2 TB clinics, 4 dental clinics, and 4 contagious disease hospitals. The hospitals and dispensaries are well spread out geographically. There are 49 dispensaries

and 3 general hospitals run by the Employees State Insurance Scheme (ESIS) for industrial workers. Finally, under the ICDS programme, AMC runs 200 *anganwadis* in the slum areas of the city. There is thus, a substantial government presence in the health care delivery system in Ahmedabad. However, unlike rural areas, there are no particular norms for public health facilities at the primary and intermediate level in urban areas.

Source: Based on documents from AMC.

BOX 5.11

### Development of health facilities in Gujarat

Plan	Period	Number of		
		Sub-Centres	PHCs	CHCs
I Plan	1951-56	67	6	-
II Plan	1956-61	288	96	-
III Plan	1961-66	686	142	-
Annual Plan	1966-67	1232	244	-
„	1967-68	1432	244	-
„	1968-69	1780	251	-
IV Plan	1969-74	1920	251	-
V Plan	1974-79	1920	251	12
Annual Plan	1978-79	1920	251	12
„	1979-80	2020	251	17
VI Plan	1980-85	4951	310	47
VII Plan	1985-90	6834	993	161
Annual Plan	1990-91	7132	993	176
„	1991-92	7274	993	180
VIII Plan	1992-97	7274	993	193
IX Plan – 1 <sup>st</sup> yr.	1997-98	7274	993	207

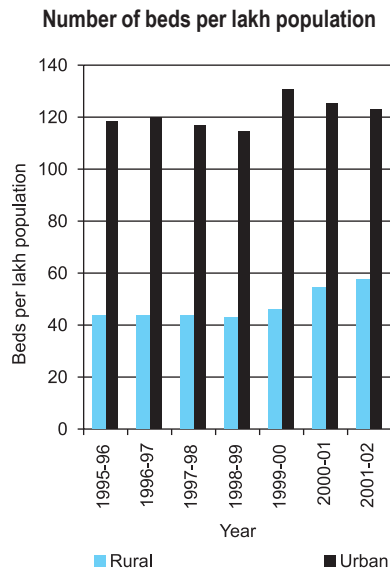
Source: Health and Family Welfare Department (1998).

a near by hospital, some 5, 7 or 10 km away. The poor complained that their family members sometimes died because no medical help was available in emergencies.

- ◆ The poor go to nearby hospitals mainly when the illness is serious. Women usually do not go to hospitals for deliveries, as the local midwife or *dai* takes care of it. However, their other health problems are rarely attended to.

In addition, there are problems regarding the facilities at health centres and the treatment meted out to the poor. It was a general observation of the poor, particularly those belonging to lower castes, that the services are not easily available to them.

Figure 5.12



health problems, (c) he/she was not very regular, and (d) frequently he/she visited only better-off households.

- ◆ About 25 per cent of villages have private dispensaries with a doctor either staying in the village (in large villages) or visiting them once or more a week. Two villages also have a missionary or a private trust hospital.

- ◆ The net result is that medical help is not available in emergencies. People have to carry sick persons in a tractor or put him on a *charpai* (cot) and carry him/her to

## 2 Public health facilities available to urban poor

- ◆ As far as urban areas are concerned, health facilities are better as usually there are several public and private medical facilities available to people.

- ◆ Access of the urban poor to medical facilities is not very high. Though private doctors are almost always located in or near the areas where the poor live, they are expensive. The poor, particularly the women and girls, do not use the services of private doctors except in cases of emergency. Public hospitals in urban areas are located very far and are used by the poor only when the illness is serious.

- ◆ There are many complaints about the availability of health facilities in public hospitals. Some of the major complaints are irregular timings of the facilities, irregularity of doctors/nurses, poor quality of treatment, rude behaviour meted out to poor and high costs ('out of stock' medicines). Those who can afford to prefer to go to private doctors/hospitals located in nearby urban centres or in a large village.

BOX 5.12

### Mobile comprehensive health scheme

This is an innovative health care scheme. In Gujarat the terrain is quite difficult in many regions. As a result, patients are unable to reach the nearest sub-centre or the PHC in many regions. The state government has therefore commissioned 60 Mobile Comprehensive Health Care Units (MCHU) in hilly, remote and desert areas to provide preventive and curative services. Each MCHU has one medical officer, one male

health worker, and a driver. The MCHU visits villages in 10 km to 15 km radius on a fixed day, at a fixed time, for two to four hours on weekly/fortnightly basis. The health sub-centre worker concerned, male or female, and a superior also join the MCHU team. Eighteen MCHUs have been proposed for urban areas, of which 6 MCHUs will be attached to each of the six medical colleges of the state.

Source: Based on Health and Family Welfare Department (1998).

Major health problems of the poor arise from: (a) lack of potable drinking water and lack of enough water to clean and wash (many cannot take bath regularly), (b) dirt, garbage, and lack of proper sanitation, the problem worsening in the monsoon, (c) migration where healthy environment is not available and (d) malnutrition and poverty. Women have specific problems arising from hard work, poor nutrition, inadequate water supply and lack of sanitation facilities. Many complained of women-related diseases.

- ◆ Typical diseases of the poor are observed to be malaria, typhoid, flu, diarrhoea, bronchitis, asthma, cough, etc., which are reported throughout the year. In the case of tribal villages, sickle cell anaemia is quite common. In addition, several diseases of poverty/malnutrition such as tuberculosis, iodine deficiency disorder, blindness, stunted growth and disabilities are reported. These diseases are a financial drain on the poor, frequently resulting in large debts.

- ◆ Non-availability of timely medical help, particularly in the monsoon, when work is available, harms the poor in many ways. On the one hand, they cannot go to work and therefore lose wages; on the other, they have to spend money to get well. Villages near chemical factories in Valsad complained of foul odour and pollution related diseases. Occupational diseases were also observed in several areas.

- ◆ Access of the poor to medical facilities is far from satisfactory. Such facilities are neither available nor accessible to many of them living at the bottom rung of society.

TABLE 5.22

**Number of Allopathic Medical Institutions (2001-02)**

Districts	Number of Hospitals		Number of PHCs		Beds	
	Rural	Urban	Rural	Urban	Rural	Urban
Ahmedabad	8	10	43	-	574	5,048
Amreli	13	3	35	-	737	364
Anand	9	1	42	-	622	654
Banaskantha	10	2	61	-	510	630
Bharuch	7	2	36	-	727	381
Bhavnagar	13	3	41	-	1,423	1,335
Dangs	1	1	7	-	72	175
Dahod	13	2	53	-	779	162
Gandhinagar	4	3	25	-	484	342
Jamnagar	10	6	36	-	660	1,820
Junagadh	14	3	51	-	746	965
Kachchh	13	5	37	-	856	449
Kedha	10	2	50	-	844	675
Mehsana	10	3	48	-	866	558
Narmada	4	1	21	-	246	81
Navsari	9	2	37	-	532	315
Panchmahals	11	3	64	-	788	420
Patan	8	2	29	-	480	166
Porbandar	3	1	10	-	150	241
Rajkot	17	8	43	-	983	0
Sabarkantha	18	2	61	-	1,306	535
Surat	17	4	77	-	1,058	1,780
Surendranagar	10	3	28	-	555	888
Vadodra	14	9	75	-	1,035	2,873
Valsad	8	3	34	-	468	263
<b>GUJARAT</b>	<b>254</b>	<b>84</b>	<b>1044</b>	<b>-</b>	<b>17,501</b>	<b>22,990</b>

Source: Statistical Abstract of Gujarat State 2002.

TABLE 5.23

**Utilisation of health facilities, Gujarat and India (NCAER data)**

		Gujarat		India	
		Public	Private	Public	Private
<b>Out Patient Treatment</b>					
Rural	Male	36.8	62.2	40.2	54.5
	Female	36.7	59.8	43.3	50.8
Urban	Male	38.7	57.7	34.7	58.9
	Female	31.6	63.2	33.2	60.9
<b>Hospitalisation</b>					
Rural		32.2	67.8	62.0	38.0
Urban		27.2	72.8	60.1	39.9

Source: Based on Sundar (1995).

TABLE 5.24

## Health facilities in selected villages

District		PHC/Sub PHC		Private Dispensary		Family welfare centre		Nurse		Other Health Facility		Medical Store	
		Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No
Surendranagar	Count	3	4	3	4	2	5	7		1	6		7
	Row %	42.9	57.1	42.9	57.1	28.6	71.4	100.0		14.3	85.7		100.0
Jamnagar	Count	1	8	1	8		9	4	5		9		9
	Row %	11.1	88.9	11.1	88.9		100.0	44.4	55.6		100.0		100.0
Bhavnagar	Count	2	5	2	5	1	6	7			6		7
	Row %	28.6	71.4	28.6	71.4	14.3	85.7	100.0			85.7		100.0
Ahmedabad	Count		7		7	1	6	6	1		7		7
	Row %		100.0		100.0	14.3	85.7	85.7	14.3		100.0		100.0
Anand	Count	1	8	6	3	1	8	9		2	7	1	8
	Row %	11.1	88.9	66.7	33.3	11.1	88.9	100.0		22.2	77.8	11.1	88.9
Banaskantha	Count	1	12	2	11		13	12	1		13		13
	Row %	7.7	92.3	15.4	84.6		100.0	92.3	7.7		100.0		100.0
Sabarkantha	Count	2	8		10		10	10			10		10
	Row %	20.0	80.0		100.0		100.0	100.0			100.0		100.0
Dahod	Count	1	8	1	8		9	8	1		9		9
	Row %	11.1	88.9	11.1	88.9		100.0	88.9	11.1		100.0		100.0
Bharuch	Count		8	1	7		8	8			8		8
	Row %		100.0	12.5	87.5		100.0	100.0			100.0		100.0
Dangs	Count	1	5	1	5	1	5	6			6		6
	Row %	16.7	83.3	16.7	83.3	16.7	83.3	100.0			100.0		100.0
Valsad	Count		4	1	3		4	4		1	3	1	3
	Row %		100.0	25.0	75.0		100.0	100.0		25.0	75.0	25.0	75.0
Total	Count	12	77	18	71	6	83	81	8	4	84	2	87
	Row %	13.50	86.5	20.2	79.8	6.7	93.3	91.0	9.0	4.5	94.4	2.2	97.8

Source: Hirway et al (2002).

## Concluding Remarks

The key health statistics have significantly improved in Gujarat over time. The state has improved its performance vis-à-vis the country in the long run. In the early 70s, the situation was very bad, but the state has made better progress in recent decades. However, this trend has slowed down in recent times. In the first half of the 1990s, the urban sector stagnated somewhat, while in the latter half of the decade, it is the rural sector that stagnated. This has resulted in the narrowing of the gap between Gujarat and India in key vital statistics. IMRs are lower than that for the country but far behind that of Kerala. NNM and PNNM have increased in the 1990s, mainly due to continuing poor nutritional status of children and women.

Expenditure on health as a proportion of total budgetary allocations has been improving since 1997-98 and in 2000-01 and 2001-02, there was a marked improvement. Even as a proportion of NSDP, expenditure on the health sector has improved. However, a large part of the population uses private health care facilities in rural and urban areas. In spite of increased expenditure on the health sector, the poor and specific sections of the marginal population remain outside the purview of public health facilities.

An emerging area of concern for health professionals is environment related health problems. First of all, Gujarat faces the problem of groundwater in quantitative as well as qualitative terms. Excess salinity, excess fluoride, and excess nitrite are responsible for

TABLE 5.25

## Health Facilities in selected Urban Centres

District		PHC/Sub PHC		Private Dispensary		Family welfare centre		Nurse		Other Health Facility		Medical Store	
		Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No
Surendranagar	Count		2		2		2		1		1		2
	Row %		100.0		100.0		100.0		50.0		50.0		100.0
Jamnagar	Count	2	3	5		1	4	3	2	1	4	3	2
	Row %	40.0	60.0	100.0		20.0	80.0	60.0	40.0	20.0	80.0	60.0	40.0
Bhavnagar	Count	1	1	1	1		2	1	1		2	2	
	Row %	50.0	50.0	50.0	50.0		100.0	50.0	50.0		100.0	100.0	
Ahmedabad	Count	2	3	5		2	3	3	2	2	3	5	
	Row %	40.0	60.0	100.0		40.0	60.0	60.0	40.0	40.0	60.0	100.0	
Anand	Count	1	1	2		1	1	1	1	1	1	2	
	Row %	50.0	50.0	100.0		50.0	50.0	50.0	50.0	50.0	50.0	100.0	
Banaskantha	Count	2	1	3			3	2	1		3	2	
	Row %	66.7	33.3	100.0			100.0	66.7	33.3		100.0	66.7	
Sabarkantha	Count		3		3		3	3			3	3	
	Row %		100.0		100.0		100.0	100.0			100.0	100.0	
Dahod	Count	1		1			1	1		1		1	
	Row %	100.0		100.0			100.0	100.0		100.0		100.0	
Bharuch	Count	1			1	1		1				1	
	Row %	100.0			100.0	100.0		100.0				100.0	
Dangs	Count		1	1			1		1		1	1	
	Row %		100.0	100.0			100.0		100.0		100.0	100.0	
Valsad	Count	10	15	18	7	5	20	16	9	5	19	17	7
	Row %	40.0	60.0	72.0	28.0	20.0	80.0	64.0	36.0	20.8	79.2	68.0	28.0
Total	Count		2		2		2		1		1		2
	Row %		100.0		100.0		100.0		50.0		50.0		100.0

Source: Hirway et al (2002).

diseases like fluorosis, leprosy, trachoma, and conjunctivitis. Leprosy and scabies are also very common in Gujarat. Conjunctivitis erupts during certain seasons. Untreated drinking water in rural areas causes water-borne diseases such as amoebic and bacillary dysentery, cholera, diarrhoea, hepatitis, typhoid and guinea worm infestation. Industrialization in Gujarat is dominated by pollution-prone industries such as chemicals and petrochemicals, dyes and pharmaceuticals, etc. Many of the chemicals used or produced in the state are hazardous. The inputs and by-products of petrochemical industries are non-degradable organic compounds, which are carcinogenic. The health impact of chemical pollution has not yet been investigated and needs to be taken seriously. For this, monitoring of environmental health

problems is essential. Lastly, Gujarat is under the threat of diseases such as HIV/AIDS, since it is a migrant receiving state. There is, therefore, a need to prepare a comprehensive document that profiles the health status of state's diverse populations and diverse regions.

The whole aspect of women's health has just been touched upon, but not analysed in any great depth. Once again, lack of data is coming in the way. Issues on maternal health are discussed in the chapter on Gender Development and Distance.

This chapter starts with a comprehensive concept of health. But, it has focused on only a few aspects of health. Many more aspects are required to be studied, at overall level as well as by sex, social groups, and

### National AIDS Control Programme: Gujarat

In India 3.86 million people are infected by HIV. In Gujarat 8712 people are confirmed HIV sero-positive. Many efforts are being made to curb the spread of the infection. Gujarat being an industrialized state has migrant labour from all parts of the country. The urban societies are in a transition phase with the young population less socially restrained. Women are even more vulnerable to the infection due to their low level of education, local customs and traditions, and lack of health information.

Gujarat State AIDS Control Society has implemented various activities for prevention and control of HIV/AIDS under the guidelines of National AIDS Control Organization. The activities are:

1. Reduction in spread of STD/HIV in high-risk population groups:

- Targeted interventions: This programme is for vulnerable populations (CSWs, migrant workers, rag pickers, construction workers, diamond workers, rickshaw and truck drivers, transsexuals) with financial assistance from Department for International Development (DFID) U.K. Presently 81 NGOs are actively involved and have been able to cover 9,23,472 targeted population.

- Condom Programme: A basket named KALYAN CHHAB (welfare basket) is an innovative approach to make condoms available in all the villages of the state. In the year 2003, 27 lakh condoms were distributed.

- STD control: This programme is for the sexual health and promotion of safe sexual behaviour. To provide diagnosis, treatment and counselling for the affected people, 31 STD clinics, 2800 trained doctors, Vatsayan centres at 7 medical colleges are functioning in the state. In the year 2001-02, 16,264 STD patients were identified and treated at these centres.

2. Reduction in spread of STD/HIV in low risk population groups:

- Information, education and communication: Mass media approach is used to create awareness regarding HIV/AIDS prevention.

- Use of folk and traditional media: Folk forms like Bhavai, street plays and puppet shows etc. are used to raise awareness about HIV/AIDS among the people in semi-urban and rural areas. By organizing 675 shows in the state this year, the message has been spread between 9 and 10 lakh people in the rural areas.

3. Family health awareness campaign: Gujarat State AIDS control society and Ahmedabad Municipal Corporation-AIDS Control Society jointly launched a family health awareness campaign-*Swastha Yauvan Mela* on 1<sup>st</sup> February, 2002.

4. Capacity Building: Financial and technical assistance is provided under this component. VATSAYAN clinics provide the necessary information to the affected people. "1097" toll-free telephone counselling services have been successfully implemented in Rajkot, Surat, Bhavnagar, Jamnagar and Vadodara.

5. Care for people having AIDS:

- District AIDS control units are established to organize awareness campaigns for HIV/AIDS/STDs at definite intervals of time.

- Surveillance: To monitor the trend of HIV infections in high risk groups as well as low risks groups. A survey is conducted every year from August to October.

- Voluntary counselling and testing centres (VCTCs): 20 VCTCs are located in 7 medical college and 13 districts hospitals in the state. They play an important role in both HIV prevention and care as an entry point.

6. Inter-sectoral links: To promote collaboration among the public, private and voluntary sectors.

Source: Gujarat State AIDS Control Society, Ahmedabad.

region. For that, as mentioned above, a concerted effort is required. At the same time, government needs to develop data on key health statistics in such a way that disaggregated analysis and monitoring is possible. This is the first requirement before we move towards the goal of Health for All.

### Notes

<sup>1</sup> According to Tinker et al (1994), adolescent girls are biologically more vulnerable to STD and HIV infections than older women with their mature reproductive organs.

<sup>2</sup> As per NFHS-2 data, in 1998-99, the TFR in Gujarat was 2.72 as compared to 2.85 in India. The NFHS-2 TFRs are lower than SRS TFRs for most states, for all-India and Gujarat.

<sup>3</sup> A conference was convened by the WHO and UNICEF at Alma Ata in the former Soviet Union in 1978. The term 'Primary Health Care' was popularized by this conference. It means "essential health care based on practical, scientifically sound, and socially acceptable methods, and technology made universally accessible to individuals and families in the community through their full participation and at a cost that community and country can afford. .... *It includes at least: education concerning prevailing health problems and the methods of preventing and controlling them; promotion of food supply and proper nutrition; and adequate supply of safe water and basic sanitation; maternal and child care, including family planning; immunization against major infectious diseases; prevention and control of locally endemic diseases; appropriate treatment of common diseases and injuries; and provision of essential drugs.*" (World Bank 1980a: 17).



# Literacy and Education

Educating girls, changing lives



Education for a bright future

## Chapter 6







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## Literacy and Education

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6

*“Education is the basic tool for the development of consciousness and reconstitution of society.”*

- Mahatma Gandhi

Education has been given a central place in human development. Leaders of several nationalist movements of the developing world in the early part of this century emphasized spread of education among masses for true liberation and national reconstruction. In economic literature also, from Adam Smith onwards, there has been a discussion on the relationship between education and economic growth. T. A. Schultz was perhaps the first economist who presented a theory in the early 1960s in which education was presented not merely as a consumption activity but also as an investment in the formation of human capital, which, along with physical capital, contributes to economic growth. Education is considered to be a basic human capability as well as a tool of empowerment. Education, particularly elementary education, is therefore viewed as an important input in the development of a society.

Countries such as India approached education not only as an input in the formation of human capital, but also as a basic tool of all-round progress, a tool of liberating people from the shackles of ignorance, illiteracy and poverty. Colonialists had deliberately withheld education from the subjects (Indian masses) in the pre-independence period. Most Indian feudal lords also had deliberately kept vast majority of the masses, mainly the working sections, outside the

purview of the education system. The caste system had kept out the majority of the population from the Brahmanical system of knowledge. Thus, education had become a tool of control and power. As a reaction to this deprivation through the nation’s history, education is now recognized as central to the development of Indian society.

Though education means much more than ability to read, write and count, total literacy, i.e. basic ability to read, write and count is an important goal of any national education system. In its ‘Tryst with Destiny’, India decided to eliminate poverty, ignorance, diseases and inequality of opportunity at the time of Independence. Not much has been achieved with regard to elimination of ignorance and inequality of opportunity though there has been a significant achievement in reducing hunger and poverty. Ignorance owing to illiteracy and lack of access to information and knowledge continues to be pervasive and challenging.

BOX 6.1

### Widening Horizons

“I’m learning how to read, so that I can read my own destiny.”

“I’m learning how to write, so that I can write my own destiny.”

“I’m learning how to count, so that I can keep an account of my rights.”

Ministry of Human Resource Development (1993a).

*Education is now recognized as central to the development of Indian society*

*Education ought to be about concept formation and growth of capacity for theory building, rather than about possession of vast amounts of information*

The story of education in India, as well as in Gujarat, has a chequered saga, of many significant achievements and several notable failures. Though achievements are significant compared to the situation at the time of Independence, there is now a realization that much more could have been done. In 1992, 80 per cent of the population in China and 97 per cent in South Korea were literate, while in the case of India only one state, Kerala, reached comparable performance with 90 per cent of literate population. All other states, including Punjab and Haryana, the two richest states in the country, and Gujarat, one of the most industrialized states, were far behind.

The situation continues to be the same even in 2003. As Drèze and Sen (1995:13) have observed, "...the remarkable neglect of elementary education in India is all the more striking given the widespread recognition, in the contemporary world, of the importance of basic education for economic development". This relative neglect of education has persisted despite the recent radical changes in economic policy. Most documents on economic reforms have a tendency to view these reforms as standing on their own feet, without linking the case for reforms to the failures in social policy argue, Drèze and Sen (1995:14).

Following the global conference on 'Education for All' held at Jomtien in 1990, a number of state governments have taken up extensive as well as innovative drives to improve enrolment and retention of children in elementary schools, something that has given results in the less developed states such as Madhya Pradesh and Rajasthan, as revealed in the literacy data of census 2001. The 1990s had seen large-scale involvement of external assistance in the education sector in some states. This has made elementary education in India open to international scrutiny. Global HDRs have further pushed the case for global scrutiny of educational achievements of India and the states. The

level of education in a country is being viewed as a measure of quality of labour force for attracting investments. Education has, thus, become an important aspect of a country's development process on all counts.

## **Importance of Education**

The education system in India attempts to impart ability to read, write, and count through a formal system. It also imparts knowledge and skills primarily to increase productivity of workers in the formal economy. Those earning their livelihood from unskilled work, mainly in the informal sector, find little utility for this education and get discouraged. Thus, the current education system has created a wide gap between the formal and the unskilled informal system of the economy. Education when viewed more broadly, imparts values, ideas, attitudes, and aspirations that are in the best interests of a nation, a community, an individual, and above all, in the interests of humankind. Education is considered as an empowerment and a key to poverty eradication.

The Yashpal Committee, which was set up to look at reducing the burden of schooling in children, states that the problem in Indian education started with the mixing up of the terms 'knowledge' and 'information'. Education ought to be about concept formation and growth of capacity for theory building, rather than about possession of vast amounts of information. When one says that the child has knowledge about something then it can mean that (a) the child has information about something, or (b) the child has information and can reproduce the information about something, or (c) the child has understood something and can apply this understanding in a different context. Since understanding is confused with 'acquisition of facts' (Ministry of Human Resource Development 1993b), neither the curriculum nor the examination system provides any scope for understanding and applica-

tion of concepts learnt. Education is to achieve knowledge, knowledge is understanding and not acquisition of facts and repeating them. Education is not just amassing skills, but acquisition of critical skills to address life concerns. Education should empower the vast majority of the population in their struggle against deprivation. Education in India is mistaken for literacy, whereas the latter is only a stepping stone, and in the context of India, an important one, to the former.

The recent 83<sup>rd</sup> Constitutional Amendment establishes elementary education as a fundamental right of all citizens of India (Box 6.2).

Drèze and Sen (1995) view the importance of education in five distinct ways. These are:

- ◆ **Intrinsic importance** - being educated is an achievement in itself and the opportunity to be educated, is important for a person's effective freedom.
- ◆ **Instrumental personal role** - education can help a person do many things (other than being educated) that are also valuable. For example, education can lead to economic opportunities and income can lead to increase in other choices in life.
- ◆ **Instrumental social role** - education can lead to awareness about social needs and participation in the collective decision making process.
- ◆ **Instrumental process role** - process of schooling can have other benefits, for example, schooling can bring children in contact with others, which can broaden their horizons. This can be of help in the process of doing away with social evils like untouchability, caste, communal divide, and so on.
- ◆ **Empowerment and distributive role** - education can lead to disadvantaged groups getting enabled to resist oppression, getting organized politically and getting a fairer deal. The redistributive effects can be important not only between social groups and households, but also within the family, especially with respect to gender inequalities.

#### BOX 6.2

### Education in the Indian Constitution

Education is in the concurrent list of the Indian Constitution. This concurrency gives an operational meaning to the National Policy on Education (NPE), 1986, which envisages "a meaningful partnership between the Centre and the states." NPE places clear responsibility regarding the national and integrative character of education, quality and standards, human resource planning, research and advanced study, culture, and international aspects of education on the central government.

Article 45 of the Constitution enjoins that "the State shall endeavour to provide, within a period of ten years from the commencement of this Constitution, for free and compulsory education for all children until they complete the age of fourteen years." Article 46 states that, "the State shall promote with special care the educational and economic interests of the weaker sections of the people, and in particular, of the Scheduled Castes and the Scheduled Tribes and shall protect them from social injustice and all forms of exploitation."

The PROBE Report (Public Report on Basic Education), which came out in 1999 after an extensive survey in Bihar, Madhya Pradesh, Rajasthan, Uttar Pradesh and Himachal Pradesh in 1996 discusses why universalizing elementary education (UEE) is still an important issue. The report gives eight main reasons (PROBE 1999):

- ◆ **Elementary education is a fundamental right** – This was already one of the directive principles in the Constitution. The 83<sup>rd</sup> Amendment makes elementary education a fundamental right.
- ◆ **Elementary education is a popular demand** – Contrary to the common notion that poor parents are not interested in their children's education, demand for elementary education is not yet universal but is fairly widespread and growing rapidly.
- ◆ **Education forms human capital** – Poor parents find no better prospects for economic advancement than education of their children. This reason drives families to value education more for boys than for girls.
- ◆ **Education is for joy of learning** – This itself drives children to school, provided that they find a supportive environment.
- ◆ **Education for individual well-being** – Education may help in achieving good health, improving self-esteem, increasing knowledge, increasing ability to venture into new terrain and environments, increasing access to micro-credit, increasing ability to participate in public life including politics, and so on.

*The 83<sup>rd</sup> Constitutional Amendment establishes elementary education as a fundamental right of all citizens of India*

*Gujarat has a higher literacy rate than the country. However, the state is far behind the top ranking state, Kerala*

◆ **Education is for social progress** – An educated person of a deprived community can assist the whole community, for example. An educated mother is more likely to send her children, and particularly a girl child, to school than an uneducated mother.

◆ **Education leads to political participation**– Widespread illiteracy is one of the major causes of lack of participation of masses in the democratic process. Other causes are economic insecurity and lack of organization of poor people to participate effectively in the democratic process. Vast masses of the population, for example, are unable to participate in a policy process because they are uninformed about it, which emanates from their inability to read.

◆ **Education is for social justice** – This is because India has a long history of educational disparities.

According to the literature available on elementary education in India, there are certain endemic problems in the Indian education system. These are:

- ◆ Low public sector spending on education
- ◆ Low enrolments and continued high drop-out rates.
- ◆ Low levels of educational achievement
- ◆ Gender and caste disparities
- ◆ Poor quality of education and inappropriate curriculum
- ◆ Lack of motivation among teachers and their recruitment
- ◆ Poor management of school system
- ◆ Privatization
- ◆ Increased international assistance

This chapter will discuss these issues in the context of educational attainments in Gujarat. This discussion is based on secondary data and information available as well as the two primary studies conducted recently by CFDA on the subject.<sup>1</sup>

## Educational Attainments in Gujarat

Educational attainments of a population can be measured using two types of variables: (a) stock variables that present the outcomes of past efforts, such as literacy rates and educational levels achieved by the adult population and (b) flow variables that indicate current achievement, such as enrolment rates and retention or drop-out rates.

### Literacy Levels

There is a marked improvement in literacy rates in the state, up from 43.70 per cent in 1981 to 61.29 per cent in 1991, to 69.57 in 2001. This increase has been observed for both males and females, in rural as well as urban areas (Table 6.1). The female literacy rate has increased from 38.46 per cent in 1981 to 58.60 per cent in 2001, and the male literacy rate has increased from 65.14 per cent to 80.50 per cent.

Gujarat has higher literacy rates than those for the country. The overall effective literacy rate (population 7+) in 2001 was 69.67 per cent in Gujarat against 65.38 per cent in India. The effective female literacy rate was 58.60 per cent as against 54.16 per cent in India. However, the state is far behind the top ranking state, Kerala, where the

TABLE 6.1

**Effective literacy rates by sex and residence in Gujarat, 1981-2001**

Year	Rural			Urban			Total		
	Male	Female	Total	Male	Female	Total	Male	Female	Total
1981	47.85	24.06	36.20	68.62	51.13	60.31	65.14	38.46	43.70
1991	66.84	38.65	53.09	84.56	67.70	76.54	73.13	48.64	61.29
2001	74.95	48.50	60.06	89.01	75.30	82.57	80.50	58.60	69.67

Source: Calculated from population census data.

effective literacy rates are 90.92 per cent for the whole population - 94.20 per cent for males, and 87.86 per cent for females (2001) (see Annexures). Gujarat's rank in the literacy rate declined during the 1990s: it is ranked sixth among the 15 large states in India in 2001 as against the fourth rank in 1991; in female literacy too it is ranked sixth, down from fifth position in 1991. In male literacy the state has just maintained its fourth position.

The literacy rates of SC and ST population in the state are higher than those for the country. The male literacy rate for SC in the state in 1999-2000 (55<sup>th</sup> NSS Round) is 79.92 per cent, which is more or less at par with that for the whole population in 2001 (80.23 per cent) (Tables 6.2 and 6.3). The female literacy rate of SC is quite low, but has improved almost five times between 1961 and 1999-00, reaching 55.48 per cent in 1999-00. The literacy rate for the scheduled tribe population is far from satisfactory, though it is higher than the average literacy rate of the ST population in India. The literacy rates for ST are 62.58 per cent for males, 40.45 per cent for females and 51.78 per cent for males and females combined. The gap between the literacy rates of ST women and SC women has been narrowing over the years, with the ST women crossing in 1981 the level of literacy of the SC women in 1961. The literacy rate among tribal women is the lowest among all the rates in the state. Since the ST population comprises 15 per cent of the state population, their low literacy rate is a matter of serious concern.

### Literacy Levels – Intra-State Disparities

There are regional variations in educational attainment in Gujarat according to the latest NSS data (1999-00). The dry region located in the north and

TABLE 6.2

#### Effective literacy rates, Gujarat and India

		Year	Gujarat	India
		(Percentage)		
Effective Literacy rates	Males	2001*	80.23	75.85
	Females	2001*	58.29	54.16
	Persons	2001*	69.67	65.38
	Rural	2001*	62.06	55.59
	Urban	2001*	82.57	75.17
Scheduled Castes	Males	1999-00**	79.92	62.70
	Females	1999-00**	55.48	38.68
	Persons	1999-00**	67.96	51.11
Scheduled Tribes	Males	1999-00**	62.58	57.11
	Females	1999-00**	40.45	35.32
	Persons	1999-00**	51.78	46.44

Source: \* Population Census.  
\*\* NSS 55<sup>th</sup> Round

northwest and the eastern tribal belt are the two main problem regions. Literacy rates in the dry region (comprising the districts of Banaskantha, Kachchh, and Surendranagar, and Sami, Harij and Chanasma talukas in Mehsana) are the lowest, 41.30 per cent for females, 69.89 per cent for males, and 56.11 per cent for both (Table 6.4). Then comes the eastern region, which is the tribal region. The literacy rates are 45.60 per cent for females, 67.38 per cent for males, and 56.50 per cent for both (1999-00). Between 1993-94 and 1999-00, the overall literacy rate increased only marginally, by 3.0 percentage points in the tribal region

TABLE 6.3

#### Literacy rates\*, 1961 to 1991

		1961	1971	1981	1991	2001
		(Percentage)				
Whole Population	Males	41.13	46.11	54.41	61.03	68.56
	Females	19.10	24.75	32.30	40.62	50.19
	Persons	30.45	35.79	43.70	51.17	59.75
Scheduled Castes	Males	33.87	30.89	53.14	75.47	67.91**
	Females	10.72	14.95	25.61	45.54	46.43**
	Persons	22.46	27.74	39.79	61.07	57.27**
Scheduled Tribes	Males	19.06	21.83	30.41	48.25	55.94**
	Females	4.09	6.15	11.64	24.20	36.33**
	Persons	11.69	14.12	21.64	36.45	46.21**

\*Calculated for whole population and not for population age 7+.  
\*\*Data is for 1999-00, calculated from NSS 55<sup>th</sup> Round.  
Source: Population Census.

*There are very high intra-state inequalities with respect to literacy achievements*

and it declined by almost 4 percentage points in the dry region. The increases achieved in other regions are quite low and not very impressive.

The census of 1991 and 2001 confirm the NSS results. Though the dry districts do not show any decline in the literacy rates during 1991-2001, the increases achieved are very low (Table 6.5). Dahod has the lowest literacy rate (31.7 per cent for females, 55.9 per cent for males, and 45.6 per cent for both) in 2001, followed by Banaskantha (34.5 per cent for females, 66.9 per cent for males, and 51.3 per cent for both) and Dangs (49.0 per cent for females, 71.3 per cent for males, and 60.0 per cent for both). The factors that seem to contribute towards the poor performance of the environmentally degraded regions in literacy would be: (a) the time spent by children collecting fuelwood, fodder and water, (b) time spent by children grazing animals, and (c) massive seasonal outmigration from these regions, frequently with family, in search of work. The results of the time use survey (1998-99) confirm this (Government of Gujarat 2001).

Gandhinagar district has the highest literacy rate of 87.9 per cent for males, followed by Ahmedabad (87.8 per cent) and Kheda (86.6 per cent). In female literacy, Ahmedabad district leads with 71.1 per cent, and Gandhinagar comes at fourth with 64.8 per cent. Navsari is in second position and Surat third. In overall literacy, Ahmedabad leads

followed by Gandhinagar and Navsari. The best district in Gujarat is, however, still quite far from the achievement of Kerala. Literacy rate of Ahmedabad is 1.75 times that of Dahod. This suggests that there are very high intra-state inequalities with respect to literacy achievements.

As regards the literacy rates of SC and ST population, the state has performed better (Table 6.6), particularly with regard to SC. With regard to ST literacy rate, there is very little distance from overall literacy rate. Even in states such as Kerala, the literacy rate among ST is lower than the average rates. In Gujarat, the difference between the general literacy rate (69.34 per cent) and ST literacy rate (51.78 per cent) is about 18 per cent, which is quite high. This is also the case when the literacy rates are disaggregated by sex. The state is sixth among 15 large states in India with regard to overall ST literacy rate, sixth in ST female literacy rate, and fifth in the ST male literacy rate.

By contrast, the literacy rate of SC (67.96 per cent) in the state is just two percentage points behind the general population. The SC male literacy rate has reached the average male literacy rate in the state, while the SC female literacy rate is just 2 percentage points behind that the average female literacy rate. The state stands 3<sup>rd</sup> in overall SC literacy, 3<sup>rd</sup> in SC female literacy and 1<sup>st</sup> in SC male literacy. Thus SC seem to be catch-

TABLE 6.4

**NSS region-wise literacy rates, 1993-94 and 1999-00**

(Percentage)

	1999-00			1993-94		
	Male	Female	Persons	Male	Female	Persons
Eastern region	67.38	45.60	56.50	66.82	39.00	53.49
Plains – Northern region	85.17	62.82	74.21	83.89	58.97	71.90
Plains – Southern region	88.74	70.96	80.24	77.57	57.14	68.17
Dry regions	69.89	41.30	56.11	75.71	42.81	59.93
Saurashtra	79.50	59.60	69.57	73.33	50.55	61.90
GUJARAT	80.19	57.96	69.34	76.75	51.57	64.61

Source: Calculated from NSS data.

TABLE 6.5

**District-wise effective literacy rate, 1991 and 2001**

	(Percentage)					
	2001			1991		
	Male	Female	Persons	Male	Female	Persons
Ahmedabad	87.8	71.1	79.9	82.9	63.3	73.6
Amreli	77.7	57.8	67.7	71.2	49.7	60.5
Anand	86.3	62.5	75.0	81.2	53.4	67.9
Banaskantha	66.9	34.5	51.3	55.2	22.7	39.5
Bharuch	83.4	65.4	74.8	76.3	54.3	65.8
Bhavnagar	78.8	54.5	67.0	70.9	43.9	57.8
Dangs	71.3	49.0	60.2	59.6	35.3	47.6
Dahod	55.9	31.7	45.6	49.7	21.5	35.8
Gandhinagar	87.9	64.8	76.8	84.9	62.0	73.8
Jamnagar	77.0	56.9	67.2	70.0	47.5	59.0
Junagadh	79.4	59.6	68.3	72.0	46.8	59.6
Kachchh	71.0	49.1	60.4	64.3	40.9	52.8
Kheda	86.6	57.8	72.7	79.8	46.9	64.0
Mehsana	86.5	64.0	75.5	81.1	55.2	68.4
Narmada	72.9	47.2	60.4	64.9	37.0	51.4
Navsari	82.9	68.7	76.0	76.7	59.5	68.3
Panchmahals	76.6	45.4	61.5	66.2	31.6	49.6
Patan	74.1	46.4	60.6	67.9	39.2	53.9
Porbandar	78.9	58.8	69.1	73.2	50.1	61.9
Rajkot	83.7	67.6	75.9	76.8	56.7	67.0
Sabarkantha	81.2	52.9	67.3	74.5	43.1	59.0
Surat	81.8	66.7	75.0	72.6	55.1	64.4
Surendranagar	73.5	48.7	62.5	67.8	40.7	54.8
Vadodara	80.7	61.2	71.3	74.2	52.2	63.7
Valsad	78.1	59.9	69.4	70.2	50.0	60.3
GUJARAT	80.2	58.3	69.7	73.1	48.6	61.3

Source: Provisional population totals - Gujarat 2001.

ing up with the overall population in literacy rates whereas ST are still far behind the general population. Clearly focused attention is required to improve literacy rates of ST population.

With regard to achievement levels in education, a very large proportion of the population identified as literate has studied only up to primary level or below. About 48 per cent of the literate population in the state has studied up to class IV or below (see Annexures). However the situation in Gujarat is better than all India figures where 58 per cent of the literates have studied up to primary level. Among females, this percentage is 53 in

Gujarat and 63 in India. If primary or below level of achievement is as good as being illiterate, then about 63 per cent of the population in Gujarat is either illiterate or nearly illiterate. The proportion of literates who have achieved education up to graduation and above is very low in Gujarat (6.37 per cent) as in the case of India and all states in India. These achievements are clearly not enough to become globally competitive. A developed state such as Gujarat should set UEE as a short-term goal and average educational achievements up to secondary level along with technological education as a long-term goal (Box 6.3).



TABLE 6.6

**Literacy rates of STs and SCs by states, 1999-00**

(Percentage)

States	ST			SC		
	Male	Female	Persons	Male	Female	Persons
Andhra Pradesh	38.93	25.79	32.20	56.41	34.84	45.96
Assam	80.23	63.00	72.07	78.82	62.36	71.25
Bihar	52.11	30.13	41.67	37.50	14.49	26.48
Gujarat	62.58	40.45	51.78	79.92	55.48	67.96
Haryana	55.36	33.26	45.30	67.51	43.00	55.77
Karnataka	54.42	36.34	44.95	53.62	37.22	45.51
Kerala	85.78	70.43	77.97	89.06	78.03	83.39
Madhya Pradesh	51.76	29.93	41.17	63.57	35.13	50.07
Maharashtra	54.10	33.43	44.04	74.62	48.45	62.18
Orissa	47.22	24.67	35.72	63.97	37.43	50.64
Punjab	80.92	68.00	73.72	63.45	47.43	55.71
Rajasthan	56.99	19.47	38.99	61.59	24.24	43.93
Tamil Nadu	62.09	44.02	53.30	71.29	49.09	60.09
Uttar Pradesh	66.78	49.62	58.41	57.39	27.64	43.21
West Bengal	54.93	28.92	42.08	67.88	46.80	57.75
<b>INDIA</b>	<b>57.11</b>	<b>35.32</b>	<b>46.44</b>	<b>62.70</b>	<b>38.68</b>	<b>51.11</b>

Source: Calculated from NSS 55<sup>th</sup> Round data.**Trends in Enrolment - Overall**

Policy debates on primary education in India usually focus on quantitative performance of schooling in terms of gross enrolment (percentage of children of school-going age attending school) and the internal efficiency of the system as reflected in drop-out rates. 'Drop-out' results for two reasons: (a) parents withdrawing the children from the school for various reasons and (b) the school system 'eliminating' or 'pushing out' certain kind of pupils, both processes coexisting and interacting.

Enrolment is a flow variable, which is dependent to a considerable extent on the physical access to school. Gujarat has made remarkable progress here. According to the

Sixth Educational Survey, 95.76 per cent of the rural population had a primary school within one km. radius (NCERT 1998, Volume 1). The extent to which children actually enrol, however, is a function of the social demand for education. The net enrolment rate of children in classes I-V is therefore only 76 per cent, in spite of the availability of primary school facilities (based on NCERT 1996, Volumes 1 and 6).

Two surveys have captured net enrolment rates in India; the survey by NCERT, mentioned above and the other by NCAER. The NCAER data show that only about 5 per cent of the children in the age group 6-14 years are not enrolled in Gujarat (Table 6.7). Non-enrolment in Gujarat is lower than in India where 13 per cent children in the age group of 6-14 years did not enrol. Gujarat is not far from reaching the 100 per cent enrolment rate of Kerala. Though enrolment is quite high in Gujarat, drop-out rate is also quite high according to this survey. Only 53.75 per cent of the enrolled children in the age group 6-14 years continued after class V. In India, the retention rate is much higher,

## BOX 6.3

**Adult Literacy Education Goals**

Achievement of 100% adult literacy in the age group of 15 to 35 years, with emphasis on female literacy through:

- ◆ Expansion of coverage of the TLC to entire state.
- ◆ Achievement of 100% female literacy for all socio-economic groups, including

SC/ST and other educationally backward groups.

- ◆ Support to Universal Primary Education (UPE) for every child,
- ◆ Enrolment of all non-school going and drop-out children 9 to 14 years age into NFE scheme.

Source: Government of Gujarat (1994).

at 67.45 per cent (see Annexures). The NCAER data showed that India has a lower enrolment rate but a higher retention rate whereas Gujarat has a higher enrolment rate but lower retention rate. This situation has reversed in the recent years as observed later.

Net enrolment refers to the proportion of children of a particular age group attending grades specified for that age group while gross enrolment refers to children enrolling in school in any grade irrespective of age. Thus, if children of higher age group have enrolled, they would be counted in the gross enrolment rate but will be excluded from the net enrolment rate. Generally, figures of gross enrolment are higher than 100 in the underdeveloped regions, where many children start their primary education at a late age.

The Sixth All-India Education Survey by NCERT (1998) shows that 76 per cent of children of primary school going age were enrolled in primary schools in Gujarat against only 64 per cent in India. The net enrolment rates in Gujarat for boys and girls were 81 per cent and 71 per cent respectively whereas the corresponding rates were 71 per cent and 57 per cent in India. Net enrolment in elementary education was also 69 per cent in Gujarat compared to 58 per cent in India (Table 6.8).

The Directorate of Primary Education's data on annual enrolment in class I shows that the number of children, boys as well as girls, enrolled in class I improved consistently in Gujarat till 1993-94. From 1994-95 onwards, the absolute number of boys and girls enrolled in class I has been declining (Table 6.9). Enrolment of children in class I fell by about 3 lakh in 1994-95; 1.3 lakh less boys and 1.7 lakh less girls. This decline continued till 1996-97. Thereafter, the number of children enrolled in class I has increased, but has not yet reached the level of

TABLE 6.7

**Enrolment and retention of children age 6-14**

		(Percentage)	
		Gujarat	India
Enrolment rate age 6-14	Boys	97.49	89.98
	Girls	93.96	83.48
	Persons	95.97	86.79
Retention rate after class V	Boys	57.95	64.95
	Girls	53.75	63.68
	Persons	53.75	67.45

Source: Based on NCAER Survey in Chakravarty and Pal (1995).

1993-94. Compared to 1999-00, enrolment of girls declined in 2000-01. This is a matter of concern, which prompted the education department to send bureaucrats to the districts under the *Kanya Kelvani Rath* to attract students to the school system and motivate parents of children who have never been to school to enrol their children.

The 55<sup>th</sup> Round of the NSSO (1999-00) provides the latest data on enrolment and drop-out rates of children in Gujarat. About 12.82 per cent of the children did not enrol in school in 1999-00 (Table 6.10). This percentage among girls was 16.68, which means that one in six girls in the age of 6-14 years has never been enrolled in school. Another 6.67 per cent children enrolled but soon dropped out. This figure among girls is 8.26 per cent. This means that, one in every four girls in the age 6-14 years in the state is deprived of school education. The net enrolment rate for elementary education in the state is 72.66 per cent for all children and 67.80 per cent for female children.

TABLE 6.8

**Net enrolment in Class I-V and Class VI-VIII, Gujarat and India**

		(Percentage)			
		Class I-V		Class I-VIII	
		Gujarat	India	Gujarat	India
Boys		81.38	70.84	74.30	64.03
Girls		70.56	57.15	63.16	50.43
Total		76.14	64.22	68.94	57.51

Source: Based on NCERT (1998).

Net enrolment in elementary education on the whole in the state has improved only marginally, from 69.56 per cent in 1993-94 to just 72.66 per cent in 1999-00, and of children in the age group 6-14 years going to school has improved from 76.37 per cent to 80.52 per cent in this period. Though the all India enrolment rate of girls has improved at a faster rate than of boys, there is near stagnation in overall achievements in the 1990s.

The NSS data (see Annexures) portray a better achievement of Gujarat with regard to net enrolment compared to the all-India average. In 1999-00 the state stood 6<sup>th</sup> among the major states in percentage of children attending school (6-14 years) and 4<sup>th</sup> in net enrolment in elementary school for the entire child population. For the female children, however, the state ranks much lower, at 8<sup>th</sup> position in percentage children going to school and at 6<sup>th</sup> position in net enrolment in elementary education (1999-00). In 1993-94, the state was at 7<sup>th</sup> position with regard to percentage children going to school and at 6<sup>th</sup> position in net enrolment in elementary education<sup>2</sup>. Different data consistently show that female education has been suffering in the state though it im-

proved in the 1990s much more than for males. Even then, Gujarat is far behind other states in female education. On the other hand, the state has been well placed as far as enrolment of boys is concerned but improvement there too stagnated in the later half of the 1990s.

## Enrolment and Drop-out Rates – by Regions

The dry region of the state, which witnessed decline in literacy rates during this period, has the lowest net enrolment rates in elementary education (57.46 per cent on the whole, 48.66 per cent for females, and 64.37 per cent for males) and the lowest percentage of children in age 6-14 years (73.22 per cent on the whole, 60.45 per cent for females, and 83.24 per cent for males) attending school in 1999-00 (Table 6.10). In fact, this region's performance is worse than the tribal regions. The dry region is dogged with environmental problems in good as well as bad monsoon years, which pushes children out from the school system. A part of the solution to the low performance of the state in flow variables of education lies partly outside the education system and is linked to the macro path of development adopted by the state government.

Net enrolment in elementary school in the eastern region, which is the tribal region, is 72.19 per cent. This rate among males was 75.87 per cent and among females 68.20 per cent. In this region, just 74.53 per cent of children in age 6-14 go to school, 77.33 per cent among male children and 71.49 per cent among female children (Table 6.10). The highest net enrolment rate in elementary education is in the southern plains and the highest percentage of children going to school in age 6-14 is in Saurashtra. The northern plain region, which has two large metropolises, Ahmedabad and Vadodara, is not at the top ei-

TABLE 6.9

### Enrolment by sex in Class I over time, Gujarat

Year	Number of enrolled students		
	Boys	Girls	Persons
1985-86	763,367	11,110	1,374,477
1986-87	800,463	655,949	1,456,412
1987-88	822,940	674,272	1,497,212
1988-89	811,229	655,863	1,467,092
1989-90	881,987	719,113	1,601,100
1990-91	913,412	742,690	1,656,102
1991-92	928,256	748,939	1,677,195
1992-93	944,795	762,283	1,707,078
1993-94	971,183	785,301	1,758,484
1994-95	836,306	615,623	1,451,926
1995-96	802,188	585,276	1,387,464
1996-97	805,419	589,059	1,394,478
1997-98	814,111	602,584	1,416,695
1998-99	823,569	626,692	1,450,263
1999-00	906,776	684,060	1,590,836
2000-01	990,690	578,703	1,569,393

Source: Directorate of Primary Education.

TABLE 6.10

**Enrolment rates (age 6-14 years) by NSS regions, Gujarat, 1999-00 and 1993-94**

NSS region	Per cent 1999-00				Per cent 1993-94	
	Never Enrolled	Enrolled but left	In age 6-14 going to school	Net enrolment in elementary school	In age 6-14 going to school	Net enrolment in elementary school
	Male				Male	
Eastern region	15.78	6.89	77.33	75.87	76.21	70.46
Plains - Northern region	9.33	4.27	86.40	82.20	87.44	81.44
Plains - Southern region	6.32	7.89	85.79	81.48	84.37	76.86
Dry region	12.99	3.78	83.24	64.37	80.12	63.04
Saurashtra	5.45	4.12	90.44	75.72	81.38	79.55
Rural	10.32	6.00	83.68	75.45	79.91	73.52
Urban	7.26	3.53	89.21	80.47	88.88	80.87
Gujarat	9.38	5.25	85.37	76.98	82.57	75.70
	Female				Female	
Eastern region	20.76	7.74	71.49	68.20	66.91	60.10
Plains - Northern region	16.24	7.93	75.83	71.73	73.77	68.23
Plains - Southern region	10.50	7.60	81.90	76.03	72.73	63.56
Dry region	32.11	7.45	60.45	48.66	61.26	45.01
Saurashtra	10.97	9.89	79.14	66.69	69.18	68.23
Rural	19.88	8.76	71.36	63.95	63.49	57.35
Urban	8.64	7.02	84.34	77.48	82.90	74.89
Gujarat	16.68	8.26	75.05	67.80	69.55	62.82
	Persons				Persons	
Eastern region	18.17	7.30	74.53	72.19	71.98	65.75
Plains - Northern region	12.72	6.06	81.23	77.07	80.78	75.01
Plains - Southern region	8.21	7.76	84.03	79.01	79.24	71.00
Dry region	21.39	5.39	73.22	57.46	70.99	54.31
Saurashtra	8.04	6.84	85.12	71.47	75.32	73.92
Rural	14.89	7.32	77.80	69.95	72.17	65.90
Urban	7.89	5.11	87.00	79.12	85.95	77.95
Gujarat	12.82	6.67	80.52	72.66	76.37	69.56

Source: Calculated using NSS data.

ther with respect to net enrolment in elementary education or with respect to children in age group 6-14 going to school.

District-wise gross enrolment rates for 1996 and 2000 give a mixed picture (Table 6.11). On the whole there is very little change observed.

### Enrolment of SC and ST Children

Net enrolment rates among ST children can be deduced from region-wise data given in Table 6.10. But, the Directorate of Primary Education has data of number of children enrolled in class I in absolute numbers. For the whole population, there is a decline in the absolute number of children

enrolled in class I from 1994-95. From 1999-00, there is an increase in the absolute number of children enrolled in class I. But, the number had not reached 1993-94 level. By contrast, among the SC and ST population, a continuous increase in the number of students enrolled in class I has been registered (Table 6.12).

### Drop-out Rates

Drop-out rates have declined in Gujarat in recent years. As against 45 per cent of boys and 53 per cent of girls dropping out of the school (after class V) in 1990-91, today (1999-00) about 21.05 per cent boys and 19.12 per cent girls are dropping out (Table 6.13). However the school enrolment, is by

all standards, still low in the state. The drop-out rate after class VII still remains high, at 37 per cent for girls and 41 per cent for boys in 2000-01. That is, about one in every three girls and two in every five boys

enrolled drops out after class VII (2000-01). This is an improvement as in 1990-91, two of the three boys and two of the three girls enrolled in class I dropped out of the education system after class VII. The inequality

between boys and girls with regard to retention in schools after class V has declined but continues to remain high after class VII. There is, therefore, a significant improvement in the retention rate at the elementary school level in the state (Box 6.4 & 6.5).

Drop-out rates in Gujarat are lower than in India according to the NCERT survey (1998), which also shows a decline in the drop-out rate between 1990-91 and 1998. About 66 per cent of the children who were enrolled in class I in Gujarat completed primary education and reached class V, whereas the all India figure was 55 per cent<sup>3</sup>. About 70 per cent of boys and 61 per cent of girls completed primary education in the state. The corresponding figures for India were 57 per cent and 52 per cent.

### Drop-out Rates – by Districts

District-wise drop-out rates available are slightly old, and show that the rates for girls are higher than that for boys at the state level as well as in districts. Again, the dry region and the tribal region perform poorly. Dangs, Banaskantha, and Panchmahals particularly have very high drop-out rates between class I and IV. About 60 per cent of the children who enrolled dropped out after class IV (Table 6.14) in these districts.

This chapter has focused on only analysing the trends in elementary education. Problems of shortage of technical manpower on one hand and increasing numbers of educated un-

TABLE 6.11

#### Gross enrolment rates in elementary school by district, 1996 and 2000

District	1996			2000		
	Boys	Girls	Total	Boys	Girls	Total
Ahmedabad	105	92	99	108	63	87
Amreli	91	75	83	92	80	86
Anand	-	-	-	94	82	89
Banaskantha	89	54	72	99	72	86
Bharuch	102	73	88	159	156	158
Bhavnagar	101	72	87	84	73	79
Dangs	118	120	119	123	129	126
Dahod	-	-	-	124	93	109
Gandhinagar	61	61	61	138	124	132
Jamnagar	86	69	78	71	65	68
Junagadh	85	74	80	76	72	74
Kachchh	91	66	79	91	77	85
Kheda	96	78	88	93	81	88
Mehsana	99	82	91	101	92	97
Narmada	-	-	-	97	86	92
Navsari	-	-	-	78	77	78
Panchmahals	91	62	77	99	88	93
Patan	-	-	-	114	94	105
Porbandar	-	-	-	73	69	71
Rajkot	107	62	85	77	73	75
Sabarkantha	88	77	83	89	79	84
Surat	87	86	87	85	76	81
Surendranagar	81	64	73	87	74	81
Vadodra	90	72	81	89	66	78
Valsad	93	80	87	78	75	76
GUJARAT	93	74	84	94	78	86

Source: Calculated using data from the Directorate of Primary education.

TABLE 6.12

#### SC and ST enrolment by sex in Class I over time, Gujarat

Year	Number of SC students enrolled in class I			Number of ST students enrolled in class I		
	Boys	Girls	Total	Boys	Girls	Total
1995-96	68,329	60,233	128,562	133,644	113,858	247,502
1996-97	71,046	59,458	130,504	143,683	109,064	252,747
1998-99	69,344	60,613	129,957	140,419	118,523	258,942
1999-00	74,072	64,505	138,577	154,460	130,375	284,835
2000-01	75,476	67,021	142,497	178,037	144,255	322,292

Source: Calculated using data from the Directorate of Primary education.

employed on the other have already been discussed in chapter 2.

## Education Expenditure

The Gujarat government spent Rs. 3,263.55 crore on the education sector in 2001-2002 (Box 6.6). This is less than the Rs. 3684.77 crore (by 11.43 percent) spent the previous year (2000-01) and Rs. 3,412.01 spent in 1999-00, all at current prices. The amount comes to about 3.0 per cent to 4.0 per cent of SDP, which is much less than the norm of 6 per cent set by the NPE 1986.

Expenditure on education in the state has increased over the past decades in absolute as well as relative terms (Table 6.15). It has increased as a percentage of expenditure on social services, expenditure on development and in total revenue as well as capital account expenditure. As a proportion of social services, expenditure on education has increased from 48 per cent in 1986-87 to 60 per cent in 1996-97, after which there is a decline to 42 per cent in 2001-02.

On the capital account, funds allocated to education fluctuated greatly in the 1990s, reaching an all time low of 0.63 per cent in 2001-02. From 1995-96 onwards, there has been a continuous decline in the proportion of social services expenditure spent on education on the capital account. Therefore no new capital expenditure has been incurred in the education sector in recent years.

Figures 6.1, 6.2 and 6.3 show that expenditure on education in real terms has increased in the last decade and a half. However, the increase is on the revenue account (Fig. 6.1), and that on capital account is fluctuating, increasing till 1993-94 and then declining (Fig. 6.2). Thus, the overall increase (Fig. 6.3) is mainly owing to increased revenue expenditure.

Compared to other states, Gujarat was spending a much lower proportion of the SDP on education before

the mid-1980s. Since then to the end of the decade of 1980's, the state has increased its SDP allocation to the education sector. In the 1990s, this percentage got fixed between 3 to 4.0 per cent. States like Kerala and Tamil Nadu have devoted a higher share of their

### BOX 6.4

#### Financial incentive for the girl child to complete elementary education

The government of Gujarat has introduced a dynamic scheme of providing financial incentive to the girl child to complete elementary education. This scheme is called *Vidya Lakshmi*. The girl child will be provided Rs. 1,000 worth of Narmada bonds when she is enrolled in class I. The bond would be redeemed when she completes class VII and the amount would come to about Rs. 3,000. This scheme was applicable in areas where female literacy was less than 25 per cent. Now, the scheme is to be implemented with the participation of the non-government sector; donors, non-

political social organizations, school teachers, and others, who would give the amount to district education authorities to buy the Narmada bonds for girls and hand them over to parents. In the current financial year, the state government has provided Rs.1.63 crore for the project and has been able to collect another Rs. 9.28 crore from the donors. The target was to issue 101,500 bonds, which was increased to include another 24,550 girls as the government was able to collect more money. Though the total amount mobilized is large, the targets have not been met.

Source: (*The Times of India*, Ahmedabad, February 4, 2003 and *Indian Express*, Ahmedabad, February 4, 2003).

### BOX 6.5

#### Some recent efforts in elementary education

Recognizing the need for improving achievements in elementary education, the government of Gujarat has taken several steps recently. These are:

- ◆ *Sarve Shiksha Abhiyan* in rural and urban areas
- ◆ Declaring the year 2003-04 as Kanya Kelavani year.

- ◆ Enrolment drive at the beginning of the 2003-04 school year.
- ◆ Setting up a high level committee for improving status in primary education.
- ◆ Initiating the *Cyan Rath* project in which the state's educational programmes would reach the masses through computer connectivity.

TABLE 6.13

#### Recent drop-out rates over time, Gujarat

Year	Drop-out (%) I-V			Drop-out (%) I-VII		
	Boys	Girls	Total	Boys	Girls	Total
1990-91	44.63	53.41	49.02	62.86	66.60	64.48
1991-92	43.67	52.67	48.17	60.58	65.63	63.11
1992-93	41.74	50.19	45.97	58.17	64.29	61.23
1993-94	40.38	49.84	44.63	56.91	67.84	62.38
1994-95	34.94	41.10	37.71	51.17	55.52	53.11
1995-96	33.45	40.01	36.93	49.19	53.80	51.25
1996-97	32.72	39.74	35.40	48.19	51.17	49.49
1997-98	32.26	38.95	35.21	47.12	50.18	48.43
1998-99	29.28	27.56	28.96	46.91	49.74	48.18
1999-00	23.77	20.83	22.30	42.76	39.90	41.48
2000-01	21.05	19.12	20.81	40.53	36.90	38.92

Source: Calculated using data from the Directorate of Primary education.

BOX 6.6

**Expenditure on education (current prices)**

S.no.	Year	Total expenditure on education (Rs. Crore)		
		Revenue	Capital	Total
1	1991-92	1,068.06	10.35	1,145.45
2	1992-93	1,131.84	13.61	1,378.65
3	1993-94	1,369.20	9.45	1,571.74
4	1994-95	1,560.97	10.77	1,886.96
5	1995-96	1,871.17	15.79	2,061.03
6	1996-97	2,049.90	11.13	2,303.55
7	1997-98	2,289.64	13.91	3,141.15
8	1998-99	3,124.63	16.52	3,412.01
9	1999-00	3,392.95	19.06	3,684.77
10	2000-01	3,672.36	12.41	3,263.55
11	2001-02	3,258.15	5.40	

S.no.	Year	Per student expenditure on education (Rs.)		
		Revenue	Capital	Total
1	1991-92	1,134.06	10.99	1,145.05
2	1992-93	1,164.00	14.00	1,178.00
3	1993-94	1,372.77	9.47	1,382.24
4	1994-95	1,535.93	10.59	1,546.52
5	1995-96	1,906.83	16.09	1,922.92
6	1996-97	2,088.33	11.33	2,099.66
7	1997-98	2,291.93	13.92	2,305.85
8	1998-99	3,228.92	17.07	3,246.00
9	1999-00	3,299.57	18.54	3,308.11
10	2000-01	3,519.61	11.89	3,531.50

Source: Based on Annual budgets from Directorate of Economics and Statistics.

TABLE 6.14

**District-wise drop-out rates (class I-VII), 1986-90, Gujarat**

Districts	Boys	Girls	(Percentage)
			Persons
Ahmedabad	52.46	55.90	54.18
Amreli	50.42	52.70	51.56
Banaskantha	52.81	51.80	52.31
Bharuch	52.76	57.72	55.24
Bhavnagar	49.38	49.59	49.49
Dangs	51.35	49.06	50.24
Gandhinagar	47.98	47.56	47.77
Jamnagar	48.63	50.06	49.35
Junagadh	48.58	48.22	48.40
Kachchh	48.12	51.04	49.58
Kheda	50.98	55.43	53.24
Mehsana	52.63	47.24	49.94
Panchmahals	48.83	50.77	49.80
Rajkot	50.95	52.43	51.69
Sabarkantha	50.66	49.89	50.28
Surat	50.53	48.60	49.57
Surendranagar	49.79	50.13	49.96
Vadodara	49.24	50.16	49.70
Valsad	51.45	51.86	51.60

Source: Status of Implementation of the convention of the Rights of the Child in Gujarat, UNICEF, Gandhinagar, June 2002.

SDP to education and the figure has crossed 6.0 per cent mark in some years (Table 6.16). Some other states such as Karnataka and West Bengal are also devoting a higher proportion of their SDP to education.

It appears that the proportion of revenue account expenditure spent on education in the state has got fixed at around 23 per cent (Table 6.17). The exception is 1985-86 when it went to 28 per cent. Nearly half of the major states are spending a larger proportion of their revenue expenditure on education than Gujarat. This was especially so during the 1980s and 1990s. There is, therefore, a need to improve expenditure on the education sector in the state, on both revenue and capital accounts.

## Education Facilities in Gujarat

The education system in the state can be divided into four levels: (i) primary (classes I-IV), (ii) middle (classes V-VII), (iii) high and higher secondary school (from classes VIII to XII) and (iv) college, university, and other technical education. In India, primary education is up to Class V and elementary education is up to class VIII. Gujarat has therefore, set lower achievement standards in education compared to other states. It needs to be noted at the outset that the facilities discussed here refer to government/local bodies schools only. Private sector schools are not included.

### Primary and Middle Education

According to the statistics of the Ministry of Human Resource Development, availability of primary schools per lakh population was lower in Gujarat compared to the all-India figures in the early 90s. Gujarat had half the number of

TABLE 6.15

**Expenditure on education over time, Gujarat**

Year	On revenue account as % of			On capital account as % of			As % of total budget	As % of GDP
	Social services	Development expenditure	Revenue budget	Social services	Development expenditure	Capital budget		
1986-87	48.10	24.90	19.00	1.70	0.30	0.10	12.40	3.36
1987-88	47.90	24.10	18.60	3.80	0.80	0.40	12.90	4.17
1988-89	53.90	28.00	20.50	4.43	0.66	0.26	13.60	3.56
1989-90	55.70	30.10	21.60	8.43	0.78	0.51	16.28	3.78
1990-91	56.75	31.66	22.34	4.92	0.37	0.24	16.03	3.77
1991-92	56.27	28.23	20.00	9.12	0.81	0.41	13.85	4.09
1992-93	56.40	25.60	18.22	10.37	1.12	0.55	13.18	3.27
1993-94	58.69	27.52	19.75	5.49	1.00	0.40	14.83	3.50
1994-95	59.44	29.84	20.69	3.94	0.78	0.52	16.35	3.28
1995-96	59.79	30.48	21.35	11.51	1.04	0.77	17.45	3.82
1996-97	59.89	29.59	19.98	5.18	0.64	0.40	15.82	3.08
1997-98	54.00	27.15	18.86	6.19	0.65	0.47	15.23	3.06
1998-99	57.47	28.92	20.02	3.36	0.58	0.45	16.31	3.50
1999-00	54.47	28.86	19.37	2.76	0.61	0.38	15.13	3.76
2000-01	47.59	23.07	16.66	1.17	0.34	0.14	11.83	4.00
2001-02	42.19	17.40	14.34	0.63	0.19	0.01	4.95	3.11

Source: Based on annual budgets, Directorate of Economics and Statistics.

TABLE 6.16

**Share of education (%) in GDP by states**

State	1960-61	1980-81	1983-84	1985-86	1990-91	1995-96
Andhra Pradesh	2.3	3.8	3.7	4.7	4.6	2.4#
Assam	2.2	3.6	3.5	4.8	6.0	6.4#
Bihar	2.3	3.6	4.3	4.2	6.3	6.2#
Gujarat	2.5	3.5	3.1	5.4	4.3	3.1#
Haryana	++	2.7	2.7	3.3	3.1	2.3#
Karnataka	2.6	3.4	3.3	5.2	4.3	3.8#
Kerala	4.2	5.7	4.3	6.5	6.5	6.3#
Madhya Pradesh	2.3	3.3	3.2	4.2	5.0	3.2#
Maharashtra	3.0	3.5	3.3	3.5	3.2	2.8#
Orissa	1.9	3.8	2.9	4.7	5.4	5.1#
Punjab	2.7*	3.5	3.4	3.3	3.5	2.1#
Rajasthan	2.4	3.7	2.8	4.9	5.3	4.1\$
Tamil Nadu	2.8	4.3	4.1	4.8	5.0	3.7\$
Uttar Pradesh	2.2	3.1	3.0	3.3	4.6	3.8#
West Bengal	2.6	2.9	3.4	3.5	5.4	3.5#

Note: \*Includes Haryana; ++ Included in Punjab; + 1989-90; 1985-86 onwards: government expenditure only. # Quick estimates; \$ Advance estimates. Source: Tilak (2001): 271.

schools (33.21) than the all-India average (66.89) (Table 6.18). Gujarat was 13<sup>th</sup> among 15 large states of India, Orissa leading with 126.45 schools per lakh population (Ministry of Human Resource Development-HRD 1994a). The Sixth All-India Educational Survey gives a contrary picture with regard to rural areas. About 90 per cent of the villages in the state had a primary school within the

habitation. That covered 97 per cent of the rural population in 1993 (when the survey was carried out). This compares very well against just 78 per cent of the rural population in India having access to a primary school located within the village itself (NCERT 1998). According to the latest data of the state government, 100 per cent of the population has access to primary school in Gujarat,



Figure 6.1

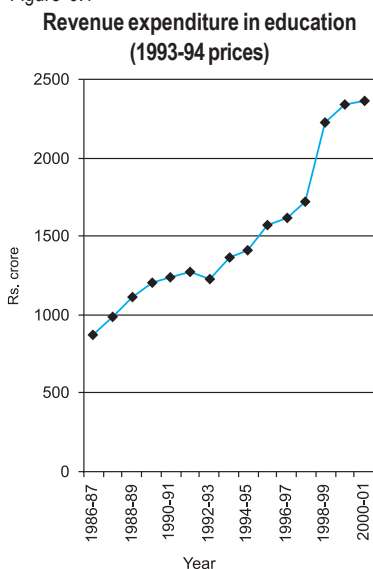


Figure 6.2

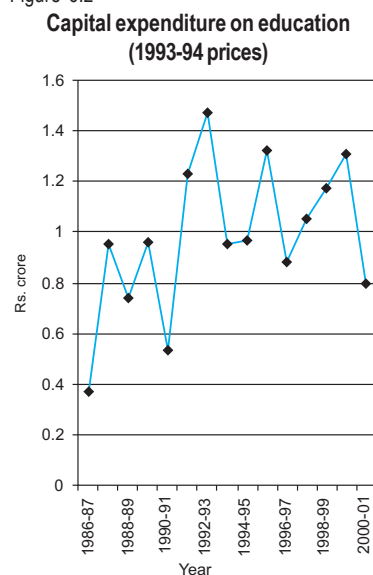
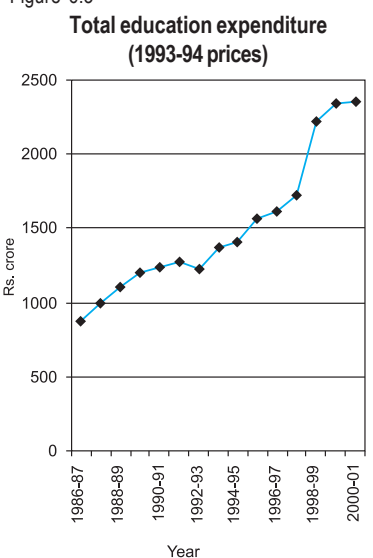


Figure 6.3



97.83 per cent having them within the village, 99.45 per cent having them within 1 km distance 99.8 per cent having them within 2 km distance and only 0.2 per cent having a school beyond 2 km. This shows that the geographical coverage of the primary school network is good.

With respect to pre-primary schools, Gujarat has a higher number of schools per lakh population compared to India. There are 5.70 pre-primary schools per lakh population in Gujarat as compared to 1.89 for the country as a whole. But, this is not enough. In terms of geographical coverage, 30 per cent of villages in India and 63 per cent of villages in Gujarat have a pre-primary school (NCERT 1998). According to the latest data available from the Directorate of Economics and Statistics, about 16,200 villages have a pre-primary school, but only 7,844 schools have their own building (Directorate of Economics and Statistics 2000). Considering the fact that there are 30,000 habitations in Gujarat and each needs a pre-primary school, these numbers are far from satisfactory. With respect to middle schools too, the level of facilities in Gujarat is good as compared to that for the country. There are 42.48 middle schools per lakh population in Gujarat compared to the all-India figure of 18.06.

Unlike many states in India, primary and middle schools in Gujarat are run and managed by local bodies. About 95 per cent of the primary schools and 87 per cent of middle schools are managed by local bodies in Gujarat compared to 50 per cent and 33 per cent respectively for the country. Management of primary and middle schools (education up to elementary level) by a local government

seems to be a better solution as problems can be well and immediately attended to at the local level. Local bodies, however, would have to keep applying to the state government for funds, which can delay maintenance and repair tasks. Pre-primary schools in Gujarat are predominantly managed by private bodies, about 75 per cent, as against only 48 per cent for the country.

Gujarat's performance with regard to the teacher-pupil ratio in the primary school was quite good, above the specified norm of 1:40, till the end of the 1980s. Since the beginning of 1990s, this ratio has moved above 40, reaching 43 in 1994-95 and 44 in 2000-01 (Table 6.19). However the Sixth Educational Survey gives different results. According to this survey, the teacher-pupil ratio was 1:36 in Gujarat against 1:40 for the country. Gujarat stood third with respect to the teacher-pupil ratio at the primary level (see Annexures). But, the teacher-pupil ratio is not relevant if the enrolment as well as retention rates are low. For example, it has been observed that in tribal areas the number of pupils per teacher is very low as the attendance rate of children is low.

On the whole Gujarat is better in parameters like geographical distribution of schools and teacher-pupil ratio. In term of the availability of primary schools also, the state is better placed than the country.

The government has recently appointed teachers called *Vidhya Sahayaks* at consolidated salaries at primary school level in government-run schools. According to the Directorate of Primary Education (2000-01) 46,347 posts of *Vidhya Sahayaks* were appointed against the total sanctioned strength of 54,378 (Table 6.20). There was thus a gap of 8,031 teachers. According to the Directorate of Economics and Statistics (2000) 3,587 villages in the state have at least one secondary school and 805 villages have at least one higher secondary school. This means that there is one secondary school for 5 to 6 villages and one

TABLE 6.17

**Share of education (%) in the total budget of the states (revenue account)**

State	1960-61	1970-71	1980-81	1985-86	1990-91	1995-96	1997-98
Andhra Pradesh	23.2	20.9	25.7	25.6	24.5	20.79	21.1
Assam	21.1	20.8	29.0	23.1	25.5	28.75	29.0
Bihar	18.9	19.5	26.5	27.9	28.1	24.63	28.8
Gujarat	23.4	20.2	23.6	28.3	24.3	23.78	23.2
Haryana	**	19.8	21.2	22.3	18.6	14.47	11.0
Karnataka	21.2	21.3	22.3	22.0	22.1	22.58	21.2
Kerala	36.0	35.7	35.5	31.7	30.4	30.77	27.4
Madhya Pradesh	24.2	24.2	21.4	21.0	24.2	24.47	29.5
Maharashtra	25.2	21.3	24.0	22.4	21.1	23.74	21.3
Orissa	12.8	16.8	22.8	22.2	24.2	23.68	22.7
Punjab	20.6*	22.1	29.3	23.9	22.7	13.07	17.9
Rajasthan	24.5	18.9	26.0	26.4	26.5	21.97	26.3
Tamil Nadu	23.4	22.5	24.3	27.4	23.7	22.71	24.7
Uttar Pradesh	14.5	18.2	22.0	21.8	24.0	21.49	20.1
West Bengal	37.1	23.0	24.2	25.8	30.4	24.29	24.7
<b>INDIA</b>	<b>22.5</b>	<b>21.4</b>	<b>23.8</b>	<b>24.0</b>	<b>25.4</b>	<b>22.30</b>	<b>22.6</b>

Note: \* includes Haryana; \*\* included in Punjab.  
Source: Tilak (2001): 274.

higher secondary school for 23 villages. As we shall see later on, these numbers are too high to facilitate attendance of children, particularly girls and children of the poor.

### Primary and Middle Education Facilities – by Districts

There are regional disparities in the levels of pre-primary and primary school facilities provided by the government. In the tribal districts or tribal dominated districts of Dangs, Sabarkantha, Panchmahals, Bharuch, and Kachchh, provision of primary schools and pre-primary schools per lakh population is quite high compared to other districts. Evidently, this is because of

scattered settlements in tribal districts and sparse population in Kachchh district. Dangs district, which is at the top, had 262 primary schools per lakh population in 1990-91 and 244 primary schools per lakh population in 1994-95 and 220 in 2000-01 (Table 6.21). Sabarkantha district had 129 primary schools per lakh population in 1994-95 and was second after Dangs. This district was second in the teacher-pupil ratio with a figure of 36.8 in 1996 (Table 6.22) (Bharuch was at the top with a ratio of 30.1.) Gandhinagar is at top with respect to pre-primary facilities (18.73) followed by Sabarkantha (15.4), against the state average of 5.5. Ahmedabad had only

TABLE 6.18

**School education facilities, Gujarat and India, 1990-91**

Facilities	Facility per lakh population		% institutions managed by					
			Government		Local bodies		Private	
	Gujarat	India	Gujarat	India	Gujarat	India	Gujarat	India
Pre-primary school	5.70	1.89	0.00	41.87	25.11	10.49	74.89	47.63
Primary/Basic school	33.21	66.89	0.47	40.95	94.83	50.50	4.70	8.55
Middle/Senior basic school	42.58	18.06	0.39	42.51	86.90	32.95	12.71	24.54
High/Post basic school	8.81	7.23	1.59	35.99	6.73	8.95	91.68	55.06
Higher secondary school	3.59	2.16	6.20	38.76	5.73	2.27	88.07	58.97

Source: Based on Ministry of Human Resource Development (1994a)

TABLE 6.19

**Teacher-pupil ratio over time**

Year	Teacher-pupil ratio in		
	Primary	Middle & higher secondary	Universities/Higher
1960-61	38.24	25.69	13.23
1965-66	38.13	27.18	17.83
1970-71	37.06	26.89	21.85
1975-76	37.20	28.28	29.40
1980-81	39.29	26.72	23.81
1985-86	40.23	26.95	27.64
1990-91	41.61	28.50	35.44
1992-93	41.88	30.57	40.32
1993-94	42.15	30.96	38.98
1994-95	42.89	30.35	39.03
1995-96	41.65	30.00	38.54
1996-97	42.34	29.97	34.27
1997-98	44.36	30.53	-
1998-99	44.01	31.32	39.08
1999-00	46.90	-	-
2000-01	41.78	-	-

Source: (i) Directorate of Higher Education (1997).  
(ii) Directorate of Primary Education (1995).

48 primary schools and 9 pre-primary schools per lakh population in 1994-95, mainly because the data refer to government/local body schools.

From 1980 onwards, the state government has taken the responsibility of providing teachers to district and *nagar panchayat* schools based on student strength. Since 1990, the state government has started providing approved primary education expenditure of the schools to the tune of 80 per cent for the schools run by municipal corporations and 95 per cent for schools run by municipalities. Even then, in 1994-95, the sanctioned posts of teachers in districts and *nagar panchayat* schools fell short by 5,132 to meet the teacher-pupil norm of 40. The sanctioned posts in this year were 153,490 and a large number of these were vacant. According to a news report (Times of India, Ahmedabad edition, June 23, 2003), there was a shortage of 20,954 teachers at the primary level. The highest shortage was in Dahod (1,779), followed by Bhavnagar (1,488), Vadodara (1,477), Kachchh (1,395), Banaskantha (1,296), and Jamnagar (1,236).

### High School and Higher Secondary Education

Gujarat has better high school and higher secondary school education facilities than India overall. The number of high schools per lakh population in Gujarat is 8.81 against the all India figure of 7.23. There are 3.59 higher secondary schools per lakh population in Gujarat compared to 2.16 for the country. But even this relatively better infrastructure is far from adequate in promoting secondary and higher secondary education in the state. High schools and higher secondary

TABLE 6.20

**District-wise sanctioned and filled posts for Vidhya Sahayaks**

District	Sanctioned Posts	Filled Posts
Ahmedabad	2,116	1,846
Amreli	2,110	1,843
Anand	2,081	1,969
Banaskantha	5,360	5,105
Bharuch	1,325	888
Bhavnagar	5,495	3,585
Dangs	565	473
Dahod	2,259	2,138
Gandhinagar	798	762
Jamnagar	2,249	1,785
Junagadh	2,183	1,854
Kachchh	2,690	2,383
Kheda	2,098	2,058
Mehsana	1,881	1,760
Narmada	1,483	1,337
Navsari	750	660
Panchmahals	2,509	1,804
Patan	1,496	1,465
Porbandar	653	404
Rajkot	1,905	1,682
Sabarkantha	2,915	2,772
Surat	2,374	2,170
Surendranagar	1,657	1,347
Vadodara	1,581	1,374
Valsad	1,031	998
GUJARAT	51,564	44,462

Source: Education Statistics (Primary Education) 2000-01.

TABLE 6.21

**District-wise primary education facilities, Gujarat**

Districts	Per lakh population					
	Primary schools			Pre-primary schools		
	1990-91	1994-95	2000-01	1990-91	1994-95	2000-01
Ahmedabad	46.38	47.86	41.39	9.48	8.75	8.11
Amreli	61.95	61.45	70.05	2.55	2.86	5.38
Banaskantha	86.19	81.94	86.26	2.77	3.42	8.15
Bharuch	100.06	94.82	89.77	2.20	2.11	2.55
Bhavnagar	58.46	59.08	54.59	1.40	2.06	2.43
Dangs	262.33	243.64	219.59	0.00	0.00	0.00
Gandhinagar	49.63	51.93	45.33	21.03	18.73	14.31
Jamnagar	74.70	74.63	69.71	2.17	2.14	3.47
Junagadh	61.34	63.80	70.49	1.88	1.86	0.69
Kachchh	98.93	100.96	99.39	1.43	1.40	3.08
Kheda	82.25	82.31	89.60	10.81	10.92	9.98
Mehsana	59.91	61.65	58.61	14.23	13.47	16.43
Panchmahals	118.01	99.52	113.69	1.73	1.66	3.95
Rajkot	59.34	73.08	73.10	3.86	3.62	2.64
Sabarkantha	130.89	129.11	127.24	16.24	15.40	12.10
Surat	66.10	62.09	51.78	1.88	1.69	5.26
Surendranagar	72.88	69.87	73.26	2.15	2.10	2.05
Vadodara	77.94	77.46	73.52	5.24	4.98	4.23
Valsad	76.28	74.44	73.01	3.77	4.37	3.83
GUJARAT	75.72	74.71	76.12	5.70	5.49	6.04

Source: Based on publications of the Directorate of Primary Education.

institutions in Gujarat are, by and large, managed by the private sector and aided by the state government. About 92 per cent of high schools and 88 per cent of higher secondary schools in Gujarat, as compared to 55 per cent and 59 per cent for the country, are under private management. A majority of these are grant-in-aid institutions. It is not possible to comment on the differences in the quality of education between privately and publicly managed high schools, as required data are not available. On the whole, high schools and higher secondary institutions per lakh population and the teacher-pupil ratio have been gradually moving in the adverse direction in the state.

### Children Outside Schools

What do children do when they do not go to school? The answer to this question is

important as it can contribute significantly to forming policies/programmes to attract children to school (also see Box 6.7 & 6.8).

### Child Labour

One of the activities of children outside school is economic work. NSS data shows that the incidence of child labour is not very high in the state (Table 6.23). In 1993-94, about 5.9 per cent of children (age 6-14 years) were engaged in economic activities in rural Gujarat. In 1999-00, this figure was 6.0 per cent, nearly the same as in 1993-94. The corresponding figures for urban areas were only 2.8 per cent and 2.0 per cent in 1993-94 and 1999-00 respectively, indicating a decline in the incidence of child labour here (Table 6.23). Incidence of child labour in Gujarat has been lower than the all-India figures in 1993-94 and 1999-00. Higher

TABLE 6.22

**Education infrastructural facilities, 1996**

Districts	% of villages with			Teacher-pupil ratio (primary school) (1996-97)
	Primary school	Anganwadis	Balwadis	
Ahmedabad	99.5	97.2	27.7	48.2
Amreli	99.5	88.3	5.9	42.7
Banaskantha	98.8	83.3	12.2	44.4
Bharuch	96.0	90.5	4.7	30.1
Bhavnagar	99.4	42.3	9.2	48.8
Dangs	98.1	69.9	3.2	36.8
Gandhinagar	98.6	0.0	0.0	44.3
Jamnagar	96.2	83.8	5.2	42.8
Junagadh	90.5	35.4	10.1	42.4
Kachchh	94.6	66.7	5.9	44.0
Kheda	99.4	54.6	35.4	41.4
Mehsana	99.0	62.7	11.7	44.0
Panchmahals	94.8	82.8	11.7	40.8
Rajkot	99.4	87.0	1.1	41.8
Sabarkantha	96.6	74.5	13.4	36.2
Surat	96.6	70.1	4.6	42.9
Surendranagar	99.2	77.9	6.3	40.5
Vadodara	94.7	57.8	12.9	42.0
Valsad	98.0	69.9	3.2	40.5
GUJARAT	96.9	71.2	11.1	42.3

Source: Based on Directorate of Economics and Statistics (1996).

incidence of child labour in rural areas compared to urban areas in the state matches with lower enrolment and higher drop-out rate in rural areas. A study on child labour in Gujarat has observed the following characteristics of child labour and families having child labour (Visaria et al 1992)<sup>4</sup>:

- ◆ Illiterate rural children reported much higher level of participation in work than those who had completed just pre-primary.

- ◆ The percentage of children who were neither working nor studying at the time of the survey was higher among females than among males. That is, girls were primarily engaged in housework like carrying out household chores or helping their mothers to look after their siblings.

Incidence of child labour declined with increase in per capita expenditure of families. Also, girls in the age group 10-14 years are more likely to attend school in households where adult female members do not work but look after the household.

- ◆ Children in households with illiterate heads reported higher work participation than those where the household head was literate or educated<sup>5</sup>.

- ◆ Child labour is likely to be relatively high in casual labour or self-employed households. Wages are quite low in casual labour households which tends to push children into the labour market. In self-employed households, children tend to help around.

This study throws useful light on the demand factors that lead children to work in rural households of Gujarat. It shows that it is not enough to deal only with supply aspects. Adequate attention has to be paid to the poverty and unemployment aspects as well.

## BOX 6.7

**Child labour in Indian Constitution**

**Article 24** of the Constitution of India states that "No child below the age of fourteen years shall be employed in any factory or mine or employed in any hazardous employment".

**Article 39 (e)** of the Constitution of India directs the state to ensure that "...Health and strength of workers .... And the tender age of children are not abused and that citizens are not forced by economic necessity to enter a vocation unsuited to their age or strength."

**Article 45** of the Constitution of India states that "The State shall endeavour to provide, within a period of ten years from the

commencement of this Constitution, for free and compulsory education for all children until they complete the age of fourteen years."

**The Bonded Labour System Act of 1976**

'frees all bonded labourers, cancels any outstanding debts against them, prohibits the creation of new bondage agreements, and orders the economic rehabilitation of freed bonded labourers by the State.'

The Child Labour Act of 1986 'prohibits the employment of children who have not completed their fourteenth year in specified hazardous occupations and processes.

## BOX 6.8

**Convention on the Rights of the Child****Article 28**

1. Parties recognize the right of the child to education and with a view to achieving this right progressively and on the basis of equal opportunity, they shall, in particular:

(a) Make primary education compulsory and available free to all.

**Article 32**

2. Parties recognize the right of the child to be protected from economic exploitation and from performing any work that is likely to be hazardous or to interfere with the child's education, or to be harmful to the child's health, or physical, mental, spiritual, moral or social development.

TABLE 6.23

**Child labour in Gujarat and India (usual principal status), (1961 – 1999-00)**

		Worker population ratio among children							
		1961	1971	1977-78	1981	1983	1987-88	1993-94	1999-00
<b>Gujarat</b>									
Rural	- Boys	14.2	11.4	10.4	9.4	11.0	8.7	6.7	6.1
	- Girls	13.6	5.2	11.0	8.3	12.3	10.0	5.1	6.0
	- Both	13.9	8.5	10.7	8.9	11.6	9.3	5.9	6.0
Urban	- Boys	3.2	3.3	3.3	2.9	6.4	2.6	3.5	1.7
	- Girls	1.5	0.8	2.2	0.8	2.2	1.3	1.9	2.3
	- Both	2.4	2.1	2.8	1.9	4.5	2.0	2.8	2.0
<b>India</b>									
Rural	- Boys	16.6	11.4	14.4	10.0	13.5	10.1	12.1	5.2
	- Girls	12.3	4.6	11.6	7.8	12.5	9.6	11.5	5.4
	- Both	14.5	8.2	13.1	9.0	13.0	9.9	12.8	5.3
Urban	- Boys	5.4	4.1	6.1	3.8	6.1	4.4	6.3	3.0
	- Girls	2.4	1.2	4.4	1.6	3.8	3.3	3.8	2.0
	- Both	4.0	2.7	5.3	2.7	5.0	3.9	5.0	2.5

Note: Only the NSS data in the table are comparable.  
Source: Visaria et al (1992), and 1999-00 calculated from NSS data.

## Time Use Studies and Child Labour

Time use patterns of children throw additional light on what they do when they do not go to school. A recent time use survey conducted in Gujarat reveals gives information in this context (Tables 6.24 and 6.25).

From the data given in table 6.26 (Hirway 2002), we can deduce the following:

- ◆ A significant per cent of children in Gujarat in the age group of 6-14 years participate in economic activities, and spend on an average 22 hours per week, i.e. 3 hours a day on these activities. Even children in the age group 6-9 years participate in economic activities and spend about 17 hours a week, that is 2.5 hours a day on these activities.
- ◆ Major activities are low-skilled unpaid or subsistence activities or activities on family enterprises like animal husbandry and grazing and extended SNA activities like collection of fuel, fodder, water, fruits, etc.
- ◆ Time spent on these activities is dependent on environmental conditions, hence, in areas where environmental degradation is

severe, poor families are forced to depend on their children to perform some of these subsistence activities.

- ◆ Engaging in economic activities could affect children's involvement in education activities, firstly in their ability to attend school (resulting in non-attendance) and then in their ability to learn (children forced to work might find difficult to concentrate on education). This perhaps explains why some children in the state are not in school.

Though, these data do not show whether children engaged in economic work attend school or not, they do indicate the burden of work on children. Once again, environmental degradation seems to be affecting children's time use patterns.

## Insights from Primary Surveys

Two studies conducted in Gujarat throw additional light on the dynamics of problems with regard to primary education. One was a study carried out in tribal areas (Hirway and Thakar 2003) and the other was conducted in selected rural and urban centres in Gujarat (Hirway et al 2002).

*A significant per cent of children in Gujarat in the age group of 6-14 years participate in economic activities, and spend on an average 22 hours per week, i.e. 3 hours a day on these activities*

TABLE 6.24

**Participation by children in economic (SNA) activities,  
Gujarat, 1999-00**

Economic Activity	(Percentage)					
	6-9 years			6-14 years		
	M	F	T	M	F	T
Crop farming, kitchen gardening, etc.	2.04	1.55	1.82	4.86	3.53	4.27
Animal husbandry	5.70	9.28	7.28	8.89	14.43	11.36
Fishing, forestry, horticulture, gardening	0.41	0.26	0.34	0.34	0.31	0.32
Collection of fruit, water, plants, etc., storing and hunting	1.63	5.15	3.19	3.35	9.45	6.08
Processing and storage	13.18	13.62	13.40	7.65	6.83	6.97
Mining, quarrying & digging, cutting, etc.	0.00	0.00	0.00	0.00	0.00	0.00
Construction activities	0.00	0.00	0.00	0.25	0.21	0.23
Manufacturing activities	0.00	0.26	0.11	1.17	3.01	1.99
Trade, business & services	0.41	0.00	0.23	0.84	0.62	0.74
Services	0.61	0.00	0.34	1.59	1.35	1.48
Community services & help in other households	0.00	0.00	0.00	0.00	0.00	0.00
Maximum in any of the SNA Activities	13.18	13.62	13.40	8.89	14.43	11.36

Source: Hirway (2002): 101.

### Literacy and Education in Tribal Gujarat

The tribal literacy rates have been observed to be quite low, with the tribal female literacy rate being the lowest in the state. A study was carried out by the Centre for Development Alternatives (CFDA) for the department of tribal development, to understand the factors responsible for the low literacy levels of tribals, and particularly tribal children (Hirway and Thakar 2003). The study used a structured primary survey as well as participatory rapid appraisal (PRA) methods to supplement the structured survey. The study covered 16 blocks of 11 tribal districts of the state and conducted investigation in 64 villages, selected

through proper stratified random sampling methods. The major findings of the study are as follows:

◆ **Changing literacy profile of tribals:** A study of the changing literacy profile at the village level reveals several developments, which are hidden in macro level data. The study showed that though there was no clear decline in male literacy rates in any of the 64 villages selected for the study, 16 villages (25 per cent) experienced a decline in the female literacy rate between 1991 and 2001. This decline was observed to be due to the outmigration of a few literate women for different reasons and in one case the death of the lone literate women. In 48 villages (75 per cent) the literacy rate improved during 1991-01 and in 21 villages the increase was more than 10 percent.

◆ **Lack of interest in education:** One of the important reasons for the low literacy rate of tribals was lack of interest in education on the part of children and their parents. Children find schools unattractive, parents

do not have much faith in education for improving their life, and education is generally not perceived as a useful goal. Other reasons are economic pressures including migration, household responsibilities (i.e. looking after younger siblings, helping in household work, etc.) and lack of funds for school education.

◆ **Poor infrastructure facilities:** Though at the macro level, the population served per school is low in tribal areas, the ground reality is quite different.

a) 4 villages (6 per cent) have schools up to third standards and 16 villages (25 per cent) have schools up to fourth standard, which means that 31 per cent (almost one third) villages do not even have schools up to fifth standard.

b) Only 17 villages (27 percent) have schools up to seventh standard, which is necessary for completing elementary education.

c) Out of the selected 64 villages only 8 village schools have adequate number of classrooms. All the rest of the villages have a shortage of class rooms.

d) Eighteen village schools have adequate numbers of teachers, which means that 46 village schools are deficient in teachers.

e) Only 42 village schools (65.6 per cent) have facilities for potable water.

f) Only 12 village schools (19 per cent) have a separate toilet for girls and almost the same number of village schools have toilet facilities for children.

g) Only 20 per cent of villages have mid-day meal facility for children. In several schools, however, a mid-day meal kitchen/room was available.

h) In general, the school facilities were poorly maintained. There was no specific fund for maintenance of school facilities.

In short, the schools are in very poor condition, and are least attractive to children, their parents, and even to teachers. The study has revealed that teachers in many schools were dissatisfied with the facilities available.

## Irrelevance of Education to Tribal Families

### Perceptions of parents

Parents' perception of education and the local school is important in promoting primary education of children. Discussions with the parents revealed that many parents do not want to send their children to school as they feel that school education cannot help much in earning a living. In their view, returns from education are enough to attract children to school. Going for

work with elder members, performing domestic chores and taking care of siblings and following the family profession are more acceptable than attending the village school. They believe that for basic calculation and managing petty things in daily life, one need not spend several years in school

TABLE 6.25  
Average hours per week spent by children in economic (SNA) activities, Gujarat, 1999-00

Economic Activity	6-9 years			6-14 years		
	M	F	T	M	F	T
Crop farming, kitchen gardening, etc.	4.28	5.52	4.67	18.54	22.33	19.70
Animal husbandry	15.12	10.86	12.80	18.63	11.67	14.73
Fishing, forestry, horticulture, gardening	7.93	10.50	8.49	3.84	7.49	5.38
Collection of fruit, water, plants, etc., storing & hunting	13.41	8.83	10.20	9.34	11.12	10.55
Processing and storage	22.14	22.88	22.50	12.85	11.47	11.71
Mining, quarrying & digging, cutting, etc.	0.00	0.00	0.00	0.00	0.00	0.00
Construction activities	0.00	0.00	0.00	61.65	60.53	61.16
Manufacturing activities	0.00	1.75	1.75	43.00	20.28	27.31
Trade, business & services	6.64	0.00	6.64	13.66	7.75	10.65
Services	25.10	0.00	25.10	28.58	40.39	33.83
Community services and help in other households	0.00	0.00	0.00	0.00	0.00	0.00
All SNA Activities	16.45	13.61	15.00	22.20	20.42	21.28

Source: Hirway (2002): 101.

TABLE 6.26  
Average hours per week spent by children in all economic (SNA) activities in select states in India, 1999-00

States	6-9 years			6-14 years		
	M	F	T	M	F	T
Meghalaya	18.16	11.11	15.23	29.56	13.80	20.43
Tamil Nadu	20.65	14.49	17.73	28.51	17.41	22.78
Orissa	22.50	16.33	18.87	28.63	19.11	23.05
Madhya Pradesh	19.07	15.57	17.50	24.34	19.04	22.04
Haryana	6.70	7.41	7.05	12.74	15.62	14.14
Gujarat	16.45	13.61	15.00	22.20	20.42	21.28
Combined States	18.47	14.50	16.56	24.27	18.63	21.50

Source: Hirway (2002): 100-2.



TABLE 6.27

**Reasons for tribal children not going to school**

Reason	Percentage
Persons have no interest in Study	5.04
Parents have no interest in the study of their children	23.03
Study does not seem to be useful	1.64
Associated with wages/earning activities	18.43
To join economic activity either within family or outside it	14.50
To look after siblings	11.03
For doing other household work	22.73
Unable to meet education expenditure	1.17
Not specified (other)	2.44
District Total	100.00

Source: Hirway and Thakar (2003).

when traditionally they have been doing so without going to school. Interestingly, in some villages, students of classes V and VI are not able to do simple calculations or write a correct sentence.

There is a general appreciation of education by tribals, as they do see the advantages of education around them. They realize that (a) education enables people to read bus route boards, notices, newspapers etc. ('an illiterate person is like a blind man sometimes'), (b) education also helps in getting good employment. An educated boy or a girl can get a teacher's job if the education is up to tenth standard and s/he has attended PTC course. An educated boy, who has studied up to tenth standard, may also get a job in a factory in nearly urban towns. But, they also know that education below these levels does not help much as boys or girls do not get better employment.

To reach the level of tenth standard is not easy. Firstly, it is costly. Secondly, children usually drop-out earlier. Also the children are needed for earning wages or for taking care of household work. As a result, only a few children reach the level of class X. In the case of girls, the returns to education are seen as much lower, with the result that school education is not considered useful either for girls or for families.

Some villagers were quality conscious and expressed high dissatisfaction with the present system of schooling and a few better-off parents had admitted their children in private schools in urban centres. On the other hand, some illiterate poor parents were satisfied that at least their children are attending school even for few days in a month or for a few months in a year. These parents also know that they will have to withdraw their children from school to work sooner or later. Hence they do not care or know much about

school activities, method of teaching, its quality, performance of teachers, etc. Hardly any parents enquire about performance of their children from the schoolteachers. Nor do they discuss matters like school management. Many illiterate parents feel shy to discuss with school teachers about their children's performance, government assistance and other matters.

Even primary education is not affordable for many parents. The cost or burden of children's education doubles because children attending school do not work, and there is monetary cost in terms of clothes, books, stationery and other expenses. Some parents think that the cost of education should be totally borne by the government. For some parents the problem is whether to educate their children or have them work. Parents having basic education have been found to send their children to school. Although illiterate parents feel that primary education does not help much directly in improving their earnings and living standards, they believe that it is important for a child to be educated. But often they could not translate that feeling into practical ways for various reasons.

Parental motivation and commitment for children's education, particularly girls' education, is low among tribal families. Girls' education is not given importance because it hardly gives any direct and immediate re-

turns to her parents after her marriage. Besides, girls are more obedient and help in domestic work. Sending young girls to distant schools is considered not safe. Parents are scared about their daughters studying in schools located outside their village. Female education is also not an important requirement for marriage and hence no such encouragement or motivation is given. Most girls stop their studies at the level of the village school. Non-availability of women teachers is found to be one of the key factors for low enrolment and retention of girls.

Most males are of the view that sending girls to school is a waste, as it gives nothing in return. Some women (most of them illiterate) did say that girls' education can help them organize their family, raise children, keep accounts, and so on. But family needs are frequently an important reason to keep girls at home.

### **Perceptions of students**

Children do not seem to be very enthusiastic about going to school. For them, school is not attractive and the syllabus is not interesting. Schools would be more attractive if there were games, sports, music and picnics. The present monotonous school activities do not motivate tribal children to go to school. Teachers are hard pressed and they do not teach much. Often, one teacher takes care of two or three classes. Teachers do not have enough time for children; with the result that they even beat children.

Teachers expect students to study at home. But most parents are illiterate or have no time to teach their children. Students therefore find education tough and boring. Corporal punishment is an additional factor that gradually pushes them out of school.

Interaction with different groups of children has revealed that boys are less motivated and not very enthusiastic while girls frequently prefer to go to school. This may be because of family restrictions on girls going out and heavy burden of domestic activities at a very

young age. Since boys are relatively more mobile and less burdened with domestic work, their retention rate is higher than girls.

Parental apathy, lack of motivation and lack of commitment were major complaints of out of school children in tribal areas. Large numbers of children are withdrawn forcefully from school (especially girls) for domestic work and taking care of siblings and animals (Box 6.9). Some of them accompany their elders in migration to distant places. Migrating parents, who move with their children, take their children out from school at least twice a year for two months each. In case children are not accompanying their migrating parents, they have to manage the burden of domestic work in the village. In this way there is a shift of work from elders to young children that affects their education. After such a long period of absence from school, students feel uneasy about going back to study and lose interest. Migrating parents do not show any interest in their children pursuing studies. The case of girls is worse than boys. Girls are also withdrawn first if schooling is costly.

A large number of students have said that they need someone to help them with their study at home as teachers have no time or are unwilling to help. Their domestic situation is not conducive for study. Reasons such as work pressure, alcohol consumption, lack of electricity, inadequate food, frequent illness, and so on prevent children from doing school work at home or attending school regularly. In addition, after school they have to spend a lot of time on domestic work, animal grazing or other economic work.

*Ashramsala* education is preferred by most of the students but there are limited seats and this education costs money. It is a residential type of balanced education system that provides adequate attention to study. Incidentally a few boys from such schools were found smart and good at their studies compared to students from general village schools.

### Conversation with a tribal girl

Savita is a 15 year old girl, to be married to Kalu Malhar in the village. The marriage will take place after one or two years, but Savita already lives with her in-laws in the village.

Savita has never been to school. She was living in a village in Dharampur taluka of Valsad district before she came to Divsi. She has three younger siblings. As her help was required at home, she was never sent to school. She started going to Daman for work with her father from the age of 10, while her mother stayed home taking care of the family.

Every year a contractor comes to her village to recruit workers for government construction work like roads and buildings. She helps her father, along with her mother in cultivating paddy and Nagli in their family land. She went to Daman thereafter for construction work. They visited their village for festivals. In Daman she worked hard

and lived in the open space near the worksite. The running wage rate was between Rs. 30 and 40 per day.

We questioned her about school and education:

*“Did you want to study?”*

“I do not know about studies”

*“Is there any advantage in getting an education?”*

“Not much”

*“Did you like to go to Daman every year?”*

“Yes, Daman is nice”

*“But do you like to work on construction sites?”*

“Not always”

“I had to help my mother. I was not sent to school”

*“Does your younger brother/sister go to school?”*

“No”

*“Why?”*

“I do not know”

Discussions with students revealed that some of them are ambitious. They want to become teachers or want to work in factories or in government. Not many girls are ambitious. There are hardly any role models for them. Children from poor families do not find it easy to adjust with other children from upper classes and castes. Rough treatment by the teachers also forced some students to leave school as reported in village Divsi in Valsad district.

To conclude, schools are not attractive to students. Poor infrastructure, hard pressed teachers, poor educational performance, poverty and migration of parents, lack of enabling environment at home, etc. either throw students out or encourage parents to withdraw them from school. Girls are hardly encouraged to study and so do not have much chance to find out what education is all about.

#### Perceptions of teachers

What do the teachers think about school education and the constraints of tribals? Though teachers are the most crucial factor in the entire education system in tribal areas, they lack motivation, competitiveness and

efficiency, which leads to less than satisfactory performance (Box 6.10).

According to teachers, lack of awareness among tribal parents about the utility of education, their poor economic condition, migration, irregular and inadequate government schemes and high adult illiteracy are the prime factors responsible for the low retention rate. Teachers believe that poor school infrastructure, dilapidated classrooms, shortage of staff, and inadequate government grants hinder regular school activities. They admit that they do not teach, but only manage children owing to shortage of staff and rooms. The quality of education suffers because of these problems. Teachers cannot do much to improve the quality in the given situation. There is no housing for teachers in the village where they teach, forcing most of them to commute from distant villages.

Absenteeism among students is rampant in tribal schools, partly because of lack of motivation. “If parents are illiterate and no importance is given to children’s education in their society, it is futile to expect parents to be alert about their children’s education”, said one teacher. It is enough for many parents that their children go to school even for a few days. Almost all teachers consider that parental and family education helps children’s enrolment and retention. In a few instances teachers did make efforts to persuade parents to send their children to school as reported the participatory research appraisal (PRA) exercise (Gajargota village in Narmada district).

Teachers think that parents take less interest in their daughters’ education and do not like to send them to school. They think that it is not worth spending on a girl’s education (irrespective of their financial status), as they get nothing in return after the girl’s marriage. Social and cultural practices of tribals also hinder girls’ education. Giving monetary assistance may not change this. Domestic violence, alcoholic practices, shifting work burden from elder members to younger members and

### A surprise visit to the primary school, Divsi

Divsi is a small village located 5 km away from the Kaprada-Nasik highway in the tribal taluka of Kaprada of Valsad district. There is no proper *pucca* road to the village; the bus comes near the main road once a day. The village has about 180 households of whom about 160 migrate seasonally, with or without family. About 16 per cent of men and about 7 per cent of women of the village are literate. The village has an *Anganwadi* and a primary school providing education up to fourth standard.

The CFDA research team made a surprise visit to the school in the afternoon (between 2:30 – 4:00 pm). The entire school (students from class 1 to class 4 plus young siblings of some children) was sitting in the mid-day meal room, which looked unkempt and dirty with some big pans, pots, etc. lying at the back of the room. It was drizzling and the teacher was trying to control the students.

The school building was a three room dilapidated house, unkempt and dirty. Two classrooms had broken windows, cracks in the walls, and broken tiles. As these rooms did not provide protection against rain, it was not possible to use them in the rainy season. Maps and charts on the walls were torn and faded. Toilets were defunct and dirty. The hand pump for drinking water was usable only during the rainy season. The children had no facility for potable drinking

water throughout the year. There was a compound, but it was not kept clean and there was no equipment for playing. There was no library. There were two chairs and two tables.

There are no schoolteachers in the school, though three trained teachers, who work in other villages, live in the village. The school has two *Vidhya Sabayaks*; one of them, a man, was on leave for sowing Nagli on the day the team visited the school. The lady *Vidhya Sabayak* who belonged to Dhodiya Patel caste was confused and scared to see the team. She had passed 12<sup>th</sup> standard and had done PTC course in Bapunagar, Ahmedabad. She had joined the school a year earlier. She commutes about 30 km every day.

The mid-day meal scheme was closed, as there were no funds. It is believed, however, that the scheme may be restarted after sometime. Even when it runs, the scheme is not satisfactory, as the supplies are not replenished regularly. The scheme therefore closes as soon as one or two items are finished.

The classroom was over-crowded with students, who were dirty looking and wearing old and torn clothes. Cold, cough and malnutrition were visible. Only one boy was wearing the uniform given by the school. It was very old and torn. Only 5 boys and 4 girls said that they received cloth for shorts/skirts. No cloth was given for shirts. None of them got the cloth stitched, as it

was costly. Others had not received any cloth from the school. The teacher said that some children were given cloth for skirts/shorts in February 2002 but no cloth given for shirts/blouses, as the government did not provide enough cloth.

Children said that the teachers often beat them for “not giving correct answers” or for “making mischief”. Most children had received free books from the school, but no school bags. Just 14 children (out of total 55) said that they took bath before they came to school. Children’s clothes were dirty and faces also were dirty. Many students said that they did not attend the school throughout the year as they went out with their parents to Nasik/Valsad/Dahanu/Chikhli/Navsari/Vapi etc. Students also complained that the teachers did not always come to the school – particularly the male teacher.

With regard to quality of education, it was found that the children in classes I and II study mathematics, Gujarati language and *paryavaran* (environment), while children in classes III and IV study all these subjects and Hindi. In order to test their knowledge, on the next day, the CFDA team asked two fourth standard students to do simple additions. Neither could do it. Both also wrote their names with many spelling mistakes. They had no knowledge of spacing or size of the letters.

Source: Hirway and Thakar (2003).

migration during off-farm period adversely affect schooling among tribal children.

Teachers do believe that some of the incentive schemes of the government can be useful. For example, mid-day meal invariably attracts children to school; free uniform is an attraction for both children and parents and so is monetary allowance for sending children to school. However, these schemes are not implemented well. Mid-day meal is highly irregular owing to lack of funds; uniforms are given late and mostly only half of the required cloth is given and financial incentive (Rs. 75 to Rs. 100 a year) is too low.

The main conclusions of this study were:

- ◆ The present school system is not perceived as very useful by tribals. While they

value the general utility of education, they do not consider education very useful in their practical life. Though they realize that a high level of education (for example 12<sup>th</sup> standard + PTC or 10<sup>th</sup> standard) may give their children good employment, they find it difficult to achieve this goal.

- ◆ Children do not find schools attractive or interesting. The general environment at home and in the school is not very conducive to promoting their education.

- ◆ Teachers face several constraints and pressures owing to poor infrastructure, low staff strength, etc. As a result, they are not very successful in attracting children to school. They are also not successful in convincing parents about the utility of education. Even worse, their behaviour pushes children out.

*When children migrate with families, they leave school. When children are left behind they have to bear the increased burden of household chores. In both cases, school is given a miss*

- ◆ In the case of girl students, there are additional disadvantages. Girls are poorly motivated to study on one hand and the general environment at home is far from satisfactory to encourage them to study on the other.
- ◆ Poor quality of education, lack of perceived utility of the present syllabus, high cost of education etc. push children further away from the education system.

### **How Do the Poor Perceive Education and Educational Facilities?**

CFDA conducted a participatory poverty assessment in Gujarat (Hirway et al 2002) to understand how the poor perceived their poverty, and what their constraints and problems were and what solutions they had found. In order to make the study representative of the state, a stratified random sample of 90 villages and 30 urban centres was selected. A part of the study investigated carefully why people, mainly poor, do not access educational facilities and how they can be helped.

One major finding of the study was that households belonging to the bottom 10-20 per cent of households do not find it easy to access educational opportunities in the state in both rural and urban areas. The study found constraints on both the supply as well as demand side.

Major constraints on the supply side were as follows:

- ◆ Only about 38 per cent of villages have schools up to seventh standard. The majority of villages have schools up to third, fourth or fifth standard. This level of education does not serve much purpose, particularly in the labour market.
- ◆ Only about 18 per cent of villages have a secondary school. People from poorer households and girls do not find it convenient to go to nearby villages to attend the secondary school.
- ◆ There is a serious shortage of teachers in most schools. Only about 15 per cent of

village schools have an adequate number of teachers. Teachers cannot teach in such under-staffed schools. As one teacher put it, “we manage children”.

- ◆ Only some schools have facilities for drinking water (35 per cent) and a separate toilet for girls (25 per cent).
- ◆ Teachers are often not regular. There is not enough pressure from parents or from supervisors to make them regular.
- ◆ The curriculum is not attractive to children. The local context is missing.

On the demand side, the factors that keep children away from schools were the following:

- ◆ Migration, seasonal or temporary out-migration, is very common in Gujarat. Households migrate from tribal regions, dry and semi-arid regions, irrigated villages and small urban centres in search of supplementary incomes (Hirway et al 2002). When children migrate with families, they leave school. When children are left behind they have to bear the increased burden of household chores. In both cases, school is given a miss.
- ◆ Education not useful for the poor. Most parents and children in the lowest rung do not consider education imparted as useful, interesting or attractive. Though parents do value the importance of education, they fail to relate it to their lives and also fail to access it for different reasons.
- ◆ The poor consider education expensive, particularly education up to 12<sup>th</sup> standard and technical education. Even primary education is perceived as expensive by those belonging to the poorest strata. School books, reasonably good clothes, food for lunch, shoes/footwear, school bag and bus fare in some cases are too costly for them.
- ◆ Poor children belonging to the low castes are frequently discriminated against in schools. They sit at the back of class rooms. Since their parents are unable to help them with studies, they lag behind and gradually lose interest.

- ◆ Language problem - Children, especially belonging to poor families and low castes find the medium of instruction a problem.
- ◆ School far away - Secondary schools (after fourth or fifth standard) are far away from the village. Parents belonging to poor households do not have funds to send their children to such schools.
- ◆ Schools are not attractive - School syllabus, school activities and teaching methods are not attractive to the poor. They do not perceive this education as a high priority good.

Once again, three factors emerge as important constraints to the expansion of primary education in the state. Firstly, education imparted by the government is not relevant to the bottom 15-20 per cent of population as it is: (a) incomplete (not even up to 7<sup>th</sup> standard), (b) not useful for their own life situation, (c) boring and uninteresting, (d) with poor facilities and amenities, and (e) imparted in an indifferent manner. Secondly, households at the bottom are not able to access it since there are economic pressures that prevent from sending children to school. Thirdly, children belonging to poor households, usually low castes, are discriminated against by teachers. Since the children cannot cope with studies, teachers neglect them or even beat them. All this tends to push children out of school. Lastly environmental degradation puts tremendous pressure on poor households. It encourages them either to engage children in animal grazing or collection of fuelwood, fodder, water, etc. or to take children with them when they migrate to distant places in search of work. There is therefore a need to overhaul the entire education system if the government is interested in spreading literacy.

To improve primary school enrolment, the state government has been providing free textbooks and uniforms for tribal and scheduled caste children, foodgrain incentives for scheduled tribe households, financial assis-

tance to talented girls, and scholarships to children belonging to certain communities. The state introduced a mid-day meal scheme in 1984, and then modified it to supply 10 kg of cereal per child per month later on. Finally, it has now reverted to a cooked meal programme. The state has declared free education for girls up to class 12. Even then, the two studies have shown that all is not well with these schemes and programmes.

## Concluding Observations

Gujarat has made considerable progress in educational attainment during the last 3-4 decades. Even then, 24 per cent males and 46 per cent of females (above 7 years of age) are still illiterate in the state. The state has a long way to reach the target of 100 per cent literacy. The SC population is almost at par with the general population in terms of literacy rates, particularly SC men but the ST population is lagging far behind. Only half of the tribal population and 40 per cent of tribal females in the state are literate. Though the gap in the literacy rates of the ST and other population has declined over the years, a lot is still to be done to push the tribal rates up. The state has moved down in ranking with regard to overall literacy as well as female literacy among the major 15 states in India in the 1990s.

The problem of illiteracy among tribals is highly complex. The real obstacles perhaps relate to poverty and migration of tribals, their socio-cultural values and the poor quality of education. There is a need to pay careful attention to these problems.

Literacy rates among rural women have shown an increase between 1961 and 1991, but women have still not reached the 1961 literacy rate of men. Urbanized districts have reported better performance with respect to female literacy than non-urbanized ones. With the recent initiatives such as DPEP and other women's development programmes

*There is a need to overhaul the entire education system if the government is interested in spreading literacy*

*For universalization of elementary education, the role of the government is extremely important*

and with NGO support or initiatives, it is expected that the literacy rate of rural women may improve significantly. A lot of effort is needed in this field.

Gujarat has witnessed significant improvement in enrolment rates, girls' enrolment showing better performance. However, the net enrolment rate is only 76 per cent. That is, 24 per cent of the children do not yet go to school. This is a matter of great concern. Though there is some improvement in enrolment in the recent years, a lot more needs to be done. While the drop-out rates at primary level have come down in recent years for both girls and boys, enrolment rates continue to remain low. In the 1990s, enrolment of boys did not improve much, but that of the girls did. However, this rate is still low compared to other states.

The state has achieved nearly 100 per cent results in providing primary school in villages; almost 99 per cent of villages have a primary school within 1 km distance. Nevertheless, the backlog of teachers has increased in primary schools. As a result, the teacher-student ratio is unsatisfactory. Further, the state aims only at universalizing primary education, which is till class IV instead of universalizing elementary education, which is till class VIII, as envisaged in the new education policy of 1986.

Education is important on many counts. It has intrinsic value as well as instrumental value (of achieving higher economic development) for individual as well as society. Governments generally tend to view education and investment in it from its instrumental value; calling investment in education an investment in human capital. In spite of that, a developed state such as Gujarat, which has remained on the forefront of economic reforms, has been unable to invest adequately in education. While some states in India have shown great enthusiasm in universalizing education, Gujarat reduced allocations to the education sector in the latter part of the 1990s. Though

the mid-90s did witness an increase in expenditure on this sector, the end of the decade has seen a decline. The state is finding it increasingly difficult to allocate adequate resources to elementary education.

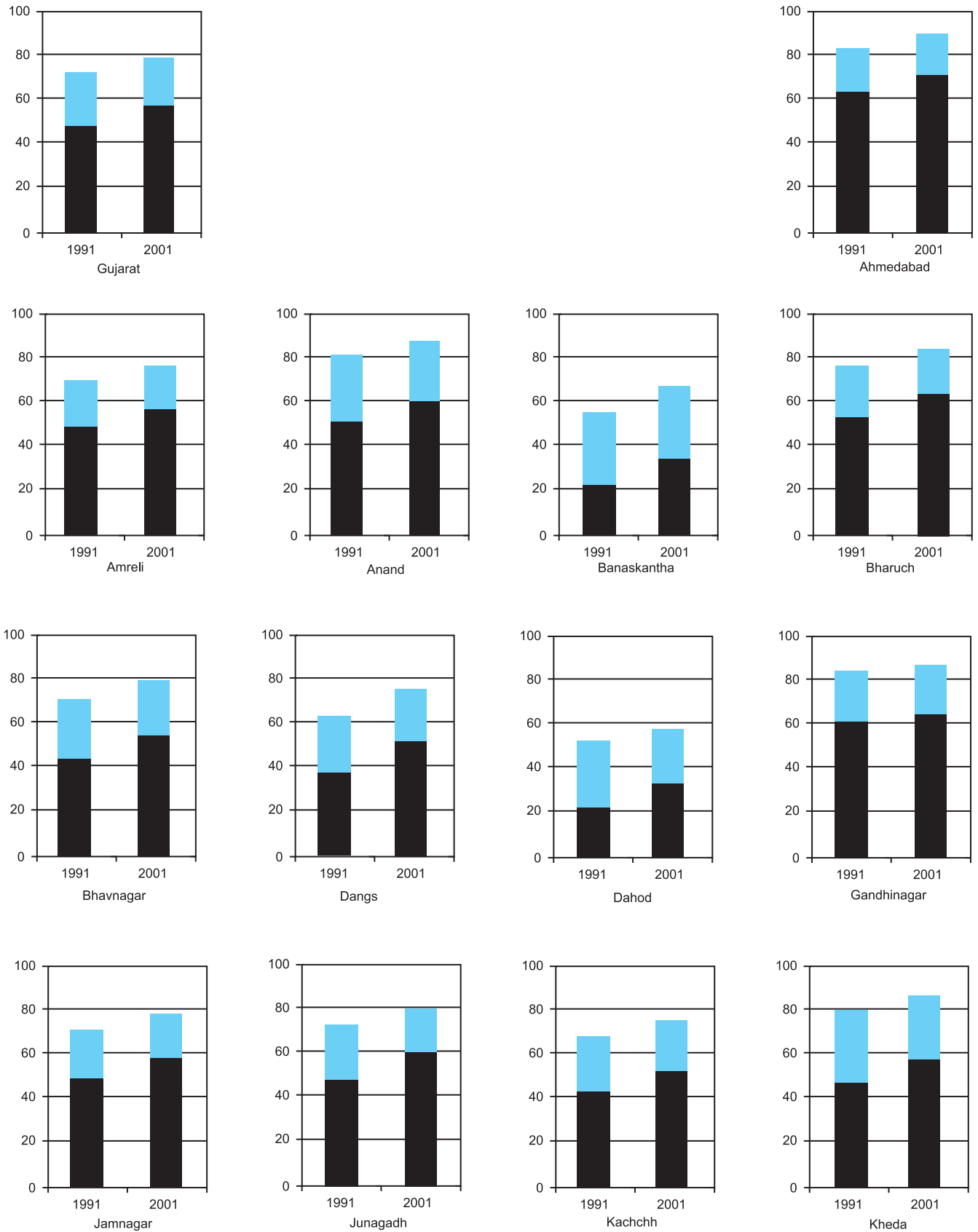
For universalization of elementary education, the role of the government is extremely important. Even if communities do not lay emphasis on education or do not have demand for education, it is obligatory on the part of the government to ensure that every child achieves elementary education. And with this understanding, elementary education has been made a fundamental right in the Indian Constitution by the 83<sup>rd</sup> Amendment. In states such as Gujarat where communities affected by repeated droughts, seasonal migration, conflicts, and so on are unable to ensure that their children go to school, making elementary education a fundamental right of every child is necessary.

It is not always true that communities do not demand education for their children. They do, not only because education has an instrumental role, but because they are also aware of the intrinsic value of education for their children. Children themselves enjoy going to school and would like to do so, as the PROBE survey suggests. But, the macro conditions are often not congenial for children to attend school regularly.

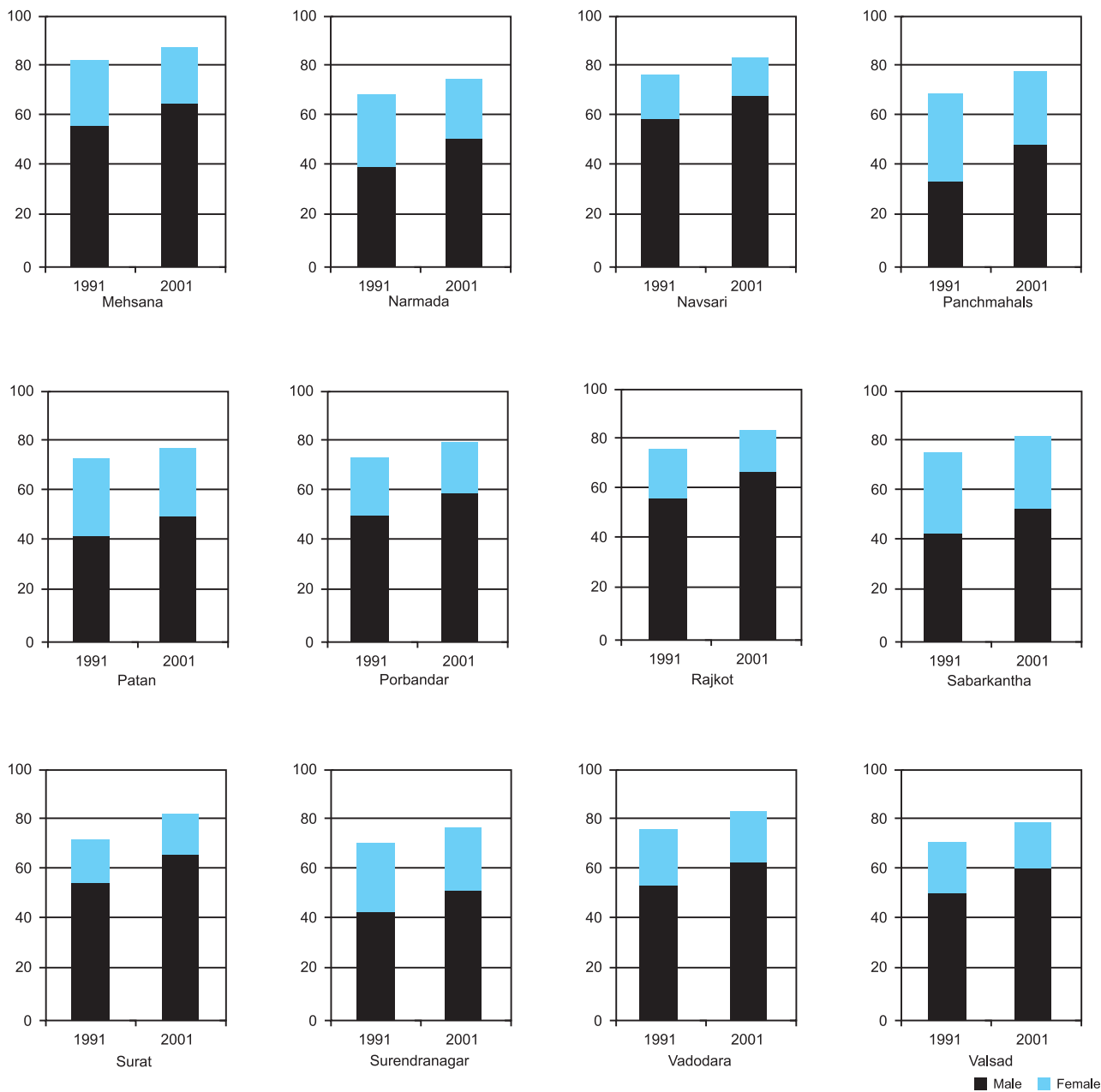
It appears that the root causes of the low educational attainments in Gujarat are closely related to some of the macro problems and constraints of the state economy such as poverty, environmental degradation, massive seasonal migration, etc on the one hand and the low priority given to education, particularly to primary education by parents and children and the poor quality of education that is not very relevant to the poor on the other. It is, therefore, necessary that the development path is modified and the supply and demand side constraints are removed to achieve the goal of universal primary education in the state.

Figure 6.4

## District-wise Literacy Rates







## Notes

<sup>1</sup> CFDA has conducted two studies on the subject: (1) Rural Female Literacy in Tribal Gujarat, sponsored by the Tribal Development Department, Government of Gujarat (2) Consultations with the Poor: Participatory Poverty Assessment in Gujarat, prepared for the Rural Development Department, Government of Gujarat, sponsored by the Asian Development Bank

<sup>2</sup> Data given in the appendices at the end of the report.

<sup>3</sup> Data given in the appendices at the end of the report.

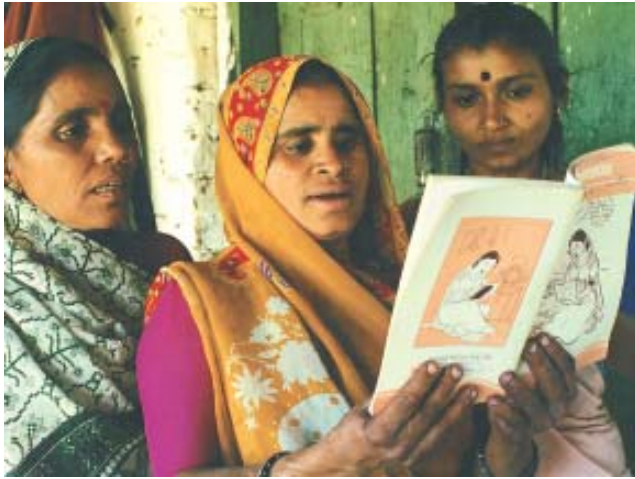
<sup>4</sup> The study comments only on the behaviour of rural families, as the sample size in the urban sector was not adequate to make any generalizations.

<sup>5</sup> The sample size was not large enough to observe the behaviour of households with female heads.



# Gender Development and Distance

Adult education



Women's process of empowerment

## Chapter 7





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## Gender Development and Distance

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7

### Gender Development and Inequality

Human development is a process of enlarging choices and opportunities for all people. Such a process becomes unjust and discriminatory if women are excluded from its benefits. Denial of equal choices to women in economic, social and political areas is a continuing indictment of modern progress. Broadly, there are two reasons for this. One, there are limited opportunities for women to expand their capabilities, and two, the socio-cultural, political and economic environment limits the use of their capabilities.

“Gender inequality stares us in the face in all societies...Ironically, what unites countries across many cultural, religious, ideological and economic divides is their common cause against the equality of women” (UNDP 1995:43). In no society today do women enjoy the same opportunities as men. Paradoxically, the progress of the past two decades has in some ways expanded women’s capabilities but not the opportunities available to them. It is not necessary that economic growth automatically gets translated into gender development and that high human development leads to lowering of gender disparity.

Though considerable progress has been made in building women’s capabilities in the area of education and health in the world, widespread inequality persists between women and men in these areas. In the spheres of political and economic participation the inequalities are more glaring.

Also, women do not enjoy the same protection and rights as men in the sphere of law. Gender inequalities are observed to be more pronounced in developing countries than in developed ones. Adoption of a democratic system of government by itself is unlikely to deliver equality of opportunities to women. A lot more is needed to be done to ensure gender equity.

Governments of developing countries have been trying hard on their own or under the aegis of the United Nations to initiate corrective affirmative action towards gender equity. Since the 1970s, and continuing through the 1980s and 1990s, women in their individual capacity, as well as in collectives from different regions of the world and belonging to different socio-economic groups, have debated about various issues that have confronted them, the key issues being patriarchal control over various aspects of their lives within the home and outside. During this period, four UN conferences on women have been held. The result has been that each country in the world has committed itself to women’s development. As a result, women’s education and health status have improved. In the areas that matter the most, for example equality before the law, the achievements are far from satisfactory. Further, new issues pertaining to globalization of the economies have also been added to the list of concerns. Hence, today, women’s organizations and governments are confronted with a large number of gender concerns such as reproductive and sexual health rights, trafficking in women, rising religious fundamentalism and violence against

*Denial of equal choices to women in economic, social and political areas is a continuing indictment of modern progress*

women, export-oriented economic growth and exploitation of women in new types of enterprises, increasing self-employment among women, social security, and so on.

At the global level, the Convention on the Elimination of All Forms of Discrimination Against Women (CEDAW) is an important step. However, out of a total 180 UN member countries, only 139 have signed it, and of these, about 43 have signed with reservations while 6 have not ratified the relevant resolutions as yet. This has undermined the hopes that were raised when it was adopted in 1979 by the UN General Assembly. India has signed CEDAW but with some reservations (UNDP 1995:43). Because of global conventions and increasing pressure from international and national women's movements, many countries have passed new legislation benefiting women. Translation of these into action is still far from satisfactory. Nonetheless, at the policy and idea level, in many countries terms 'gender development', 'gender equity', and 'gender empowerment' have become part of public policy discourse.

In 2001, the Government of India brought out the National Policy for the Empowerment of Women. Following this, the Department of Women and Child Development, has initiated a policy for integrating gender within policies, programmes, and practices of the state government departments. Leading academicians, activists, administrators, policy planners, law makers, media, and others were involved in the formulation of this policy titled 'Gender Equity Policy'.

Many issues remain unattended as far as gender equity is concerned. At the top is the issue of violence against women, which is universal, crossing the boundaries of culture, geography, race, ethnicity, class and religion. While laws have been framed, they offer only limited protection as implementation is weak. Many women are consis-

tently under the threat of violence from childhood to adulthood. Violence begins even before birth when female foetuses are aborted. Sex determination tests are becoming widespread in urban areas of developed regions in India. Declining juvenile sex ratio in the country and across most states in India raises the question as to whether the practice of female infanticide is making a comeback in the country.

Another form of violence against women is continuous threat of sexual abuse, which starts from the childhood. The threat begins at home from the male members of the family and is observed in both developed and developing countries. Adolescent girls are forced into prostitution often by family members. According to the HDR 1995, an estimated one million children, mostly girls, in Asia are forced into prostitution (UNDP 1995:44). Marital violence is another serious problem in many countries including India. In India, married women are also subjected to violence in the family because of dowry demands, resulting in either suicides or dowry deaths, particularly in economically developed regions owing to increased consumerism. Psychological violence in the form of constant discrimination within the family affects a large percentage of women – young and old, rich and poor, educated and uneducated – both before and after marriage. Violence stalks women's lives, in peace and in war. Laws are inadequate to stop such violence without significant improvement in social and cultural values.

New forms of violence are getting institutionalized with increasing communal conflicts across the world. Rape is frequently used as an instrument to humiliate a community that is under attack.

In many countries, including India, environmental degradation, has slowed down the process of improvement in capabilities of women and also opportunities to use their

capabilities. Rural women in degraded areas are forced to spend long hours meeting the daily necessities of life such as collecting water, firewood, and fodder. The common property resources to which women had access are either degrading or getting privatized and this has led to increased drudgery for women. All these have a direct consequence on women's development.

Globalization is leading to employment of women in export processing units where working hours are long and pay is minimal and in sectors such as agriculture. There are many dimensions of women's development and empowerment that are linked to the larger issues of development. Addressing the issue of gender equity, therefore, is a very challenging task in the current macro environment.

“Women have been more successful in overcoming cultural barriers to building their capabilities than in overcoming the barrier to using these capabilities” (UNDP 1995:32). Nothing represents the situation in Gujarat better than this statement. Over time, many studies on women's education and health conducted in the state show that considerable progress has been achieved. Women's economic participation and recording of their participation in the official surveys has improved over time. Women enjoy relatively higher order of security. At the same time, the state fails to protect women from all types of violence such as dowry deaths, female foeticide and infanticide, rape and now increasing caste and communal violence. Incidence of child marriage is quite low in Gujarat when compared to neighbouring Rajasthan. But, of late, reduction in fertility rates has slowed down. Women's participation in the political sphere has been observed to be very low at the level of the legislative assembly and Parliament. But, women's participation in panchayati raj institutions (PRI) is encouraging and, backed by NGO support, women leaders are emerging at the

grassroots level. Further, the state has a strong movement of self-help groups (SHGs) through which women have taken to savings and participating in micro-credit programmes and income generation activities. Women's development in the state is, thus, a mixed bag, which needs to be understood carefully and efforts made to intervene in areas where the state is lagging behind or where the situation is not improving at the desired rate.

## Sex Ratio

### Overall and in Comparison to Other States

Sex ratio, the number of women per 1000 men, reflects the status of women in a society. Women are biologically the stronger sex, and hence enjoy a higher survival rate than men. On an average, the life expectancy of women is five years more than men. In a society where there is no discrimination against women there would be more women than men and the sex ratio would be more than 1000. In general, a sex ratio lower than 1000 indicates in general discrimination against women. It reflects rootedness of patriarchy, which is usually defined as a 'structural system of male domination'. Most countries, except China and those of South Asia have a sex ratio higher than 1000.

Sex ratio can be low in any region because of:

- ◆ Immigration of single male population to a region
- ◆ High mortality rates among women as compared to male in all age groups
- ◆ Particularly high MMR
- ◆ Practice of female foeticide (sex selective abortion)
- ◆ Practice of female infanticide
- ◆ Neglect of the health of the girl child, especially on nutrition front, resulting in higher mortality.

*“Women have been more successful in overcoming cultural barriers to building their capabilities than in overcoming the barrier to using these capabilities”*

*In a society where there is no discrimination against women there would be more women than men and the sex ratio would be more than 1000*

To overcome the impact of immigration of single males to a region, which is the case particularly in urbanized and industrialized regions and states of the country, the juvenile sex ratio is considered in analysing the status of women. Juvenile sex ratio is the sex ratio of population in age-group 0-6 years, data for which are available in the censuses.

India has the dubious distinction of having one of the lowest sex ratios in the world. All the developed countries, the newly industrialized economies (NIEs) of east Asia, and even African countries have sex ratios of above 1000. Only countries in South Asia and China have lower sex ratios – Bangladesh 953, Pakistan 938, and India 933 – the lowest in South Asia. Gujarat's is even worse, 921 in 2001. The problem is not the same throughout the country. The states of the south (Kerala, Tamil Nadu, Andhra Pradesh and Karnataka) fare better compared to large parts of the northern and north-western region (Haryana, Punjab, Uttar Pradesh, and Rajasthan). Gujarat comes somewhere in between these two groups.

The overall sex ratio has declined in Gujarat during the twentieth century except for the periods 1941-1951 and 1971-1981, though in 1952 the sex ratio increased to 952, after which there has been a constant decline (Table 7.1, Figure 7.1). The sex ratio has declined drastically by 15 points between 1991 and 2001. In India also, there has been consistent decline in the overall sex ratio over the twentieth century, with fluctuations in the last four decades. In Gujarat, there has been a constant decline from 1981 onwards. Only three states – Gujarat, Haryana, and Maharashtra – have observed a fall in the overall sex ratio during 1991-2001. Kerala is the only state where the sex ratio is above 1000 and the state has consistently improved between 1961 and 2001. Gujarat's position among 15 states has fallen from 7<sup>th</sup> in 1981 to 10<sup>th</sup> in 2001. While the sex ratio has improved in the last two decades in many states, such as Andhra Pradesh, Assam, Kerala, Tamil Nadu, West Bengal and Rajasthan, it has declined in relatively developed states like Punjab, Haryana, Maharashtra, and Gujarat. Though migration of single males to these developed states could be one of the reasons for the declining sex ratio, it is not the only reason. As mentioned before, the best way to overcome the migration effect in the sex ratio is to observe the trend of the juvenile sex ratio.

Figure 7.1

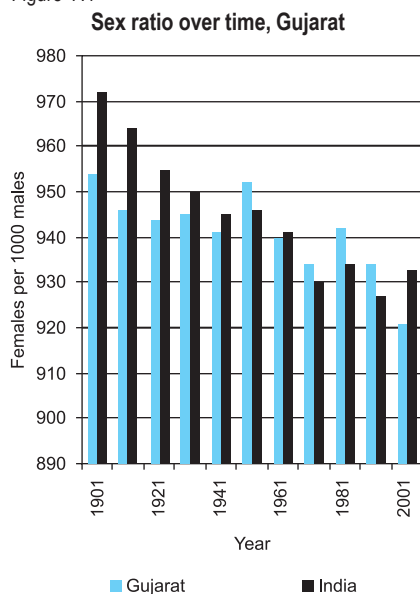


TABLE 7.1

**Overall and juvenile sex ratios, Gujarat and India 1901-2001**

Year	Overall sex ratio		Juvenile sex ratio	
	Gujarat	India	Gujarat	India
1901	954	972	-	-
1911	946	964	-	-
1921	944	955	-	-
1931	945	950	-	-
1941	941	945	-	-
1952	952	946	-	-
1961	940	941	-	-
1971	934	930	-	-
1981	942	934	-	-
1991	934	927	928	945
2001	919	933	878	927

Source: Population Census Reports.

Gujarat is third from the bottom among 15 states in India, with regard to the juvenile sex ratio in 2001 (Table 7.2). Its position in 1991 was also not good and was 5<sup>th</sup> from the bottom. The juvenile sex ratio has declined by a staggering 50 points from 928 in 1991 to 878 in 2001. States ranked below Gujarat are Punjab (793) and Haryana (820), which also have witnessed much higher decline in the juvenile sex ratio than Gujarat. Most states in India except Kerala have witnessed a decline in the juvenile sex ratio and at the all-India level the juvenile

TABLE 7.2

**Overall and juvenile sex ratios by states, 1991 & 2001**

States	Whole population			Population age 0-6		Change from 1991-01	
	1981	1991	2001	1991	2001	Whole population	Population age 0-6
Andhra Pradesh	975	972	978	975	964	6	-11
Assam	910	923	932	975	964	9	-11
Bihar	948	907	921	953	938	14	-15
Gujarat	942	934	921	928	878	-13	-50
Haryana	870	865	861	879	820	-4	-59
Karnataka	963	960	964	960	949	4	-11
Kerala	1032	1036	1058	958	963	22	5
Madhya Pradesh	921	912	920	941	929	8	-12
Maharashtra	937	934	922	946	917	-12	-29
Orissa	981	971	972	967	950	1	-17
Punjab	879	882	874	875	793	-8	-82
Rajasthan	919	910	922	916	909	12	-7
Tamil Nadu	977	974	986	948	939	12	-9
Uttar Pradesh	882	876	898	927	916	22	-11
West Bengal	911	917	934	967	963	17	-4
<b>INDIA</b>	<b>934</b>	<b>927</b>	<b>933</b>	<b>945</b>	<b>927</b>	<b>6</b>	<b>-18</b>

Source: Provisional population totals, Census of India, 2001.

sex ratio declined from 945 in 1991 to 927 in 2001. In both years, the juvenile sex ratio in Gujarat was lower than that of India.

### By Districts

All but eight (Dangs, Dahod, Vadodara, Panchmahals, Kheda, Anand, Amreli and Junagadh) of the 25 districts of the state have experienced a decline in the sex ratio during 1981-2001 and all but seven districts have experienced a decline during 1991-2001 (Table 7.3). The seven districts that have not experienced a decline during 1991-01 are Amreli, Dangs, Dahod, Narmada, Panchmahals, Surendranagar, and Vadodara.

Districts with a relatively high sex ratio in 2001 are: Amreli, Dangs, Dahod, Junagadh, Navsari, Narmada, Sabarkantha, Porbandar and Panchmahals. These are either dominated by tribals or with substantial population of tribals or are districts in Saurashtra. Expectedly, districts with urban centres such as Surat, Ahmedabad, Anand, Vadodara, and Valsad have the lowest overall sex ratio in 2001 (Figure 7.2).

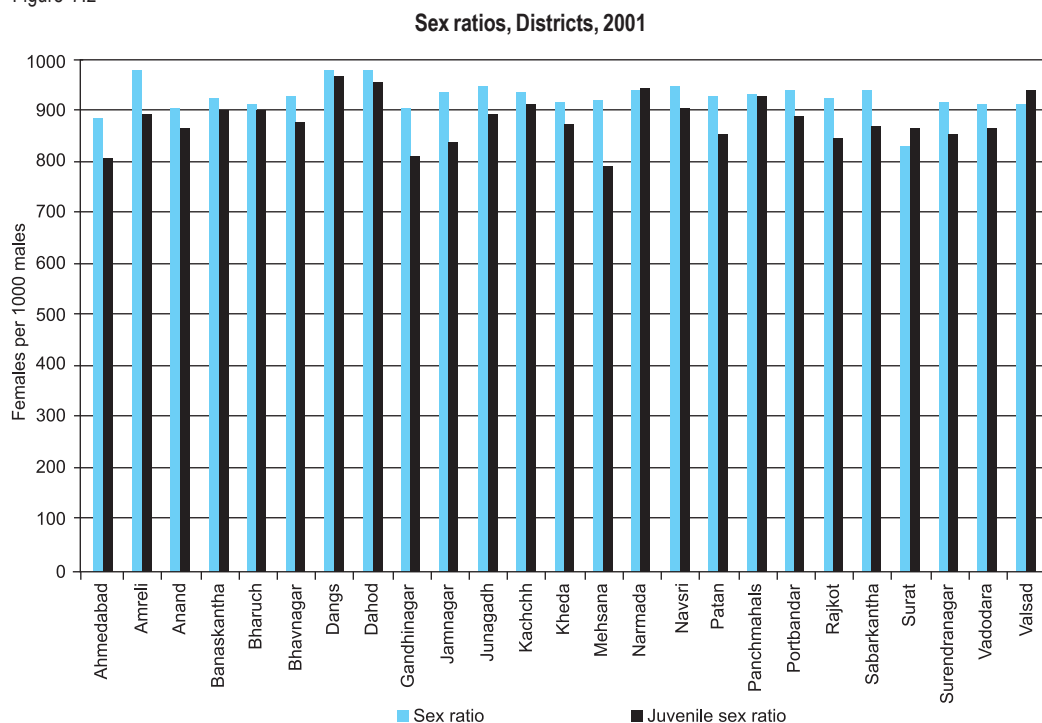
In most districts in 2001, the juvenile sex ratio was lower than the overall sex ratio. The exceptions are Narmada, Surat and Valsad. In Surat, the juvenile sex ratio is higher than the overall sex ratio because the overall sex ratio is influenced by single male migrants to Surat city. The important concern is that the juvenile sex ratio in all other districts are lower than the overall sex ratio, when in an urbanized state as Gujarat, it should have been higher. A low juvenile sex ratio means that the overall sex ratio would decline further in the coming decades. A point to note is that even in 1991, most districts had a lower juvenile sex ratio than the overall sex ratio. Districts where this was not the case were Bharuch, Dangs, Dahod, Narmada, Panchmahals, Surat, Vadodara, and Valsad. All but Surat have high or a significant proportion of tribals. A matter of concern is that in the 1990s, the juvenile sex ratio has fallen below the overall sex ratio even in the tribal majority districts.

Mehsana had the lowest juvenile sex ratio in 2001 (798), followed by Ahmedabad (814) and Gandhinagar (816), all three being

*In most districts in 2001, the juvenile sex ratio was lower than the overall sex ratio*



Figure 7.2



prosperous and highly urbanized districts. It is worth noting that 14 districts have the juvenile sex ratio less than 900. In general, relatively prosperous districts have lower juvenile sex ratio than backward districts. Declining sex ratio with increasing economic growth rates in the state requires a serious study. Is this an outcome of economic growth or is it that economic growth does not bring about improvement in the status of women?

Four districts of Gujarat figure in the bottom 10 per cent of 573 districts in India in the 2001 census (excluding the union territories) with respect to the juvenile sex ratio. These are: Mehsana (798), Ahmedabad (814), Gandhinagar (816), and Rajkot (844). Of the 57 districts with the lowest juvenile sex ratio in India, 34 belong to Punjab and Haryana. Mehsana district is at 16<sup>th</sup> position from the bottom and 15 districts figure in the bottom 20 per cent districts. That is, more than half the districts of the state are in the last two deciles (bottom 20 per cent) at the India level as far as the juvenile sex ratio is concerned.

Talukas with the lowest juvenile sex ratio are Unjha (734), Mansa (766), Visnagar (770), Mehsana (772), and Prantij (781). These are mostly in central Gujarat. Talukas with the lowest overall sex ratio are all where there are either industrial estates or have economic activities likely to employ single male migrants. These talukas are Alang (225), Kadodara (464), Un (543), Sachin (612), and Dungra (613). This regional pattern of status of women should be paid

attention to while framing policies and strategies for addressing the issue of falling juvenile sex ratio in the state. For population stabilization, decline in the juvenile sex ratio is a major concern. It also has serious implications for the population policy.

It is strongly argued by some scholars that the sex ratio is a good indicator of gender inequality and throws interesting light on several important aspects of gender relations (Drèze and Sen 1995) such as, intra-household disparities that reflect preference of males over females. One explanation given by these scholars is the increase in the death rate of females in 30+ age group at the all-India level and particularly in north Indian states (Drèze and Sen 1995:152). This means that men benefited more than women from medical advances and related improvements (Drèze and Sen 1995:154). They further argue that there is a need to look deeply at the issues involved in gender bias in child survival. For example, tribal kinship and property rights may have played a key role in raising the survival chances of girl child in tribal societies. Also, they argue that variables

relating to women's agency can play a more important role than the general level of economic development and modernization. Several scholars have argued that the overall sex ratio does not reflect all male-female disparities. Hirway and Mahadevia (1996b), based on their analysis of 15 major states, have observed that there are cases when a low sex ratio is accompanied by high female LEB, low IMR, and high female literacy. This goes to prove that the sex ratio is partly influenced by the migration factors especially at the sub-national level. But, if juvenile sex ratios are observed and issues around female child survival are examined, then the arguments given by Drèze and Sen (1995) hold true. In that case, the questions that arise are: Has gender bias among economically privileged classes increased? Are poorer households less discriminatory?

According to the NFHS-1 survey (PRC and IIPS 1993), the number of females in Gujarat is less than males in all age groups (Table 7.4). In the young working age population (30-49 years), the sex ratio is as low as 907 while in the 5-14 years age group, it is 921. Among children and aged population, male-female population is almost equal. The NFHS-2 survey finds that the sex ratio has declined by 42 points from 993 to 951 in the age group 0-14 years, while population census shows a decline of 50 points between 1991 and 2001. In the three higher age groups, 65+ years, 50-64 years and 30-49 years, the sex ratio has increased in NFHS-2 compared to NFHS-1.

All the available data show that the juvenile sex ratio is low in Gujarat and declined in the 1990s. The low sex ratio for 0-6 years age group suggests significant discrimination against the girl child in the state. Perhaps the low juvenile ratio is an outcome

of social beliefs and practices of dowry in some social groups. Further, the declining sex juvenile sex ratio indicates the declining status of woman in the state. Reversing this trend is a major challenge for the government and non-government sectors, political parties, and civil society.

## Female-headed Households

The proportion of female headed households in India is quite high, around 10 per cent in rural and urban areas. Female headed households are only 5.9 per cent of rural households but 12.2 per cent of urban households in Gujarat (based on NSSO, 1997), which is higher than the all India urban

TABLE 7.3

### Overall and juvenile sex ratios by district, 1991 & 2001, Gujarat

State/District	Whole population			Population age 0-6	
	1981	1991	2001	2001	1991
Ahmedabad	888	897	892	813	896
Amreli	980	985	986	901	923
Anand	905	912	910	873	896
Banaskantha	947	934	931	906	934
Bharuch	938	925	920	909	955
Bhavnagar	954	944	936	885	925
Dangs	970	983	986	973	999
Dahod	984	976	985	964	1001
Gandhinagar	943	934	911	816	888
Jamnagar	949	949	941	843	916
Junagadh	954	960	955	901	934
Kachchh	999	964	942	918	929
Kheda	924	924	922	880	900
Mehsana	974	951	926	797	899
Narmada	954	947	948	952	985
Navsari	975	958	955	912	955
Patan	963	944	933	862	903
Panchmahals	942	934	939	934	970
Porbandar	967	960	946	896	909
Rajkot	947	946	930	853	916
Sabarkantha	976	965	948	876	933
Surat	924	901	835	873	944
Surendranagar	934	921	923	861	905
Vadodara	915	913	919	872	934
Valsad	989	957	919	947	976
GUJARAT	942	934	919	878	928

Source: Provisional population totals – Gujarat 2001, Census of India.

TABLE 7.4

**Age group wise sex ratio and population distribution, Gujarat**

Age	Sex ratio		% population in each age group (NFHS-2)**		% population in each age group (SRS 1997)**	
	NFHS-1*	NFHS-2**	Male	Female	Male	Female
0-4	993	951	10.4	10.5	10.5	9.8
5-14	921	918	22.2	21.6	22.6	22.1
15-29	964	950	28.6	28.8	29.5	28.6
30-94	907	924	24.8	24.4	24.9	25.0
50-64	952	955	9.5	9.6	8.9	10.0
65+	992	1068	4.5	5.1	3.6	4.6
Total	944	942	100.0	100.0	100.0	100.0

Source: \* PRS and IIPS (1993).

\*\* IIPS and MEASURE DHS+ (2001): 17.

average. Only two large states, Kerala (25.2 per cent) and Tamil Nadu (16.7 per cent), have a higher proportion of female-headed households in urban areas. In the case of rural areas, only two states have a lower proportion of female-headed households than Gujarat. The phenomenon of female-headed households in Gujarat needs further investigation.

### Female Child Survival

Drèze and Sen (1995) have disputed the thesis of increasing female infanticide as an explanation for the declining sex ratio in India. They argue that the decline is mainly because of the neglect of the female child within the household. That is, boys receive preferential

treatment in terms of health care, nutrition, and related needs. Such deliberate neglect of the female child can also be called female child infanticide. The point to recognize is that “the social practices that lead to excess female mortality are far more subtle and widespread than the graphic stories of infant drowning, poisoning or asphyxiation that periodically make headlines in the newspapers” (Drèze and Sen 1995:144). This practice explains why the juvenile sex ratio in India is lower than 1000 when high mortality of women is expected in the child bearing age-group.

Till the nineteenth century, female infanticide was prevalent in Gujarat along and some regions of north India. Caste, such as Rajputs (of high status), Jats, Ahirs, Khattris, and Gujjars in north India and Lewa Patidars in Gujarat practised female infanticide. The British made a significant contribution in discontinuing this practice (Vishwanath 1996).

The infant and child mortality rates in Gujarat observed over time, do not fully validate the argument put forward by Drèze and Sen (1995). In the first year of life, as well as till the age of four, more females died compared to males (Table 7.5). This is true for Gujarat as well as for eight out of nineteen

districts in the state. In other districts, male IMRs were higher than female IMRs (Table 7.6). Further in six of the 19 districts female CMRs (q5) were lower than male CMRs (q5).

The mortality rate in the age group 3-5 years was higher among females (129) as compared to males (119) in Gujarat in 1981. Both rates declined in 1991 with the under five mortality for females declining to 104 and for males to 97. District-wise child mortality figures show that under five mortality was higher in Mehsana, Kheda, Banaskantha, Dangs,

TABLE 7.5

**Infant and child mortality by sex, Gujarat**

Year	IMR <sup>a</sup>		Death Rate Age 0-4 <sup>b</sup>	
	Male	Female	Male	Female
1981	114 <sup>a</sup>	118 <sup>a</sup>	-	-
1986	-	-	36.1 <sup>b</sup>	38.8 <sup>b</sup>
1991	74 <sup>a</sup>	82 <sup>a</sup>	23.1 <sup>b</sup>	23.5 <sup>b</sup>
1993	70 <sup>a</sup>	67 <sup>a</sup>	20.3 <sup>b</sup>	21.1 <sup>b</sup>
1997	-	-	19.1 <sup>c</sup>	22.8 <sup>c</sup>
1998	62.7 <sup>c</sup>	65.9 <sup>c</sup>	-	-
1998-99	-	-	16.3 <sup>d</sup>	16.2 <sup>d</sup>
1999	61.7 <sup>e</sup>	64.8 <sup>e</sup>	-	-

Source: (a) Pathak and Singh (1993).

(b) Commissionerate of Health and Medical Services and Medical Education (Health), Government of Gujarat (1996).

(c) SRS Bulletin, April 2000.

(d) IIPS and MEASURE DHS+ (2001).

(e) SRS Bulletin, April 2001.

Panchmahals, Sabarkantha, and Gandhinagar. Of these, female mortality is much higher than male mortality in two districts, Banaskantha and Mehsana. In Dangs, Bharuch, Surat, Amreli, and Kachchh, under 5 mortality was higher for males than females. In Rajkot, Surendranagar, Kachchh, Sabarkantha, Gandhinagar, Panchmahals, Surat, Valsad, and Dangs, the under 1 mortality for males, that is the male IMR was higher than the female IMR. It is important to note that in the districts of Banaskantha, Mehsana, Kheda and Vadodara, the female IMR was much higher than the male IMR. This suggests that in these districts, there is very high discrimination against female infants as well as female children. It appears that severe discrimination against women, resulting in even reduced survival rates of female children, must be a strongly entrenched cultural practice among the social groups dominating these three districts.

## Declining Fertility and Women's Emancipation

High birth rates affect women's health adversely. Repeated pregnancy increases risk of maternal mortality and restricts women's freedom as they are solely responsible for child rearing. Hence reduction in birth rate is associated with enhancement of women's status and voice (Drèze and Sen 1995:167) and, to some extent women's emancipation. (CBR Gujarat and India see Table 7.7, Figure 7.3)

Inter-district variations in CBRs show that Kachchh, the districts of north Gujarat (Banaskantha, Sabarkantha and Mehsana), some tribal districts (Panchmahals and Dangs), and central Gujarat (Vadodara and Kheda) have high CBR. All districts of Saurashtra, except Surendranagar and

TABLE 7.6

### Infant and child mortality rates, districts, 1991

Districts	q1		q2		q5	
	Males	Females	Males	Females	Males	Females
Ahmedabad	61	65	65	69	76	79
Amreli	62	74	79	82	98	95
Banaskantha	82	109	99	113	109	124
Bharuch	46	53	74	71	88	84
Bhavnagar	50	58	54	69	63	82
Dangs	90	84	102	97	116	109
Gandhinagar	82	67	89	87	105	101
Jamnagar	55	50	58	67	65	68
Junagadh	64	63	71	67	77	79
Kachchh	81	72	85	86	99	96
Kheda	77	92	103	110	116	119
Mehsana	84	107	91	118	118	137
Panchmahals	81	77	96	89	109	112
Rajkot	56	51	59	58	67	64
Sabarkantha	78	73	93	103	102	109
Surat	62	56	76	62	92	90
Surendranagar	82	74	83	92	87	110
Vadodara	67	89	79	76	81	83
Valsad	59	54	62	65	82	84
GUJARAT	74	82	76	87	97	104

q1= IMR; q2= Below age 2 mortality; q5= Below age 5 mortality  
Source: Registrar General and Census Commissioner, India (1998a).

Bhavnagar and urbanized districts like Ahmedabad, Gandhinagar, Surat, Valsad, and Bharuch have low CBR.

It appears that the unwillingness of the educated woman in urbanized and developed districts to be shackled by continuous child bearing has brought about this change. Education has helped to disseminate knowledge of family planning (Table 7.8). Correlation analyses across the districts and even states in India establish a close relationship between education and CBR (Murthi, Guio and Drèze 1995). Individual states may not fall in this pattern. And Gujarat does not. Gujarat stands 6<sup>th</sup> among 15 large states with respect to female literacy in 2001 but is 9<sup>th</sup> in CBR in the same year.

Figure 7.3

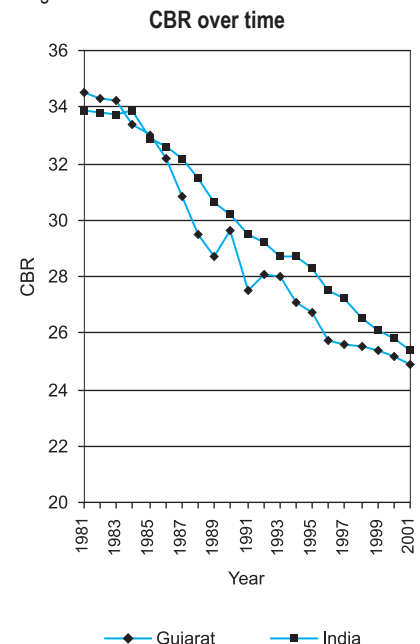


TABLE 7.7

**Estimated Crude Birth Rate, Gujarat and India**

	Gujarat		India	
Av. of 1941-51	41.8		39.9	
Av. of 1951-61	45.7		41.7	
Av. of 1961-71	44.2		41.2	
Av. of 1971-81	39.2		37.2	
1981	34.5		33.9	
1991	27.5		29.5	
1994	27.1		28.7	
1995	26.7		28.3	
1996	25.7		27.5	
1997	25.6		27.2	
1998	25.5		26.5	
1999	25.4		26.1	
2000	25.2		25.8	
2001	24.9		25.4	

Gujarat ranks 8<sup>th</sup> in TFR among major states in India. Though TFR is quite high in Gujarat compared to many other states in India, the reproductive span of 8.1 years for women in Gujarat is much lower than the all-India average of 9.9 years (Table 7.9). NFHS-2 has collected data on median age at first birth and last birth for women with at least one birth. The former gives the age when the reproductive activity starts and the latter gives the age when this activity stops. The difference between the median age at first birth and the median age at last birth provides a rough estimate of the typical reproductive age span. The larger the span, the higher is the possibility of high reproductive activity and thus high fertility. The shortest span is found in Kerala (6.8 years), followed by Punjab (7.6),

Gujarat (8.1) and Tamil Nadu (8.1) years. The data do not appear to be consistent with TFR and CBR data and require further investigation.

As far as use of contraceptive methods for population control is concerned, Gujarat has better a performance than the all-India average in rural and urban areas. On the whole, 59 per cent of couples used contraceptive measures in the state and, of them, most use any modern method (Table 7.10). As against that, the all India figure was 48.2 per cent. In urban areas in Gujarat, 61.8 per cent of couples used any contraceptive method against 58.2 per cent in India. Gujarat ranks 7<sup>th</sup> in the use of contraceptives. Gujarat also ranks in the middle with respect to exposure of women to family planning messages (See Annexures).

## Maternal Health

Data on the maternal mortality rate (MMR) are very difficult to get. There are very wide differences in MMR data available from various sources. It has therefore not been possible to make any conclusive statement on the state's achievement regarding this important concern for women.

There are serious problems with respect to the estimates of MMR in Gujarat (India). As per the statistics available from the State Bureau of Health Intelligence, Commissionerate of Health Medical Services and Medical Education, the MMR of Gujarat was 450 per 100,000 live births in 1984 and which declined to 310 in 1993. (Commissionerate of Health Medical Services and Medical Education 1996, 110). Another state government document gives MMR as 310 per 100,000 live births in 1985 (Government of Gujarat 1994). Statewise data on MMR from two other sources give entirely different figures. In Drèze and

TABLE 7.8

**Fertility indicators, Gujarat and India**

Indicator	Gujarat		India	
	1986	1998	1986	1993
1. General Fertility Rate (GFR)	130.5	98.7	136.5	116.6
2. General Marital Fertility Rate (GMFR)	170.9	132.7	175.6	153.7
3. Total Fertility Rate (TFR)	3.8	3.0	4.2	3.5
4. Total Marital Fertility Rate (TMFR)	4.9	4.2	5.5	4.9
5. Gross Reproductive Rate	1.8	1.4	2.0	1.7
6. Mean Age of Fertility	27.4	26.5	27.7	27.4

Source: Government of India (1993), SRS Bulletin and Commissionerate of Health, Medical Services and Medical Education (2002).

Sen (1995, Table A.3) the estimated MMR was 355 in Gujarat with the state standing third among the fifteen large states in reducing maternal mortality. Another source (Pathak and Singh 1993, 15) gives MMR of Gujarat as 537 per 100,000 live births between 1986-90, with Gujarat coming 9<sup>th</sup> in reducing MMR. There are no further updated data on this indicator. The latest figure of MMR, as per the communication from the Department of Health, Government of Gujarat is 200.

MMR is one of the most important indicators of gender development. Many scholars involved in constructing gender development indices or women's development indices have proposed the use of MMR as an indicator in place of LEB (Ahoja-Patel 1993, Hirway and Mahadevia 1996).

In the absence of authentic data, on the proportion of births attended by trained professionals and institutions have to be used as proxy for maternal mortality. In Gujarat, this proportion has increased over time. Untrained

professionals such as *dais* attended 40 per cent of births in 1993 in Gujarat while, in India, about half the births were attended by untrained professionals (Table 7.11).

Further, deliveries in a medical institution has increased in Gujarat from 24.8 per cent in

TABLE 7.9

**Median age at first and last birth by state, 1998-99**

State	Median age at first birth for women with at least one birth	Median age at last birth for women with at least one birth	Difference
Andhra Pradesh	17.7	27.0	9.3
Assam	19.1	28.7	9.6
Bihar	18.8	31.6	12.9
Gujarat	20.1	28.1	8.1
Haryana	20.4	29.4	9.0
Karnataka	18.5	27.7	9.1
Kerala	21.1	27.9	6.8
Madhya Pradesh	18.5	29.9	11.3
Maharashtra	18.8	27.1	8.4
Orissa	19.1	29.0	9.9
Punjab	21.5	29.2	7.6
Rajasthan	19.5	30.7	11.2
Tamil Nadu	19.6	27.6	8.1
Uttar Pradesh	19.0	32.5	13.4
West Bengal	19.0	28.6	9.6
<b>INDIA</b>	<b>19.2</b>	<b>29.1</b>	<b>9.9</b>

Source: IIPS and MEASURE DHS+ (2002), p. 106.

TABLE 7.10

**Use of contraceptive methods by state, 1998-99**

State	Urban			Rural			Total		
	Any method	Any modern method	Not using any method	Any method	Any modern method	Not using any method	Any method	Any modern method	Not using any method
Andhra Pradesh	63.4	62.3	36.6	58.3	57.8	41.7	59.6	58.9	40.4
Assam	53.4	30.6	46.6	42.3	26.3	57.7	43.3	26.6	56.7
Bihar	38.9	35.4	61.1	22.9	20.9	77.1	24.5	22.4	75.5
Gujarat	61.8	53.3	38.2	57.0	53.3	43.0	59.0	53.3	41.0
Haryana	67.2	53.4	32.8	60.4	53.1	39.6	62.4	53.2	37.6
Karnataka	59.9	56.4	40.1	57.4	56.6	42.6	58.3	56.5	41.7
Kerala	65.5	57.4	34.5	63.2	55.7	36.8	63.7	56.1	36.3
Madhya Pradesh	55.2	52.5	44.8	40.7	39.3	59.3	44.3	42.6	55.7
Maharashtra	58.5	56.7	41.5	62.7	62.1	37.3	60.9	59.9	39.1
Orissa	54.0	45.2	46.0	45.9	39.7	54.1	46.8	40.3	53.2
Punjab	71.8	54.0	28.2	64.4	53.8	35.6	66.7	53.8	33.3
Rajasthan	50.4	46.9	49.6	37.1	35.3	62.9	40.3	38.1	59.7
Tamil Nadu	58.2	55.1	41.8	48.8	47.6	51.2	52.1	50.3	47.9
Uttar Pradesh	44.8	36.6	55.2	23.9	18.3	76.1	28.1	22.0	71.9
West Bengal	73.4	46.4	26.6	64.5	47.5	35.5	66.6	47.3	33.4
<b>INDIA</b>	<b>58.2</b>	<b>51.2</b>	<b>41.8</b>	<b>44.7</b>	<b>39.9</b>	<b>55.3</b>	<b>48.2</b>	<b>42.8</b>	<b>51.8</b>

Source: IIPS and MEASURE DHS+ (2002), p. 140-42.

TABLE 7.11

**Distribution of births by type of attention at birth, 1993**

	Institutional	Trained Professionals	Untrained Professionals	Total
Gujarat- Rural	18.2	38.2	43.6	100.0
Urban	71.3	16.9	11.8	100.0
Total	24.8	35.6	39.7	100.0
India- Rural	20.2	23.3	56.5	100.0
Urban	56.5	31.6	11.8	100.0
Total	24.5	24.3	51.3	100.0

Source: Based on SRS data in Commissionerate of Health Medical Services and Medical Education (Health) (1996: 47).

1993 to 46.3 per cent in 1998-99 (Table 7.11 and Annexures). Although, the two sources of information are different, there is definitely an increase in women going to medical institutions for child birth in the state. In India also, births taking place in medical institutions has increased during this period, but the increase in Gujarat is much more. Similarly, births assisted by trained professionals has increased from 35.6 per cent in 1993 to 53.5 per cent in 1998-99 in the state as against 24.3 per cent and 42.3 per cent respectively in India. In both aspects that would affect the MMR, Gujarat has performed better than India. But, in births in medical institution the state is 6<sup>th</sup> and in births assisted by trained professionals, the state is 7<sup>th</sup> among 15 large states in India (see Annexures).

Several NGOs in Gujarat have been active in programmes for safe motherhood (Box 7.1). Maternal deaths occur following complications related to pregnancy or delivery. Five complications – bleeding, sepsis, eclampsia, obstructed labour, and severe

anaemia – account for at least three-fourths of obstetric deaths. Some of these, for instance, anaemia and sepsis, can be prevented by such measures as therapeutic/prophylactic doses of iron, clean delivery by trained personnel and regular antenatal check-ups. In all these activities, NGOs are playing an important role. Important in maternal health is antenatal registration. NGOs have made their presence felt here also by ensuring that all pregnant women in

their activity area register for antenatal check-ups. Many NGOs themselves run clinics, with voluntary help from doctors, for regular antenatal check-ups. They also assist in the distribution of maternity kits.

Maternal health care is covered under the Maternal and Child Health (MCH) and Universal Immunization Programme (UIP). MCH was termed the Child Survival and Safe Motherhood programme (CSSM) and is now called Reproductive and Child Health (RCH) programme. Since the Government of India introduced UIP in 1985, immunization coverage has improved. Besides UIP, CSSM also addresses nutritional deficiencies in pregnant women through anaemia control programme, supplementary nutrition in the ICDS blocks, and appropriate nutritional education to mothers. Anaemia control is addressed through deworming of pregnant women and distribution of iron tablets.

Immunization coverage of pregnant women is quite high in the state (Table 7.12). There is high variation in coverage across districts, with poor performance in general in the districts of Saurashtra and Kachchh (Table 7.13).

## Education

Adult (age 7+) female literacy rate in Gujarat is 58.29 per cent (2001), which is lower than the male literacy of 80.23 per cent (Table 7.14). It is also far behind the female lit-

### BOX 7.1

#### CHETNA: Awareness on women's health

'CHETNA' means 'awareness'. It is an acronym for Centre for Health Education, Training, and Nutrition Awareness. CHETNA's mission is to contribute towards empowerment of disadvantaged women and children so that they become capable of gaining control over their own lives, along with that of their families and

communities. Health education and awareness is imparted through training, workshops, and literature published in simple language. CHETNA also undertakes documentation and dissemination of innovative efforts. Recently, it has undertaken documentation of indigenous medical systems.

TABLE 7.12

### Performance of maternal health care programmes

	(% of target achieved)										
	1990-91	1991-92	1992-93	1993-94	1994-95	1995-96	1997-98	1998-99	1999-00	2000-01	2001-02
Vaccination of tetanus toxoid	96.6	97.4	87.1	94.7	96.9	94.6	94.8	92.7	96.6	93.7	94.2
Prophylaxis (Women)	140.5	104.0	110.4	114.6	122.7	76.5	87.0	63.2	103.1	85.9	81.0
Vitamin A (first dose)	-	-	-	89.0	95.9	87.4	79.0	72.1	84.4	90.0	86.3
Vitamin A (second dose)	-	-	-	71.0	84.7	78.0	73.0	83.7	84.8	86.4	89.6

Source: Commissionerate of Health, Medical Services and Medical Education (1996, 2002).

eracy of Kerala (i.e. 90.92 per cent). However, female literacy has shown good progress during the past few decades. When calculated for the whole population, the female literacy in Gujarat was 50.2 per cent in 2001, which is a significant improvement from 19.1 per cent in 1961. This is an increase of about 2.6 times in the four decades. Women have now reached the literacy rates of males in 1970s (the female literacy is thus behind the male literacy by two and a half decades at the moment). Also, female literacy has grown faster than male literacy during the past two decades.

The rural female literacy rate has now reached the male literacy rate of 1961, but it is still behind the urban male literacy rate of 1961. Among adult females, about two out of five are still illiterate. Gujarat stood 5<sup>th</sup> in 1991 as well as in 1981 with respect to the female literacy rate. In 2001, the state moved down to the 6<sup>th</sup> position among 15 large states with regard to female literacy.

The gap between the male and female literacy rate is, as expected, narrowing, but is higher in rural areas than urban areas. In 2001, the gender equality index in urban areas had gone up to 0.85, as against 0.62 in 1961. In rural areas, this index is just

0.65 and requires quite a bit of improvement in the coming years. Geographically, the gap between the highest and lowest female literacy rates is quite large. Ahmedabad had the highest female literacy rate (71.1 per cent) in 2001, almost 2.25 times the female literacy rate of Dahod (31.7 per cent). Inter-district variation in

TABLE 7.13

### District-wise performance of MCH programme

District	Tetanus Toxoid Vaccination		Prophylaxis (Women)	
	1994-95	1995-96	1994-95	1995-96
Ahmedabad	99.8	97.5	101.9	62.7
Amreli	102.9	98.1	138.1	115.8
Banaskantha	96.7	101.0	121.7	89.5
Bharuch	87.0	90.9	158.3	114.0
Bhavnagar	93.9	100.6	167.4	173.0
Dangs	119.1	109.7	143.5	116.8
Gandhinagar	97.2	99.3	99.1	138.2
Jamnagar	94.4	90.4	109.4	97.5
Junagadh	93.1	91.7	131.0	97.0
Kachchh	90.0	84.4	118.2	83.9
Kheda	101.0	101.0	146.2	165.9
Mehsana	104.4	90.0	113.6	126.8
Panchmahals	98.7	94.4	84.4	81.2
Rajkot	91.1	87.9	99.7	91.3
Sabarkantha	103.8	97.8	116.4	93.0
Surat	93.9	92.5	139.9	71.5
Surendranagar	94.6	100.3	145.4	137.7
Vadodara	102.4	100.5	119.3	107.3
Valsad	86.3	80.7	117.4	90.1
GUJARAT	96.9	94.6	122.7	103.4

Source: Commissionerate of Health, Medical Services and Medical Education (1996).



TABLE 7.14

**Literacy Rates and gender equality over time, Gujarat**

Female and Male literacy rates (%)		1961	1971	1981	1991	2001
Rural	- Male	34.5	38.9	47.9	56.2	63.2
	- Female	13.2	17.2	24.1	32.8	41.2
Urban	- Male	59.6	64.0	68.6	71.4	77.8
	- Female	36.7	44.8	51.1	57.6	66.4
Total	- Male	41.1	46.1	54.4	61.5	68.6
	- Female	19.1	24.8	32.3	41.2	50.2
Gender Equality ratio						
Rural		0.383	0.442	0.503	0.584	0.652
Urban		0.616	0.700	0.745	0.807	0.853
Total		0.465	0.538	0.594	0.670	0.732

Note: Literacy rates given here are for the whole population.  
Source: Directorate of Economics and Statistics (1996), p 52.

female literacy has been discussed in the chapter on education.

Female literacy among SC women has increased from 10.7 per cent in 1961 to 45.5 per cent<sup>1</sup> in 1991, a rate higher than the overall population (Table 7.15). The affirmative action policies for SCs have, therefore, benefited SC women. By contrast, achievements of tribal women are still low, though there is an improvement of almost six times, from 4.1 per cent in 1961 to 24.2 per cent in 1991. The ST population comprises about 15 per cent of the state's population and continued high illiteracy levels among these women have depressed the overall female literacy rate in the state. Data on the female literacy rate of other backward classes are not available, but looking at the very low enrolment rates of girls in these communities (Sherry Chand et al 1996), we can deduce that the literacy rates will be quite low.

TABLE 7.15

**Literacy achievements of scheduled castes and tribes**

	1961	1971	1981	1991
Scheduled Castes -Male	33.9	30.9	53.1	75.5
-Female	10.7	15.0	25.6	45.5
Scheduled Tribes -Male	19.1	21.8	30.4	48.3
-Female	4.1	6.2	11.6	24.2

Source: Department of Education, Government of Gujarat based on Census.

Over the years, the proportion of female students to total students has increased. Surprisingly, a significant increase is in higher education, which means that families who were sending their daughters to school in 1960-61, have ensured that girls complete higher education also. On the other hand, there is very little change in the attitude of families who were not sending their female children to school in 1960-61. Enrolment of girls from those families has not improved.

The proportion of girls to boys in primary schools has increased over time as observed in Table 7.16. But across the districts, there is very high variation. It is much more among the whole population, (Table 7.17) compared to the SC and ST population. The districts where proportion of girls to boys in primary schools is low are Ahmedabad (52.33 per cent), Banaskantha (66.19 per cent), Vadodara (68.49 per cent) and Patan (73.04 per cent). Ahmedabad and Vadodara are unexpected inclusions among the districts where gender equity in primary school enrolment is quite low. It is difficult to explain this. One of the explanations could be the low sex ratio in these districts, largely due to predominance of male migration.

Banaskantha and Patan are environmentally degraded districts where the population of socially and economically backward castes (SEBCs) is high (Sherry Chand et al 1997). A sample survey in Banaskantha district (which was bifurcated into Banaskantha and Patan) showed that 75 per cent of those not enrolled in schools were girls (Sherry Chand et al 1996). Rabaris and Thakores, who belong to the SEBC group, were not sending their girls to school (Sherry Chand et al 1997). An earlier study by Visaria et al (1993), also found that non-enrolment was a big problem among rural girls and especially of SEBC groups in Gujarat.

In the SC and ST population, there is higher gender equality in enrolment in primary schools compared to overall population. The percentage of girls to boys in primary schools was 85.89 per cent among SCs and 82.90 per cent among the STs (Table 7.17). In Navsari, in 2000-01, this percentage was 104.68 among SCs and 101.03 among STs, which meant that more girls than boys were enrolled in the primary school between these two groups. Districts where this percentage among the SC population is higher than 90 are: Ahmedabad (93.42), Dangs (94.12), Junagadh (90.43), Navsari (104.68), Panchmahals (91.59), Porbandar (92.37), Sabarkantha (90.50), Surat (90.11) and Valsad (96.53). Among the tribal dominated or majority districts such as Dangs, Dahod, Panchmahals, Sabarkantha, Narmada, Navsari and Valsad, except Dahod, the percentage is around or higher than 82.90 which is the gender equality ratio of the whole tribal population in the state in primary school enrolment.

As many as one-third of female children in age 6-11 years were not enrolled in school at all, compared to 16 per cent of male children in the same age-group in the mid-1990s. Since half the girls (of those enrolled) drop-out of the education system after class V, only one-third of the total girls, in the age group 6-11, continued education after class V. There would now be some improvement in the enrolment rate of female children in age 6-11 years but such data for the recent years are not available. What is available is the drop-out rates and these have reduced drastically for girls. The drop-out rate for girls after class V has remained 19 per cent and this is lower than that for boys (21 per cent) in 2000-01.

But female education (not only female literacy) is very important for child survival and reduction in fertility rates. Murthy, Guio

TABLE 7.16  
Percentage female students to total students, Gujarat

Years	% of female students to total in		
	Primary	Secondary/Higher secondary	Higher Education
1960-61	35.02	25.31	14.57
1965-66	36.25	29.42	23.54
1970-71	37.02	32.62	26.83
1975-76	38.45	34.04	26.23
1980-81	39.09	34.66	32.49
1985-86	42.20	35.72	36.73
1990-91	42.40	37.85	41.42
1992-93	42.32	38.88	41.46
1995-96	72.75	-	-
1996-97	73.16	-	-
1998-99	76.13	-	-
1999-00	77.65	-	-
2000-01	76.53	-	-

Source: Directorate of Economics and Statistics (1996), 54.

and Drèze (1995), analysing reasons for under-five mortality rates among different districts in India (1981), found that the increased female literacy rate and female labour force participation together explained significantly the reduction in under-five mortality. Female literacy also explained the reduction in female disadvantage in child survival as well as the reduction in the total fertility rate (TFR). By contrast, variables that relate to the general level of development and modernization either have no statistically significant effect or can even amplify the gender bias in child survival. Hence heavy stress on industrialization will not serve the purpose of reducing TFR and ensuring child survival. It will certainly not remove the gender bias in child survival. Only female education will ensure all the three: child survival, female child survival and reduction in TFR. It is here that Gujarat has a long way to go.

## Economic Participation

In all countries of the world, women's economic contribution is undervalued. This is because official data under-report their work. The census of India defines work as "any productive work for which remuneration is paid and is market related." If a

*In the SC and ST population, there is higher gender equality in enrolment in primary schools compared to overall population*

TABLE 7.17

**Percentage of girls to boys enrolled in primary schools, 2000-01, Gujarat**

District	% of girls to boys enrolled		
	All	SC	ST
Ahmedabad	52.33	93.42	59.79
Amreli	84.67	85.46	86.32
Anand	76.99	86.15	78.96
Banaskantha	66.19	76.30	48.72
Bharuch	90.11	80.54	90.08
Bhavnagar	81.36	81.95	81.44
Dangs	93.54	94.12	93.54
Dahod	75.44	79.79	75.28
Gandhinagar	75.84	81.52	80.57
Jamnagar	85.89	88.14	84.73
Junagadh	90.25	90.43	95.93
Kachchh	77.38	78.76	77.41
Kheda	77.71	85.56	77.72
Mehsana	79.21	79.15	79.41
Narmada	84.78	87.21	84.45
Navsari	94.22	104.68	101.03
Panchmahals	85.43	91.59	82.66
Patan	73.04	83.08	73.20
Porbandar	88.35	92.37	76.50
Rajkot	87.48	88.22	87.38
Sabarkantha	82.62	90.50	82.29
Surat	80.16	90.11	89.79
Surendranagar	77.98	83.09	72.69
Vadodara	68.49	89.86	80.28
Valsad	88.86	96.53	88.86
GUJARAT	76.53	85.89	82.90

Source: Department of Education, Government of Gujarat, 2001.

person has worked for more than 183 days then s/he is considered a main worker and otherwise, a marginal worker. All unpaid productive work that does not enter the market is frequently excluded from the definition of work. A large number of women engaged in production on family farms and home enterprises, therefore, get excluded. Further, because of cultural biases, false perception about their own work, and denigration of their own self, women report themselves as 'housewife'. This category is included under 'non-workers' in the census. Hence, data on women's work participation rates (WPRs) generally under-report women's engagement in economic activities. The state level situation with regard

to women's employment has been discussed at length in Chapter 2. Here, only region-wise and district-wise analyses are presented.

In the 1991 census, gender sensitive changes were introduced in the questionnaire to capture women's work. A longer reference period to capture women's seasonal and intermittent work was introduced. Enumerators were instructed not to accept 'house-work' as answer from women respondents. Instead, probing questions were asked to capture any unpaid productive work carried out during any part of the year. Even if a woman had worked for a day in the previous year, she was expected to be called a worker. The census authorities also made a list of all those activities which are home-based or are usually carried out at home by women. If any woman stated that she was engaged in any one of these activities, she was considered as a worker. A study in Gujarat has shown that though the efforts of the census of 1991 gave some positive results in a few districts, particularly where SEWA organized training for women and census investigators (Box 7.2 & 7.3), the overall

impact was not very satisfactory (Hirway 1993). In the 2001 census renewed efforts were made to capture women's economic work accurately. Though there is some improvement in the data, a lot still needs to be done to capture women's economic work in official data.

Table 7.18, which presents data on main workers in 1991 and 2001 in Gujarat by districts, shows that there has been some improvement in women's employment during 1991-2001. A part of this improvement is likely to be statistical as there have been improved efforts in 2001 to capture women's work accurately.

## SEWA: Gender development through organizing

SEWA in all Indian languages means 'to serve'. SEWA stands for Self-employed Women's Association, which is a trade union formed in 1972 to organize women in the unorganized or informal sector. For a great majority of working women in India, the conventional form of trade unionism is not possible. Most of these women are either home-based producers, or petty vendors and hawkers sitting in the market or on the street sides or moving in the streets with a head load or providers of low skill services. In response to the actual circumstances of poor women workers, grassroots organizations, partly inspired by the women's movement, have come up in India. These organizations have devised new and creative means of mobilizing women. SEWA is a notable example, with probably the largest membership.

SEWA has a membership of about 694,551 self-employed women in India, of which 535,674 are in Gujarat. About 70 per cent of these members are in rural areas and 30 per cent in urban areas in Gujarat, notably in the city of Ahmedabad. About 59 per cent of the members are labour and service providers, another 26 per cent are home-based workers, and 7 per cent each are vendors and producers. One-third of the members are Muslims and another one-third are Harijans, who belong to the most deprived section of the state's population. The movement has spread to six other states in India and recently to South Africa.

The source of guidance to SEWA is the Gandhian ideology of non-violence, trusteeship, and co-operation. Organizing women into co-operatives and unions is the core of all SEWA's activities. SEWA believes that when women organize themselves on the basis of their work, their self-esteem grows and their internal differences because of religion, caste or language melt away.

SEWA started as a trade union of the unorganized sector women for wage protection and right to livelihood. The first struggle was to get registration as a trade union. Through the trade union, SEWA has sought representation of self-employed women at all levels of decision-making so that these women are brought within the framework of national planning.

Self-employed workers' union alone cannot provide adequate protection. For that, other

forms of collective action are necessary, such as formation of co-operatives to increase their bargaining power. SEWA has about 89 co-operatives under its aegis. The co-operatives are in the sectors of dairying, land-based production, handicrafts, health care and child care services, and so on. The cooperatives are of different sizes, from village based Tree Growers Association to a large cooperative like SEWA Bank. Co-operatives have helped evolve an alternative economic system where producers control their own means of production and marketing. To strengthen the bargaining power of these cooperatives, Federation of Women's cooperatives was started in 1972.

Credit is a major point of exploitation for the self-employed. The SEWA Co-operative Bank was formed in 1974. It has played a very significant role in the members' lives by enabling them to own assets like land, houses, and production tools in their own names. Because of easy availability of micro credit, about three-fourths of the members are fully employed, that is they have employment and income security round the year. SEWA Bank has 200,000 depositors now. The bank had a total working capital of Rs. 62.54 crore till end March 2002.

In 2002, SEWA Bank introduced a team of bank Sathis comprising members from various areas of the city. This team provides day-to-day financial services to the members residing in these areas. A number of new schemes have been introduced to increase savings among the members. SEWA has also introduced social security for self-employed women workers. This includes health care, child care, insurance, and housing. These four services are critical for achieving the goals of full employment and self reliance for SEWA members. Health care is through a Women's Health Cooperative called Shri Swashrayi Mahila Lok Swasthya Mandali. Housing is through Mahila Housing SEWA trust. SEWA has also set up child care centres - 128 in all and has introduced insurance schemes for its members.

After the communal violence that rocked Ahmedabad city in 2002, SEWA struggled to keep its members safe. It provided initial relief in some areas of Ahmedabad city and later on helped these women to re-build their homes and restore their livelihoods. SEWA says: "The year 2002 will be remembered as one that

brought the most serious challenge to our unity as workers and (to) our beliefs and values." SEWA also assisted in rebuilding the houses of earthquake affected villages in Kachchh, Patan and Surendranagar after the 2001 earthquake.

Social security of the poor is very tenuous. SEWA Bank has made group insurance available to the informal sector for the first time. It runs a social security programme, which covers the members in the case of death, widowhood, hospitalization, accidents, maternity, floods and riots.

Besides insurance, social security also includes provision of basic supportive services like health care, child care and housing, which are essential for full employment of the self-employed women. Since the existing system does not provide these to the poor women, SEWA has helped women organize these services and provides them in an integrated and holistic manner at their doorsteps. The members run all social services themselves. There are health care co-operatives called women's *Lokswasthya* co-operatives, child care co-operatives, etc.

In rural areas, besides the usual skill-based co-operatives, there are co-operatives that deal with land development, water harvesting and fodder farming which generate employment in the environmental regeneration area. In Banaskantha district, three million saplings have been planted. Combined with other social security programmes, environment regeneration has led to about 80% decline in out-migration from regions where SEWA is working.

In SEWA, women are the leaders. Wherever women organize, they engage in multiple activities of struggle and development, to find a foothold in society. When misdirected and sometimes unused energies of women get channelised in the right direction, not only do women build their self-esteem but the development process also gets a boost. For example, instead of spending long hours collecting fuel and water, if women can spend time for their own collective welfare, they can come out with appropriate policies and interventions for their own development. The SEWA experience also shows that only broad-based, decentralized development process, at the initiative of the people, especially women, can lead to human and gender development.

Source: Based on SEWA's document on the organization and Jhabvala (n.d.).  
SEWA's Annual report 2002.

TABLE 7.18

## District-wise female WFPR, Gujarat, 1991, 2001

	Main workers to total population				Marginal workers to total population				% difference 1991-2001			
	2001		1991		2001		1991		Main		Marginal	
	Rural	Urban	Rural	Urban	Rural	Urban	Rural	Urban	Rural	Urban	Rural	Urban
Ahmedabad	14.1	6.9	19.0	5.8	18.3	1.8	12.5	0.5	-4.9	1.2	5.9	1.2
Amreli	17.0	7.7	15.7	6.4	19.4	3.5	15.1	3.3	1.4	1.3	4.3	0.2
Anand	16.5	8.7	14.4	6.1	17.1	4.6	18.1	1.5	2.1	2.6	-1.1	3.1
Banaskantha	18.9	5.5	11.6	4.7	19.9	2.4	16.5	1.0	7.3	0.8	3.4	1.4
Bharuch	16.7	7.1	20.0	6.5	14.3	1.4	11.0	1.2	-3.3	0.6	3.3	0.2
Bhavnagar	14.3	5.4	22.1	5.6	15.9	2.4	9.0	1.7	-7.8	-0.2	6.9	0.7
Dahod	18.9	7.6	16.4	5.8	32.6	5.7	31.6	5.0	2.5	1.8	1.0	0.7
Dangs	27.2	0.0	43.6	12.8	19.7	0.0	16.0	0.0	-16.4	-12.8	3.7	0.0
Gandhinagar	25.0	8.4	14.0	5.7	13.6	1.8	18.0	1.6	11.0	2.7	-4.4	0.2
Jamnagar	17.7	5.2	16.4	5.3	15.1	1.7	11.3	0.9	1.2	-0.1	3.8	0.8
Junagadh	14.2	5.8	14.8	5.7	19.4	2.5	22.7	1.8	-0.6	0.1	-3.3	0.8
Kheda	19.9	6.8	12.7	5.4	17.1	4.2	21.8	1.6	7.2	1.4	-4.7	2.6
Mahesana	25.5	7.2	18.3	5.2	27.3	4.1	24.9	2.3	7.2	2.0	2.5	1.8
Narmada	20.3	8.6	19.0	5.8	14.6	2.0	14.4	0.3	1.3	2.8	0.2	1.7
Navsari	23.4	11.7	24.9	8.8	32.8	2.0	29.6	1.5	-1.5	2.9	3.2	0.5
Panchmahal	14.8	5.6	14.9	4.3	23.1	2.5	24.4	3.0	0.0	1.3	-1.3	-0.5
Patan	19.2	7.9	11.6	6.2	21.0	4.0	14.6	2.4	7.5	1.7	6.4	1.6
Porbandar	15.3	6.4	14.4	6.5	16.1	3.0	10.7	1.6	0.9	-0.2	5.4	1.5
Rajkot	19.9	5.3	20.9	5.1	23.5	2.2	21.4	1.3	-1.1	0.2	2.1	0.9
Sabarkantha	17.2	7.7	17.6	6.1	13.7	3.6	15.6	2.1	-0.4	1.6	-2.0	1.5
Surat	29.3	7.2	28.7	6.4	19.0	1.2	15.0	0.6	0.6	0.8	4.0	0.6
Surendranagar	18.8	6.7	19.6	6.7	19.9	3.0	7.9	2.4	-0.7	0.0	12.0	0.6
Vadodara	16.5	8.2	16.7	6.7	23.1	1.5	20.3	0.6	-0.2	1.4	2.8	1.0
Valsad	20.9	9.9	22.3	9.1	20.2	2.6	21.3	2.2	-1.5	0.8	-1.0	0.3
GUJARAT	18.9	7.0	17.8	6.0	20.1	2.1	18.3	1.2	1.2	1.0	1.8	1.0

Source: Population census.

Data show that participation rates of female main workers in urban areas have increased in all the districts except Bhavnagar, Dangs, Gandhinagar, and Porbandar. Why this has happened is not easy to discern from the data available here. In the urban area of Dangs, the female WPR shown is zero per cent. There seems to be some problem with

the data here. In rural areas there are many more districts where the female WPR as main workers declined in 2001 compared to 1991. These are: Ahmedabad, Bharuch, Bhavnagar, Dangs, Junagadh, Navsari, Rajkot, Sabarkantha, Surendranagar, Valsad, and Vadodara. Is this accompanied by increase in WPRs in marginal category? That seems to be the case with most districts except Junagadh, Sabarkantha and Valsad. This means that in these three districts, availability of work to women in rural areas has declined on the whole. In the rest of the districts listed above, there is an increase in availability of marginal work to rural

## BOX 7.3

## Home-based women workers and poverty

The incidence of poverty is quite high among home-based workers. A study by SEWA of its members in 1993 showed that three-fifths of the surveyed women workers in Ahmedabad city were home-based. Among the surveyed households, about 70% had family income below the poverty line income of Rs. 1,500 per month.

Source: Jhabvala and Bali (n.d.)

women while round the year availability of work has declined.

On the whole, women's economic participation has increased in Gujarat, owing to better recording as well as real increase. The economic participation of rural women has increased particularly because of the availability of non-primary sector employment opportunities and livestock related activities. But, at the same time, women have been displaced from industries where the manufacturing process has been modernized. For example, in the textile mills in Ahmedabad, women were the first to be retrenched, according to a study by SEWA. A study of manufacturing industries in the 80s showed that women's employment declined sharply with increasing sophistication of products or processes (Patel 1995). The phenomenon of increasing participation of women in economic activities is positive but the displacement of women from some of the modern industries is negative. This phenomenon of increasing participation of women in poor quality employment is a matter of concern (also see Box 7.4 & 7.5).

### Self-help groups

Gujarat is known for self-help groups (SHGs) among women. These SHGs play an important role of generating diversified employment in rural areas and self-employment in urban areas. In rural areas, DWCRAs (Development of Women and Children in Rural Areas) groups were successfully created. Under DWCRAs, a women's SHG was given seed capital to start any self-employment activity. Now, the SHGs are being supported under the SGSY (*Sampoorna Gram Swarajagar Yojana*) schemes. Till March 2003, 32,613 women's SHGs were formed in the state (Table 7.19) or 36.72 per cent of all SHGs. Surat, Panchmahals and Dahod districts have more than 7,000 SHGs. Districts having high proportion of women's SHG groups are Dangs (91.89 per cent), Rajkot (80.51 per cent), Navsari (70.62 per cent),

Junagadh (53.10 per cent) and Valsad (52.32 per cent). Rajkot district has a very high proportion of women's SHGs because the Mahila Samakhya programme has run very successfully here.

## Political Participation

Participation of women in higher levels of elected bodies, such as Parliament and the legislative assembly, is quite dismal, to say the least. This is also the case in other states in India. Out of a total 26 members of Parliament (MP) elected from the state in 1999 only three (11 per cent) were women. This however is an improvement from just two

### BOX 7.4

#### Women's development programmes in Gujarat

**Yuvati Vikas Kendra:** This scheme provides guidance and counselling facilities to adolescent girls in the age group of 13-19 years. Financial assistance is given to registered NGOs to run these centres. There are 49 *Yuvati Vikas Kendras* in the state.

**Mahila Margdarshan Kendra:** Under this scheme, registered NGOs are given financial assistance to run centres that will operate as information bureaus and provide guidance and information to women regarding (a) schemes of the central and state governments, (b) training facilities, and (c) employment opportunities for women in public and private sectors. There are 76 centres in the state.

**Women Welfare Schemes of GWEDC:** Gujarat Women's Economic Development Corporation (GWEDC) focuses on economic empowerment of women in Gujarat. The corporation enables women to take up income generating activities under following schemes:

- ◆ *Ghar Divada:* This is a bank scheme for women of the BPL households, where banks provide loans to women to start tiny enterprises. GWEDC provides subsidy where loans are sanctioned.

- ◆ *Training:* An employment/self employment-training scheme is run through NGOs. GWEDC provides Rs. 150 to the institution as administrative cost per beneficiary per month and Rs. 250 as stipend to the beneficiary per month, limited to six months.

- ◆ *Assistance to Girl Students:*

- In order to reduce the drop-out rate among girl students an outlay has been provided for the scheme of construction of girls' toilet in upper primary schools.

- There is a scheme for providing financial assistance to talented girl students from SC, ST, and OBC groups. For increase in girls' retention rate under the scheme, an amount of Rs. 300 per annum is given to each girl student. It has been decided to increase the coverage and include all the talukas in State under the scheme.

**Financial Assistance for Mameru/Mangalsutra:** The scheme was introduced in 1995-96. Under this scheme, social and educationally backward class and economically backward class *kumarikas* (unmarried girls) are given Rs. 5,000 as financial assistance at the time of marriage. The assistance consists of Rs. 2,000 in cash and Rs. 3,000 in the form of Kisan Vikas Patra (bonds). The income limit of the family covered under the scheme is Rs. 11,000 in year.

**Financial Assistance for Dikri Rudi Sachi Mudi:** Under the scheme, socially and economically backward women are given Rs. 3,000 as financial assistance on the occasion of birth of a girl child. Out of this, Rs. 500 is given in cash within 15 days of the birth of girl child and the remaining amount is given in the form of small savings certificates. The income limit for the beneficiary household is Rs. 11,000 a year.

### Swa-shakti Gujarat

Swa-shakti is a rural women's empowerment and development project supported by the World Bank, International Fund for Agriculture and Development (IFAD), and the government of India. The project aims at enhancing women's access to resources for better quality of life through use of drudgery and time reduction devices, health improvement, literacy programmes, confidence enhancement measures, skill development for income generating activities and increasing their control over their incomes. This is to be achieved through forming SHGs. Swa-shakti means collective efforts towards self-empowerment of rural women. The project strategy is (a) to facilitate women's access to credit and to increase their involvement in income generating and augmenting activities, (b) to build women's institutions to ensure that the process of empowerment is self-sustaining, and (c) to develop participatory process to identify priorities and devise appropriate responses to meet them.

Gujarat is one of the states where this programme has been started. It is going on in eight districts: Bharuch, Panchmahals, Sabarkantha, Surendranagar, Ahmedabad, Patan, Kachchh, and Rajkot. Table A gives details of project activity by district till October 2002 and Table B gives details of training activities at the state level under the project.

TABLE A

#### Swa-shakti project achievements by districts, upto October 2002

	Panchmahals / Dahod	Sabarkantha	Bharuch	Surendranagar	Ahmedabad	Patan	Kachchh	Rajkot
No. of NGOs operating	8	10	9	7	8	10	6	8
No. of SHGs formed	390	449	360	410	275	320	215	260
No. of villages covered	162	260	150	199	147	175	98	95
No. of members	6343	7293	5993	7011	4818	5911	3586	4515
Total savings (Rs. lakhs)	19.40	20.33	8.52	18.30	6.47	8.48	6.88	6.48
Amount loaned (Rs. lakhs)	18.61	9.22	3.46	0.00	0.28	0.00	0.00	0.00
No. of groups saving regularly	371	410	355	408	275	320	215	260
No. of groups lending internally	283	248	71	23	24	22	9	4
No. of SHGs accessing RMK fund	0	5	0	0	0	0	0	0

Source: Progress report of Swa-shakti, Gujarat, October 2002.

TABLE B

#### Training activities details at state level, upto October 2002

	No. of trainings held	No. of SHG groups benefited from training	No. of members benefited from training
Orientation	475	1665	25048
Group strengthening	46	451	3138
Leadership	117	1239	3356
Account and book keeping	115	1004	2909
Exposure visit	62	716	4391
Theme camp	68	369	14863
Health camp	52	931	8800
Literacy classes	43	504	8309
Cluster formation	54	508	1817
Panchayati raj	32	451	8191
Legal aid	36	318	2587
Adolescent shibir	20	43	541
Water management	6	277	4517
Agriculture	27	413	8512
Poultry	4	18	88
Animal husbandry	52	306	4685
Other	72	313	3336

Source: Progress report of Swa-shakti, Gujarat, October 2002.

successful women candidates in the 1996 parliamentary elections. Of the 577 contestants in the 1996 parliamentary elections, only 18

(3.1 per cent) were women. In the 1999 parliamentary elections, 159 candidates stood for election, of which just 8 (5.0 per cent) were

women. In no parliamentary election since 1971, have more than two women got elected in the state, except in 1998 and 1999. In some years there have been none (Table 7.20).

Women's representation in the state legislative assembly is also dismal. Twelve (6.59 per cent) of the 182 members of the legislative assembly (2002) are women. This is an improvement from the previous legislative assembly (1998 election) when there were only four (2.19 per cent) women in the legislative assembly (Chief Electoral Officer 1998). In the 2002 legislative assembly elections, 37 of the 1000 candidates (3.7 per cent) were women while in the 1998 assembly elections, 49 of the 1125 candidates (4.35 per cent) were women. In short, women's participation in the state assembly and in Parliament (from Gujarat) has been dismal.

By contrast, at the grassroots level, in the third tier of the government, i.e. in panchayats, municipalities and municipal corporations, there's considerable presence of women. While the 73<sup>rd</sup> and 74<sup>th</sup> constitutional amendments have brought about this change, an aspect that is noticeable in the state is the emergence of women leaders at the grassroots level. Table 7.21 gives the number of elected representatives in panchayati raj institutions (PRIs). At the moment, there are 41,180 women in village panchayats, 4,435 women sarpanches, 1,312 women taluka panchayat members, 8 women district panchayat presidents, and 77 women taluka panchayat presidents.

NGOs and NGO networks working on PRIs have made some difference at the local level, leading to a few success stories. Studies by NGOs have shown that women's participation in PRIs is qualitatively better in regions where socio-cultural

TABLE 7.19

**SHGs formed up to March 2003**

Districts	Total SHGs formed	% to total target	Women SHGs	Women SHG as % to the total SHG
Ahmedabad	4139	122.46	1162	28.07
Amreli	1785	81.88	521	29.19
Anand	2647	83.71	1084	40.95
Banaskantha	5614	96.46	1442	25.69
Bharuch	5237	111.33	1790	34.18
Bhavnagar	3065	98.55	1056	34.45
Dahod	7109	85.86	2254	31.71
Dangs	777	53.37	714	91.89
Gandhinagar	1180	77.53	348	29.49
Jamnagar	1084	31.70	192	17.71
Junagadh	2482	76.28	1318	53.10
Kachchh	2731	86.86	136	4.98
Kheda	5967	128.05	1698	28.46
Mehsana	3714	186.07	435	11.71
Narmada	2708	85.86	1160	42.84
Navsari	2573	79.36	1817	70.62
Panchmahals	7308	76.52	2403	32.88
Patan	1604	66.45	232	14.46
Porbandar	148	19.63	32	21.62
Rajkot	2807	83.44	2260	80.51
Sabarkantha	5921	94.19	2498	42.19
Surendranagar	1284	37.57	126	9.81
Surat	9929	118.17	4837	48.72
Vadodara	4007	70.70	1510	37.68
Valsad	2997	81.89	1568	52.32
<b>TOTAL</b>	<b>88817</b>	<b>88.82</b>	<b>32613</b>	<b>36.72</b>

Source: Commissionerate of Rural Development, Government of Gujarat, Review of Progress of Rural Development Programmes, March 2003 (Provisional).

factors are favourable to women or if there are NGOs working on PRI issues in the region (based on Unnati 2000). For example, in the tribal areas, women were able to participate more freely and effectively than in the plains where caste politics dominated. Further, in the regions where NGOs were working, women sarpanches and members of panchayats were more vocal. Even tribal women were more vocal but were hindered by high illiteracy. In some places, no change was observed. For example, in Jamnagar district, women sarpanches were not allowed to attend meetings or express themselves before male members and other women members of panchayat were not allowed to go out without a male escort (based on Unnati 2000).



TABLE 7.20

**Female participation in parliamentary elections**

Year	Contesting		Elected	
	Male	Female	Male	Female
1977	110	2	25	1
1980	163	6	26	-
1984	218	11	24	2
1989	252	9	26	-
1991	403	17	24	2
1996	559	18	24	2
1998	132	7	22	4
1999	151	8	23	3

Source: (a) Department of Women and Child Development (1997), 215.  
(b) Chief Electoral Officer (1998).

Some of the recorded success stories of women in panchayats are narrated below.

**Blind woman sarpanch of Changa village in Anand district:** Sudha Patel is probably the only blind woman sarpanch, who got elected at the age of 21. She has bagged the award of 'outstanding woman panchayat leader' of the Institute of Social Sciences (ISS), New Delhi. ISS noted that, under her leadership, Changa panchayat had initiated a number of development programmes. She came to the panchayat office every morning accompanied by a friend, who helped her in checking the documents, applications, and files before she signed them. Under her supervision, the village has been transformed from an

underdeveloped village to a liveable place with good roads, adequate drinking water, and other amenities. She has also received many other awards (Unnati 2000:28).

**Fighting against all odds:** This is the case of a woman President of a district panchayat. The lady is well educated, with a postgraduate degree in History. She faced five no-confidence motions during her tenure! It appeared that it was difficult for the established interests, the political leaders and the

bureaucracy at the district level to accept a woman in a leadership position. She contested the election of district panchayat from a reserved constituency. She won against a woman candidate who came from a strong political family. She won the elections against all odds due to her good oratory skills and her party support and then was unanimously elected the district panchayat member. Right from the beginning, people in the district panchayat office were not ready to accept a woman as a president. The vice-president even forced her to work according to his instructions, threatening that if she did not do so, she would be forced to resign. She took this threat as a challenge, made herself more accessible to the people, made her work more transparent, and became a

TABLE 7.21

**Elected representatives in panchayati raj institutions**

		SC	ST	OBC	General	Total
District panchayat presidents	Total	2	5	2	16	25
	Women	1	2	1	4	8
District panchayat members	Total	58	175	85	499	817
	Women	19	59	29	167	274
Taluka panchayat presidents	Total	18	43	21	143	225
	Women	1	17	11	48	77
Taluka panchayat members	Total	270	794	429	2,426	3,919
	Women	24	260	200	828	1,312
Village panchayat sarpanch	Total	1,065	1,895	1,774	8,981	13,715
	Women	355	620	443	3,017	4,435
Village panchayat member	Total	9,887	17,285	12,347	93,961	123,470
	Women	3,294	5,765	4,118	28,033	41,180

Source: Department of Women and Child Development (2003).

popular leader. She challenged the no-confidence motions passed against her in the Gujarat High Court and won. The High Court issued a ruling that only one no-confidence motion could be brought against a district panchayat president in the tenure of five years (Unnati 2000:34).

### ***A Dalit woman sarpanch's struggle:***

Savitabhen is the elected sarpanch of the Saddha gram panchayat of Himmatnagar taluka. She is not a rubber stamp sarpanch like many others. She won the panchayat election in 1995 by a huge margin. Immediately she took up development activities in the village: constructed a RCC road to the village, laid water pipelines in the village, constructed a water tank, installed an electric motor for water works, and constructed a community hall. She also helped the handicapped get their share of benefits from government programmes. Since she was a Dalit and a woman, the upper caste members started creating trouble for her. They alleged that she had misused the money allocated for handpumps. She produced evidence to prove that the funds were correctly spent. The panchayat members continued to make allegations about her integrity in matters of finance. Finally, though the whole village supported her, they passed a no-confidence motion against her and ousted her. She fought the panchayat elections once again and won with a large majority. Her ordeal did not end and she was once again harassed and was suspended on the grounds of incompetence.

There are many cases of success. But, there are also many more cases of failure. In most cases, women elected to the panchayats belong to political families. Women sarpanches particularly belong to families where there has been a history of a male member being sarpanch. Thus, in a large number of cases women act as 'rubber stamp' sarpanches. Even the village *talati* does not heed women sarpanches and continues to act as law unto himself. NGOs have also found that women

members of panchayats are in dire need of training and capacity building about various aspects. They also need support from NGOs to take them to taluka and district offices. Thus, much needs to be done with regard to women in PRIs. In Gujarat, a good beginning in that direction has been made.

## **Violence Against Women**

Violence against women is the highest manifestation of the inequality due to the patriarchal system. This system controls women's productive and reproductive labour power, women's sexuality, women's mobility, as well as property and other economic resources. The control over women is through religion, culture, and social norms. Violence is one form of legitimized control over women to subjugate them. Women routinely experience violence from men. "Male violence is systematically condoned and legitimated by the state's refusal to intervene against it except in exceptional instances" (Walby 1990). Violence against women is systematic and institutionalized. As seen earlier, this violence takes different forms in our society and inflicts multiple injuries on women. It is all-pervasive and cuts across lines of income, class, and culture. The UN General Assembly passed, by consensus, a Declaration on the Elimination of Violence Against Women in 1993. This declaration states that violence against women is an obstacle to the achievement of equality, development and peace; it violates and impairs or nullifies the enjoyment of human rights and fundamental freedoms by women; it is a manifestation of historically unequal power relations between men and women, which have led to domination over, and discrimination against, women by men; and it is one of the crucial social mechanisms by which women are forced into a subordinate position (Coomaraswamy 1995).

There is very little data on violence against women. Family violence is often invisible.

*Violence against women is the highest manifestation of the inequality due to the patriarchal system*

*Doctrines of privacy related to the concept of the sanctity of the family lead to violence in the family remaining invisible and unreported*

To maintain family prestige and for fear of reprisal or discrimination, violence outside the family is also frequently not reported. It is also common that such cases are not registered by the police owing to bias, inefficiency, or pressure from the perpetrator of the crime. Doctrines of privacy related to the concept of the sanctity of the family lead to violence in the family remaining invisible and unreported. Usually violence against women gets better reported when the women's movement is strong enough to provide support to victims. This causes problems in getting comparable data across states and across regions, especially for constructing indices.

Rape is the second most pervasive form of violence against women. It is used as an instrument to subjugate women, for settling personal scores and rivalries. Rapes also become instruments of violence in times of political movements or caste and communal strifes. Hence violence against women is often communally or politically motivated, an occurrence which has assumed serious dimensions in India and also in Gujarat. Dowry death, another major form of violence, is peculiar to India. Many crimes committed against women are because of the dowry system. The dowry system is the cause of both physical as well as psychological violence against women. Forced prostitution and trafficking of women is yet another heinous crime committed by society on women. Finally, technological advances have brought sex determination tests, leading to female foeticide, another form of violence against women.

Further, economic inequalities and social divisions like caste, class, religion, ethnicity, etc. have always affected women more adversely than men. In addition, new forces are at work in society that are opposed to women's right to equality, dignity and freedom. Some of them claim roots in cultural traditions, practices and community rights. They have

become increasingly aggressive in the past decade in India. There has been a rapid rise in crimes against women in the last decade. Increasing consumerism in society, a fallout of the paradigm of economic growth, has led to commodification of women's bodies for advertisements, etc. Emergence of identity politics has further led to differences between women of different social groups being played out in the public realm, attempting to force women back into their social ghettos and by that, creating a challenge in the area of women's rights. Violence against women has to be viewed against the background of this new context.

According to police records, Gujarat is not a high crime-prone state in India. Among 15 large states, Madhya Pradesh leads in crime records with 19.1 per cent of recorded crime. Gujarat ranks 9<sup>th</sup> with 8.6 per cent (1994). But, compared to the proportionate share of Gujarat's population in the total population of India, this percentage share is higher. Crimes against women include rape, kidnapping and abduction, dowry deaths, torture (cruelty by husbands and relatives), molestation, sexual harassment/eve teasing, importing of girls (of up to 21 years), *sati*, immoral traffic in women, and indecent representation of women.

Gujarat stands 2<sup>nd</sup> with respect to importing of girls, with a share of 20.4 per cent. Maharashtra tops with 24.6 per cent. With respect to cases registered on indecent representation of women, Gujarat stands 3<sup>rd</sup> after Bihar and Karnataka with a share of 11.6 per cent.

Registration of crimes against women seems to have decreased in the state according to the data given in Table 7.22. A report submitted to the Department of Women and Child Development, as part of the exercise of framing gender equity policy in the state by the Group Working on Crime Against Women and Legal Support to Women in Distress<sup>2</sup> states that there has been a decline

in the registration of most crimes over the last five years (1997 to 2001). Only in two instances there has been an increase in crime registration: complaints of torture (which have increased from 2,419 in 1997 to 3,542 in 2000 and 3,191 in 2001) and suicide deaths, whose number rose from 1,467 in 1997 to 1,774 in 1999, but then decreased to 1,632 in 2001 and 1,455 in 2002. Reported incidence of unnatural deaths of women in Gujarat steadily increased from 10 a day in 1990 to 14 a day in 1996. This rate of increase is higher than the yearly population growth rate. From 2000 onwards, however, the number of reported unnatural deaths of women declined from 14 in 2000 to 13 in 2001 to 7 in 2002.

A number of women's organizations are active in dealing with issues related to women and violence. These organizations provide short-stay homes for battered women, counselling, creating pressure groups in the localities to prevent violence against women, legal support, training for employment, training police personnel for pro-women counselling and intervention and training women to improve their self image. AWAG (Ahmedabad Women's Action Group) at Ahmedabad, Sahiyar at Vadodara, and Astitva at Valsad are independent NGOs that focus on the issue of violence against women. With the support of the Commissionerate/Department of Women and Child Welfare, family counselling centres have been established in each district that

address the issue of the violence against women. The former groups of organizations keep women at the centre of their activities and do not compromise.

The report of the Group Working on Crime Against Women and Legal Support to Women in Distress written for the State Gender Equity Policy states that the state government had established *Mahila Suraksha Samitis* in 1991 by a government resolution. These were nominated at state and district levels. Political party members, NGO representatives, and women in education were invited to be in the *samiti*, headed by the District Superintendent of Police. Though women members were frequently neither well versed in law nor knowledgeable about police procedures, they attended the *samiti* meetings because they were interested in understanding the legalities attendant on women's sufferings. The *samitis* established good rapport with the police officers. Eventually, the *samitis* empowered the women to a certain extent through the information they received and insight they gathered in the actions of the police. With the repeated changes in the governments through the 1990s, the *Mahila Suraksha Samitis* have taken a beating.

On the whole, in terms of recorded violence against women the figures for Gujarat are low. This can be misleading as the rate of violence against women is much lower in tribal and less developed districts than in developed districts, which is mainly because

*A number of women's organizations are active in dealing with issues related to women and violence*

TABLE 7.22

**Incidence of various crimes against women, Gujarat**

	1990	1991	1992	1993	1994	1995	1996	2000	2001	2002
Murder	286	335	375	337	311	326	345	334	260	278
Dowry Death	42	49	62	63	80	55	63	56	43	41
Suicide	1081	1096	1166	1546	1386	1523	1975	1668	1632	1455
Accidental Death	2303	2265	2178	2637	2724	2753	2804	3029	2750	686
Total unnatural deaths	3712	3745	3781	4583	4501	4657	5187	5087	4685	2460
% increase over previous year	-	0.9	1.0	21.2	-1.8	3.5	11.4	-1.9	-7.9	-47.5
Rape Cases	256	258	310	301	387	251	253	314	235	262
Other cruelty	822	1097	1576	1940	5553	5710	5649	754	673	462

Source: Police Records, Gujarat.

of better reporting of the crimes in developed districts. It is possible that the high rates of the developed districts are depressed by the low rates of backward districts resulting in low state average rates. Further, though efforts have been made to address this issue, a lot needs to be done, by the police department and the civil society.

## Age at Marriage

Age at marriage is a crucial indicator of women's development as it indicates the extent of control of men over women. A low age at marriage means that a woman will start bearing children from a young age and will be reproductively active for a longer period. This also indicates poor health status of women as a result of repeated pregnancies. Women marry early in a society where

elders arrange marriages and where there is high social value placed on marriage of women. In societies where women are economically active, they marry relatively late.

According to census of 1991, only 2.3 per cent of girls in the age group 10-14 years were married in Gujarat, as against 4.6 per cent in India. Among 15 large states in India, Gujarat came in 8<sup>th</sup> position with regards to this parameter, which means that there were seven states, which had a lower proportion of married girls in the age group 10-14 years. The lowest figure is observed in Kerala (0.54 per cent). The highest figure was in Rajasthan where 13.31 per cent of girls in this age group were married.

There are high inter-district variations with regard to child marriage in the state. The urbanized districts of Ahmedabad, Surat

and Vadodara have reported zero incidence of marriages of girls in the age group 10-14 years (Table 7.23). In the districts of Saurashtra and Kachchh also, the proportion of married girls in this age is quite low. In the districts of north Gujarat, Banaskantha, Sabarkantha and Panchmahals and in the districts of central Gujarat such as Mehsana, Gandhinagar, and Kheda, the proportion of married girls in this age group is quite high. The highest incidence is in Kheda district (5.50 per cent) followed by Gandhinagar (5.10 per cent) and Mehsana (3.90 per cent). This is perhaps because of the social groups dominating these districts, mainly Patels, among whom the practice giving of huge dowry is prevalent.

Of the currently married females, 27.15 per cent were married before the age of 18 years, the legal marriage age. This figure includes all married women. But of those married during 1986-91, which is five years prior to the census operations, 21.32 per cent were married before the legal age of

TABLE 7.23

### Extent of child and below age marriages among females, districts, 1991

Districts	Mean age at marriage of currently married women	% of currently married women with age at marriage below 18	% married females in the age group	
			10-14	15-19
Ahmedabad	18.90	32.00	-	2.30
Amreli	19.09	23.93	0.70	15.20
Banaskantha	19.07	23.94	3.20	32.70
Bharuch	19.30	20.70	0.70	14.70
Bhavnagar	19.11	25.26	1.80	23.20
Dangs	19.23	20.58	2.00	23.40
Gandhinagar	18.38	38.37	5.10	36.20
Jamnagar	19.48	19.86	1.00	11.00
Junagadh	19.58	16.55	1.00	9.30
Kachchh	19.01	28.21	0.70	15.90
Kheda	18.45	37.49	5.50	37.20
Mehsana	18.18	41.34	3.90	37.10
Panchmahals	18.82	27.97	2.60	35.50
Rajkot	19.56	18.00	0.70	8.60
Sabarkantha	19.03	22.34	2.40	24.20
Surat	19.38	20.26	-	1.20
Surendranagar	18.94	27.94	1.60	21.40
Vadodara	18.98	30.38	-	2.60
Valsad	19.42	20.88	0.70	13.00
GUJARAT	19.01	27.15	2.30	22.40

Source: Registrar General and Census Commissioner, India (1998a).

marriage. This percentage is 24.00 for rural areas and 16.03 for urban areas. (Registrar General and Census Commissioner, India 1998a). This shows that quite a high proportion of girls in the state are married before the legal minimum age, particularly in rural areas. The overall proportion of under-age marriages of girls in Gujarat is high because of Mehsana, Gandhinagar, and Kheda districts where the proportion of under-age married women is very high. In Mehsana, almost two-fifths of women were married before the age of 18 years. Thus, some districts of north and central Gujarat show very strong patriarchal values. The mean age at marriage of women in Gujarat is 19 years, just one year above the legal marriage age.

NFHS-2 data gives the average age at marriage of females in Gujarat to be 20.2 in 1998-99 (see Annexures). Gujarat ranks at sixth, maintaining the same rank as in the 1991 census data. For rural areas, the state is sixth, but for the urban areas it is tenth.

## Budget Expenditure on Women

There has been lately a growing recognition of the need to give a gender perspective to budgeting. The Department of Women and Child Development, Government of India, decided to carry out an exercise to analyse the state budgets from a gender perspective (Box 7.6). Budget analysis by civil society actors is rooted in the conviction that ordinary citizens have a right to know how public resources are mobilized and spent, and to intervene in the process to ensure that it is socially equitable. Feminist engagement with budgets has developed out of a growing understanding that macroeconomic policy can contribute to narrowing or widening gender gaps in areas such as employment, health, education and nutrition and make the living standards of different groups of women and men better or worse.

### BOX 7.6

#### On Gender Budgeting

“The realization and the achievement of the goals of gender equality, development and peace need to be supported by the allocation of necessary human, financial and material resources for specific and targeted activities to ensure gender equality at the local, national, regional and international levels as well as by enhanced and increased budgetary processes at the national, regional and international levels.”

– *Twenty-third special session of the General Assembly to follow up implementation of the Platform for Action, June 2000 (A/S-23/10/Rev.1).*

“in order to support better planning and programme formulation and adequate allocation of resources, Gender Development Indices (GDI) will be developed by networking with specialized agencies. Gender

auditing and development of evaluation mechanisms will also be undertaken alongside. Collection of gender disaggregated data by all primary data collecting agencies of the Central and State Governments as well as research and academic institutions in the Public and Private Sectors will be undertaken. Data and information gaps in vital areas reflecting the status of women will be sought to be filled in. All Ministries/Co-operatives/Banks and financial institutions etc. will be advised to collect, disseminate data related to programmes and benefits on a gender disaggregated basis. This will help in meaningful planning and evaluation policies.”

– *National Policy for Empowerment of Women, 2001.*

Interest in budget analysis was also fuelled by concern about the gaps between commitments to gender equality and women’s empowerment made by governments at various international conferences, and the actual allocation of national resources to translate these commitments into reality (Menon-Sen 2002).

For the purpose of analysis, the schemes have been grouped into two categories:

- (i) Schemes with 100 per cent benefits to women or women-specific schemes of the Commissionerate/Department of Women and Child Development and other sectoral women-specific programmes. The Department of Women and Child Development (DWCD) was set up in Gujarat early in 2002 and since then programmes for women and children are implemented by this department.
- (ii) Pro-women schemes/services, wherein 30 per cent or more of budget funds are allocated to the women component plan (WCP). The DWCD is ex-officio member in the planning teams of all the departments. Currently a very small proportion of the state government budget goes towards development of women.

*A very small percentage of Actual Expenditures on Budget is spent on women-specific schemes*

CFDA has done gender budget analysis for Gujarat (Mahadevia 2002) for two years, 2000-01 and 2001-02. The Budgeted Expenditure (BE), the Revised Estimates (RE) and the Actual Expenditure (AE) data were separately analysed for all the schemes for these two years. In all, there were 121 schemes in 2000-01 and 122 schemes in 2001-02 directly targeted at women. Of these, 57 in 2000-01 and 58 in 2001-02 were in the social services sector. About 61 per cent of the scheme-based funds in 2000-01 and 86 per cent in 2001-02 were actually spent on social services schemes for women. Among pro-women schemes, more than 90 per cent of the funds allocated or spent on them were from the social services sector.

The actual expenditure (AE) for women-specific schemes was Rs. 27,778.29 lakh, just 0.89 per cent of the actual expenditure in 2000-01, although in budgeted estimates (BE), the total allocation for all women-specific schemes was Rs. 29,447.30 lakh, that formed 1.26 per cent of BE in 2000-01. In the subsequent year, 2001-02, the allocation in BE to women-specific schemes was Rs. 26,701.75 lakh, which was less by 9.32 per cent compared to the previous year (2000-01) but the actual allocation to women-specific schemes was just 0.79 per cent of the total budget. AE was Rs. 15,008.93 lakh, a miniscule 0.35 per cent of the AE in the total budget. There was a

decline of 45.97 per cent in AE on women-specific schemes in 2001-02 as compared to 2000-01, largely due to a massive earthquake in the state (Table 7.24).

As a proportion of the social sector, allocation to women-specific schemes is also low, 4.22 per cent in 2000-01 and 1.97 per cent in 2001-02 year. AE came down from 3.17 per cent in 2000-01 to 1.75 per cent in 2001-02 (Box 7.7).

Allocation to pro-women schemes as a proportion of total budget and as a proportion of social sector budget is quite large. These are allocations to schemes and not adjusted for allocations reaching the women. If it is assumed that, at the least, half of the allocations to pro-women schemes were to reach women, the figures in rows 7 and 8 in Table 7.24 would be halved. A systematic study of benefit incidence analysis would give the exact figures of funds actually reaching the women. Currently, it is expected that less than half of the allocated funds reach women.

Unlike women-specific schemes, allocation for pro-women schemes has increased in BE from Rs. 345,689.88 lakh in 2000-01 to Rs. 382,094.57 lakh in 2001-02. AE on pro-women schemes in 2001-02 was less by 24.13 per cent than in 2000-01. AE in 2001-02 was Rs. 268,764.09 lakh, which is much less than the AE of Rs. 354,255.73 lakh in the year 2000-01. As a proportion of the total budget, allocation on pro-women schemes (BE) in 2000-01 was 14.76 per cent, which went down to 11.31 per cent in 2001-02 in spite of increase in monetary terms. In 2000-01, AE on these schemes formed only 11.37 per cent of the total budgetary expenditure and went down to 6.22 per cent in 2001-02.

In both years, AE on pro-women schemes as a proportion of total budget has been less than the budgeted share of pro-women schemes. Our study on Gender Budgeting in

TABLE 7.24

**Women-specific and pro-women scheme allocations and expenditures**

Year	As % of total budget			As % of social sector budget		
	BE	RE	AE	BE	RE	AE
<b>Women specific schemes</b>						
2000-01	1.26	0.80	0.89	4.22	2.92	3.17
2001-02	0.79	0.57	0.35	1.97	2.23	1.75
<b>Pro-women schemes</b>						
2000-01	14.76	9.72	11.37	49.53	35.46	40.41
2001-02	11.31	7.70	6.22	28.25	29.99	31.32

BE= Budgeted Estimates; RE= Revised Estimates; AE= Actual Expenditure.  
Source: Calculated from Budget Data in Mahadevia (2002).

BOX7.7

**Percentage allocation to women targeted and pro-women schemes in selected states****A**

State	Year	As % of total budgetary allocations (revised estimates)			As % of social sector budgetary allocations (revised estimates)		
		Women targeted schemes	Pro- women schemes	Total (a + b)	Women targeted schemes	Pro-women schemes	Total (c + d)
		a	b		c	d	
Gujarat	2000-01	0.97	4.10	5.07	3.52	14.96	18.48
	2001-02	0.52	3.11	3.63	2.01	12.12	14.13
Jammu & Kashmir	2000-01	2.22	0.59	2.81	10.11	2.69	12.80
	2001-02	1.91	0.56	2.48	8.79	2.59	11.37
Madhya Pradesh	2000-01	0.89	1.35	2.25	3.03	4.60	7.63
	2001-02	0.58	0.99	1.57	2.40	4.10	6.50
Maharashtra	2000-01	0.64	3.92	4.56	2.46	15.08	17.54
	2001-02	0.65	4.00	4.65	2.65	16.30	18.95
Meghalaya	2000-01	1.81	9.32	11.12	4.73	24.38	29.10
	2001-02	3.20	10.74	13.95	6.64	22.26	28.90
Orissa	2000-01	0.54	10.03	10.57	2.29	42.08	44.37
	2001-02	0.44	6.85	7.29	2.50	38.84	41.34
Rajasthan	2000-01	2.70	2.29	4.99	7.48	6.34	13.82
	2001-02	4.56	2.25	6.81	10.79	5.33	16.13

Source: Based on GOI, DWCD and NIPCCD (National Institute of Public Cooperation and Child Development)(2002).

**B**

State	Year	As % of total expenditure on			As % of social sector expenditure		
		Women targeted schemes	Pro- women schemes	Total (a + b)	Women targeted schemes	Pro-women schemes	Total (c + d)
		a	b		c	d	
Gujarat	2000-01	1.15	4.96	6.11	4.08	17.63	21.70
Jammu & Kashmir	2000-01	2.58	0.40	2.98	10.79	1.68	12.46
Madhya Pradesh	2000-01	0.34	1.47	1.81	1.25	5.44	6.69
Maharashtra	2000-01	0.50	4.15	4.65	1.67	13.94	15.62
Meghalaya	2000-01	2.39	5.91	8.30	6.73	16.65	23.37
Orissa	2000-01	0.07	7.46	7.53	0.34	38.08	38.42
Rajasthan	2000-01	2.48	2.05	4.53	6.08	5.02	11.10

Source: Based on GOI, DWCD and NIPCCD (2002).

Gujarat has shown that though the intention of spending on women directly or on sectors that would benefit women are expressed while framing the budget, when the actual expenditures are made, the priorities shift somewhat and other schemes get higher priority e.g. earthquake (Mahadevia 2003).

## Conclusions

The overall picture of Gujarat is fairly mixed with respect to gender development and equality. The state has performed better than

the all-India average in different aspects of women's development but it still is not in top five among 15 large states in India with regard to many of the indicators such as literacy rate, CBR, TFR, political participation, mean age at marriage, and so on. With regard to coverage of maternal health programmes and awareness of women about population control methods and their participation in them, the performance is good. Nonetheless, TFR in the state is still high. In the area of economic participation,



the state has performed well vis-à-vis the other states. With regard to participation in SHGs and PRIs, it appears that the state is doing reasonably well. But, comparison with other states has not been attempted here. Where the state is doing rather badly in the area of gender is in the sex ratio, particularly the juvenile sex ratio. This is an area of major concern. Budgetary expenditures on women's development too seem to be quite low. This is partly because the social sector expenditure ratios in the state are not doing so well as observed in Chapter 3.

New challenges are facing the state with respect to women's development. One is the issue of female enrolment and literacy in environmentally degraded regions and tribal areas as discussed in Chapter 6. The other is women's nutrition levels, as discussed in Chapter 5. Declining sex ratio, especially juvenile

sex ratio, is in a sense an increase in violence against women and this is another matter of grave concern. Increasing conflicts – communal and ethnic – and emergence of identity politics that has the potential to push women back into community ghettos and households is also a challenge. Other challenges are to make further progress in the areas of women's economic and political empowerment. The latter has been initiated through the 73<sup>rd</sup> and 74<sup>th</sup> constitutional amendments. Because of large presence of NGOs in the state, Gujarat is better situated in this regard, but much needs to be done. Thus, the state has a long way to go to ensure equal developmental opportunities to women. The proposed gender equity policy is expected to bring about rapid progress in those aspects where gender development and equity are falling behind.

## Notes

<sup>1</sup> This rate is for the whole population. Unless otherwise mentioned, literacy rates pertain to the whole population.

<sup>2</sup> Department of Women and Child Development

(2003): *Gujarat State Gender Equity Policy: Formulation Process*, Government of Gujarat, Gandhinagar. This report was circulated at the state level workshop on Gender Equity Policy in February 2003.



# Human and Gender Development Levels

Self-employed women – we too count



Training - initiation into the mainstream





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## Human and Gender Development Levels

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This chapter discusses the position of Gujarat among 15 large states in India and the position of different districts in Gujarat on each of the indices of human and gender development. These indices have been computed for 15 large states of India and 25 districts of India for two time periods, 1991 and 2001. This provides a comparison to observe the progress made by different states with regard to human and gender development in the decade of the 1990s and also progress made by different districts in the state during this period. The decade of the 1990s is crucial, as it is the first decade after economic reforms were introduced. It is also crucial for Gujarat, which took the lead in attracting investments in the wake of economic reforms. Indices calculated for two time points are as follows:

- ◆ HDM-1/GDM-1 – for 15 large states and 25 districts of Gujarat for 2001 and 1991.
- ◆ HDM-2/GDM-2 – for 15 large states and 25 districts of Gujarat for 2001 and 1991.
- ◆ GEI – for 15 large states and 25 districts of Gujarat for 2001 and 1991.

### Gujarat in India

#### Overall Human Development at Individual Level (HDM - 1)

Considering all aspects of human development, as argued in the alternative concept, Gujarat stands sixth among 15 large states of India in HDM-1 in 2001 (see Annexures for all the indices). In 2001, the state's rank is

the same in per capita income as well whereas in 2000, the state stood fourth with respect to per capita income. But, what is important to note is that the state stood fifth in HDM-1 ranking in 1991, fourth in per capita income and second in urbanization level. Hence, Gujarat was one of those states that fell behind in human development in the 1990s. The state stands third in urbanization level and continues to remain second in industrialization. In HDI also, the state stands sixth in 2001 as against fifth in 1991. In terms of index value of HDM-1, the state improved from 0.426 in 1991 to 0.479 in 2001. That is, the state has reached only 48 per cent of the goals set for human development. In 2001, four states had HDM-1 values above 0.500. These are Kerala (0.533), which is at the top in HDM-1, followed by Maharashtra (0.530), Punjab (0.528), and Tamil Nadu (0.512). Karnataka has a slightly higher index value of 0.497 compared to Gujarat.

The state's HDM-1 rank is sixth because of its good performance in the housing index, in which it stands second. In the income index, the state is at the sixth position as also in the education index and in the health index it is at the ninth position. Good performance of the state in the housing index is offset by poor performance in the participation index, where it is at the tenth position. In each of the indices the state has lost one or two ranks. The rank in the housing index is same in both years

*The decade of the 1990s is crucial, as it is the first decade after economic reforms were introduced*

*Economic growth in the decade of economic reforms has not led to an improvement of situation in human development either because of the composition of the economic growth or because of other factors that had negative impact on human development*

because the data are same. In income and health indices the state has moved down two ranks and in education and participation indices the state has moved down one rank, in all moving down one rank in the overall HDM-1 and HDI. The National Human Development Report (NHDR) (Planning Commission 2002) has ranked Gujarat sixth among 15 large states in India in HDI both in 1991 and 2001. NHDR has calculated HDI using per capita consumption expenditure data. This shows that the economic growth in the state could not raise human development to the same relative level because the economic growth could not get translated into human development. Economic growth in the decade of economic reforms has not led to an improvement of situation in human development either because of the composition of the economic growth or because of other factors that had negative impact on human development.

It was observed in the chapters on health and education that the state has fallen somewhat behind in the 1990s. States such as Tamil Nadu, Karnataka, and Andhra Pradesh have reported improved values on the health index in 1990s. Karnataka has also improved its index value in education significantly. This has not been the case with Gujarat, which has registered a modest improvement in the values of these two indices. In fact, in the health sector, there is near stagnation with respect to key indicators. Much improvement is desired in education and health in the state. It is to be noted that the health and education status of the state is also an outcome of the pattern of economic growth in the state. It is necessary to understand the relationship between the health and education status with the pattern of development in the state.

The states that have done not so well during the 1990s besides Gujarat are Bihar, Haryana,

Orissa and Tamil Nadu. It seems that though Tamil Nadu has done quite well in the health index, it has fallen behind on the overall index. Kerala has maintained its lead in human development through the 1990s, maintaining first position in 1991 as well as 2001. Haryana, Punjab, Rajasthan, Uttar Pradesh and Andhra Pradesh are doing badly in human development ranking compared to their income ranking in 2001. Bihar, Gujarat and Madhya Pradesh have the same rank in income as well as HDM-1 indices. The rest of the states are doing better on HDM-1 ranks as compared to their income ranks.

Kerala is at the top position in overall human development because of its top rank in education and health indices. In income the state is at the fourth position. In housing and participation the state is at the thirteenth position. The state is doing poorly in housing largely because of poor availability of drinking water.

At the bottom in overall performance is Bihar, which is 15<sup>th</sup> in the income index, HDM-1 and HDI. Bihar is 15<sup>th</sup> in education and 14<sup>th</sup> in health and housing indices and 12<sup>th</sup> in the participation index. Above Bihar is Uttar Pradesh, which is 13<sup>th</sup> in income, 14<sup>th</sup> in education, and 15<sup>th</sup> in health and participation indices. Gujarat is just one rank above Orissa in the health index in 2001.

It is to be noted that, with a few exceptions, no one state is good or bad in all the components. Also, the states move up and down in the rankings for different component indices, which indicates the need for considering all the selected components and indicators for measuring human development. However, some of the component indices are significantly related with each other (Table 8.1). For example, the income index is significantly correlated with education, health and housing indices in 2001; and the education index with the health index. The participation index is not related to any of the component indices

except the health index. All component indices are strongly related to the overall index of human development, except for the participation index. This has implications for strengthening synergies in human development. This is also true for HDI, which is strongly related to all three of its components.

### Gender-related Development Measure and Gender Equality Index

In gender development (GDM-1), Gujarat is sixth, the state maintaining the same position in HDM-1 and in per capita income (Table 8.2). In GDI also, the state is sixth. Compared to its position in 1991, the state moved down two ranks in 2001. Hence, a state that had better ranking in GDM-1 than in HDM-1 in 1991 reaches a situation where its ranking on both indices goes down and levels at sixth. Thus, compared to overall human development, in gender development there was much more slowing down of progress during the 1990s. This is what has been observed in the chapters on health, edu-

cation, and gender development and distance in this report. In GDM-1, like HDM-1, Gujarat has fallen behind in income, education, health and participation indices in 2001 compared to 1991.

It is interesting to note that on the income index in 2001, the state is fourth in GDM-1, which indicates comparatively better wages and better participation of women in the economy compared to other states. In 1991, in income index in GDM-1, the state was in second position. But, the state is 6<sup>th</sup> in the education index, 9<sup>th</sup> in the health index, and 12<sup>th</sup> in the participation index in GDM-1. States that are

TABLE 8.1

**Correlation of HDM-I indices, state level, 2001**

Index	Income index	Education index	Health index	Housing index	Participation index	HDM-1	HDI
Income	1.00						
Education	0.79	1.00					
Health	0.65	0.76	1.00				
Housing	0.73	0.33	0.18	1.00			
Participation	0.49	0.17	0.52	0.35	1.00		
HDM-1	0.92	0.85	0.88	0.57	0.58	1.00	
HDI	0.85	0.92	0.93	0.40	0.46	0.97	1.00

TABLE 8.2

**Comparing income, human development, gender development and gender equality, 2001**

	Ranking	Ranking in HDM-1			GDM-1		
		1-5	6-10	11-15	1-5	6-10	11-15
I N C O M E	1-5	Punjab Maharashtra Kerala Tamil Nadu	Haryana		Punjab Maharashtra Kerala Tamil Nadu	Haryana	
	6-10	Karnataka	Gujarat Andhra Pradesh West Bengal	Rajasthan	Karnataka	Gujarat Andhra Pradesh West Bengal	Rajasthan
	11-15		Assam	Madhya Pradesh Uttar Pradesh Orissa Bihar		Assam	Madhya Pradesh Uttar Pradesh Orissa Bihar
G E I	1-5	Punjab	West Bengal Haryana	Rajasthan Uttar Pradesh	Punjab	West Bengal Haryana	Rajasthan Uttar Pradesh
	6-10	Kerala	Gujarat Andhra Pradesh Assam	Madhya Pradesh	Kerala	Gujarat Andhra Pradesh Assam	Madhya Pradesh
	11-15	Maharashtra Tamil Nadu Karnataka		Orissa Bihar	Maharashtra Tamil Nadu Karnataka		Orissa Bihar

Note: In the upper half of the figure dark, shaded cells indicate high income but low human and gender development and lighter shaded cells indicate high human and gender development at low levels of income. In the lower half of the figure, dark shaded cells indicate low gender equality at high level of human and gender development and light shaded cells indicate is high gender equality at low levels of human and gender development.

*The state has slipped on the income index not because women's work participation rates have declined but because the ranking of the state has gone down in per capita income*

ahead of Gujarat in GDM-1 in 2001 are Maharashtra, Kerala, Punjab, Tamil Nadu, and Karnataka, in that order with Maharashtra, and not Kerala, topping the GDM-1 index. The same states are ahead of Gujarat in HDM-1, but with Kerala topping the index.

Compared to 1991, the state slips down on all the component indices of GDM-1. In the income index it moves down from second in 1991 to fourth in 2001. In the education index it moves down from 5<sup>th</sup> to 6<sup>th</sup>. In the health index it moves down from 7<sup>th</sup> to 9<sup>th</sup> position and in the participation index it moves down from 11<sup>th</sup> to 12<sup>th</sup> position. The state has slipped on the income index not because women's work participation rates have declined – on the contrary these have increased in 2001 as compared to 1991 – but because the ranking of the state has gone down in per capita income.

For all the states, the values of the GDM-1 index are lower than that of the HDM-1 index. In Gujarat, in 2001, the aggregate value of the GDM-1 index is 0.454, which is lower than the HDM-1 index value by 5.2 per cent. In 1991, the value of HDM-1 was 0.426 whereas that of GDM-1 was 0.398, or 6.47 per cent lower.

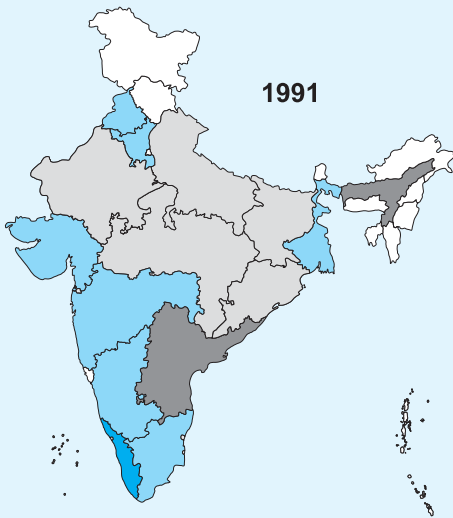
Maharashtra has displaced Kerala from the top in overall GDM-1 in 2001. The latter moves to second position in overall GDM-1 in 2001. Kerala has fallen behind in 2001 because it has fallen behind in the participation index. One of the reasons for falling behind is lowering of women's WPR in the state in 2001 compared to 1991. The state has improved its ranking on the income index in GDM-1 because of its improvement in total income. The state continues its lead on education and health indices even in GDM-1 in 2001 as it did in 1991.

States that are doing better in gender development compared to human development are Andhra Pradesh and Maharashtra. States that are doing worse in gender development than human development are Haryana, Kerala, and West Bengal. States that are doing badly in gender development compared to their per capita income level are Haryana, Punjab, Rajasthan, and Uttar Pradesh. Haryana's gender development is trailing by 7 ranks compared to the state's income rank. In a large number of states including Gujarat, the ranks of HDM-1 and GDM-1 are same.

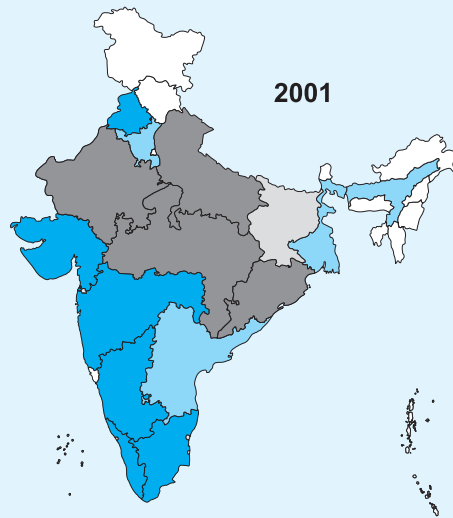
States that are at the bottom in GDM-1 are: Bihar, Uttar Pradesh, Orissa, Rajasthan, and Madhya Pradesh in that order. The GDM-1 value for Bihar is 0.272, which is 60 per cent of Gujarat's GDM-1 and 53 per cent Maharashtra's GDM-1. States that are behind in GDM-1, as in HDM-1, are trailing far behind the states that are at the top on both indices. At the top, the gap between the states is much less than the gap between the states at the bottom in terms of index values of GDM-1.

In GEI Gujarat is at eighth position in 2001, the same rank as in 1991. The state is in the middle in GEI, and two ranks behind its rank in HDM-1 and GDM-1. This implies that the performance of the state is worse in gender equality than in gender development. Compared to states such as Maharashtra, Karnataka, and Tamil Nadu, the gap between the ranks in GDM-1 and GEI is not so large in Gujarat. At the bottom in GEI are Bihar, Karnataka, Tamil Nadu, Maharashtra and Orissa in that order. At the top are Punjab, West Bengal, Rajasthan, Haryana, and Uttar Pradesh. States such as Uttar Pradesh and Rajasthan are in the top five in GEI because of the health index where female IMR values are lower than male IMR values. States where

### Human Development Measure - 1

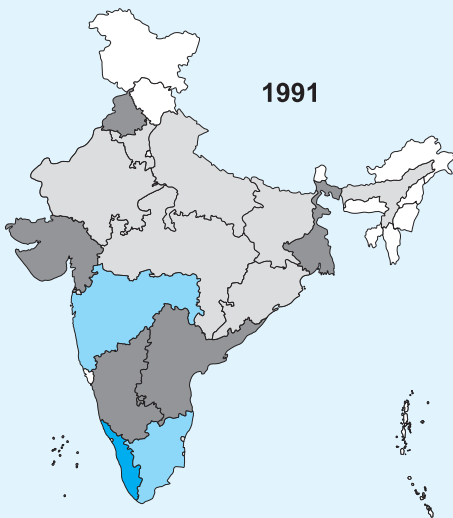


1991

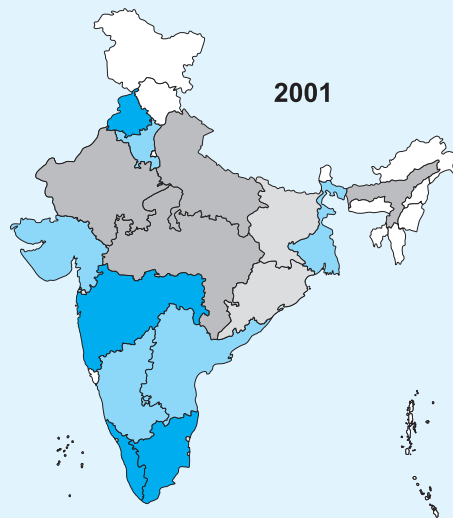


2001

### Gender Development Measure - 1

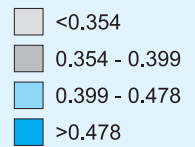


1991



2001

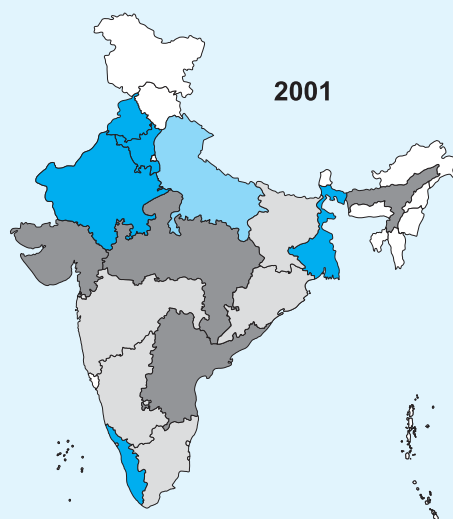
#### Legend



### Gender Equity Index

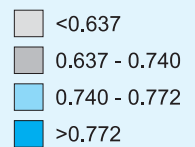


1991



2001

#### Legend





GEI ranks are higher than GDM-1 ranks, that is, where gender equality is high at the lower level of gender development are Rajasthan, Uttar Pradesh, West Bengal and Punjab.

Unlike HDM-1, there is no significant correlation between component indices in GDM-1 except for the relationship between health and education, health and participation, income and education (Table 8.3). But, the component indices are correlated significantly with the overall GDM-1. Further, there is no correlation between the level of gender development and gender equality, except in education where level of development in education is related to gender equality. Interestingly, gender equality in education is also related to the health index in GDM-1. The component indices of HDM-1 are strongly correlated with their respective component

indices in GDM-1. This means that the education index in HDM-1 is strongly correlated to education index in GDM-1, and so on. Even HDM-1 and GDM-1 are very strongly correlated to the extent that the value of  $r$  between the two is 1.00. Lastly, the per capita income index, represented as the income index in HDM-1, is strongly correlated with all the component indices of GDM-1.

### Macro Level Human Development (HDM-2)

In the macro capabilities for human development, represented by HDM-2, Gujarat ranks sixth. In the environment index, the state is 13<sup>th</sup> and in regional equality index 9<sup>th</sup>. In the patriarchy (non-patriarchy) index, the state is 9<sup>th</sup>. The last index consists of two indicators, juvenile sex ratio, in which the state is very badly placed, and the per-

TABLE 8.3

**Correlation between GDM-1, GEI and HDM-1, states, 2001**

	Component indices of GDM-1						GDM-1	GDI
	Income index	Education index	Health index	Housing index	Participation index			
Correlations of component indices of GDM-1 with each other								
Income Index	1.00							
Education Index	0.54	1.00						
Health Index	0.41	0.78	1.00					
Housing Index	0.84	0.33	0.18	1.00				
Participation Index	0.58	0.36	0.62	0.26	1.00			
GDM-1	0.79	0.85	0.87	0.58	0.70	1.00		
GDI	0.67	0.91	0.93	0.43	0.62	0.98	0.67	
Correlations of component indices of GDM-1 with component indices of GEI								
Income Index	0.38	-0.28	-0.38	0.31	0.20	-0.07	-0.21	
Education Index	0.44	0.89	0.88	0.30	0.40	0.84	0.91	
Health Index	0.15	0.07	-0.13	0.46	-0.26	0.04	-0.01	
Participation Index	0.47	0.66	0.69	0.08	0.75	0.71	0.73	
GEI	0.31	0.18	-0.03	0.56	-0.11	0.19	0.12	
Correlations of component indices of GDM-1 with component indices of HDM								
Income Index	0.89	0.79	0.65	0.73	0.54	0.91	0.86	
Education Index	0.54	1.00	0.76	0.33	0.34	0.83	0.90	
Health Index	0.41	0.78	1.00	0.18	0.62	0.87	0.93	
Housing Index	0.84	0.33	0.18	1.00	0.26	0.58	0.43	
Participation Index	0.59	0.19	0.52	0.35	0.96	0.63	0.51	
HDM-1	0.76	0.87	0.88	0.57	0.66	1.00	0.98	
HDI	0.62	0.93	0.93	0.40	0.58	0.96	1.00	

centage of ever married women in age 10-14 years, in which the state is well placed. Because of the very low juvenile sex ratio, the state is 9<sup>th</sup> in the patriarchy (non-patriarchy) index. This explains why the state has done so badly with regard to gender development in the 1990s. In the basic service index, the state is 2<sup>nd</sup> and because of this, the state has reached the sixth place in the overall HDM-2 in spite of the poor performance on the environment index. Lastly, there is a wide gap in the index values of Gujarat and Karnataka, which is just one rank above Gujarat in HDM-2. At the top is Kerala, closely followed by Punjab, with their index values of overall HDM-2 well above that of Gujarat.

Low rank in the regional equality index indicates intra-state disparity. High regional equality does not mean inequality in levels of achievement but also unequal capabilities of regions to pursue goals of development, especially because the regional equality index is constructed using infrastructure data. High inequality means that better-off regions in the state would have the major share of development whereas the worse-off would remain at a disadvantage. Such an atmosphere is not conducive to improvement in levels of human development. Deteriorating status of the environment and ecology is a major concern for the state, as that would result in unsustainable overall development. Unsustainable development adversely affects human, and more specifically, gender development. It is, therefore, likely that if the performances of the component indices of HDM-2 are not improved, human development at the individual level will begin to get adversely affected which in turn will have long-term adverse consequences on the economic development of the state. In other words, if the macro capabilities are not improved or allowed to deteriorate, there is a possibility that the state will slip down fur-

ther with respect to individual level human development.

Since, data with regard to only one indicator in HDM-2 is different in 2001 compared to 1991, the overall ranking of states in HDM-2 in both years remains the same for 9 out of 15 states. Andhra Pradesh has gone down by three ranks and Punjab by one rank in 2001 as compared to 1991. Assam, Bihar, Kerala and Tamil Nadu have improved their ranks by one position in 2001 compared to 1991.

Kerala tops in the HDM-2 index, because it tops in environment and patriarchy (non-patriarchy) indices and is third in basic services and regional equality indices. Punjab, Haryana, Orissa, and Karnataka follow Kerala in HDM-2. Note the poor performance of Haryana in the HDM-1 and GDM-1, in spite of its good performance in HDM-2. In Haryana, therefore, the macro capabilities are not getting translated into individual level achievements.

At the bottom are Rajasthan, Maharashtra, Uttar Pradesh, Madhya Pradesh, and West Bengal in that order. Rajasthan is at the bottom in the environment and patriarchy indices, Uttar Pradesh in the basic services index and Maharashtra in regional equality. Maharashtra is fourteenth in environment and ecology. Regional disparities are high in West Bengal and Tamil Nadu. Basic services are poor in Orissa and Rajasthan. It appears that all the states which have metropolitan cities, have high regional disparities.

None of the component indices of HDM-2 are correlated. But, all of them except the patriarchy (non-patriarchy) index are related to composite HDM-2. It is more important to observe the relationship between HDM-1/GDM-1 and HDM-2. Neither the composite HDM-1 nor the composite GDM-1 has significant relationship with composite HDM-2. There is, therefore, a

*If the performances of the component indices of HDM-2 are not improved, human development at the individual level will begin to get adversely affected which in turn will have long-term adverse consequences on the economic development of the state*

mismatch between the macro capabilities and individual achievements across the states. But, some of the component indices of HDM-2 are related to the overall HDM-1/GDM-1 (Table 8.4). These are the basic services index and the patriarchy (non-patriarchy) index. While the basic services index is positively and strongly correlated with all the component indices of HDM-1/GDM-1, the patriarchy (non-patriarchy) index is strongly and positively related to education and health indices of HDM-1/GDM-1. Further, the values of  $r$  (correlation) are higher when the patriarchy (non-patriarchy) index is correlated with health and education indices of GDM-1 than when correlated with these indices of HDM-1.

The above discussion shows that Gujarat state, 2<sup>nd</sup> in industrialization and 3<sup>rd</sup> in urbanization, is 6<sup>th</sup> in per capita income, is sixth in HDM-1, sixth in GDM-1, sixth in HDM-2, and 8<sup>th</sup> in GEI. This shows that industrialization and urbanization have not

ensured the similar relative position of the state in per capita income. Reasons for this have been discussed in Chapter 2, one reason being the neglect of the agricultural sector. The state maintains the same rank as in the income index in HDM-1, GDM-1 and HDM-2. It is somewhat behind in gender equality. This means that industrialization alone is not a sufficient condition for improving human development, gender development, and gender disparity in the state. Thus, the state going after investments would not address the issue of human development, let alone gender development and quality. It is necessary to look at what type of investments are coming in, what type of economic growth is taking place, and what the linkages of such investments and economic growth are with aspects that are relevant for people in general and women in particular.

The state's situation was slightly better in 1991, as far as per capita income and gender development are concerned. The state

TABLE 8.4

**Correlation between HDM-1, GDM-1 and HDM-2, states, 2001**

	Environment Index	Basic services index	Regional equality index	Patriarchy index	HDM-2
<b>HDM-2 component indices</b>					
Environment	1.00				
Basic Services	0.39	1.00			
Regional Disparities	0.13	0.11	1.00		
Patriarchy	0.55	0.38	-0.24	1.00	
HDM-2	0.80	0.69	0.53	0.51	1.00
<b>HDM-1 component indices</b>					
Income	0.30	0.84	-0.25	0.36	0.41
Education	0.36	0.65	-0.12	0.53	0.47
Health	0.43	0.61	-0.26	0.78	0.48
Housing	-0.03	0.62	-0.36	-0.03	0.03
Participation	-0.08	0.36	-0.44	0.24	-0.07
HDM-1	0.33	0.79	-0.33	0.59	0.42
<b>GDM-1 component indices</b>					
Income	-0.01	0.67	-0.36	0.14	0.09
Education	0.38	0.66	-0.13	0.57	0.49
Health	0.43	0.61	-0.26	0.79	0.48
Housing	-0.03	0.62	-0.36	-0.03	0.03
Participation	-0.09	0.35	-0.44	0.27	-0.07
GDM-1	0.27	0.76	-0.37	0.57	0.36

fell behind in HDM-1 and GDM-1 indices in 2001 compared to 1991. In HDM-1, the state has fallen behind in education and health indices. In GDM-1, the state has fallen behind because of education and health indices. During the 1990s, which is the first decade of economic reforms, the state suffered certain setbacks on the human development front. These setbacks cannot be attributed to just droughts and natural disasters. Disasters do increase the vulnerability of the population, however, adverse impacts can be minimized. But, the setbacks in education and health would be an outcome of factors such as environmental degradation and resultant migration and regional disparities. It can thus be said that the first decade of economic reforms has brought cheer in matters of investments but concerns with regard to issues of human and gender development and environmental sustainability. The state's macro capabilities to address human and gender development are deteriorating and the individual level achievements of the past may begin to deteriorate if macro capabilities are not addressed with urgency. Gujarat is therefore at a critical juncture, where it has to take stock of all the development processes in the state. This is the most opportune time to correct certain imbalances in the state's development process. The state government as well as civil society have a very important role to play. Both have to act with great will and urgency to put the state on a high human development path.

## **Development and Disparity Within Gujarat**

### **Individual Level Overall Human Development (HDM-1)**

As with economic development, in human development also, there are distinct dispari-

ties among the different districts in Gujarat. In HDM-1, Ahmedabad district stands at the top, followed by Gandhinagar, which houses the state capital and is adjacent to Ahmedabad, Rajkot, Navsari and Surat (the second most urbanized district of the state). At the bottom are Dahod, Dangs, Banaskantha, Panchmahals, Surendranagar and Patan, in that order, with Dahod placed at twenty-fifth rank. While the districts at the top are urbanized and/or industrialized districts, the districts at the bottom either have high concentration of tribals or are environmentally degraded and in the grip of drought, whether it rains or not.

Individual component indices present a mixed picture. Kachchh is at the top of the income index, as per capita bank deposits have been taken as a proxy for income. Kachchh being a "money order economy", has high per capita bank deposit. It is true that the income that the district receives from outmigrants is spent in the district and thus, even if the district does not have high domestic production, there is enough income on hand to be spent in the district. Gandhinagar and Ahmedabad come next in the income index. Ahmedabad tops in the education and housing indices, Rajkot in the health index, and Sabarkantha in the participation index. Second and third in the education index are Gandhinagar and Navsari and in the health index are Navsari and Jamnagar.

Districts that are at the bottom in the education index are Banaskantha, Dahod and Kachchh. Those at the bottom in the health index are Dahod, Banaskantha and Dangs. Dahod, Dangs and Panchmahals are at the bottom in the housing index. In the income index, districts at the bottom are Banaskantha, Dangs and Panchmahals. Achievement of Dahod, which is at the bottom in HDM-1 is just half the achieve-

*The state government as well as civil society have a very important role to play. Both have to act with great will and urgency to put the state on a high human development path*

*Attracting investments to the state by itself does not seem to promote human development in the state*

ment of Ahmedabad. Though strictly not comparable, the index value of HDM-1 of Dahod is lower than the index value of HDM-1 of Bihar, which is at the bottom in the state level HDM-1. There are, thus, districts in Gujarat that are as bad or even worse performers in human development compared to the badly performing states.

By and large, a distinct pattern of development is visible. The central Gujarat region where Ahmedabad and Gandhinagar are located shows a relatively better performance in almost all the components of HDM-1. Thereafter comes Rajkot, then the districts of South Gujarat, Navsari, Surat and Bharuch and then the districts of Saurashtra, Porbandar, Junagadh and Jamnagar. Interestingly, Vadodara district, which had an enlightened princely ruler and was known as an education centre, performs rather badly in the overall HDM-1 (11<sup>th</sup> rank) and is sixteenth in the education index.

At the district level, education, health and housing indices are significantly correlated with each other (Table 8.5). Each component index except the participation index is significantly related to the composite index. None of the component indices or the composite index is related to investment in the district but the housing and health indices are significantly related to the urbanization level in the district. The overall HDM-1 is

also significantly related to the level of urbanization in the district. Thus, attracting investments to the state by itself does not seem to promote human development in the state.

### Gender-related Development Measure

In gender-related development, rankings of districts have changed compared to rankings in HDM-1. Rajkot district is at the top, followed by Junagadh, Porbandar, Ahmedabad and Jamnagar. Except for Ahmedabad, all other districts belong to the Saurashtra region. In HDM-1, the districts at the top are those of central Gujarat, then Rajkot, followed by districts of South Gujarat. At the bottom are Dahod, Dangs, Banaskantha, Panchmahals, and Patan. While the districts at the bottom of GDM-1 are the same as those at the bottom in HDM-1, those at the top for both indices are different.

Rajkot tops in GDM-1 because it tops in the health index and is in third position in income and housing indices. In the income index, Porbandar tops. Ahmedabad tops in education and housing indices. Surendranagar is at top in the participation index.

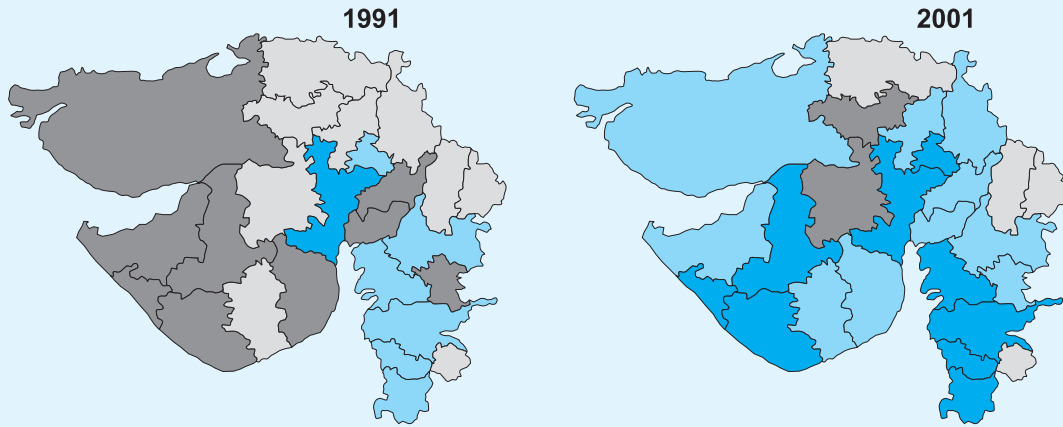
Dahod, which is at the bottom in overall GDM-1, is 25<sup>th</sup> in the housing index,

TABLE 8.5

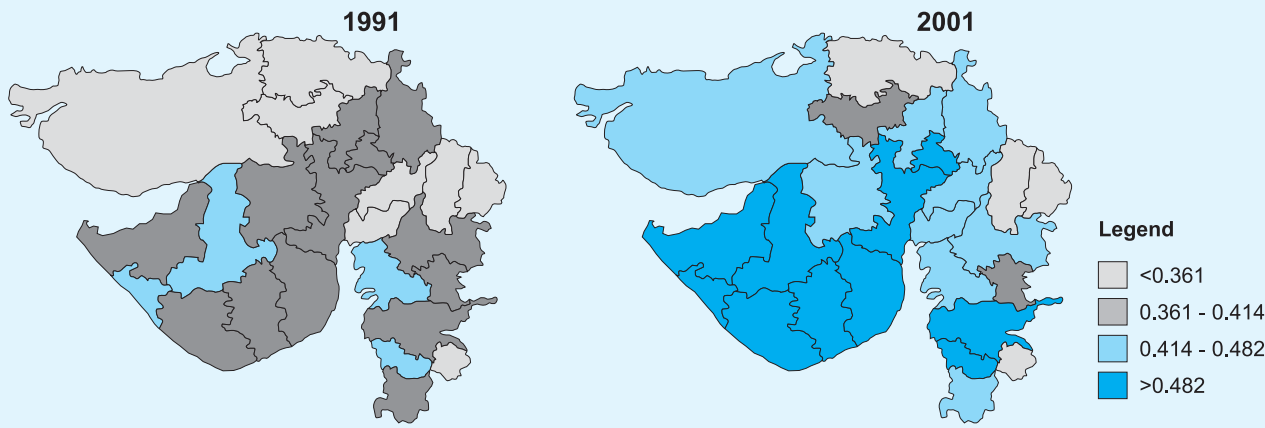
**Correlations of component indices of HDM-1, districts, 2001**

	Income Index	Education Index	Health Index	Housing Index	Participation Index	HDM-1	HDI	Urbanization level	Investment
Income	1.00								
Education	0.41	1.00							
Health	0.34	0.72	1.00						
Housing	0.48	0.76	0.78	1.00					
Participation	-0.36	-0.05	-0.22	-0.30	1.00				
HDM-1	0.61	0.86	0.88	0.94	-0.22	1.00			
HDI	0.69	0.85	0.88	0.84	-0.27	0.97	1.00		
Urbanization level	0.47	0.51	0.59	0.85	-0.47	0.74	0.65	1.00	
Investment	0.17	-0.12	0.24	0.21	-0.23	0.18	0.16	0.32	1.00

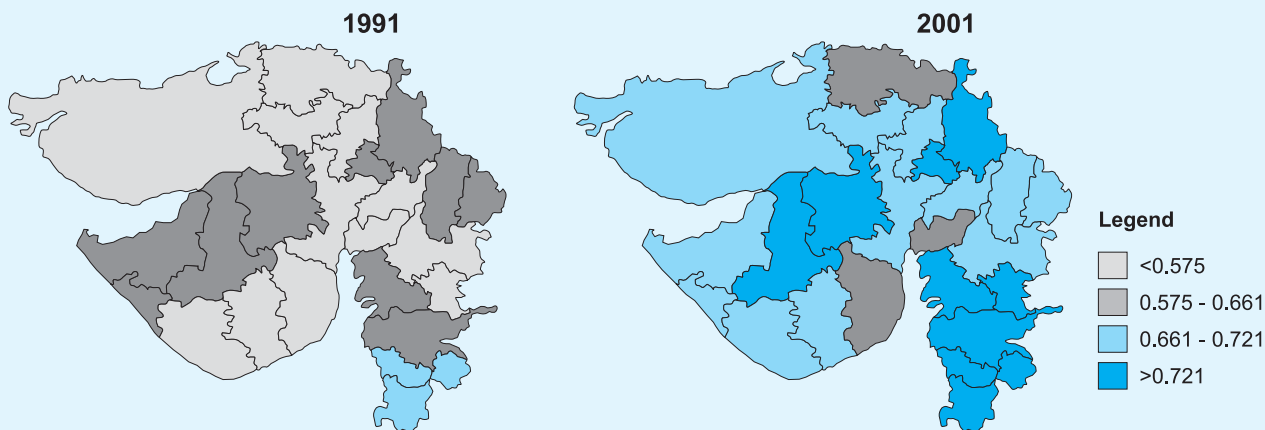
### Human Development Measure - 1



### Gender Development Measure - 1



### Gender Equality Index



24<sup>th</sup> in the health and education index, and 21<sup>st</sup> in the income index. Only in the participation index the district ranks 11<sup>th</sup>, which is not so bad. At the bottom of the income index is Bharuch, in education and health indices Banaskantha is at the bottom and in the participation index Ahmedabad is at the bottom. On the whole, other districts move up and down in the component indices of GDM-1.

The income index in HDM-1 and GDM-1 for the districts in Gujarat consists of different indicators. In HDM-1, per capita deposit has been used as an indicator whereas in GDM-1, agricultural wages have been used. This is because the state has not calculated district level incomes, unlike many other states in India. Thus, it would not be proper to compare the composite index values of HDM-1 and GDM-1. Instead, it is possible to compare the index values of health and education in HDM-1 and GDM-1. In the education index, the ratio of values in GDM-1 to that in HDM-1 varies from 0.903 to 0.996, not much of gender inequality. In the health index however, the ratio of index value of female achievement to male achievement varies from 0.772 to 1.015. For Rajkot district, which tops in GDM-1, the ratio of female to male achievement in education is 0.994

and in health the ratio is 1.002. For Dahod, which is at the bottom in GDM-1, the ratios are 0.938 and 0.999 respectively.

The districts that led in GDM-1 in 1991 were Porbandar, Rajkot, Navsari, Bharuch and Junagadh, quite a different set of districts compared to 2001. Districts at the bottom in 1991 were Banaskantha, Dahod, Panchmahals, Dangs and Patan – the same districts that are at the bottom in 2001. While there is quite a change in the ranks of top districts, at the bottom, there is hardly any change in the position between 1991 and 2001.

The ranks of the districts in the GEI differ significantly from those of GDM-1 (Table 8.6). Rajkot, which was at the top in GDM-1 in 2001, is eighth in GEI. The districts at the top in GEI in 2001 are Bharuch, Dangs, Narmada, Gandhinagar and Navsari. Districts at the bottom are Banaskantha, Bhavnagar, Anand, Patan and Jamnagar. Ahmedabad, which is 4<sup>th</sup> in GDM-1, is 12<sup>th</sup> in GEI. Surat, another urbanized district, has lower gender inequality than Ahmedabad. Vadodara has much higher gender inequality than Surat and Ahmedabad. The districts that are high on gender development but low on gender equality are Rajkot, Ahmedabad, Junagadh, Porbandar, Jamnagar, Amreli, Bhavnagar, Kheda and

TABLE 8.6

**Comparing ranks of districts in GDM-1 and GEI, 2001**

GEI Ranks	GDM-1 ranks				
	1-5	6-10	11-15	16-20	21-25
1-5		Gandhinagar Navsari	Valsad	Bharuch	Dangs
6-10	Rajkot	Surat	Surendranagar	Narmada Sabarkantha	
11-15	Ahmedabad	Amreli	Mehsana	Kachchh	Panchmahals
16-20	Junagadh Porbandar		Kheda	Vadodara	Dahod
21-25	Jamnagar	Bhavnagar	Anand		Patan Banaskantha

Note: Dark shaded cells indicate high gender development but low gender equality. The light shaded cells indicate high gender equality low but gender development.

Anand. Most of these districts have large urban centres. Dangs, Panchmahals, Dahod, Narmada, Sabarkantha, Kachchh, Valsad, Surendranagar, Gandhinagar and Navsari are districts that have high gender equality at low level of gender development. Many of these districts have a high proportion of tribal population. Gandhinagar and Navsari have high gender equality at somewhat high level of gender development but these two districts are not in the top five of gender development. In Patan, Banaskantha and Dahod gender inequality is high at low level of gender development while Jamnagar, Porbandar and Junagadh are districts which have high gender inequality at high level of gender development.

Even at the district level, the index values of the health component in the GEI are greater than 1. This is because female IMRs in some districts are lower than male IMRs.

As in HDM-1, in GDM-1 too, education, health and housing indices are significantly and positively related to each other and, along with the income index, to overall GDM-1. The participation index is not related to any of the component indices or the overall GDM-1. GDM-1 is strongly and

positively related to urbanization. None of the indices – neither the component indices nor the overall GDM-1 – is related to investment level in the districts.

There is no correlation between overall GDM-1 and overall GEI (Table 8.7). Neither are the component indices of GDM-1 significantly related to the respective component indices of GEI, except in education and participation. Thus, districts that have high values in the education index of GDM-1 also have high gender equality in education. Similarly, districts that have high values in participation in GDM-1 also have high gender equality in participation. Lastly, urbanized districts have high gender equality in education and high gender inequality in political and economic participation. Thus, GEI, which is a direct measure of gender equality, has to be monitored separately, as it is not related to economic progress directly.

*Urbanized districts have high gender equality in education and high gender inequality in political and economic participation*

### At Macro Level (HDM-2)

Districts that are at the top in macro capabilities (HDM-2) are Narmada, Gandhinagar, Surat, Bharuch and Mehsana in that order. The inclusion of Mehsana in the

TABLE 8.7

**Correlations of component indices of GDM-1 and GEI, districts, 2001**

		Income Index	Education Index	Health Index	Housing Index	Participation Index	GDM-1	GDI	Urbanization level	Investment
G D M -1	Income	1.00							0.26	-0.02
	Education	-0.02	1.00						0.53	-0.07
	Health	0.18	0.78	1.00					0.60	0.28
	Housing	0.32	0.78	0.79	1.00				0.85	0.21
	Participation	-0.24	-0.29	-0.43	-0.50	1.00			-0.65	-0.32
	GDM-1	0.60	0.73	0.83	0.90	-0.40	1.00		0.70	0.11
	GDI	0.71	0.63	0.79	0.79	-0.43	0.97	1.00	0.60	0.08
G E I	Income	-0.61	0.19	0.00	-0.19	0.20	-0.29	-0.33	-0.35	-0.18
	Education	0.09	0.84	0.88	0.76	-0.44	0.75	0.70	0.58	0.20
	Health	0.14	0.08	0.15	0.04	-0.19	0.12	0.18	0.11	0.22
	Participation	-0.25	-0.36	-0.44	-0.52	0.83	-0.45	-0.46	-0.58	-0.25
	GEI	-0.32	0.38	0.30	0.06	0.03	0.06	0.04	-0.08	0.05



top five is problematic, as this district has the worst juvenile sex ratio and the worst groundwater situation. Somehow, the wasteland data that have been used for constructing the environment component of the HDM-2 do not reflect the deteriorating environmental situation in the district. Narmada district is at the top because of its tops in environment and patriarchy (non-patriarchy) indices. It is 3<sup>rd</sup> in regional equality index and 8<sup>th</sup> in the basic services index. Gandhinagar, 2<sup>nd</sup> in HDM-2, tops the basic services index and is 2<sup>nd</sup> in the environment index.

Districts at the bottom in HDM-2 are Jamnagar, Junagadh, Kachchh, Porbandar and Banaskantha, all of which are doing badly in the environment index. Jamnagar is at the bottom in basic services and regional equality indices, and Porbandar is at the bottom in the environment index. Gandhinagar, which is doing well in overall HDM-2, is at the bottom in the patriarchy index. The district ranking in HDM-1/GDM-1 does not therefore tally with district ranking in HDM-2.

In the basic services index, Gandhinagar, Mehsana, Surat, Surendranagar and Ahmedabad are at the top while in the regional equality index, Dahod, Porbandar, Narmada, Bhavnagar and Surendranagar lead. The urbanized districts are in the bottom half of this index. Districts with best performance in the patriarchy index (non-patriarchy) are Narmada, Valsad, Kachchh, Dangs, and Navsari; all except one (Kachchh) are either fully tribal districts or have high proportion of tribal population. Some of these districts are doing well in GEI.

Districts that are not doing well in the basic services index are Vadodara, Bhavnagar, Dangs, and Panchmahals. Districts that have

high regional disparity are Mehsana, Kheda, Anand, and Navsari. Districts where patriarchy is strong are Anand, Mehsana, Kheda, and Patan.

Districts move up and down in the ranks in the individual component indices of HDM-2 without a consistent low or high rank. Only a few districts show consistent performance. For example, Gandhinagar tops all the indices except that of patriarchy (non-patriarchy).

The ranking of districts in HDM-1 in 1991 and 2001 remains same for 10 of the 25 districts. In the remaining 8 districts, the ranking has changed by one or two positions. Districts whose position has worsened in 2001 compared to 1991 are Narmada, Kachchh, Vadodara, Valsad, Surat, Dangs and Dahod in that order. Districts whose position has improved in 2001 compared to 1991 are Junagadh, Rajkot, Amreli, Porbandar, Mehsana, Anand, Banaskantha and Sabar-kantha. In both sets of districts, there are districts which are in the top half and districts in the bottom half of the ranking. Hence, there does not emerge any pattern out of the HDM-1 index at the district level, either across regions or at temporal level.

GDM-1 also shows a similar pattern. The movement of districts in ranking is quite large. Except for three districts, all have either moved up or down. There is no pattern in their movement. The changes in ranking in GDM-1 are much larger than the changes in ranking in HDM-1 in the 1990s. Bharuch district has moved down by 12 ranks, Narmada has moved down by 11 ranks, Kheda has improved by 9 ranks, and Anand and Jamnagar have improved by 7 ranks.

This significant moving up and down the ranks in GDM-1 and HDM-1 and lack

of any discernible pattern in the district achievements in GDM-1 and HDM-1 indices gets reflected in insignificant relationships between overall HDM-2 and overall HDM-1 and between overall HDM-2 and overall GDM-1 (Table 8.8). Neither overall HDM-2 nor its composite indices have any relationship with the level of urbanization in the district or extent of investments. One exception is the significant inverse relationship between the regional equality index and investment. Further, none of the component indices of HDM-2 is related to overall HDM-1 and GDM-1. But, the basic services index has a significant positive relationship with the education index in HDM-1 and GDM-1. Lastly, the income index in GDM-1 is inversely related to the environment index of HDM-2, suggesting that agricultural wages are low and with high gender disparity in districts where the environment is degraded.

## Regional Pattern in Gujarat

The district-level analysis in Gujarat shows that in individual achievements as well as macro capabilities, no strong discernible pattern can be observed. Nor does any temporal pattern emerge. This is partly because of lack of data on important indicators such as income at the district level and partly, because of change in district boundaries in the mid-1990s and lack of data for two time points with regard to some of the indicators. Adjustments have been made in data to get two time point data for all the 25 districts in the state. To develop the state's ability to monitor district level progress in the state on human and gender development, a sound data system is required at disaggregated level.

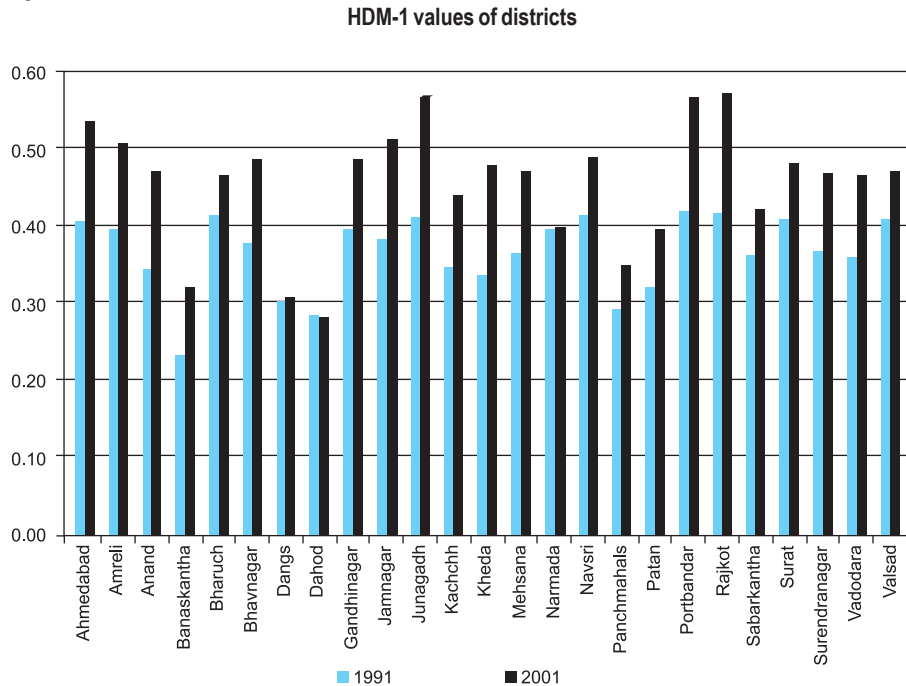
Nonetheless, there is still some common pattern, mainly with respect to districts that are at the bottom (Table 8.9). In most com-

TABLE 8.8

### Correlation of individual indices of HDM-1/GDM-1 and HDM-2, districts, Gujarat, 2001

	Environment index	Basic services index	Regional equality (equality) index	Patriarchy index	HDM-2
<b>HDM-2 component Indices</b>					
Environment & ecology	1.00				
Basic Services	0.21	1.00			
Structural equalities	-0.07	0.08	1.00		
Patriarchy	-0.24	-0.42	0.17	1.00	
HDM-2	0.75	0.55	0.47	-0.09	1.00
Urbanization level	-0.11	0.25	-0.24	-0.14	-0.11
Investment	-0.06	-0.15	-0.57	0.33	-0.29
<b>HDM-1 component indices</b>					
Income	0.00	0.44	-0.28	-0.07	0.06
Education	0.35	0.50	-0.25	-0.36	0.30
Health	0.21	0.10	-0.34	0.07	0.06
Housing	0.00	0.36	-0.33	-0.25	-0.04
Participation	-0.09	0.06	0.11	-0.13	-0.01
HDM-1	0.13	0.40	-0.36	-0.19	0.08
<b>GDM-1 component indices</b>					
Income	-0.70	-0.14	-0.12	0.12	-0.61
Education	0.36	0.49	-0.26	-0.31	0.30
Health	0.19	0.18	-0.34	0.14	0.10
Housing	0.00	0.36	-0.33	-0.25	-0.04
Participation	0.07	0.14	0.16	-0.08	0.17
GDM-1	-0.17	0.26	-0.33	-0.08	-0.18

Figure 8.1



ponent indices of HDM-1 and GDM-1 in 2001, with the exception of the participation index, four of five districts at the bottom are Dahod, Dangs, Panchmahals and Banaskantha. Dahod, Dangs, and Panchmahals are tribal population dominated districts. Banaskantha is one of the most environmentally stressed districts.

A matter of concern is that change in the values of HDM-1 and GDM-1 observed for these four districts at the bottom during the 1990s has been very low (Fig 8.1 and 8.2). Hence, it is all the more necessary that greater attention is paid to these districts in the coming years. This implies that focused attention on the tribal districts and environmentally stressed districts is necessary to accelerate human and gender development in the state.

Figure 8.2

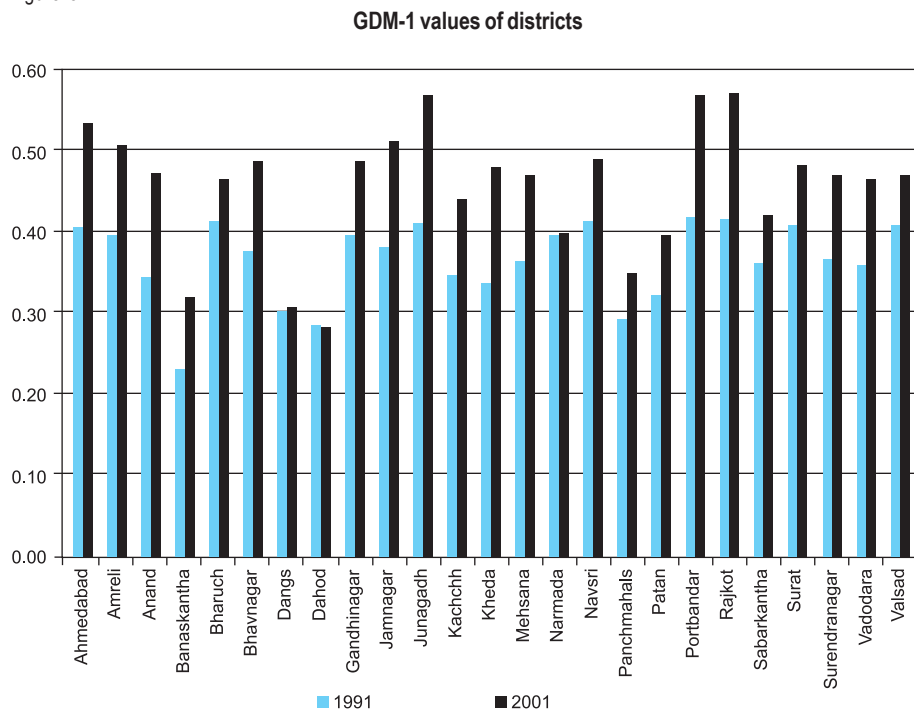


TABLE 8.9

**Districts at top and at bottom, 2001**

	Districts at top-2001	Districts at bottom-2001
<b>HDM-1</b>		
Education	Ahmedabad, Gandhinagar, Navsari, Mehsana, Anand	Banaskantha, Dahod, Kachchh, Dangs, Panchmahals
Health	Rajkot, Navsari, Jamnagar, Vadodara, Bharuch	Dahod, Banaskantha, Dangs, Panchmahals,
Housing	Ahmedabad, Surat, Rajkot, Gandhinagar, Vadodara	Dahod, Dangs, Panchmahals, Banaskantha,
Participation	Sabarkantha, Narmada, Surendranagar, Mehsana, Kheda	Ahmedabad, Dangs, Navsari, Surat, Rajkot
Income	Kachchh, Gandhinagar, Ahmedabad, Navsari, Valsad	Banaskantha, Dangs, Panchmahals, Dahod,
HDM-1	Ahmedabad, Gandhinagar, Rajkot, Navsari, Surat	Dahod, Banaskantha, Dangs, Panchmahals, Surendranagar
<b>GDM-1</b>		
Education	Ahmedabad, Gandhinagar, Navsari, Surat, Bharuch	Banaskantha, Dahod, Kachchh, Dangs, Panchmahals
Health	Rajkot, Navsari, Jamnagar, Bharuch, Vadodara	Banaskantha, Dangs, Dahod, Patan, Panchmahals
Housing	Ahmedabad, Surat, Rajkot, Gandhinagar, Vadodara	Dahod, Dangs, Panchmahals, Banaskantha, Narmada
Participation	Surendranagar, Narmada, Mehsana, Kheda, Sabarkantha	Ahmedabad, Jamnagar, Porbandar, Junagadh, Gandhinagar
Income	Porbandar, Junagadh, Rajkot, Kachchh, Amreli	Bharuch, Narmada, Surat, Sabarkantha, Dahod
GDM-1	Rajkot, Junagadh, Porbandar, Ahmedabad, Jamnagar	Dahod, Dangs, Banaskantha, Panchmahals, Patan
GEI	Gandhinagar, Dangs, Navsari, Valsad, Bharuch	Banaskantha, Bhavnagar, Anand, Patan, Jamnagar





# Towards Better Human Development in the State

Participation in local self-government



Learning to lead and to follow

## Chapter 9





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## Towards Better Human Development in the State

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9

Human development essentially means expansion of opportunities for people, through their improved capabilities, to enable them to lead the life they value. Human development is much more than improvement in education, health, nutrition, and command over resources. It is the goal of development as well as the development paradigm that is conducive to achieving this goal. The human development report of a state, therefore, should assess the achievements of the state in terms of human development as a goal and as a paradigm. That is, it should, in addition to discussing the achievements in the social sectors – education, health, nutrition and so on – assess the validity of the development path to see whether it ensures sustainable human development or not.

This report begins with a discussion on the concept, content, and measurement of human development. It argues that the concept of human development needs to be measured at both household and macro levels. Considerable space has been devoted to understanding the dynamics of development in Gujarat, i.e. the pattern of economic development; unemployment, income poverty and human poverty, and the changing environmental status and its impact on poverty reduction and human development. The report thereafter discusses the main components of human capabilities, namely, education & literacy, health & nutrition and gender development. This discussion is supplemented with an analysis of government expenditure on social sectors.

Construction of different human development indices help understand where Gujarat stands at the all-India level and to assess the relative position of different districts with respect to different aspects of human development. These indices have important implications for policy and programme designing to promote human development.

The task on hand now is to learn lessons from the discussion for the future. These lessons are related to (i) macro policies and sectoral development policies; (ii) policies pertaining to major components of human capabilities such as education, health and so on; (iii) policies with regards to government spending; and (iv) interventions needed at disaggregated level for specific regions and for specific socio-economic groups.

### Major Observations of the Report

Gujarat is one of the prosperous states of India. It ranks 4<sup>th</sup> in per capita income among major 15 states in the country. Its per capita income is 27 per cent higher than the national per capita income (2000-01), and its per capita consumption expenditure is 26 per cent higher than the national per capita expenditure. It has highly diversified sources of income with about 85 per cent NSDP coming from non-primary sectors and a diversified workforce with about 48 per cent of workers engaged in non-primary sectors. The state is more urbanized than India, with 38 per cent of the population living in urban areas. It has well developed

*The human development report of a state should, in addition to discussing the achievements in the social sectors, assess the validity of the development path to see whether it ensures sustainable human development or not*



*The state's performance in human development slowed down considerably in the 1990s*

capital and money markets, backed by a highly enterprising population.

Gujarat has done well in the economic reforms period by taking advantage of the new environment. It has attracted more than 16 per cent of the investments in the country in this period and shown a high growth rate of about 6 per cent in the 1990s, with 7.25 per cent and 7.39 per cent CARG in secondary and tertiary sectors. Gujarat stands 3<sup>rd</sup> among major states with respect to industrial growth.

In spite of these achievements, there are several distortions in the growth path that are not conducive to human development. The primary sector, particularly agriculture, is lagging behind with unstable incomes and almost stagnant – if not negative – growth rate. The state has experienced severe depletion and degradation of its environmental resources in the past decades. There is deceleration in poverty reduction, particularly human poverty reduction in the 1990s, indicating a weakening relationship between economic growth and poverty reduction.

The state's performance in human development slowed down considerably in the 1990s. For example, the improvement in the literacy rate in the state during 1991-01 was 8.38 percentage points (7.37 and 9.96 percentage points for men and women respectively) against an increase of 17.59 percentage points (7.99 and 20.18 percentage points for men and women respectively) during 1981-91. The increase in the literacy rate in the 1990s was less than half that achieved in the 1980s. Similarly life expectancy stagnated in the 1990s as against an increase of 2.9 years in the 1980s (3.1 years in rural areas and 2.6 years in urban areas). IMR in the state declined by a mere 9 percentage points (3 and 41 percentage points in rural and urban areas respectively) as against the decline of 32 percentage points in the 1980s. That is, the decline in IMR was

one-third of the decline in the 1980s. This is not because the state has achieved the optimum levels of literacy or IMR, when the rate of improvement would slow down. The stagnation in these two rates is at a comparatively low level of achievement. This has been the case in spite of the increase in the rate of economic growth in state during the 1990s.

Gujarat's position in human development indices among major states in India has therefore gone down by a notch in the 1990s. Though the value of HDI has increased from 0.462 in 1991 to 0.565 in 2001, and HDM-1 from 0.426 to 0.479 during this same period, Gujarat's rank among major states has declined from 5<sup>th</sup> in 1991 to 6<sup>th</sup> in 2001. The sectoral components of the indices also show a deceleration; the rank of the state in the education index going down from 5<sup>th</sup> in 1991 to 6<sup>th</sup> in 2001, in the health index going down from 7<sup>th</sup> in 1991 to 9<sup>th</sup> in 2001, and in the income index going down from 4<sup>th</sup> in 1991 to 6<sup>th</sup> in 2001. In the case of GDI and GDM-1 also, the state has moved down from 4<sup>th</sup> (0.258 GDI and 0.240 GDM-1) among major states in 1991 to 6<sup>th</sup> (0.325 GDI and 0.272 GDM-1) in 2001.

Another important observation has been with respect to regional disparities in human development. The tribal districts of Dangs, Dahod, Panchmahals, Narmada, and others are all at the bottom with respect to the HDI and the HDM-1, as well as with respect to economic growth including agricultural growth, income poverty and human poverty. These districts need the urgent attention of policy makers. The other region that demands urgent attention is the northern dry region, consisting of Banaskantha, Patan, Western Mehsana (Sami and Harij talukas), Surendranagar and Kachchh. This arid region also is very badly environmentally depleted resulting in poor growth and poor human development. In addition to these

regions, the other regions of concern, with respect to human development, are the small and medium urban centres which have a relatively higher incidence of income poverty as well as poor quality of life mainly because of their poor economic base, poor infrastructure and the weak finances of the urban bodies.

It is interesting to note that different districts do not enjoy similar ranks with respect to different components, which implies that they need specific attention in different spheres of human development. The disaggregated view can thus guide formulation of human development interventions in specific sectors and specific regions.

As far as gender equality is concerned, tribal districts like Dangs, Narmada, Bharuch, Valsad, and Navsari are in a better position than the rest. This indicates that tribals, in spite of their constraints and problems, enjoy far more gender equality than others.

In order to move to better or higher human development levels, the state will have to adopt a strategy which includes the following components:

- ◆ Modifying the macro strategy to create an enabling macro environment for promoting human development, which essentially means strengthening linkages between economic growth and human development
- ◆ Modifying sectoral efforts in the areas of health and nutrition, literacy and education, gender equity, and welfare and security to promote these specific components of human development
- ◆ Allocating more financial resources with the required composition of expenditures, supported by appropriate institutions, including good governance
- ◆ Targetting specific regions and specific socio-economic groups, which are lagging behind because of specific constraints and problems.

## Macro Policy for Promoting Human Development

### Strengthening Agriculture and Allied Sectors

One major problem with the state economy is its lagging primary sector, particularly the agricultural sector. More than 50 per cent of the workforce is still engaged in this sector, contributing about 15 per cent of the state NSDP. Though it is important that the state economy diversifies into non-primary sectors, it is equally important that agriculture grows to its potential, establishes strong linkages with other sectors and ensures stable incomes to the agricultural population.

Some of the policy changes needed here are:

- ◆ Technological development through R & D efforts for irrigated and rainfed agriculture, backed by proper extension efforts
- ◆ Better land and water management through watershed development programmes
- ◆ Improving water use efficiency through technological, institutional, and legal instruments
- ◆ Wasteland development for productive use of land: dairying, horticulture, and forestry
- ◆ Accessing new opportunities under WTO and enabling lagging regions and small and marginal farmers to access these
- ◆ Promoting animal husbandry, particularly by addressing the issues of fodder development, controlling unproductive cattle population, increasing productivity and fodder management during periods of droughts
- ◆ Investing in agricultural infrastructure of different kinds

The government has prepared plans to promote this sector under Agro Vision 2010 and the Tenth Five-year Plan. There is a need to incorporate the interests of small and marginal farmers and lagging regions into

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these plans along with a focus on value added to agricultural produce through appropriate agro-processing. This requires strong inputs such as funds and enabling institutions. The plans need to be backed by required investments in agricultural infrastructure, research and development, and extension and training, and in land and water management. What is particularly important is enabling small and marginal farmers to access benefits of both global and local markets and agri-business. This calls for setting up the right kind of institutions and designing the right interventions and then scaling up the efforts in terms of funds, institutions and technology.

### **Strengthening Linkages Between Industries and Human Development**

Gujarat is almost at the top in the industrial sector. Here too several issues demand serious attention from the point of view of human development.

Enriching of hinterlands through factor markets is a major issue. The benefits of industrial development in a region are expected to trickle down to the hinterland through functioning of factor markets. The benefits of the rapid industrial development in Gujarat can spread through proper functioning of land, labour and capital markets. For example, a new industrial unit in a region should generate employment avenues for local labour, directly and indirectly, and thereby integrate them into the labour market. This could be done by setting up technical schools for training the local youth in required trades, linking the existing schools with the demand for new skills, and making special efforts to involve the local people with the process of development. Efforts should be made to encourage new ancillary economic activities by forging strong backward and forward linkages with the local economy. Similarly, proper functioning of the land market should ensure mar-

ket price of land to land sellers, including small and marginal farmers.

This does not seem to be happening to a desirable extent. Studies have shown that large industrial units in rural and small urban centres in the state tend to exploit the region through distorted land and labour markets. Segmented and distorted labour markets allow industrialists to use cheap local labour as casual and unskilled labour without giving them adequate wages or social protection. Also, adequate efforts are not made to train local labour to provide them remunerative employment in local units (Hirway and Shah 1998). Similarly, the imperfect land market and the Land Acquisition Act allow industries to acquire land at cheap rates and do not ensure market price to land sellers. Even when market rates are required to be paid, industrialists acquire land at cheap rates from farmers (particularly small farmers belonging to low castes), panchayats, and government by distorting the land market further. In addition, industries are allowed (and encouraged) to use natural resources, including non-renewable resources like minerals at a cheap/subsidized rate, and are also allowed to pollute land, water and air, as the government is not always able to enforce 'the polluter pays' rule. There is a need to allow factor markets to function efficiently through appropriate policies so as to enable the hinterlands to access benefits of industrial growth.

Promotion of SSI and cottage industries is another major area requiring action. Even though the cottage industries are employment-intensive, contribute significantly to exports, and have good potential for growth, they are gradually getting marginalized owing to poor access to credit, infrastructure, modern market information, and market linkages. They are less professionally managed than what is required in a competitive environment. There is a need to protect and promote this sector, as it is

*Efforts should be made to encourage new ancillary economic activities by forging strong backward and forward linkages with the local economy*

a major sector, next to agriculture, in terms of providing employment. Some of these industries are also related to the national heritage and local creativity.

By focusing allocations to large and medium scale industries and promoting them through innumerable subsidies, concessions, and infrastructural support, the government has denied a level playing field to the micro, small and medium industries sector as well as to cottage industries. A lot has to be done to put them on an equal footing. In this context, the cluster approach adopted recently is worth mentioning.

The third major area relates to composition of industries and regulation of polluting industries. The predominance of polluting industries in the industrial structure of the state economy is largely because of some historical facts. There is a need to go into non-polluting knowledge-based industries, which, somehow, do not seem to be attracted to the state. Though the government has initiated some efforts in this area, it has a long way to go to achieve significant success. There is a need to make extra effort to promote non-polluting industries in the state. It is also important to realize that the ICT sector is important for the overall development of the state economy in several ways.

As far as industrial pollution is concerned, there is a need for the state to promote clean technology rather than depend mainly on EOP (End of the Pipeline) solutions. There is also a need to reduce pollution by encouraging recycling and reuse of industrial discharges. It is important to note that the state government has initiated steps in this direction but there is a need to scale them up.

## **Towards Employment-Intensive Development**

Generation of remunerative employment is an important requirement for poverty reduction and promotion of human devel-

opment. Remunerative employment provides workers (and their households) enough income to access the basic needs of life to move above the poverty line on the one hand, and enables them to access human capabilities for achieving higher human development on the other. It also gives them a sense of participation, dignity and self-esteem. Employment intensive development tends to be participatory, poverty reducing, and relatively equitable compared to labour saving economic growth.

Gujarat appears to be in a relatively better position with regard to overall employment. However, there are several areas of concern — increased share of marginal workers, declining WPR with respect to main workers, declining share of organized employment, increased incidence of industrial sickness, and rising unemployment — that need the attention of policy makers.

◆ **Employment generation for un/under employed:** Though the usual status based unemployment rate in the state is not very high (1.23 per cent), the incidence of unemployment as per the CDS (Current Daily Status), is 4.63 per cent, which is not very low. The incidence for the prime age group (15-29 years) is particularly high at 6.7 per cent in rural areas and 8.5 per cent in urban areas. Considering the fact that the labour force in the state is going to increase rapidly in the coming years (the projected labour force is 244.64 lakh for 2007 and 260.08 lakh for 2012), the state will have to generate employment for an additional 10.67 lakh persons as per CDS by 2012. This is a big challenge.

About 20 per cent of the workforce in the state today consists of marginal workers, a majority of whom are likely to be under-employed. Many of them are engaged in low productivity, low-income jobs. There is a need to either shift them to higher productivity jobs or improve their productivity in existing employment. As far as new

*There is a need to make extra effort to promote non-polluting industries in the state. It is also important to realize that the ICT sector is important for the overall development of the state economy*

*The modern industrial sector can train local labour and integrate them in the labour market*

jobs are concerned, there is not much scope in the public sector as the government is not likely to increase jobs on any significant scale in the coming years. The modern industrial sector will provide more jobs in large and medium industries but to a limited extent, since they are highly capital-intensive industries. They, however, can train local labour and integrate them in the labour market.

Major sectors that can generate employment opportunities in the coming years are:

- i) Agriculture and allied sectors, which include crop cultivation, horticulture, forestry, fishery, wasteland development, dairying, etc.
- ii) Agro-processing and agri-business involving small and marginal farmers as well as landless labourers
- iii) Micro, small, and medium industries including the informal sector
- iv) Cottage industries, including handicrafts, handlooms, and other traditional trades
- v) Community services such as health and educational services, tourism, etc.
- vi) Construction and infrastructure

It will be necessary to formulate a comprehensive strategy to promote employment in these sectors.

♦ **Generating employment for the educated unemployed by balancing the demand and supply of skills:** Gujarat has a heavy burden of educated unemployed on the one hand and shortage of skilled labour in certain fields on the other. The share of formally skilled labour is less than 5 per cent. There is, therefore, a need to match the demand and supply of different skills in the labour market by undertaking the following:

- i) A careful study to understand the growing demand for different skills and wastages of skilled workers will be very useful
- ii) Link skill training institutions and colleges with the labour market to develop suitable syllabus and curriculum.

iii) Implement systematically, the recommendations of studies made to understand problems and constraints of technical education and institutions in the state.

iv) Redesign short training programmes implemented through different departments to bring them closer to the labour market. At present most of this training is wasted.

v) Make efforts to attract and use local youths and workers in new industries set up in a region. Efficient functioning of labour markets will contribute towards trickling down of growth to the local/regional economy.

♦ **Labour market information system and employment services:** Present employment exchanges are far from adequate in terms of linking the demand for different kinds of workers with supply. There is a need to reorient these employment exchanges, preferably in partnership with the private sector, to collect elaborate labour market information to help both labour force as well as employers.

Setting up the Rojgar Sahayak Kendras is a good beginning. But, there is a need to set up such centres all over the state, preferably in partnership with the private sector, to improve their coverage, credibility and utility.

♦ **Social protection for unorganized workers:** As seen earlier, several social security schemes have been designed by the central and state governments to provide social security to unorganized workers. These schemes are scattered and not comprehensive, and operate at too low a level to have much impact at the macro level. There is, therefore, a need to design a minimum package of social protection and implement it to reach all types unorganized workers. The National Commission on Labour has made some useful recommendations in this field. Also several NGOs have presented innovative models to ensure social insurance and protection to workers. The state gov-

ernment can build on these to formulate a comprehensive social protection policy by sharing the financial burden with the private sector as well as workers. Social protection should also include unemployment insurance, particularly for frictionally unemployed workers.

◆ **Food-for-work, with employment guarantee:** Distress migration, seasonal or temporary, is a major concern. Massive migration of this kind is observed primarily from environmentally degraded regions, where agriculture cannot provide employment beyond the kharif season. These regions need works for environmental protection and ecological regeneration. If wage employment programmes are designed and implemented on a large scale, they will provide local employment to the poor on one hand, and regenerate the ecology to generate sustainable employment opportunities in agriculture, animal husbandry and dairying, horticulture, fishery, etc. on the other.

Food-for-work programmes, designed for this purpose with an element of guarantee, can go a long way to help migrants. The Government of India is planning to initiate such a programme. The state government can initiate an employment guarantee programme for selected districts. It will be necessary to learn from the Employment Guarantee Scheme of Maharashtra before designing such a programme in the state (Hirwal and Terhal 1993).

### **Modifications in Policies to Expedite Income and Human Poverty Reduction**

It is interesting to note that Gujarat ranks 3<sup>rd</sup> among major states in incidence of income poverty, 4<sup>th</sup> in per capita income, and 6<sup>th</sup> in human poverty. Compared to other states, the relation between economic growth and human poverty reduction is weak in Gujarat.

Why is the state lagging behind in human poverty and not so much in income pov-

erty? This is a matter of concern. The causes for this lie in macro factors as well as in sector specific factors in health and nutrition, literacy and education, etc. Some major macro factors are as follows:

◆ Unstable and stagnant agriculture has kept the bulk of agricultural population (52.00 per cent of the workforce) in uncertainty and insecurity. Because of inadequate employment opportunities in the non-farm sector locally, these households are forced to adopt coping strategies, which perhaps allow them to earn enough to survive, but prevent them from accessing educational and health related facilities. Environmental depletion and degradation has contributed significantly to reducing the access of people, particularly at the bottom, to health and educational facilities.

◆ Low quality of employment in the state, as reflected in the predominance of casual/self-employed workforce on one hand and the low coverage of social protection to unorganised workers on the other, has resulted in a situation where a large section of the workforce is perhaps able to eat for survival, but is not always able to access benefits of educational and health related facilities.

◆ Rapid economic growth in the state fails to trickle down to the bottom rungs because of imperfect functioning of factor markets. Both land and labour markets in the state are distorted, and getting more so owing to the inadequate policies of the state on the one hand and the lack of efforts to integrate these markets on the part of employees and government on the other. As a result, households at the bottom receive some employment, but not enough to access human development opportunities.

The implications are clear – there is a need to strengthen the linkages between economic growth and remunerative employment in a sustainable way but this cannot be achieved only through programme interventions. There is also a need to create an enabling

*If wage employment programmes are designed and implemented on a large scale, they will provide local employment to the poor on one hand, and regenerate the ecology to generate sustainable employment opportunities on the other*

*Rapid economic growth in the state fails to trickle down to the bottom rungs because of imperfect functioning of factor markets*

environment through appropriate policy interventions.

### **Promoting Environmentally Sustainable Development**

Synergy of environment and economic growth tends to strengthen the linkages between economic growth and human development in several ways:

- ◆ Environment friendly growth tends to be employment intensive
- ◆ Environment friendly growth ensures better quality of life to people

On the other hand,

- ◆ Environmental degradation tends to affect education and literacy of people adversely
- ◆ Environmental pollution and degradation affects the health status of population adversely.

Gujarat has experienced severe depletion and degradation of major natural resources during the past two decades. Though government has made efforts to prevent environmental degradation and promote ecological regeneration, the efforts have been far from adequate. There is enough evidence to show that the depletion and degradation have had adverse impact on health, nutrition, literacy, education, and livelihood.

There is therefore a need to formulate a state environment policy. At present environmental issues are dealt with in an isolated and ad hoc fashion, which is not effective in integrating environment into the mainstream economy. A carefully designed state environment policy is necessary for strengthening the relationship between environment and development, including human development. The environment policy should have a water policy, forest policy, land policy, and cover all other aspects of the environment. There is a proposed coastal zone management plan for the state, which is still not finalized. There is a need to finalize it within

the framework of the state environment policy.

Natural resource management programmes such as JFM, WSD, WDP, and water harvesting structures are marginal programmes taken up on a small scale by NGOs and some community based organizations (CBOs). There is a need to scale up these programmes and allocate resources as well.

The recent project of GEC (Gujarat Ecological Commission) on SEAP (State Environment Action Plan) is worth mentioning. SEAP is a collaborative action plan prepared by experts, NGOs, and GEC. It needs recognition as well as funds for implementation.

### **Addressing Issues of Disasters and Conflicts**

Disasters and conflicts have tremendous impact on human life and livelihood. First of all, they create sudden and serious crises of safety, security and survival. There are a number of deaths and a large number of people get injured, some disabled for life. Affected people require rescue efforts to minimize deaths. Further, in the immediate aftermath of a disaster or a violent conflict, vulnerable sections of the population find it particularly difficult to survive and access basic safety and security. They require relief support. Organization of rescue and relief is, therefore, a very important component of any policy to help people and ensure that the casualties at such times are minimized.

In disaster/conflict prone areas people are always subjected to disruption in their lives leading to a lack of safety and security. The poor and those living on the margins of society are particularly vulnerable. They find it very difficult to return to their earlier employment and livelihood. The basic services around them also are disrupted. They are in the need of safety and security, more so in the aftermath of a violent conflict. Resettlement, rehabilitation and

*A carefully designed state environment policy is necessary for strengthening the relationship between environment and development, including human development*

reconstruction activities are very important at this stage to help such people manage their life.

Disasters and conflicts halt development processes. It takes years before the economy is put back on track and can move forward. On all counts, disasters and violent conflict are not only short-term crises, but are also major forces that tend to affect economic development. They have adverse individual and macro level impacts and have to be taken into account while framing a human development strategy.

Gujarat has experienced disasters and violent conflicts fairly frequently. In recent years, for example, there was a devastating cyclone on the sea coast of Kachchh – Jamnagar in 1999, a massive earthquake in 2001, consecutive droughts in 1999-2002, and violent communal riots in 2002. Thus, it is important for Gujarat to learn how to manage disasters and conflicts effectively. This is because:

- ◆ They happen suddenly, almost without warning.
- ◆ There is very little time for emergency action.
- ◆ Their scale is frequently large, both in terms of area and population affected, making the impact severe – even in a localized way.
- ◆ Losses of life and property are also huge during disasters and violent conflicts.
- ◆ They disrupt the usual systems/mechanisms of life, creating tremendous problems of maintaining life and livelihood.
- ◆ They tend to hurt vulnerable groups like Dalits, poor, women, and children the most, as these are the least equipped groups to face a disaster and are easily bypassed in relief and rehabilitation assistance.
- ◆ Since the effect of disasters and conflicts lasts for a long time, there is a need to give long-term support to affected people.

The state government has recently set up Gujarat State Disaster Management Author-

ity (GSDMA) and passed a legislation on disaster management. Post-disaster impacts are sought to be minimized through the interventions. With regard to conflict, however, such a mechanism is not in place. There is also a need to make comprehensive assessments of the impact of such disasters and conflicts on people and the economy and to critically review their management. Conflicts are very difficult to address. It requires strong commitment of the civil society first and the government second, to reduce points of conflict. It is best that situations of conflict are transformed into non-conflict rather than emphasizing conflict resolution and management. The responsibility of reducing politically motivated conflicts lies mainly with the civil society. This is where the civil society has to play a stronger role than the government. That is not to say that the government is incompetent to resolve conflict and maintain peace and harmony in a society. The mechanism of justice is entirely in the hands of the government and this is the instrument that it can use to bring peace in a society.

If the mechanisms for disaster mitigation, prevention of man-made disasters and conflict resolution are not put in place, the people pay a heavy price in terms of development. Effort is spent on surviving from one disaster/conflict to another. Gujarat, which has been frequently affected by disaster/conflict, has to evolve these mechanisms to move on the path of sustainable human development.

## **Social Sector Policies and Interventions**

The major social sectors discussed in this section are health and nutrition, literacy and education, and gender development. The performance of each of the sectors is related to the macro development path, and therefore some macro policy interventions are a precondition for promoting these sectors. The following macro interventions are important:

*Disasters and conflicts halt development processes. They have adverse individual and macro level impacts and have to be taken into account while framing a human development strategy*

*The responsibility of reducing politically motivated conflicts lies mainly with the civil society*



*Macro policy interventions are a precondition for promoting social sectors*

- ◆ Employment intensive economic growth that ensures remunerative employment to all along with maximum social protection.
- ◆ Environmental protection and ecological regeneration, which, as discussed earlier, promotes access of the poor to human capabilities.
- ◆ Allocation of larger funds to these sectors, as per the norms laid down by the four ratios (PER, SAR, SPR and HER). This requires a sound status of state finances.
- ◆ Creating an environment of open dialogue and discussion on the issues related to the social sectors, backed by strong political commitment.

Against the background of the above macro environment, sector specific recommendations are presented below.

### **Literacy and Education**

Education has been given a central place in human development, as it plays multiple roles in promoting economic and human development. Though Gujarat has made significant progress in this area, a lot more could have been done. The achievements in the state are not commensurate with the level of economic growth achieved by the state.

Gujarat needs to overhaul the education system to achieve the goal of full literacy and significant achievements in education. Elementary education is a fundamental right and the state is committed to it. But, universalizing elementary education is a complex issue, which needs careful strategy formulation. The three major stakeholders in this field are government, teacher and staff, and children and their parents. A strategy for universalization of elementary education should ensure that:

- i) The state government is committed to the goal of universal elementary education by allotting funds to this sector and by providing adequate infrastructure, teachers, staff, curriculum development, incentive schemes, etc.

- ii) Teachers are committed and well equipped to impart education to children, particularly those coming from the poorer sections, and are keen that all children are enrolled and none drop out before completing elementary education.
- iii) Children (and their parents) are interested in acquiring elementary education. They are attracted to school, and parents consider education useful for their children.

### **Government's Commitment**

◆ **Expenditure on education:** Expert committees on education in the past have recommended that expenditure on education should be at least 6 per cent of NSDP. The expenditure may go beyond 6 per cent when necessary. It is important that these funds are raised from state resources and not by borrowings, and not at all through loans from outside the country. This will, on one hand, reflect the state's commitment to education and, on the other, reduce the debt burden. It may be suggested that this expenditure can be funded by improving the overall status of the state finances and by reducing subsidies on higher education.

◆ **Infrastructure for elementary education:** Another major area of intervention is improving infrastructure for elementary education in the state. To do this, it will be important to fix some minimum norms for elementary school infrastructure, keeping in mind the specific constraints and problems in the state. This may require revising some of the existing norms.

- i) Each village should have a school from 1<sup>st</sup> to 7<sup>th</sup> standard, as this constitutes elementary education.
- ii) Each elementary school should have a building with adequate number of rooms, drinking water facility, toilets including a separate one for girls, a room for mid-day meal, playground, library, and place for cultural activities.
- iii) There should be maintenance fund for these facilities.

*It is important that resources for elementary education are raised from state resources and not by borrowings*

iv) The present norms for secondary schools will have to be changed to improve secondary education of children, particularly the poor and girls. For example, the present norm of one secondary school for 10 villages needs to be raised to 1 for 5 villages immediately and raised further later.

v) In order to improve the employability of children after 10<sup>th</sup>/12<sup>th</sup> standards, it will be necessary to introduce technical education in school, the content of which may be determined by regional needs.

◆ **Expanding pre-school facilities:** It needs to be noted that three inputs are necessary for universal elementary education: pre-school education, remedial education, and bridge programmes for children who drop out or are unable to cope (Ramchandran 2003). As far as pre-school education is concerned, 2,273 villages have Balmandir, 1,333 villages have Balwadi, and 14,903 villages have Anganwadi (Table 9.1). It is possible that some of the villages will have two or more facilities and thus, there is overlapping of facilities. If it is assumed that there is no overlapping then 18,509 villages would be covered by one of these three. Considering the fact that there are 30,000 settlements in Gujarat, pre-school institutions will cover about only 60 per cent of settlements, leaving 40 per cent without access to pre-school facilities.

◆ **School teachers and other staff:** The present Vidya Sahayak scheme is a step in the right direction. Efforts should be intensified to see that each school has the required number of teachers, including lady teachers. Each school should also have the required staff to run the mid-day meal scheme so that teachers do not have to cook food for students.

◆ **Decentralization in multiple ways:** Decentralization is essential for better management of schools. This will increase control of local people in the working of the

school, and make schools responsive to local needs. A village level education committee may be set up in each village under the village panchayat to supervise and manage the school. The state can learn a few lessons from the Education Guarantee Scheme of Madhya Pradesh and the Lok Jhumbish project in Rajasthan.

Decentralization also means devolution of financial powers to the panchayat and to the village level committee. This will help in making the school accountable to the village.

◆ **Curriculum development:** One major reason for children not attending school is that schools are not attractive to them. In fact, they are boring and education is a burden on children. This state of affairs calls for major changes in school curriculum.

i) At least 30 percent of the school curriculum can be developed at regional level to include local history, local environment, and local socio-cultural aspects.

ii) The curriculum should also include a mix of skills and crafts, games and sports, arts, and other extra-curricular activities.

iii) The curriculum should also focus on secular, national and moral values.

Gujarat is a state where great educationists like Mahatma Gandhi, Gijubhai Badheka, Nanabhai Bhatt and even Yash Pal have presented models for school education. The state should have no problem in learning from them how to make elementary schools interesting, attractive and useful to children.

◆ **Incentive schemes for children:** The state government has introduced several incentive schemes to encourage children to attend school. These schemes are not always reaching the targets for different reasons: (i) lack of funds (i.e. mid-day meal scheme), (ii) the schemes are not suited to the local situation (i.e. bicycles to girls students in hilly areas), (iii) the benefits are too small (i.e. Rs. 75 per year for sending a girl child to school) or

*Decentralization is essential for better management of schools. This will increase control of local people in the working of the school, and make schools responsive to local needs*

TABLE 9.1

**District-wise village amenities, 1999**

District	No. of villages having secondary school	No. of villages having higher secondary school	No. of villages reporting balmandir	Balwadi		Anganwadi	
				No. of villages reporting	Buildings	No. of villages reporting	Buildings
Ahmedabad	125	18	177	90	47	515	141
Amreli	98	14	93	9	2	558	192
Anand	159	47	196	83	54	264	83
Banaskantha	158	35	123	56	34	1031	741
Bharuch	101	24	34	19	5	626	378
Bhavnagar	104	10	94	26	11	614	144
Dahod	154	27	36	76	38	639	269
Dangs	17	4	5	8	6	230	217
Gandhinagar	128	32	112	30	7	222	67
Jamnagar	109	22	48	17	12	606	371
Junagadh	254	27	58	72	9	704	95
Kachchh	98	14	78	32	23	639	453
Kheda	224	48	167	67	28	452	117
Mehsana	187	68	233	64	18	500	142
Narmada	45	10	13	25	7	439	313
Navsari	96	34	37	61	12	371	144
Panchmahals	307	69	71	87	32	884	416
Patan	99	15	91	27	23	410	246
Porbandar	32	3	6	6	2	64	11
Rajkot	190	18	112	40	19	827	477
Sabarkantha	377	129	301	150	63	1059	333
Surat	166	54	46	50	6	1033	636
Surendranagar	105	9	19	37	4	590	223
Vadodara	174	50	112	163	66	1197	503
Valsad	80	24	11	38	12	429	236
<b>GRAND TOTAL</b>	<b>3587</b>	<b>805</b>	<b>2273</b>	<b>1333</b>	<b>540</b>	<b>14903</b>	<b>6948</b>

Source: Directorate of Economics and Statistics, Gandhinagar.

too long (after 5 to 7 years), (iv) there are leakages owing to corruption and (v) indifferent implementation.

It will be a good idea to select only a few critically important schemes, and implement them really well. Mid-day meal comes at the top in these schemes, followed by financial incentives to girls and free textbooks/uniforms to the poor. These schemes should be managed by the local village committee, which should have members from all the sections of the population, including women.

◆ **Supervision and monitoring:** Supervision and monitoring are critical inputs in the management of school education in the state. It is important that there is surprise and not preplanned supervision. Monitoring should involve the local committee also. There should be place for upward communication from teachers, parents, and students for improving the functioning of the education department.

◆ **Facilities for migrant children:** The state government has introduced good schemes

for migrant children. Looking at the extent of migration of children, it is necessary to scale up these efforts. The following steps will help considerably:

- i) Promotion of mobile schools, in partnership with NGOs.
- ii) Increasing the number of boarding schools, mainly Ashramshalas, for such children.
- iii) Allowing entry or exit of migrant children when required.

◆ ***Migration and children's education:***

Environmental degradation induced seasonal/temporary migration of rural households has been observed to be a major reason for children being deprived of primary education. The state government has launched several schemes to help children belonging to migrant families. But they have not had much impact as revealed by the official data on funds spent on the schemes. In this context, several NGOs in Gujarat have done good work in providing education to migrant children.

Remedial education has been found to be important for children who are weak in studies. As has been seen earlier, there are children who find it difficult to cope in school since they do not get adequate support at home. They are also neglected by teachers for various reasons. Remedial education helps children to remain in school. Several NGOs have shown that remedial education reduces the drop-out rate of children in elementary education (Ramchandran 2003). There is a need to promote remedial education in the state.

Bridge programmes in primary education are meant for children who have dropped out because they are unable to cope with school education. There is a need to help children who have left school and who are demoralized and lack motivation through bridge education in rural as well as urban areas. This essentially means setting up special educational

camps to help children catch up with their peer groups in formal school. M. V. Foundation (in Andhra Pradesh) has organized bridge courses for children who have dropped out and helped them to resume their education with their peer groups. Working children can also be helped to join/rejoin school through bridge courses in camps or in special institutions.

These approaches of remedial schools or bridge schools are no longer new. M. V. Foundation (Andhra Pradesh), CWC (Concerned for Working Children), CINI ASHA (West Bengal), CREDA (Uttar Pradesh), etc. have used these approaches successfully to reduce the drop-out rate from schools. In the case of Gujarat, several NGOs have used these approaches (Box 9.1). Yusuf Meherally Centre has helped about 300 children from fishing communities to rejoin regular schools through their bridge courses. Shaishav (Bhavnagar) has also helped children from slums to go back to school by helping them through special courses. Vedchchi Pradesh Sewa Samiti is engaged in helping tribal children in a similar endeavour.

Retention is a more serious problem than enrolment. Once the migration season starts, the newly enrolled children are likely to accompany their parents and fall into the same cycle again. Several options and alternatives were worked out with community participation. Ultimately, the community came to a consensus that though the parents had to migrate to the cities, the children would not accompany them. Instead they would stay back in the villages and continue their education in village level centres. The first such centre was started in Vanalia, one of the five villages in Sanand taluka. Subsequently, with the consensus of the community, hostels were started in other nearby villages where the children could stay and continue their education. Normally, the hostels start after Diwali, when the migration season begins.

*The state government has launched several schemes to help children belonging to migrant families. But they have not had much impact*

### Gantar - Educating children of migrant labour

Gantar is an organization that aims at enhancing the quality of education and using it for social change and justice in the country. It believes that providing facilities for education for all school going children is the sole responsibility of the government in particular and society in general. Children should have access to equal opportunity irrespective of their socio-economic and geographical imbalances. While the process itself should be joyful, the content should be practical and helpful as well as relevant to the surrounding environment. In order to develop this effort into a mass movement, Gantar believes in people's participation right from the planning stage.

Gantar conducted classes for children of brick kiln workers in Sarkhej area situated on the outskirts of Ahmedabad. By the time rapport was established with the children as well as their parents and Gantar started getting favourable results, the workers and children went back to their respective villages. In the next migration season, Gantar had to start from scratch, as a new batch of children would arrive in place of the earlier children. The question as to what happened to the earlier students bothered the members of the organization although they did not mind teaching the new children. Something had to be done to address this.

For this, the organization conducted a systematic survey of the families where the parents were migrating. It found that children of the migrant labour in Gujarat constituted

25 per cent of the total drop-outs of the state. This survey made it clear that the children's education was the first casualty in a migrant family. It was difficult to maintain continuity of these children's education and they got trapped in the vicious circle as they were pushed out of the education system owing to lack of attendance that resulted in a lack of interest in studies and subsequent failure in examination. Hence they had no option but to join the workforce and the long chain of unskilled child labour that had a bleak future only as unskilled adults.

In the dry regions of Gujarat, for example families migrated to work in the salt-pans of Kachchh for eight months. That brought them an income of Rs. 40,000 per year. This region is around Nalsarovar, a protected bird sanctuary, where no other development could take place. These families therefore had no choice but to migrate. Gantar recognized the problem and facilitated a dialogue with the people, encouraged them to participate in the process from the initial stage, conducted several rounds of meetings with the community and empowered them to make their own informed choice. The process led to the formulation of two programmes designed on different approaches:

1. Balrashmi programme that runs half yearly hostels in Nalsarovar area
2. Programme for Vulnerable Children in Gujarat (PVCG) in the Little Rann of Kachchh.

Translated to mean a ray of hope for children of migrant labour, the Balrashmi programme aims to:

- ◆ Achieve universal elementary education in villages of Nalsarovar area with community participation.
- ◆ Enroll all school-age children and ensure continuity for a minimum of seven years.
- ◆ Ensure alternate education systems for children of migrant labour.
- ◆ Start special efforts for reintegration of drop-outs into the mainstream system.
- ◆ Emphasis on education of the girl child.
- ◆ Ensure joyful learning.

As a first step, Gantar decided to launch the *Bhantar Feri* - an enrolment drive - to enrol maximum number of children with the participation of the community. The campaign was carried out in the villages of Meni, Aniyari, Vanalia, Zamp, Karangadh, Nanikisol, Rupavati, Kuba, Vasana, and many more. As a result of its enrolment drive, the Directorate of Primary Education announced the *Pravesh Utsav* - an enrollment festival in two phases in Gujarat in 1999.

Gantar also makes special efforts to enrol girls in schools. The campaign begins with a survey of girls eligible for enrolment in first standard. Pasting attractive posters on the walls of all houses with an eligible girl follows. The message on the poster announces '*Our daughter is going to study in class one*'.

The parents leave the children in the hostel before moving out. They give some contribution, mostly in kind - foodgrains, vegetables, oil, etc.

#### Promoting Commitment and Motivation of Teachers

Appointing an adequate number of qualified teachers is an important precondition for ensuring universalization of elementary education as shortage of teachers affects teachers' motivation. At the same time, it is also important to see that teachers (i) are well equipped for their work, (ii) are motivated to teach, and (iii) are particularly committed to children belonging to poor families. This requires special orientation programmes and

special training on how to deal with children who lag in their studies.

#### Making Schools Attractive (for Children) and Useful (for Parents)

Schools are frequently unattractive to children for reasons such as (i) lack of adequate number of teachers or absent teachers, (ii) boring courses and boring teaching methods, (iii) bad treatment meted out by teachers, particularly to children belonging to poorer classes and low castes, (iv) students' inability to cope with education, or (v) education not perceived as useful in life. Parents also are frequently unwilling to send their children to school because they do not per-

ceive education as useful or they think that their children will not be able to reach the level of education (for example, 10<sup>th</sup> – 12<sup>th</sup> standard pass) that will help them to use it productively. They are therefore happy to allow children to acquire some literacy before asking them to take up household or economic responsibilities. Sometimes economic gains of earnings outweigh educational gains. It is important, therefore, to make schools and school education attractive to both children and parents.

Some of the measures required here are:

- ◆ Primary education should be made attractive to children. Curriculum that is related to the local environment, attractive teaching methods, sports and games, library, cultural activities, crafts, etc. will make schools attractive to children.

- ◆ Adding crafts and relevant technical skills to the curriculum will improve employability of children (after 10<sup>th</sup> standard) and will make schools interesting. Parents will also perceive education as useful.

- ◆ Among the incentive schemes, the mid-day meal scheme is very important (Drèze 2003). Somehow, Gujarat has not been able to manage this scheme well. The government should take this scheme seriously and ensure that it is implemented well in all primary/elementary schools.

- ◆ Financial incentives for sending girls to school seem to encourage parents. The incentives need to be significant and be passed on to the beneficiaries without delay.

- ◆ Making schools and teachers accountable to parents and local population has worked very well in some states (example Madhya Pradesh and Rajasthan). This accountability is critical for ensuring that schools deliver the goods to people, and particularly the poor. This could be organized through various means:

- i) Setting up a village education committee under the village panchayat for super-

vision and monitoring of the village school. Salaries of local teachers should be paid after the approval of the village committee. It will be useful if local NGOs are involved in this work.

- ii) Parent-teacher committees can be set up for interaction of views. Such committees will empower parents to ask questions about the infrastructure, teaching, absenteeism of teachers, etc. These committees can make teachers answerable to parents for school management.

- iii) Accountability needs to be established at the taluka, district and the state level through setting up elementary education committees at these levels. It is important that new schemes in education are discussed by experts and stakeholders before they are implemented in the state.

An innovative programme, called ‘*Shalane Pass Karo*’ (Pass the School), designed and implemented by some NGOs in Gujarat, is worth noting (Janpath 2003). Under this programme all stakeholders, including NGOs working in this field, have fixed norms for a good school. The stakeholders of each school are expected to evaluate their school based on these norms and ‘pass’ or ‘fail’ the school. The movement wants that each school in the state should gradually be ‘passed’ by the stakeholders (students, parents, local people, NGOs, teachers, etc.). In case a school fails to pass, appropriate steps should be taken to remove the deficiencies. This programme has been designed under the aegis of Janpath, a network of NGOs in Gujarat, with the support of NGOs working for primary education in the state. The programme is expected to cover the entire state eventually (Box 9.2).

In this context it will be desirable if a well focussed workshop is organized at the state level with experts and NGOs to discuss the different studies (including this study) and reports of expert committees (including the

*Accountability is critical for ensuring that schools deliver the goods to people, and particularly the poor*

report of the recent committee of experts) to formulate a sound approach for promoting elementary education in the state.

A movement mode may help considerably. “Cent percent enrolment”, or “all girls to school”, or “zero drop-out from schools” movements can create an environment and mood for promoting school education. Panchayats, teachers, parents and children, and NGOs can contribute to such movements. The recent Kanya Kelavani Rath organized by the state government is a good example.

Special awards can be given to villages for “cent percent enrolment” and “zero drop-outs”. Such movements and awards could be regular features rather than a once-in-a-while activity.

The fact that a prosperous state like Gujarat is lacking in literacy and elementary educa-

tion is a matter of concern. The state should formulate a plan to achieve full literacy within ten years.

## Health and Nutrition

The three major stakeholders in health and nutrition, as in education, are: the government, service providers (i.e. doctors, nurses, and other staff) and people, particularly the poor. It is important that: (i) the government is committed to providing at least primary health services to all and spends the required funds on ensuring the required infrastructure, staff, medicines, etc., (ii) the staff is well equipped and motivated to deliver the services to people, particularly people from disadvantaged groups, and (iii) the poor are interested in accessing the health services. Unlike literacy and education, people are interested in accessing services from this sector.

## Ensuring the Infrastructure and Quality of Health Services by Government

- ◆ **Expenditure on health and nutrition:** The first major commitment of the state government is expressed through its expenditure allocation under this head. The most important requirement, therefore, is that the state government allots required funds (at least 6 per cent of SDP) to this sector and satisfies the other expenditure ratios, particularly SAR, SPR, and HER. This will ensure the satisfaction of at least minimum norms of expenditure.
- ◆ **Changing norms of health infrastructure:** The norms of setting up PHCs and sub-PHCs do not seem to be adequate, as several villages are left out. The system of appointing a nurse for visiting villages also does not seem to be adequate. According to latest available data, there are 993 PHCs, 7274 sub-PHCs, and 207 CHCs in the state, totalling 8474 health facilities. This implies that only about 45.8 per cent of villages have some or other government health facility

### BOX 9.2

#### Shalane Pass Karo

Norms for ‘Passing’ a School	activities, and in personal work of teachers
◆ Physical infrastructure	B. Steps taken by teachers for ensuring discipline: physical punishment, other punishments
A. Class rooms : number and size	C. Homework
B. Playground	D. Use of guides/quick solutions, etc. by teachers and students
C. School building	E. Private tuitions by teachers
D. Sanitation/Toilet: for girls and boys	◆ School Administration
E. Housing for teachers	A. Duties of teachers and the principal teacher
F. Other services: drinking water, fans, library, telephone, laboratory, sports equipment, etc.	B. Number of registers maintained
◆ Human resources	C. How is information kept: oral, written, or electronic
A. Teachers (teacher-pupil ratio), lady teachers	D. Fees charged
B. Qualified and unqualified teachers	◆ Evaluation of students
C. Workload of teachers	A. Evaluation of educational achievements
D. Teaching days, holidays, and school timings	B. Evaluation of extra-curricular activities
E. Regularity of teachers	◆ Incentive Schemes
F. Evaluation of teachers	A. Government schemes
G. Steps taken to reduce absenteeism of children	B. Non-government schemes
◆ Relationship between teachers and students	A school “passes” with more than 50 per cent marks in standards 1 & 2 and with 60 per cent marks in standards 3 to 7.
A. Work performed by students in education activities, extra curricular	

Source: Janpath (2003).

within the village. More than 50 per cent of villages do not have any health facility and they manage with visits of the nurse (once in 15 days or once a month). Even if it is assumed that there are private charity hospitals or doctors in some villages, the fact remains that most villages lack a health centre/dispensary/hospital within the village.

It is, therefore, recommended that the norms of setting up PHC/sub-PHC/CHC be changed so that there is at least one sub-PHC for every 2500 population. In addition to this, some settlements in tribal and remote areas will need mobile dispensaries. The number of such dispensaries should be raised so that each village has access to a dispensary at least once a week.

◆ **Capital and recurring expenditure on PHCs/sub-PHCs:** Studies have shown that health centres frequently lack staff, proper buildings, equipment, medicines, etc. usually owing to the lack of adequate funds. It is important to develop some norms for these expenditures and ensure that each PHC/sub-PHC in the state follows them. It is also necessary to set up maintenance fund for buildings and other capital assets. Setting up of a computerized monitoring system will help considerably.

◆ **Public-private partnership:** It is observed that there are several private charity hospitals and private doctors who visit villages on a regular basis. The government can enter into an agreement with them to fill in some of the infrastructural gaps, with an assurance that the charges by private hospitals will be comparable with public sector charges. It is also necessary to ensure the required secondary and tertiary health infrastructure at the taluka and district levels. Funds should be made available as per the norms.

### Committed and Well Qualified Staff

In order to ensure the presence of qualified and motivated staff to run the health centres,

it is important to recruit the staff and to train them for skills and commitment. There is also a problem of shortage of the staff as well as their commitment to their job. The following steps are suggested in this context:

- i) Organizing orientation programmes for the staff to motivate them to reach out to the poor.
- ii) Close monitoring and supervision to ensure that the staff attends to duty regularly. Some incentive schemes may be introduced for this purpose.
- iii) Decentralized accountability of the health centres by giving power of supervision and monitoring to village, taluka and district panchayats.

◆ **Establishing accountability of the staff to people and panchayats:** The general experience with respect to health programmes and other social sector programmes is that unless the services and the staff are made accountable to the poor, they will not be able to access the benefits. It is necessary, therefore, to set up and promote institutions for facilitating the accounting.

Village, taluka, and district panchayats can be given powers to monitor the working of health services at different levels. Involvement of women panchayat members, local organizations, and NGO representatives will help considerably. It will be desirable if health committees are set up at different levels.

Several models of monitoring have been developed by NGOs in Gujarat and India. These are: government-NGO partnership, government-private sector partnership, setting up of local committees for monitoring health services, mother and child health groups, and so on. It will be useful if such models are promoted by the state to suit local situations in different parts.

◆ **Specific health related issues:** Discussion in the chapter on Health and Nutrition in Gujarat has identified several specific health

*The state government must increase the allotment to health sectors*

*Unless the services and the staff are made accountable to the poor, they will not be able to access the benefits*



*It is necessary to force employers to adopt protective measures for workers exposed to occupational diseases*

*A special department to deal with urban health problems should be created within the health department*

issues, which deserve the attention of policy makers.

i) *Occupational Health Problems:* These are frequently faced by workers employed in chemical units, tanneries, thermal plants, potteries, asbestos industry, saw mills, mineral extraction and mineral based industries, construction industry, restaurants, and so on. Such diseases often affect workers in other occupations and industries where the work postures are not healthy, such as diamond cutting and polishing, carpet manufacturing, head loading, and so on. Since all these industries are prospering in Gujarat, occupational diseases are an important health problem in the state. The National Institute of Occupational Health in Ahmedabad has conducted several studies of these health problems. Some research also has been done on how to help such workers such as use of protective masks, boots and helmets, modified machines, etc. The Department of Labour has initiated several of these measures. Nonetheless, such diseases are on the increase as discussed earlier.

The following steps are recommended:

- a) Since many of the workers exposed to the risk of occupational diseases are temporary or casual workers who are not recorded as permanent workers, it is difficult to establish the causal relationship between occupations and diseases. There is a need to conduct primary surveys to estimate the actual incidence of these diseases at the field level.
- b) It is necessary to force employers to adopt protective measures for workers exposed to occupational diseases. The labour department is frequently unable to enforce these rules as the affected workers are not permanent and, therefore, employers do not accept responsibility. It is necessary to bring these temporary/casual workers under the purview of the law.
- c) The state government has taken several steps in terms of organizing training pro-

grammes for safety officers, making it mandatory for a factory to appoint a safety officer, formulation of rules for occupational safety and health, and organizing supervision of such rules. Considering the size of the problem, there is a need to intensify these efforts.

ii) *Pollution Related Health Problems:* Pollution of air, water and land in select urban and industrial centres has affected the health status of people living in these areas. Several urban centres are highly polluted, Ahmedabad being the most polluted city of India. Also, there are several industrial centres and regions whose land and water have been affected adversely by indiscriminate discharges of pollutants. These have posed several health hazards. Since the issue of pollution control has already been discussed in an earlier section, elaboration is not required.

iii) *Urban Health Issues:* Urban health issues have emerged as an important area of concern. The following recommendations can be made for improving urban health:

- a) A special department to deal with urban health problems should be created within the health department.
  - b) Improvements in urban sanitation should be made. This is of particular importance in small and medium towns where sanitation facilities are very poor.
  - c) Special programmes for slum areas should be introduced and continued for a long period.
  - d) Health professionals should be trained to address public health issues.
- iv) *Diseases because of Shortage of Potable Drinking Water:* In spite of the efforts made by the state government, particularly in recent years, to carry water from the Narmada or other water sources to problem areas through long distance pipeline schemes, there are some regions and some sections of the population who suffer from shortage of po-

table water supply. This has resulted in incidence of water borne diseases like jaundice, fluorosis, typhoid, gastroenteritis, diarrhoea, and so on. Lack of enough water for cleaning and washing has also resulted in increased incidence of skin diseases in some regions.

The solution to this problem is obviously in ensuring potable water and adequate water supply for domestic use to all. But, this is not easy as: (i) local water sources have been depleted in large parts of the state (particularly in North Gujarat, Saurashtra and Kachchh) and (ii) local water resources are polluted in some cases. Though the state government has taken the responsibility of providing water to almost all people in the state, its strategy appears to be costly and non-sustainable.

Several NGOs in the state have successfully used local rain water harvesting structures to provide water for drinking. In spite of the fact that this movement is growing day by day, its impact at the macro level is still very limited (Jaldisha 2002). The state government can learn from this and introduce decentralized solutions to drinking water problems. There is a need to reorient the water supply strategy by (i) combining the local water harvesting approach with long distance pipe line schemes in such a way that the former is promoted in the long run, (ii) water charges are imposed in such a way that water supply sector becomes economically viable and (iii) the poor in rural and urban areas are assured that their water needs will be met. There is a need to modify the present strategy to make it work economically and be environmentally sustainable.

### Nutrition Related Issues

◆ **Food security and the PDS:** Food security is a necessary (but not sufficient) condition for ensuring nutritional levels of a population. Since Gujarat is a foodgrain deficit state, the public distribution system (PDS) is important for ensuring food security to people. According to official data, PDS cov-

erage is relatively better in Gujarat. There are about 14,263 PDS shops in the state (in 2001). The average annual allocation of foodgrains (rice + wheat) to Gujarat has been 9.82 lakh tones of which 6.70 lakh tones are lifted (about 68.21 per cent) from PDS (Iyengar 2003). No comprehensive survey has been done to assess the access of the poor to PDS foodgrains.

A few micro studies indicate that Gujarat has a higher proportion of population purchasing foodgrains from PDS compared to India (Jharwal 1999 as quoted in Iyengar 2003). This study also shows that the poor in Gujarat buy rice and wheat largely from PDS shops, but their share in total PDS purchase of rice and wheat is low. PDS is well utilized in Gujarat but more so by the non-poor.

Studies have shown that access of the poor to PDS goods is not without problems. The main problem is targeting. There is a need for geographic or regional targeting by adopting universal targeting in backward and poor regions. For other parts, there is a need to make the delivery mechanism participatory and efficient. This problem of governance will be discussed later.

The PDS approach for ensuring nutrition levels of population has two major limitations. (i) It excludes destitutes and other poor who lack purchasing power to buy even PDS goods. (ii) Access to PDS goods does not ensure desirable levels of nutrition and health of people. The problem of poor nutrition, therefore, needs to be addressed through other specific measures.

◆ **Malnutrition:** The incidence of malnutrition and under-nutrition is relatively high among the poor, particularly the tribal poor, women and children, who suffer from malnutrition related diseases. In spite of several special nutritional programmes designed for women, children, and the poor in the state, they have not been able to overcome mal/undernutrition.

*Several NGOs in the state have successfully used local rain water harvesting structures to provide water for drinking. The state government can learn from this and introduce decentralized solutions to drinking water problems*

*Nutrition levels are influenced by a set of factors that includes proper PDS, nutritional schemes, research and education, drought proofing and environmental regeneration, and social values and commitment*

One reason for malnutrition in the state is frequent droughts which result in food insecurity and low intake of green vegetables and fruits. Drought proofing and stabilization of agriculture is, therefore, very important.

Poor nutritional status of women compared to men is primarily because of the low status accorded to women in society. Though special nutritional programmes for girls, mothers, and women will help overcome malnutrition to an extent, changes in social values are vital. This requires not only awareness generation through training, media, and so on, but also economic empowerment of women by providing them asset ownership, employment and human capital. The state has made several efforts in this context, and these will be intensified.

Malnutrition of children is another major concern. Though schemes like ICDS, mid-day meal scheme, and so on have been designed for promoting nutrition of children, data indicate that the results are not satisfactory. Clearly, there is a need to take a careful look at these schemes.

Other areas that need support for promoting nutrition of people are: (i) R & D in nutrition, (ii) education and awareness generation programmes, and (iii) training and extension. Again, the ongoing efforts need to be scaled up.

Nutrition levels are influenced by a set of factors that includes proper PDS, nutritional schemes, research and education, drought proofing and environmental regeneration, and social values and commitment. There is a need to design a comprehensive approach, which will cover all these factors backed by funds and institutions.

### **Mainstreaming Gender: Towards Gender Equity in Gujarat**

The statistics, indicators and different gender and human development indices pre-

sented in this report indicate gender inequality in almost all spheres of the economy: asset ownership, employment and labour, credit and finances, literacy and education, health and nutrition, demography including the sex ratio, and general well-being. There is enough evidence to indicate that in some sectors there is deceleration, stagnation and even setbacks (for example, the sex ratio). Though achievements have been reported in some sectors (literacy and education, skill training, employment etc.), these are not adequate to ensure gender equity.

The government has made efforts to promote gender equality in the state through setting up institutions like the Department of Women and Child Development, legal counselling centres, state commission on women, gender resource centres, gender data bank, etc. and by undertaking many programmes and schemes like Swa-shakti, Mahila Samakhya, sanitation programmes, Vidyalakshmi Scheme, Balika Sammrudhi Yojna, Kishori Shakti Yojana, and employment programmes for women. Some of these schemes and programmes have helped women, but the fact remains that there are certain areas where women are left behind and gender equality is still a distant dream.

This raises a question: Should the efforts made so far be intensified or is an entirely modified strategy required for achieving gender equality? Both are needed. The present approach needs to be modified to focus better on women's empowerment and gender equity.

### **Mainstreaming Gender in Economy/Society**

It is now well accepted that gender equality essentially means equal access of both genders to developmental opportunities, i.e. equal access to acquiring human capabilities and enjoying the freedom of choosing the life they value. It also means that both men and women have equitable access to, and

benefit from, society's resources, opportunities and rewards, and equal participation in influencing what is valued and in shaping directions and decisions (Hirway 2003).

This implies that there should be a Department for Gender Equity and not a Department of Women and Child Development. Clubbing of women and children implies that women's empowerment goes with the development of children and that women are not independent entities in society. It also means that the responsibility of children rests with women alone and men do not share as much responsibility for raising children. Gender inequity has roots in this social division of labour where women are assigned the responsibility of children and associated domestic responsibilities – work for which they are not paid. Men are only concerned with other responsibilities mainly economic work. The Department of Women and Child emerges from the 'welfare approach' in women's development where women's welfare is for the purpose of welfare of children and not from the perspective of gender equity. To change the thrust to gender equity, it is necessary to replace the Department of Women and Child Development with a Department for Gender Equity.

The task of this new department would be to ensure that gender issues are included and mainstreamed in each of the departments of the government. This new department should act as the watchdog of the development process in the state and of all the activities of other departments to assist them to mainstream gender in all governmental programmes. The role of the Gender Equity Department should be to study specific gender issues and see that these issues are mainstreamed and gender dimensions are internalized. If all women's issues are isolated in the women's department, women will always remain on the periphery.

It is time that different departments in the government pay attention to women related

issues. These issues are usually treated as an appendix to the main development policy. It is necessary that gender issues are mainstreamed in the macro strategies and micro interventions of different departments. This is not semantics, but is a basic requirement for gender equity. As HDR 1995 has stated, development that is not engendered, it is endangered (UNDP 1995).

Two suggestions are very relevant: promoting gender sensitive administration and strict commitment to the Convention on Elimination of all forms of Discrimination against Women (CEDAW). In the socio-cultural milieu of Gujarat, patriarchal values are predominant even among policy makers and administration. Rising communalism and religious fundamentalism are adversely affecting women's interests. There is an urgent need to make sincere efforts to make them gender sensitive, through training, seminars, and other measures. As far as CEDAW is concerned, the country is committed to its implementation. There is a need to take this commitment very sincerely.

### **Economic Empowerment of Women**

Economic empowerment of women requires the following:

- i) Increase in asset ownership by women. Household assets, productive and non-productive, should be owned by men and women (husband and wife) of the family. This will give women power to make economic decisions in the family. It will also improve access of women to credit and other developmental opportunities and upgrade their status.
- ii) Women's integration into the labour market requires that women's status, which is subordinate, improve in the market. This calls for improved access to (a) skill training and human capital formation, (b) credit, market, power, and all infrastructural facilities, (c) improved opportunities for employment,

*To change the thrust to gender equity, it is necessary to replace the Department of Women and Child Development with a Department for Gender Equity*

*Promoting gender sensitive administration and strict commitment to the Convention on Elimination of all forms of Discrimination against Women (CEDAW) are necessary*

*There is also a need to protect economic activities performed by women from being taken over by large businesses due to the forces of globalization*

(d) social protection and (e) services for child care. Several programmes and schemes pertaining to these areas have been implemented by the government. These efforts should be intensified keeping in mind the final goal of integrating women into the economy.

iii) Recently conducted time use surveys in the state show that women carry a huge burden of unpaid domestic work when they enter the labour market. This increases the total burden of work on women and puts them in a disadvantageous position. Women are, therefore, less likely to enjoy equal opportunities with men in the labour market. Unless this unpaid work is reduced (by technology), shared (by men), and/or taken away by the government (for example, child care), women are not likely to enjoy equal status with men in the labour market. This is a new dimension in policymaking and deserves careful attention. Policies have to be introduced in these areas, with specific action programmes.

iv) Globalization has brought in several challenges/opportunities as well as threats to women workers. Women will be able to access the new opportunities only if they are well equipped in terms of human capital including new skills and technology. Women also need to be protected against poor quality of work (i.e. long working hours, low wages, no/low social protection), uncertainty and flexibility of work and loss of employment and livelihood.

v) Women in Gujarat, as in India, predominate in the informal and unorganized sectors. Making units in these sectors viable and competitive is a major challenge. This not only requires infrastructure support such as credit, marketing, and so on, but also scaling up of production activities by formation of larger federations of women's self-help groups. In the current economic environment, only large units may remain viable and be able to take advantage of the scale of production skills, technology, productivity, and professional management.

vi) While these changes take place in a planned way, there is need to protect the economic activities performed by women from being taken over by large businesses due to the forces of globalization.

## **Health and Educational Status**

Women lag far behind men in health and educational sectors. In order to bring about gender equality in these sectors, additional initiatives are recommended:

For education and literacy, the recommendations are:

i) Provision of separate toilets for girls and recruitment of women teachers as far as possible.

ii) Reducing the norm of number of villages per secondary school to improve access of girls to secondary schools.

iii) Child care/baby care facilities – partly paid – to all women workers.

iv) Free books, uniform, footwear, etc. to girls, as families are not willing to spend on girls' education.

v) Societal movements for promoting girls' enrolment and education (like Kanya Kelavani Rath in Gujarat) on a continuous basis.

vi) Extra support for girls to cope with studies in school. Remedial and bridge courses will be useful.

vii) Special efforts to promote girls' education along non-traditional lines (technical schools, ITIs, polytechnics).

viii) A gender sensitive education system encompassing curriculum, pedagogy, training, teaching-learning transaction, and textbooks.

ix) Programmes for girls'/women's physical education and sports, and encouraging women to participate in such programmes.

For health and nutrition, the recommendations are:

i) Changing norms for setting up PHC/sub-PHC/CHC and mobile hospitals to meet women's specific health needs. These

should function 24 hours/day. Efforts must be made to staff these facilities with women.

ii) To reduce women's mortality, social audit must be introduced.

iii) Minimum age at marriage and first pregnancy should be enforced through social and legal means.

iv) Involving women in village, taluka and district level committees to incorporate their perspectives in health/nutrition. Programmes for their capacity building to be introduced.

v) Developing monitoring framework and indicators for qualitative and quantitative aspects of nutrition. Besides, anaemia should be addressed on a priority basis, with a more aggressive strategy than what is pursued now.

vi) Programme documentation, monitoring systems and annual reviews to give attention to urban malnutrition, including nutritional vulnerability of female-headed households, and spread of infections in slums.

vii) Availability in health centres of supplementary diet appropriate for older women. Option of special access to PDS may be considered

viii) Special focus on education and awareness generation in the field of health and nutrition.

ix) Focus on reducing women's drudgery in collection of fuelwood, fodder and water through appropriate policy/programme interventions.

## Declining Sex Ratio

The low and declining sex ratio, particularly the juvenile sex ratio, is one of the a major concerns. Recommendations for addressing this problem are:

i) Improve civil registration system.

ii) Gender sensitization of data collecting machinery.

iii) Generating social awareness of the PNMT Act through government and non-government agencies, private sector, mass

media and citizens' groups in local languages/dialects.

iv) Dissemination of information through sensitive the visual media on the plight of the girl child, female foeticide, and female infanticide.

v) Creating awareness among doctors of the seriousness of female foeticide and consequent demographic problems through articles in journals of IMA and other professional associations.

## Gender Budgeting

Gender budgeting has emerged as a major tool for assessing commitment of the government to gender equity. As seen earlier, an exercise in gender budgeting has already been conducted in the state. There is a need to (i) generate the required data to facilitate this exercise and (ii) to use the analysis in policy formulation. Required data can be generated through regular evaluations and assessments of various programmes from the gender perspective.

## Gender Statistics

Several gaps are present in the statistics on gender (on men and women). These are a major obstacle in understanding and analysing gender issues in different sectors and regions. It will be useful if these gaps are filled by the Directorate of Economics and Statistics, Department of Gender Equity (proposed), or Department of Women and Child Development (existing).

◆ Gender break-up for all major data required for understanding human development is a major requirement. Data on morbidity, causes of death, etc. SHGs, cooperatives, trade unions etc, bank and non-bank finances, and budget and expenditure for several sections and programmes (for gender budgeting), with gender break-up should be available.

◆ Women's economic work and non-economic work is not adequately recorded in

*The low and declining sex ratio, particularly the juvenile sex ratio, is a major concern*

*There is a need to continue with gender budget analysis*

*There is a need for gender break-up of all major data*

official statistics. Time use surveys, at least in a selected way, should be used to collect these data. Such data could be made available at regular intervals.

### Gender Equity Policy

The Department of Women and Child Development of the government of Gujarat has framed a state gender policy, which is currently in draft form. This policy should be given final shape and implemented soon. A large number of action programmes have been suggested in this policy, which, if implemented, would assist in moving towards gender equality in the state. Even then, there is a necessity to change the name of the department to the Department of Gender Equity.

### Need to Focus on Specific Regions and Socio-economic Groups

One of the major observations emerging from the discussion on human development in Gujarat is that some regions and some socio-economic groups lag behind badly. There is a need to pay special attention to these.

### The Tribal Belt and the Scheduled Tribes

The eastern tribal belt is the one most lagging behind and the tribal population is at the bottom in most measures of human development. This region and people therefore need much more attention. The following suggestions are made in this context:

◆ **Understanding the tribal problem and evolving an effective approach:** The tribal problem is not merely a problem of an environmentally degraded region or of people lagging behind in health, education, and other dimensions of development. It is a deeper problem of tribals' relationship with their natural resources, particularly forest resources, and the problem of integration of tribals into

the mainstream economy and society. As in other regions, livelihood of tribals is associated with natural resources, particularly forest resources. Depletion and degradation of forests over the past decades have affected the livelihood and quality of life of tribals adversely. It has also created a crisis of water supply. Tribals have therefore started migrating to distant places, which is a cause of their misery, poor education and poor health status. Any approach in tribal development, therefore, has to focus on environmental regeneration of tribal areas and on integrating tribal development with this regeneration as well as ownership of forests by tribals.

Watershed development and efficient management of water resources as well as forest development have to be important components of any tribal development strategy. Forest development here means not only afforestation but also using NTFPs for promoting a variety of processing industries. Land and water management will promote agriculture and horticulture, which, in turn, will help processing industries. This approach is likely to improve the environment in tribal areas and help tribals access benefits of modern development. It will also reduce distress migration, which at present obstructs their human development. The present approach, though including some of the components of this proposed strategy, does not focus on the overall strategy, resulting in continued large scale migration of tribals and environmental degradation.

Even forest protection will not be possible without the support and participation of tribals. Joint forest management (JFM) has been designed keeping this perspective in view. Nonetheless, there is still an attitude that considers tribals as enemies of forests and attempts to protect forests from tribals. There is a need to reshape this approach for promoting tribal development. There is also a need to evolve clear policies regarding use rights of forest resources after their regeneration.

*Watershed development and efficient management of water resources as well as forest development have to be important components of any tribal development strategy*

◆ **Increasing allocation of funds for tribal development:** Patheya, a project of DISHA, a prominent voluntary organization, analyses the state's budget from the perspective of tribals (Box 9.3). This project has made some impact on the allocation of resources to tribal development; the allocation has increased from 1.20 per cent in 1992-93 to 3.21 per cent in 2003-2004 (budgeted). Some of the major observations of Patheya are as follows<sup>1</sup>

i) The percentage share of expenditure on tribal development in total state expenditure was 4.35 in 1999-00, 3.43 in 2000-01, and 1.23 in 2001-02. The budgeted share for 2003-2004 is 3.21 per cent. It needs to be noted that tribals comprise 15% of the state's population (2001).

ii) Expenditure on general education for tribals has increased by only 3.54 per cent, from Rs. 82.44 crore in 1999-00 to Rs. 86.47 crore in 2002-2003 (revised estimates). In the case of primary education, there has been a decline (under the tribal sub-plan) from Rs. 61.51 crore in 1999-00 to Rs. 57.23 crore in 2002-2003. How can such small amounts of funds be adequate to take care of the lacunae in school infrastructure, teachers, and other facilities to children?

iii) There has been a decline in the expenditure on incentive schemes for primary education in recent years. For example, the expenditure on free textbooks to tribal students is expected to decline from Rs. 11.21 crore in 2001-01 to Rs. 6.06 crore in 2003-04 (expected). It is expected that against the provision of Rs. 32 lakh for scholarships for the students only Rs. 10 lakh would be spent for the year 2003-04.

iv) As regards health services, Patheya has shown that out of a total of 64 CHCs only 53 were operating in 2000. Also, of a total 319 PHCs, only 246 were working. As against the expenditure of Rs. 33.07 crore on health services in 2000-01, only Rs. 32.38 crore has been allotted in the budget for 2003-04.

Tribal areas are receiving much less funds for health and education than the norm. Instead of increasing the quantum, the government is reducing it in some cases and increasing it marginally in others. An important requirement therefore is to raise the expenditure on health and education in tribal areas. Without increased expenditure, there cannot be human development among tribals.

◆ **Employment guarantee scheme for tribal talukas:** Considering the fact that temporary/casual outmigration of tribals is a major obstacle in the human development of the tribal population and that environmental degradation as well as lack of adequate employment is a major cause, it is desirable that massive wage employment programmes are undertaken in these regions along with employment guarantee. The guarantee component of the wage employment programme will ensure that (i) massive works are taken up for environmental regeneration and infrastructural development, (ii) tribals will reduce out migration as they will be guaranteed work and (iii) tribals will get power to improve their bargaining status in the economy. It goes without saying that such a scheme will have to be designed carefully.

◆ **Specific issues in tribal health and education:** Tribal areas have several specific problems and constraints with regard to health and education. The following need adequate attention:

i) Tribal settlements are scattered and one village may have up to 11-12 'falias'. The state government has adopted different norms for health and educational infrastructure for these areas. Experience indicates that even these norms are not adequate. It is necessary that physical access to these facilities is improved by (i) setting up new norms for the services, (ii) organizing mobile services (i.e. mobile health van etc., and (iii) setting up more *asbaramshalas* or residential schools and providing financial support to them.

*Tribal areas are receiving much less funds for health and education than the norm. Without increased expenditure, there cannot be human development among tribals*



### Budget and marginalized: a case study of Patheya

Patheya (food for journey) was set up by DISHA to analyse the information generated by the state government; collect and disseminate it to the people and to organizations working with the marginalized, and many others; address issues of public interest; run training programmes and publish relevant materials which can be used by the people taking up public causes (Mistry 1994:1). The main reason for the emergence of this work was the felt need to sharpen the thinking on issues to be highlighted and information to be disseminated. The overall aim was to strengthen the grassroots mobilization work carried out by DISHA's various unions and groups and to complement the macro level interventions made by the organization.

DISHA worked with the belief that real development of people cannot come about until there is change in the power relationships in society. It defines development as that which changes the power relationships in a society in favour of the poor (Bhatt 1995:10). It realized that budget analysis would help in the process of bringing about policy changes that would alter the power relations in their favour. It would help the poor gain access to the power of public ideas that influence allocations of public resources intended for development. The benefit derived from the budget analysis can be seen in the strengthened claims of the poor in the state's resources and enhanced understanding of the working of the state machinery. And this holds the key to any re-fabrication of the state.

DISHA's was the first attempt by a people's organization to understand the budget and analyse the hitherto forbidden documents and disseminate the information in a manner that it will have some impact on the various people approached. It is expected to be used as a tool of lobbying with the legislators, in much the same way that the rich and the powerful lobby before a budget to negotiate/bargain concessions and relief and other opportunities for their sectors.

An exercise like budget analysis can have an impact that will be far ranging and may or may

not be tangible, and also may not be intentional. It need not always be calculable. It could flow from invisible processes like the administration becoming sympathetic to the causes of the poor as represented by DISHA, becoming helpful to the organization in the resolution of other problems which may not necessarily be backed by budgetary information/analysis. It could also just be increased levels of confidence amongst the workers.

The greatest impact of the budget analysis work done by Patheya was to bring visibility to the organization and the issues addressed by it. Thus, the issues of the tribal poor gained more visibility. It also helped create a different image of DISHA for the outsiders. Whereas earlier the organization was looked upon as aggressive and constantly confrontational, it is now looked at with new respect by authorities, media, and others.

Another significant contribution of budget analysis has been towards demystifying the entire process and content of budget preparation, traditionally held to be the prerogative of a few technocrats. The illusion of abstractness surrounding the budget was unfolded by DISHA, thereby allowing people to contest facts and policies. An increased understanding of the budgetary processes has made people to feel that budget is something that they should have a say in. This has initiated a process of 'reclaiming' the budgets from the hands of the elite policy makers.

The exercise in budget analysis has also helped in monitoring both policy formation processes and policy implementation. The analysis by Patheya showed that the public funds were being systematically allocated to richer regions of the state with utter disregard for developing the backward regions. At the implementation level, its workers spread all over the rural areas to monitor the development works, welfare schemes, drought relief payment, payment of collection rates for the *tendu* leaf pluckers, and so on. It can be said therefore that this work has helped the micro level initiatives result in macro level impact.

Patheya's work has impacted the sectoral allocations in the state: forestry, education, health, agriculture labour, roads and water, etc. It has improved budgetary planning by bridging the gap between budgeting and sectoral planning, and creating a closer link between party and government policy objectives and budgetary allocations in at least these priority sectors. These sectors receive preference in fund releases and are thus often protected from negative shocks. Tribal areas have relatively easier flow of funds and the process is more closely watched by the administration as well as political parties.

DISHA's experience shows that the budget analysis has an immediate and measurable impact on the lives of the poor people; starts changing the power relations between the different sections of society and sectors of economy, and concretely creates a long-term vision for a pro-poor society. Analysis of the allocation and utilization of the state's financial resources, carried out through Patheya, has resulted in several positive outcomes. After this exercise, all the other activities of the organization are informed by the new understanding gained by budget analyses. For instance, the Bandhkaam Mazdoor Sangathan supported by DISHA held a meeting to devise a strategy for pressurizing the state government to provide for residence facility/shelter for the construction workers who came from the rural areas to work in Ahmedabad. During the meeting, references were made to the allocations in the state budgets in the previous years for this construction of shelter for this labour, which remained unutilized and unaccounted for. Backed by such information the community felt indignant at the injustices they suffered and gained confidence to confront the perpetrating forces.

The process of budget analysis has thus facilitated the process of widening vision within the NGO, and also strengthened its advocacy work. It has enabled DISHA to strengthen its negotiations in the interest of the poor, as well as for the development of the tribal region.

Source: Pathey, Disha, Ahmedabad.

- ii) In order to provide these services to those who migrate seasonally, special arrangements need to be made for educating migrant children.
- iii) Migrant workers should also be ensured minimum wages and facilities (dwelling, drinking water, sanitation) in the place of their destination. This is a relatively neglected area.

◆ **Commitment to tribal development:**

Tribals constitute 15 per cent of the population in the state. The tribal region rarely gets any attention in the ‘visions’ or ‘growth regions’ of the state and hence does not get funds commensurate with the tribal population. This region also has potential for economic growth resulting in human development in much the same way as other parts of the state. Commitment to the development of the tribal region and population is extremely important for the sustainable and healthy development of the state as well.

**The environmentally degraded regions: North Gujarat and Kachchh**

The environmentally degraded regions of the north (the dry region of the NSS) lag behind in human development. Though other degraded areas like Saurashtra have problems, this region suffers mainly because of high environmental degradation, poor infrastructure, and low employment opportunities for human development. Specific suggestions for this region are as follows:

- ◆ Environmental protection and minimum drought proofing (ensuring water supply, fuel and fodder) need to be given high priority.
- ◆ Rapid growth of employment avenues in the farm and non-farm sectors is another major need. Many NGOs are involved in promoting women’s employment in this region. These efforts have to be scaled up. It will help if the economy diversifies into other sectors to provide employment to local people.
- ◆ An employment guarantee programme in selected talukas will help significantly.

**Small and Medium Urban Centers**

Another region with specific problems of human development are small and medium towns, where high income poverty, high human poverty, marginal and informal em-

ployment, and low human development can be seen. There are two reasons for this: (i) lack of link of urban centres with the rural economy and (ii) lack of other economic opportunities. This results in low income base and low per capita expenditure levels (Mahadevia and Mukherjee 2003). The following recommendations would assist in achieving human development in these urban centres:

- ◆ Adequate expenditure allocations to the small and medium towns for water supply and sanitation, housing, primary health care, and elementary education.
- ◆ Employment guarantee schemes for the poor and marginalized.
- ◆ Development of economic infrastructure to link these towns with the regional economies to expand their economic base.

**Other Social Groups at the Bottom**

Social groups at the bottom (i.e. people belonging to the scheduled castes and other backward castes) are usually from the poorest groups and they suffer from caste discrimination in different ways. Though the Constitution has given them equal status with others, they are subjected to direct and indirect, explicit and subtle, discrimination, sometimes resulting in violence and sometimes resulting in insults and injuries. The participatory poverty assessment (2002) has shown that these groups enjoy poor access to educational and health facilities and developmental opportunities. Special efforts must be made to reach out employment opportunities, education and health facilities, and gender equity measures to this population.

**Overhauling of Governance**

“Governance for human development relates to the management of all such processes that, in any society, define the environment which permits and enables individuals to raise their capability levels, on one

*Rapid growth of employment avenues in the farm and non-farm sectors is another major need. Many NGOs are involved in promoting women’s employment in this region*

### Conceptualizing Governance

**UNDP:** Governance is viewed as the exercise of political, economic and administrative authority in the management of a country's affairs at all levels. It comprises mechanisms, processes and institutions through which citizens and groups articulate their interests, exercise their legal rights, meet their obligations and mediate their difference.

**Commission on Global Governance:** Governance is the sum of the many ways individuals and institutions, public and private, manage their common affairs. It is a continuing process through which conflicting or diverse interests may be

accommodated and cooperative action may be taken. It includes formal institutions and regimes empowered to enforce compliance, as well as informal arrangements that people and institutions either have agreed to or perceive to be in their interest.

**Mahbub ul Haq Human Development Centre:** Governance must enable the state, civil society and the private sector to help build capacities, which will meet the basic needs of all people, particularly women, children, and the poor. It requires effective participation of people in state, civil society and private sector activities that are conducive to human development.

Source: Planning Commission (2002:115).

hand, and provide opportunities to realize their potential and enlarge the set of available choices, on the other.” (Planning Commission 2002:114). These processes cover the political, social and economic aspects of life at individual, household, community, settlement, regional and national level (Box 9.4). It covers the state, civil society, and the market, each of which has a critical role in sustainable human development (Planning Commission 2002). Experiences from many countries show that, while good governance can help secure human well-being and sustained development, poor governance can erode the individual capabilities for meeting basic needs and sustenance. Governance has three aspects; economic governance, political governance, and civic governance.

### Good governance – for what?

From the human development perspective, good governance is democratic governance. Democratic governance means that:

- ◆ People's human rights and fundamental freedoms are respected, allowing them to live with dignity.
- ◆ People have a say in decisions that affect their lives.
- ◆ People can hold decision-makers accountable.
- ◆ Inclusive and fair rules, institutions and practices govern social interactions.
- ◆ Women are equal partners with men in

private and public spheres of life and decision-making.

- ◆ People are free from discrimination based on race, ethnicity, class, gender or any other attribute.
- ◆ The needs of future generations are reflected in current policies.
- ◆ Economic and social policies are responsive to people's needs and aspirations.
- ◆ Economic and social policies aim at eradicating poverty and expanding the choices that all people have in their lives.

Source: UNDP (2002:51, Box. 2.1)

Making administration accountable to people is one aspect of good governance (Box 9.5). This is a critical requirement for ensuring that social services and employment programmes are made accessible to people and particularly to women and specific under-developed regions and marginalized groups. This has two major dimensions: improving accountability of administration through administrative steps and empowering the poor to make administration accountable to their needs. The former refers to administrative reforms while the latter refers to promotion of people's organizations and their powers.

Many recommendations have been made on administrative reforms by several commissions, committees, taskforces, study groups, and so on. Some of the suggestions made in this regard are with respect to inculcating professionalism in the administration, developing efficiency and performance indicators, policies for personnel management in government, and so on. For this, political will is required.

Another aspect for improving accountability of the administration is with respect to empowerment of people through decentralization, transparency, right to information, and deepening of democracy in society to influence day to day decision making (Box 9.6). The following can be recommended in this context:

- ◆ Involvement of people's organizations and their representatives in management and monitoring of social services at village, taluka, and district levels.

- ◆ Reorganizing the role of people's organizations in administration at state level and at lower levels. Involving them in policy formulation and programme designing.

Besides improvement in administration, good governance requires continuous efforts with regard to three aspects (Planning Commission 2002):

(i) *Institutions* – adopted or created arrangements, both formal and informal, to bring

about predictability, stability, and efficiency in managing the social, economic, or political transactions in any society.

(ii) *Delivery mechanism* – including the executive apparatus adopted or evolved by the institutions for implementing the stated objectives of these institutions.

(iii) *Supportive and subordinate framework of rules, procedures and legislation* – formulated for delivering and meeting the stated responsibilities of the concerned institutions.

## Improving Statistics for Measuring and Monitoring Human Development

### Improving Data Systems

We have frequently stated that the state does not have the required data for measuring and monitoring human development at the district level. This report was therefore forced to use second best data or exclude some of the relevant indicators from the analysis for want of required data. The major characteristics of required data are: (a) availability at regular intervals, (b) reasonable level of reliability, (c) gender desegregation, (d) availability at the district level, and (e) availability in the required format.

It is not necessary to start from the scratch to get the required data set. Small steps such as additional analysis of available data, timely analysis of already collected data, expansion of the sample size of ongoing surveys, better supervision for ensuring accuracy, etc. can help considerably for computing human development indices.

It is not possible to improve all the required data simultaneously as the process is expensive and time consuming. Prioritization is required so that data for the critical indicators, also called the core indicators, are made available in the short run. These are listed in Chart 1 and Chart 2 for HDM/GDM-1

and HDM/GDM-2 respectively. It is suggested that these core indicators are given a higher priority. The core indicators may not be the ideal variables, but they are fairly satisfactory and can be made available in the short-run for fairly satisfactory measurement and monitoring of human development. Development of systems to collect data for the ideal variables in the long-run can subsequently be thought of.

It is not very difficult to make the needed data on the core indicators available in the short-run. Small efforts can generate most of the data within a very short span of time. These are:

- i) Adding gender break-up in existing data
- ii) Adding suitable formats for data collection

#### BOX 9.6

#### On democracy

“For politics and political institutions to promote human development and safeguard the freedom and dignity of all people, democracy must widen and deepen.”

(UNDP 2002:1)

“When institutions function badly, poor and vulnerable people tend to suffer most. But just as human development requires much more than raising incomes, governance for human development requires much more than having effective public institutions. Good governance also requires fostering fair, accountable institutions that protect human rights and basic freedoms. It is not only about whether judges are trained, but whether they observe due process and are blind to differences of race and class.

“..... the links between political institutions and economic and social outcomes are not fully understood. This Report (2002) explores those links from the standpoint of advancing human development. It argues that countries can promote human development for all only when they have governance systems that are fully accountable to all people – and when all people can participate in the debates and decisions that shape their lives.”

(UNDP 2002:2-3)

Democratic governance is valuable in its own right. But it can also advance human

development, for three reasons. First, enjoying political freedom and participating in the decisions that shape one’s life are fundamental human rights: they are part of human development in their own right. Second, democracy helps protect people from economic and political catastrophes such as famines and descent into chaos. Third, democratic governance can trigger a virtuous cycle of development – as political freedom empowers people to press for policies that expand social and economic opportunities, and as open debates help communities shape their priorities.

(UNDP 2002:3)

“Authoritarian leaders promise better outcomes and argue that democracy must be sacrificed for economic growth and social progress. But, there is no evidence of such trade-off.”

(UNDP 2002:4)

“Democratic political participation requires more than elections for governments – truly democratic politics requires civil and political rights to provide the space for effective participation”.

(UNDP 2002:16)

“It would be a mistake to equate democracy with regular elections and to fall into the fallacy of “electoralism”.

(UNDP 2002:54)

- iii) Processing the 2001 census data immediately
- iv) Reprocessing raw data
- v) Increasing the sample size for data collection
- vi) Improving the quality of data through better search
- vii) Analysing data at district level
- viii) Improving the quality of data through better supervision and better data collection

### For Individual Variables

In all, there are 33 core variables for HDM/GDM-1. Chart-1 shows that of these, data for four variables are easily available from the census reports. Data for thirteen more variables can be easily made available if better search for data is made in the (a) education department, (b) reports of the Election Commission, and (c) police department records. Data or reports are not easily available because they are not available at one point (such as the Bureau of Economics and Statistics of the state government) but are scattered in several departments. Before the data are made available, several formalities have to be completed.

*Adding gender break-up* of some already collected data will make data on four more core variables available on gender development. Data related to membership and office bearers of trade unions and co-operatives, and the data regarding co-operative and bank credit do not provide break-ups for men and women.

If *suitable formats are added* while compiling data, more variables and data (for example, agricultural wages) can be generated at district level. At present the agricultural wage data in Gujarat (and in many other states) give information on operation-wise wage rate for men and women, but not on the general agricultural wage rate. By adding

*suitable formats* the average agricultural wage data can be made available for men and women separately.

*Timely processing of the census data* will give data on another four core variables soon after the census, viz. incidence of child labour, infant mortality rate, percentage households living in *katcha* houses and percentage households without the three basic facilities at household level namely, electricity, water connection and sanitation.

Two more core variables on anthropometric measures can be made available by *processing the raw data* collected through the ICDS programme. ICDS office collects this data on a regular basis, which implies that we can have time series data on anthropometric measures.

*Increasing the sample size* of the NSS and the SRS surveys (in fact, the sample sizes of both are already increased in many states) and processing of the data of the large sized samples (in the case of NSS it will mean combining the central and state samples) will produce useful data for the districts as the size of the district sample will be statistically big enough to represent the district situation. District data made available through these national surveys will include average consumption expenditure, incidence of poverty, incidence of unemployment, IMR, MMR, fertility rates, life expectancy at birth, etc.

Data on incidence of unnatural deaths or incidence of rapes and molestation of women can be made available if the quality of existing data is improved by *better search for relevant data*.

*Improving the reliability of data* on incidence of various diseases or incidence of crimes of different kinds is a time consuming task. It requires better coverage, supervision, as well as commitment of concerned departments, besides overall public awareness about the issue.

Chart 1

## Core variables for HDM/GDM - 1

Data Status	Control over resources	Knowledge: Educational attainment	Health and nutrition	Housing	Participation and human rights
I. Data available		1. Literacy rates: male & female 2. Enrollment rate (age 6-11): male & female 3. Drop-out rates after Std. V: male & female 4. Average years of schooling		1. % houseless & living in <i>katcha</i> houses 2. No. of persons per room	1. WFPR of women as main workers 2. WFPR of men as marginal workers 3. % non-farm employment, male & female 4. % voting in state assembly elections, male & female 5. % voting in panchayat elections, male & female 6. % contesting in state assembly elections, male & female 7. % contesting for panchayat elections, male & female 8. % elected to state assembly, male & female
II. Data can be made available by better search/processing the existing data					9. Incidence of unnatural deaths 10. Incidence of rapes & molestation
III. Data can be made available if gender break-up is added			1. Disability rates, male & female 2. Incidence of morbidity, male & female		11. % members in trade unions, male & female 12. % women as office bearers in trade unions 13. % members in co-operatives, male & female 14. % women as office bearers in co-operatives 15. Per capita bank credit, male & female
IV. Data can be made available if suitable formats are added	1. Agricultural wage rates, male & female				
V. Data can be made available if 1991 census data are processed					
VI. Data can be made available if the available raw data are reprocessed			3. Anthropometric measures (ICDS), male & female	3. % houses with three basic facilities	16. % members of SHG, males & females
VII. Data can be made available if sample size is expanded	2. Incidence of poverty 3. Per capita consumption expenditure, male & female				

## Core variables for HDM/GDM - 2

Data Status	Basic Services	Environment & Ecology	Social Environment	Equity and Structure
I. Data Available	1. % villages with primary school 2. % villages with any government medical facility 3. % villages with all weather approach road 4. % villages with a fair price shop 5. % no source villages 6. % villages with electricity 7. Doctors per lakh population	1. % area under desert development programme & drought-prone area programme	1. Incidence of atrocities on women 2. Incidence of atrocities on SC/ST	
II. Data can be made available if raw data is reprocessed		2. % forest area degraded		1. Inequalities in land distribution 2. Land owned by men & women 3. Intra-family disparity in consumption expenditure between men & women
III. Data can be made available if reporting is improved			3. Persons killed & injured per lakh population due to communal riots 4. Property damaged per lakh population due to communal riots	
IV. Data can be made available by processing 1991 census data				4. Average age at marriage
V. Data is analysed at district level		3. Incidence of air & water pollution		

**For Macro/Structural Variables**

Thirteen core variables are needed to compute HDM/GDM-2. Of these, data on nine variables are already available. Data for four variables can be made available if the *existing data are reprocessed*. For example, the police department collects data on communal or ethnic riots. But a lot of the relevant data are not processed and presented. Data on deaths in riots or loss of property can easily be processed for the purpose of measuring human/gender development.

Useful data on land are collected every five years through the agricultural census. The authorities do not process data on land owned

by women or land operated by women. These data can be made available without much problem by reprocessing existing data. In same way, data on bank credit can be easily processed to separate bank credit received by men and women.

Environmental pollution data are collected at various points in a district. If *these data are analysed at district level* it is possible to have information at the district level.

Data on all core indicators for measuring human/gender development at the individual and macro levels can be made available through small efforts. There is no real need to embark on any data collection exer-

cise afresh. At the same time, there is also concern about the improvement in the quality of data, and that processed data are made available to users.

### **Data on Intra-Family Variables**

Information on the status of women within the household is crucial from the point of view of measuring gender equity and choices available to women in relation to choices available to men. Very limited data are available on intra-family situation that would also reflect the extent of patriarchy in the family structure. Some of the crucial variables on are listed below:

- i) Single women households below the poverty line
- ii) Female headed households where females are main earners
- iii) Ownership of assets including land, house and others by men and women
- iv) Percentage share of consumption expenditure of women on different items
- v) Age at marriage
- v) Paid and unpaid work of women and men, and their work participation rates.

None of these data are readily available except data on age at marriage. Processing of some of the raw data may give some additional variables. There is a need to keep these variables in mind for the purpose of long-term improvement in gender data. Time use surveys can be very useful in this context.

### **Long-term Strategy for Improving District Level Database**

The above discussion has shown that certain short-run measures can help in getting the needed core variables for measuring gender development. These core variables have been selected keeping in mind their short-term availability. There are other core variables, which are ideally suited to measure certain aspects of gender development and

therefore can replace the proxy variables of the present set of core variables: for example, gender break-up of consumption expenditure, gender-wise incidence of poverty, incidence of unemployment at the district level, intra-household distribution of food and consumption expenditure, etc. In addition, several periphery data also are needed to prepare comprehensive gender profiles at the district level.

In order to generate these data there is a need to formulate a long-term strategy that strengthens the data collection system at the state and district levels and ensures collection and compilation of all the relevant data in the needed form and periodicity. Such a task can be entrusted to an expert committee set up for the purpose.

### **Human Development Report: An Ongoing Effort**

The Gujarat Human Development Report needs to be implemented by the state government. The government may set up a small committee to translate the implications of the report into macro development policies for promoting human development in the state. This could be followed up departmental committees and actions, particularly for the departments of Education, Health, Women's Development, Tribal Development, Directorate of Economics and Statistics etc.

It will be useful to conduct primary studies to fill in the critical gaps in information and understanding of human development. Broadly, these areas are about specific groups like migrant workers, urban informal workers, salt-pan workers, destitutes and the disabled etc. Studies could also be conducted for problem regions/areas like small towns, remote and backward regions etc.

This first Human Development Report needs to be followed up by periodic human development reports, at intervals of

*In order to generate required data for human development, there is a need to formulate a long-term strategy that strengthens the data collection system at the state and district levels*



one or two years. Each of the reports can, along with the general report, focus on a specific issue relating to human development in the state. The value of the reports will be

increased if monitoring indicators, apart from human development indices, are evolved for monitoring the process of human development.

### Notes:

<sup>1</sup> As per the communication received from the Tribal Development Department of the Government of Gujarat (dated November 11, 2003), the figures are different. This communiqué gives the actual expenditure under the TSP as against the actual expenditure under the State Annual Plan (not the total expenditure) as 12.64 per cent in 1999-00, 14.04 per cent in 2000-01, 8.32 per cent in 2001-02 and 12.05 per cent in 2002-03. It states that the state government is sincerely striving to reach the target of 15 per cent.

With regard to education sector, the communiqué states that the utilisation of funds allocated for the tribal education has been quite good. On the whole, in 1997-98, 97.37 per cent of the allocated funds were utilised by the department. In 1998-99, figure was 97.88 per cent, in 1999-00, it was 98.10 per cent, and in 2000-01, it was 95.87 per cent. Only in 2001-02 and 2002-03, was the utilisation of allocated funds quite low, about 71 per cent only.



# Technical Notes



## Technical Notes

### Goal-posts for Indices

Fixing the goal-posts for constructing indices at the national and regional levels is an important exercise. Goal-posts have to be such that they can remain relevant over time and for all the regions of the country. Hence, we have decided to adopt normative goal-posts. Norms can be the national targets or average achievement of a group of countries at the international level.

For constructing HDM-1 and GDM-1, the goal-posts selected fall into one of four categories. Maximum goal-post values are either (a) national average, or (b) achievement of a group of countries or (c) maximum or minimum values in the series or (d) desirable goals. Similarly, minimum goal-post values are either (a) status at the time of national independence or (b) lowest achievement of a group of countries or (c) minimum in the series. For indicators that do not have any norms, the goal-posts are maximum and minimum in the series. Generally, average achievements of the developing countries with high human development are selected as the maximum goal-post and the average achievements of the developing countries with low human development are selected as the minimum goal-post. The values are rounded off to the nearest multiple of five.

### Command Over Resources

Three different indicators are used for HDM-1/GDM-1 at state level and district level. Hence, for each of these, the goal-posts are separate. The three indicators and their goal-posts are:

*(i) HDM-1/GDM-1 at state level:* The indicator used is per capita income. The maximum goal-post is the income of the lower middle income countries, given as US\$ 1,590 in 1991 (Rs. 38,907) and the minimum goal-

post is US\$ 50 (Rs. 1,224). In 2001, the goal-posts remain the same in US\$ terms but change in Rupee terms because of the change in Rupee-dollar exchange rate. In Rupees, the goal-posts are Rs. 72,520 and Rs. 2,281.

*(ii) HDM-1 at district level:* Since district incomes are not available, the indicator used is per capita bank deposits. The goal-posts set are the best performing and the worst performing districts in India. In 1991, the maximum was Rs. 24,930 in Mumbai and minimum was Rs. 195 in Saharsa district of Bihar (CMIE 2000 – Profile of Districts). The goal-posts selected are maximum Rs. 20,000 and minimum Rs. 200. In 2001, the maximum deposit was Rs. 84,471 once again in Mumbai and minimum was Rs. 532 in Darrang district in Assam. The goal-posts kept are Rs. 70,000 and Rs. 600.

*(iii) GDM-1 at district level:* The indicator used is agricultural wages, in the absence of any other indicator that gives gender disaggregated data on income and poverty at the district level. The goal-posts are the maximum and minimum values in the series.

### Adult Literacy Rate

The goal-posts used by UNDP in constructing the HDI/GDI are used for HDM/GDM. The maximum value is 100 per cent and the minimum is 0 per cent. In India, Kerala has achieved more than 90 per cent literacy rate, which is very close to countries with high level of human development. The minimum goal-post kept is 0 per cent because there are still villages in the state, which is likely to be the case in other states as well, where the female literacy rate is not much higher than 0 per cent. For example, Dhanera taluka in Banaskantha district had female (7+) literacy rate of 18 per cent in 2001. There are many talukas in the state that have female literacy rate less than 25 per cent.

## Per cent Attending School (Age 6-14)

This indicator takes care of the net enrollment rate as well as retention rate. Since Elementary education is expected to be universal, that is 100 per cent children in this age group are expected to go to school, the maximum goal-post is 100 per cent. The minimum goal-post is 0 per cent. In some regions it is possible that no female children are going to school. Also, any child of this age-group who is working is covered under the definition of child labour and every child drop-out in this age group is a potential child-labour, it is best that 100 per cent children in this age group attend school.

## Infant Mortality Rate

The maximum and minimum goal-posts are: 150 (the IMR of rural Gujarat in 1971 was 155) and 10 (IMR of Kerala in 2000 is 11). While IMR in Gujarat has fallen since 1971, it should achieve the IMR of Kerala.

## Total Fertility Rate

The best (maximum) goal-post is 1.8, which is that of Kerala and the worst (minimum) goal-post is 5.4, which is that of rural India in 1971.

## Percentage of Households with All Three Basic Facilities

Normatively, any government should strive to make potable drinking water, sanitation and electricity available to

all the households in the state. The maximum goal-post selected for this indicator is 100 per cent, and the minimum goal-post selected is 0 per cent, as in Bihar, even in 1991, only 7.13 per cent households had access to all the three basic facilities. In 2001, at district level, three indicators were used to measure this aspect, as combined data for all the three facilities was not available. Then, for each of the indicators, the maximum and minimum goal-posts are 100 per cent and 0 per cent respectively.

## Work Participation Rate, Main Workers

Maximum and minimum selected from the state level and district level WPR data observed by gender disaggregation. The maximum selected is above the currently observed maximum figure in any of the states of districts in Gujarat and minimum is the currently observed minimum in any of the states of districts in Gujarat. The figures are rounded off. The data of 1991 and 2001 are both observed for the purpose.

## Per cent Voting in the Last State Assembly+Parliamentary Elections

Ideally, all eligible voters should cast their vote. That is, the maximum goal-post should be 100 per cent. However, that does not happen. In India, in the last assembly elections, the highest voting was observed in West Bengal, among the males. About 78 per cent of the eligible voters had cast their votes. The maximum goal-post selected is

### Goal-posts for HDM-1/GDM-1

Indicator	Best	Worst
1. Income and poverty		
a. Per capita income (HDM-1/GDM-1 at state level) - 1991	Rs. 38,907	Rs. 1,468
Per capita income (HDM-1/GDM-1 at state level) - 2001	Rs. 72,520	Rs. 2,281
b. Per capita deposits (HDM-1 at district level)	Rs. 20,000	Rs. 200
c. Agricultural wages (GDM-1 at district level)	Rs. 70,000	Rs. 600
	Maximum	Minimum
2. Adult literacy rate	100%	0%
3. % attending school (age 6-14)	100%	0%
4. Infant Mortality Rate	150	10
5. Total fertility rate	1.8	5.4
6. Per cent households with access to all three basic facilities	100%	0%
7. Work participation rate main workers	60%	2%
8. Per cent population voting in last state assembly+parliamentary elections	85 %	10%
9. Population contesting in last state assembly+parliamentary elections (per lakh voters)	19	0

85 per cent, giving leeway for districts in West Bengal which could have performed better than the state average. The minimum goal-post selected is 10 per cent, which is slightly higher than the per cent voting observed among the female voters in Punjab.

### Population Per Lakh Voters Contesting Last State Assembly+Parliamentary Elections

For this indicator, the maximum and minimum values in the series are selected as goal-posts in all the indices and are rounded off.

The goal-posts are kept common for 1991 and 2001 indices and are the same for calculating HDM-1 and GDM-1 in these two years, unless mentioned otherwise.

### Goal-posts for HDM/GDM-2

For the HDM/GDM-2 indices at the state and district levels, the maximum and minimum values observed in the series have been selected as the goal-posts. There are two exceptions. For the juvenile sex ratio, the maximum value selected is 1300 and minimum is 700. For percentage of ever married women in age group 10-14 years, the maximum goal-post is the maximum in the series and minimum is 0 per cent.

### On Epsilon (€)

In our earlier indices we had argued to do away with using € for constructing GDM-1 (Hirway and Mahadevia 1996) on two counts. Firstly, the concept of € is arbitrary. Secondly, the selection of 2 as a value of € is arbitrary. It is very difficult to arrive at a realistic value of €, as it is based on subjective consideration to some extent. Further, it is unrealistic to assume the same value of € for all socio-economic environments. By giving the value 2 to €, UNDP has used weighted harmonic mean to sum up male and female achievements and arrive at one index of gender development (GDI). Some do argue that if the concern of gender inequality is high then one may increase the value of € to more than 2.

Any other method of averaging male and female achievements, such as weighted arithmetic mean, weighted geometric mean, simple arithmetic mean and simple geometric mean, and so on can be used. In our earlier work (Hirway and Mahadevia 1996), we have used weighted

arithmetic mean which is simple to understand and compute. It gives us values very close to that of HDI which represents aggregate achievements of a society. In that, our GDM, is in fact, a gender adjusted human development measure.

Here, we have used € with a value of 2, to keep parity with UNDP's methodology. UNDP argues that € depresses the values of a region where either the gender inequality is high or where the achievement values are very low as compared to the best achievement in a series. UNDP's GDI adjusts the average achievements of each country in accordance with the disparity in achievement between women and men.

### Construction of Indices

The first step is to construct the component indices. The indicators are made scale-free for this purpose by applying the following formula:

$$I = \frac{\text{Actual value} - \text{min. value}}{\text{Max. value} - \text{min. value}}$$

where I is the factor score for each state/district in the index. Min. value and max. value are minimum and maximum goal-posts selected for the indicator. The goal-posts are selected carefully with systematic considerations as discussed in the technical notes 4 and 5. By and large, goal-posts are so selected that they have universal validity in India. However, for some variables, the goal-posts are the minimum and maximum values in the data series. This does pose a problem of changing goal-posts with changes in data over time. However, such goal-posts are selected only when there is no firm and objective basis for deciding the goal-post values.

### Giving of Weights

In a composite index, equal weight is given to all the component indicators. An exception is the participation index where the political participation sub-index and economic participation sub-index get equal weightage. The political participation sub-index consists of two indicators, and each of them gets 25 per cent weightage in the overall index. The lone indicator of economic participation gets 50 per cent weightage in the participation index. In the composite index, each of the component indices gets equal weightage.

## Constructing GDM-1 and GEI

The gender-related development index is calculated in four steps. These are:

- i) Computing the factor scores (indices) for each of the indicators in a component index by using the formula.
- ii) Computing the share of males and females in the total population, such that it adds up to 1.
- iii) Computing the sectoral indices for male and female achievements separately.
- iv) Adjusting the component indices for gender inequality by applying weighting parameter  $\epsilon = 2$ . This is called equally distributed component index (EDCI). The EDCI is calculated using the formula:

$$EDCI = [ P_m * CI_{im}^{(1-\epsilon)} + P_f * CI_{if}^{(1-\epsilon)} ]^{(1-\epsilon)}$$

where  $P_m$  is proportion of male population,  
 $P_f$  is proportion of female population,  
 $CI_{im}$  is index of component i for males and  
 $CI_{if}$  is index of component i for females.

In essence, the formula applied for calculating EDCI is:

$$EDCI = [ P_m * CI_{im}^{-1} + P_f * CI_{if}^{-1} ]^{-1}$$

After calculating the equally distributed component indices for GDM-1, these are cumulated by giving equal weightage to form GDM-1.

GEI is calculated by dividing the values of female index of a component by the male index of the component.



# Annexures





## Annexures

### 1 Index values, HDM-1, States, 2001

HDM-1 rank	States	Income index	Education index	Health index	Housing index	Participation index	HDM-1	HDI
1	Kerala	0.267	0.940	0.977	0.089	0.390	0.533	0.728
2	Maharashtra	0.305	0.800	0.799	0.258	0.486	0.530	0.635
3	Punjab	0.324	0.781	0.770	0.305	0.458	0.528	0.625
4	Tamil Nadu	0.251	0.799	0.867	0.156	0.488	0.512	0.639
5	Karnataka	0.224	0.724	0.851	0.176	0.510	0.497	0.600
<b>6</b>	<b>Gujarat</b>	<b>0.241</b>	<b>0.744</b>	<b>0.710</b>	<b>0.266</b>	<b>0.434</b>	<b>0.479</b>	<b>0.565</b>
7	West Bengal	0.196	0.722	0.795	0.205	0.459	0.475	0.571
8	Haryana	0.306	0.770	0.606	0.203	0.461	0.469	0.561
9	Andhra Pradesh	0.201	0.683	0.805	0.123	0.530	0.468	0.563
10	Assam	0.113	0.715	0.713	0.093	0.450	0.417	0.514
11	Madhya Pradesh	0.121	0.682	0.533	0.120	0.439	0.379	0.445
12	Rajasthan	0.138	0.666	0.491	0.157	0.431	0.377	0.432
13	Orissa	0.089	0.674	0.638	0.054	0.383	0.368	0.467
14	Uttar Pradesh	0.106	0.648	0.384	0.160	0.359	0.331	0.379
15	Bihar	0.052	0.505	0.478	0.071	0.410	0.303	0.345

### 2 Index values, HDM-1, States, 1991

HDM-1 rank	States	Income index	Education index	Health index	Housing index	Participation index	HDM-1	HDI
1	Kerala	0.095	0.909	0.996	0.089	0.455	0.509	0.667
2	Maharashtra	0.189	0.683	0.683	0.258	0.522	0.467	0.518
3	Punjab	0.228	0.638	0.659	0.305	0.380	0.442	0.508
4	Tamil Nadu	0.131	0.689	0.777	0.156	0.541	0.459	0.532
5	Karnataka	0.120	0.592	0.612	0.176	0.549	0.410	0.441
<b>6</b>	<b>Gujarat</b>	<b>0.143</b>	<b>0.630</b>	<b>0.613</b>	<b>0.266</b>	<b>0.477</b>	<b>0.426</b>	<b>0.462</b>
7	West Bengal	0.116	0.547	0.637	0.205	0.499	0.401	0.433
8	Haryana	0.203	0.612	0.508	0.203	0.556	0.416	0.441
9	Andhra Pradesh	0.121	0.491	0.650	0.123	0.589	0.395	0.421
10	Assam	0.085	0.527	0.531	0.093	0.539	0.355	0.381
11	Madhya Pradesh	0.081	0.476	0.271	0.120	0.537	0.297	0.276
12	Rajasthan	0.089	0.397	0.361	0.157	0.484	0.297	0.282
13	Orissa	0.081	0.522	0.427	0.054	0.456	0.308	0.343
14	Uttar Pradesh	0.079	0.417	0.221	0.160	0.472	0.270	0.239
15	Bihar	0.050	0.391	0.407	0.071	0.505	0.285	0.283

### 3 Ranking of States, HDM-I, 2001

HDM-1 rank	States	Income rank	Education rank	Health rank	Housing rank	Participation rank	HDM-1 rank	HDI rank
1	Kerala	4	1	1	13	13	1	1
2	Maharashtra	3	2	5	3	4	2	3
3	Punjab	1	4	7	1	7	3	4
4	Tamil Nadu	5	3	2	9	3	4	2
5	Karnataka	7	7	3	6	2	5	5
<b>6</b>	<b>Gujarat</b>	<b>6</b>	<b>6</b>	<b>9</b>	<b>2</b>	<b>10</b>	<b>6</b>	<b>6</b>
7	West Bengal	9	8	6	4	6	7	7
8	Haryana	2	5	11	5	5	8	9
9	Andhra Pradesh	8	10	4	10	1	9	8
10	Assam	12	9	8	12	8	10	10
11	Madhya Pradesh	11	11	12	11	9	11	12
12	Rajasthan	10	13	13	8	11	12	13
13	Orissa	14	12	10	15	14	13	11
14	Uttar Pradesh	13	14	15	7	15	14	14
15	Bihar	15	15	14	14	12	15	15

### 4 Ranking of States, HDM-I, 1991

HDM-1 rank	States	Income rank	Education rank	Health rank	Housing rank	Participation rank	HDM-1 rank	HDI rank
1	Kerala	9	1	1	13	14	1	1
2	Maharashtra	3	3	3	3	7	2	3
3	Punjab	1	4	4	1	15	4	4
4	Tamil Nadu	5	2	2	9	4	3	2
5	Karnataka	7	7	8	6	3	7	6
<b>6</b>	<b>Gujarat</b>	<b>4</b>	<b>5</b>	<b>7</b>	<b>2</b>	<b>11</b>	<b>5</b>	<b>5</b>
7	West Bengal	8	8	6	4	9	8	8
8	Haryana	2	6	10	5	2	6	7
9	Andhra Pradesh	6	11	5	10	1	9	9
10	Assam	11	9	9	12	5	10	10
11	Madhya Pradesh	12	12	14	11	6	13	14
12	Rajasthan	10	14	13	8	10	12	13
13	Orissa	13	10	11	15	13	11	11
14	Uttar Pradesh	14	13	15	7	12	15	15
15	Bihar	15	15	12	14	8	14	12

## 5 Comparing income, HDM -1 and HDI ranks, 2001

HDM-1 rank	States	Income rank, 2001	HDI rank, 2001	Income – HDM-1 rank, 2001*	HDM-1 rank, 1991	HDM-1 1991 - HDM-1 2001 rank**
1	Kerala	4	1	3	1	0
2	Maharashtra	3	3	1	2	0
3	Punjab	1	4	-2	4	1
4	Tamil Nadu	5	2	1	3	-1
5	Karnataka	7	5	2	7	2
<b>6</b>	<b>Gujarat</b>	<b>6</b>	<b>6</b>	<b>0</b>	<b>5</b>	<b>-1</b>
7	West Bengal	9	7	2	8	1
8	Haryana	2	9	-6	6	-2
9	Andhra Pradesh	8	8	-1	9	0
10	Assam	12	10	2	10	0
11	Madhya Pradesh	11	12	0	13	2
12	Rajasthan	10	13	-2	12	0
13	Orissa	14	11	1	11	-2
14	Uttar Pradesh	13	14	-1	15	1
15	Bihar	15	15	0	14	-1

\*Negative value means better economic performance but poor human development. That is, economic growth not getting translated into human development.

\*\*Positive value means improvement in performance over the decade of 1990s.

## 6 Index values, GDM-1, States, 2001

HDM-1 rank	States	Income index	Education index	Health index	Housing index	Participation index	GDM-1	GDI
1	Kerala	0.108	0.940	0.977	0.089	0.356	0.494	0.675
2	Maharashtra	0.283	0.795	0.797	0.258	0.451	0.517	0.625
3	Punjab	0.232	0.780	0.769	0.305	0.376	0.492	0.594
4	Tamil Nadu	0.145	0.806	0.867	0.156	0.444	0.483	0.606
5	Karnataka	0.182	0.720	0.849	0.176	0.460	0.477	0.583
<b>6</b>	<b>Gujarat</b>	<b>0.208</b>	<b>0.736</b>	<b>0.710</b>	<b>0.266</b>	<b>0.348</b>	<b>0.454</b>	<b>0.551</b>
7	West Bengal	0.131	0.717	0.791	0.205	0.385	0.446	0.546
8	Haryana	0.243	0.763	0.605	0.203	0.395	0.442	0.537
9	Andhra Pradesh	0.154	0.675	0.805	0.123	0.494	0.450	0.544
10	Assam	0.065	0.711	0.713	0.093	0.381	0.393	0.496
11	Madhya Pradesh	0.107	0.669	0.532	0.120	0.376	0.361	0.436
12	Rajasthan	0.130	0.635	0.485	0.157	0.375	0.356	0.416
13	Orissa	0.057	0.663	0.638	0.054	0.296	0.342	0.453
14	Uttar Pradesh	0.062	0.631	0.377	0.160	0.264	0.299	0.357
15	Bihar	0.017	0.481	0.478	0.071	0.313	0.272	0.325

## 7 Index values, GDM-1, States, 1991

HDM-1 rank	States	Income index	Education index	Health index	Housing index	Participation index	GDM-1	GDI
1	Kerala	0.002	0.899	1.003	0.089	0.407	0.480	0.635
2	Maharashtra	0.154	0.672	0.704	0.258	0.487	0.455	0.510
3	Punjab	0.001	0.633	0.658	0.305	0.195	0.358	0.431
4	Tamil Nadu	0.099	0.681	0.778	0.156	0.491	0.441	0.519
5	Karnataka	0.096	0.579	0.628	0.176	0.492	0.394	0.434
<b>6</b>	<b>Gujarat</b>	<b>0.109</b>	<b>0.616</b>	<b>0.634</b>	<b>0.266</b>	<b>0.366</b>	<b>0.398</b>	<b>0.453</b>
7	West Bengal	0.038	0.537	0.662	0.205	0.407	0.370	0.412
8	Haryana	0.082	0.592	0.521	0.203	0.366	0.353	0.398
9	Andhra Pradesh	0.094	0.472	0.669	0.123	0.553	0.382	0.412
10	Assam	0.051	0.518	0.524	0.093	0.425	0.322	0.365
11	Madhya Pradesh	0.069	0.447	0.282	0.120	0.462	0.276	0.266
12	Rajasthan	0.069	0.323	0.370	0.157	0.378	0.259	0.254
13	Orissa	0.045	0.499	0.448	0.054	0.346	0.278	0.330
14	Uttar Pradesh	0.021	0.379	0.229	0.160	0.307	0.219	0.209
15	Bihar	0.011	0.351	0.411	0.071	0.354	0.240	0.258

## 8 Ranking of States, GDM-1, 2001

HDM-1 rank	States	Income Rank	Education Rank	Health Rank	Housing Rank	Participation Rank	GDM-1 Rank	GDI Rank
1	Kerala	10	1	1	13	11	2	1
2	Maharashtra	1	3	5	3	3	1	2
3	Punjab	3	4	7	1	9	3	4
4	Tamil Nadu	7	2	2	9	4	4	3
5	Karnataka	5	7	3	6	2	5	5
<b>6</b>	<b>Gujarat</b>	<b>4</b>	<b>6</b>	<b>9</b>	<b>2</b>	<b>12</b>	<b>6</b>	<b>6</b>
7	West Bengal	8	8	6	4	6	8	7
8	Haryana	2	5	11	5	5	9	9
9	Andhra Pradesh	6	10	4	10	1	7	8
10	Assam	12	9	8	12	7	10	10
11	Madhya Pradesh	11	11	12	11	8	11	12
12	Rajasthan	9	13	13	8	10	12	13
13	Orissa	14	12	10	15	14	13	11
14	Uttar Pradesh	13	14	15	7	15	14	14
15	Bihar	15	15	14	14	13	15	15

## 9 Ranking of States, GDM-1, 1991

HDM-1 rank	States	Income rank	Education rank	Health rank	Housing rank	Participation rank	GDM-1 rank	GDI rank
1	Kerala	14	1	1	13	7	1	1
2	Maharashtra	1	3	3	3	4	2	3
3	Punjab	15	4	6	1	15	8	6
4	Tamil Nadu	3	2	2	9	3	3	2
5	Karnataka	4	7	8	6	2	5	5
<b>6</b>	<b>Gujarat</b>	<b>2</b>	<b>5</b>	<b>7</b>	<b>2</b>	<b>11</b>	<b>4</b>	<b>4</b>
7	West Bengal	11	8	5	4	8	7	7
8	Haryana	6	6	10	5	10	9	9
9	Andhra Pradesh	5	11	4	10	1	6	8
10	Assam	9	9	9	12	6	10	10
11	Madhya Pradesh	7	12	14	11	5	12	12
12	Rajasthan	8	15	13	8	9	13	14
13	Orissa	10	10	11	15	13	11	11
14	Uttar Pradesh	12	13	15	7	14	15	15
15	Bihar	13	14	12	14	12	14	13

## 10 Comparing income, GDM-1, GDI, HDM-1 ranks, 2001

HDM-1 rank	States	Income rank, 2001	GDM-1 rank, 2001	GDI rank, 2001	Income – GDM-1 rank, 2001*	HDM-1 – GDM-1 rank, 2001**	GDM-1 rank, 1991	GDM-1 1991 rank - GDM-1 2001 rank***
1	Kerala	4	2	1	2	-1	1	- 1
2	Maharashtra	3	1	2	2	1	2	1
3	Punjab	1	3	4	-2	0	8	5
4	Tamil Nadu	5	4	3	1	0	3	- 1
5	Karnataka	7	5	5	2	0	5	0
<b>6</b>	<b>Gujarat</b>	<b>6</b>	<b>6</b>	<b>6</b>	<b>0</b>	<b>0</b>	<b>4</b>	<b>- 2</b>
7	West Bengal	9	8	7	1	-1	7	- 1
8	Haryana	2	9	9	-7	-1	9	0
9	Andhra Pradesh	8	7	8	1	2	6	- 1
10	Assam	12	10	10	2	0	10	0
11	Madhya Pradesh	11	11	12	0	0	12	1
12	Rajasthan	10	12	13	-2	0	13	1
13	Orissa	14	13	11	1	0	11	- 2
14	Uttar Pradesh	13	14	14	-1	0	15	1
15	Bihar	15	15	15	0	0	14	- 1

\* Negative value means better economic performance but poor in gender development. That is, economic growth not getting translated into gender development.

\*\* Negative value means that human development is not getting translated into gender development. These states have high gender inequality.

\*\*\* Positive value means improvement in performance over the decade of 1990s.

## 11 Index values, GEI, States, 2001

HDM-1 rank	States	Income index	Education index	Health index	Participation index	GEI
1	Kerala	0.183	0.966	1.208	0.523	0.720
2	Maharashtra	0.609	0.852	0.479	0.489	0.607
3	Punjab	0.348	0.904	3.488	0.386	1.282
4	Tamil Nadu	0.270	0.856	0.749	0.463	0.585
5	Karnataka	0.448	0.853	0.587	0.445	0.583
<b>6</b>	<b>Gujarat</b>	<b>0.509</b>	<b>0.804</b>	<b>1.055</b>	<b>0.358</b>	<b>0.682</b>
7	West Bengal	0.338	0.845	2.296	0.340	0.955
8	Haryana	0.421	0.811	1.595	0.396	0.806
9	Andhra Pradesh	0.413	0.798	0.880	0.499	0.647
10	Assam	0.333	0.856	1.014	0.357	0.640
11	Madhya Pradesh	0.577	0.757	1.176	0.406	0.729
12	Rajasthan	0.669	0.647	1.864	0.411	0.898
13	Orissa	0.389	0.764	0.974	0.327	0.613
14	Uttar Pradesh	0.345	0.716	1.615	0.310	0.746
15	Bihar	0.335	0.653	0.910	0.312	0.553

## 12 Index values, GEI, States, 1991

HDM-1 rank	States	Income index	Education index	Health index	Participation index	GEI
1	Kerala	0.123	0.938	1.600	0.402	0.766
2	Maharashtra	0.448	0.775	1.000	0.495	0.680
3	Punjab	0.059	0.836	0.790	0.267	0.488
4	Tamil Nadu	0.416	0.797	1.018	0.465	0.674
5	Karnataka	0.465	0.739	1.045	0.452	0.675
<b>6</b>	<b>Gujarat</b>	<b>0.416</b>	<b>0.743</b>	<b>1.000</b>	<b>0.349</b>	<b>0.627</b>
7	West Bengal	0.207	0.767	0.966	0.335	0.569
8	Haryana	0.190	0.691	0.822	0.296	0.500
9	Andhra Pradesh	0.443	0.671	1.228	0.512	0.714
10	Assam	0.349	0.783	1.000	0.380	0.628
11	Madhya Pradesh	0.555	0.601	1.000	0.429	0.646
12	Rajasthan	0.472	0.373	1.012	0.360	0.554
13	Orissa	0.331	0.651	1.168	0.339	0.622
14	Uttar Pradesh	0.222	0.539	0.870	0.290	0.480
15	Bihar	0.275	0.521	0.944	0.305	0.511

### 13 Ranking of States, GEI, 2001

HDM-1 rank	States	Income rank	Education rank	Health rank	Participation rank	GEI rank	GDM-1 rank	GDM-1-GEI rank*
1	Kerala	15	1	6	1	7	2	-5
2	Maharashtra	2	6	15	3	12	1	-11
3	Punjab	9	2	1	9	1	3	2
4	Tamil Nadu	14	4	13	4	13	4	-9
5	Karnataka	5	5	14	5	14	5	-9
<b>6</b>	<b>Gujarat</b>	<b>4</b>	<b>9</b>	<b>8</b>	<b>10</b>	<b>8</b>	<b>6</b>	<b>-2</b>
7	West Bengal	11	7	2	12	2	8	6
8	Haryana	6	8	5	8	4	9	-5
9	Andhra Pradesh	7	10	12	2	9	7	-2
10	Assam	13	3	9	11	10	10	0
11	Madhya Pradesh	3	12	7	7	6	11	-5
12	Rajasthan	1	15	3	6	3	12	9
13	Orissa	8	11	10	13	11	13	-2
14	Uttar Pradesh	10	13	4	15	5	14	9
15	Bihar	12	14	11	14	15	15	0

\* Negative value indicates high on gender development but low on gender equality

### 14 Ranking of States, GEI, 1991

HDM-1 rank	States	Income rank	Education rank	Health rank	Participation rank	GEI rank	GDM-1 rank	GDM-1-GEI rank*
1	Kerala	14	1	1	6	1	1	0
2	Maharashtra	4	5	10	2	3	2	-1
3	Punjab	15	2	15	15	14	8	-4
4	Tamil Nadu	6	3	5	3	5	3	2
5	Karnataka	3	8	4	4	4	5	-1
<b>6</b>	<b>Gujarat</b>	<b>7</b>	<b>7</b>	<b>8</b>	<b>9</b>	<b>8</b>	<b>4</b>	<b>-4</b>
7	West Bengal	12	6	11	11	10	7	-3
8	Haryana	13	9	14	13	13	9	-4
9	Andhra Pradesh	5	10	2	1	2	6	4
10	Assam	8	4	7	7	7	10	3
11	Madhya Pradesh	1	12	9	5	6	12	-6
12	Rajasthan	2	15	6	8	11	13	3
13	Orissa	9	11	3	10	9	11	2
14	Uttar Pradesh	11	13	13	14	15	15	0
15	Bihar	10	14	12	12	12	14	2

\* Negative value indicates high on gender development but low on gender equality



## 15 Index values, HDM-2, States, 2001

HDM-1 rank	States	Environment index	Basic services index	Regional equality index	Patriarchy index	HDM-2
1	Kerala	1.000	0.646	0.954	0.699	0.825
2	Maharashtra	0.230	0.493	0.000	0.610	0.333
3	Punjab	0.884	0.942	0.965	0.506	0.824
4	Tamil Nadu	0.520	0.521	0.499	0.632	0.543
5	Karnataka	0.646	0.483	0.730	0.609	0.617
<b>6</b>	<b>Gujarat</b>	<b>0.315</b>	<b>0.692</b>	<b>0.769</b>	<b>0.563</b>	<b>0.585</b>
7	West Bengal	0.949	0.298	0.051	0.646	0.486
8	Haryana	0.850	0.619	0.795	0.511	0.694
9	Andhra Pradesh	0.378	0.448	0.697	0.584	0.527
10	Assam	0.466	0.442	0.735	0.645	0.572
11	Madhya Pradesh	0.411	0.224	0.802	0.366	0.451
12	Rajasthan	0.000	0.214	0.780	0.174	0.292
13	Orissa	0.676	0.186	1.000	0.651	0.628
14	Uttar Pradesh	0.351	0.163	0.789	0.406	0.427
15	Bihar	0.621	0.259	0.810	0.423	0.528

## 16 Index values, HDM-2, States, 1991

HDM-1 rank	States	Environment index	Basic services index	Regional equality index	Patriarchy index	HDM-2
1	Kerala	1.000	0.646	0.954	0.688	0.822
2	Maharashtra	0.230	0.493	0.000	0.631	0.338
3	Punjab	0.884	0.942	0.965	0.569	0.840
4	Tamil Nadu	0.520	0.521	0.499	0.640	0.545
5	Karnataka	0.646	0.483	0.730	0.617	0.619
<b>6</b>	<b>Gujarat</b>	<b>0.315</b>	<b>0.692</b>	<b>0.769</b>	<b>0.604</b>	<b>0.595</b>
7	West Bengal	0.949	0.298	0.051	0.649	0.487
8	Haryana	0.850	0.619	0.795	0.556	0.705
9	Andhra Pradesh	0.378	0.448	0.697	0.803	0.582
10	Assam	0.466	0.442	0.735	0.652	0.574
11	Madhya Pradesh	0.411	0.224	0.802	0.387	0.456
12	Rajasthan	0.000	0.214	0.780	0.183	0.294
13	Orissa	0.676	0.186	1.000	0.665	0.632
14	Uttar Pradesh	0.351	0.163	0.789	0.417	0.430
15	Bihar	0.621	0.259	0.810	0.443	0.533

## 17 Ranking of States, HDM-2, 2001

HDM-1 rank	States	Environment rank	Basic services rank	Regional equality rank	Patriarchy rank	HDM-2 rank
1	Kerala	1	3	3	1	1
2	Maharashtra	14	6	15	6	14
3	Punjab	3	1	2	11	2
4	Tamil Nadu	8	5	13	5	8
5	Karnataka	6	7	11	7	5
<b>6</b>	<b>Gujarat</b>	<b>13</b>	<b>2</b>	<b>9</b>	<b>9</b>	<b>6</b>
7	West Bengal	2	10	14	3	11
8	Haryana	4	4	6	10	3
9	Andhra Pradesh	11	8	12	8	10
10	Assam	9	9	10	4	7
11	Madhya Pradesh	10	12	5	14	12
12	Rajasthan	15	13	8	15	15
13	Orissa	5	14	1	2	4
14	Uttar Pradesh	12	15	7	13	13
15	Bihar	7	11	4	12	9

## 18 Ranking of States, HDM-2, 1991

HDM-1 rank	States	Environment rank	Basic services rank	Regional equality rank	Patriarchy rank	HDM-2 rank
1	Kerala	1	3	3	2	2
2	Maharashtra	14	6	15	7	14
3	Punjab	3	1	2	10	1
4	Tamil Nadu	8	5	13	6	9
5	Karnataka	6	7	11	8	5
<b>6</b>	<b>Gujarat</b>	<b>13</b>	<b>2</b>	<b>9</b>	<b>9</b>	<b>6</b>
7	West Bengal	2	10	14	5	11
8	Haryana	4	4	6	11	3
9	Andhra Pradesh	11	8	12	1	7
10	Assam	9	9	10	4	8
11	Madhya Pradesh	10	12	5	14	12
12	Rajasthan	15	13	8	15	15
13	Orissa	5	14	1	3	4
14	Uttar Pradesh	12	15	7	13	13
15	Bihar	7	11	4	12	10

## 19 Index values, HDM-1, districts, Gujarat, 2001

HDM-1 rank	Districts	Income index	Education index	Health index	Housing index	Participation index	HDM-1	HDI
1	Ahmedabad	0.217	0.761	0.738	0.682	0.416	0.563	0.572
2	Gandhinagar	0.298	0.756	0.674	0.498	0.442	0.533	0.576
3	Rajkot	0.131	0.656	0.829	0.546	0.429	0.518	0.539
4	Navsari	0.202	0.733	0.812	0.407	0.424	0.515	0.582
5	Surat	0.116	0.713	0.724	0.550	0.426	0.506	0.517
6	Bharuch	0.066	0.715	0.763	0.471	0.472	0.497	0.515
7	Valsad	0.202	0.700	0.742	0.374	0.468	0.497	0.548
8	Porbandar	0.106	0.689	0.713	0.464	0.472	0.489	0.503
9	Junagadh	0.106	0.685	0.700	0.484	0.445	0.484	0.497
10	Jamnagar	0.129	0.619	0.770	0.447	0.438	0.481	0.506
11	Vadodara	0.021	0.646	0.770	0.487	0.454	0.476	0.479
12	Kheda	0.118	0.705	0.625	0.420	0.481	0.470	0.483
13	Anand	0.118	0.716	0.652	0.379	0.469	0.467	0.496
14	Mehsana	0.037	0.721	0.621	0.397	0.496	0.454	0.459
15	Amreli	0.037	0.646	0.710	0.414	0.465	0.454	0.464
16	Bhavnagar	0.066	0.646	0.676	0.412	0.446	0.449	0.463
17	Sabarkantha	0.021	0.702	0.615	0.291	0.526	0.431	0.446
18	Kachchh	0.308	0.547	0.531	0.296	0.467	0.430	0.462
19	Narmada	0.061	0.637	0.722	0.184	0.508	0.422	0.473
20	Patan	0.032	0.630	0.664	0.278	0.468	0.414	0.442
21	Surendranagar	0.032	0.615	0.535	0.357	0.499	0.408	0.394
22	Panchmahals	0.018	0.582	0.517	0.150	0.461	0.346	0.372
23	Banaskantha	0.011	0.484	0.440	0.169	0.473	0.316	0.312
24	Dangs	0.013	0.561	0.447	0.050	0.422	0.299	0.340
25	Dahod	0.018	0.502	0.406	0.028	0.448	0.280	0.309

**20 Index values, HDM-1, districts, Gujarat, 1991**

HDM-1 rank	Districts	Income index	Education index	Health index	Housing index	Participation index	HDM-1	HDI
1	Ahmedabad	0.244	0.730	0.564	0.495	0.417	0.490	0.513
2	Gandhinagar	0.264	0.741	0.485	0.426	0.439	0.471	0.496
3	Rajkot	0.117	0.666	0.537	0.306	0.443	0.414	0.440
4	Navsari	0.166	0.694	0.613	0.199	0.491	0.433	0.491
5	Surat	0.146	0.659	0.592	0.371	0.483	0.450	0.466
6	Bharuch	0.057	0.670	0.607	0.274	0.508	0.423	0.444
7	Valsad	0.166	0.655	0.613	0.199	0.486	0.424	0.478
8	Porbandar	0.092	0.652	0.507	0.219	0.466	0.387	0.417
9	Junagadh	0.092	0.641	0.507	0.219	0.440	0.380	0.413
10	Jamnagar	0.122	0.625	0.547	0.236	0.452	0.396	0.431
11	Vadodara	0.198	0.608	0.463	0.378	0.456	0.421	0.423
12	Kheda	0.152	0.661	0.411	0.247	0.450	0.384	0.408
13	Anand	0.033	0.681	0.411	0.247	0.463	0.367	0.375
14	Mehsana	0.043	0.685	0.393	0.180	0.488	0.358	0.374
15	Amreli	0.033	0.610	0.470	0.139	0.478	0.346	0.371
16	Bhavnagar	0.065	0.600	0.460	0.208	0.479	0.362	0.375
17	Sabarkantha	0.019	0.661	0.426	0.133	0.472	0.342	0.369
18	Kachchh	0.247	0.556	0.394	0.271	0.442	0.382	0.399
19	Narmada	0.072	0.592	0.591	0.285	0.511	0.410	0.418
20	Patan	0.039	0.597	0.372	0.168	0.444	0.324	0.336
21	Surendranagar	0.034	0.577	0.392	0.137	0.479	0.324	0.334
22	Panchmahals	0.018	0.522	0.351	0.100	0.440	0.286	0.297
23	Banaskantha	0.016	0.426	0.247	0.094	0.455	0.247	0.230
24	Dangs	0.015	0.497	0.275	0.039	0.538	0.273	0.262
25	Dahod	0.018	0.453	0.351	0.100	0.430	0.271	0.274

## 21 Ranking of districts, HDM-1, Gujarat, 2001

HDM-1 rank	Districts	Income rank	Education rank	Health rank	Housing rank	Participation rank	HDM-1 rank	HDI rank
1	Ahmedabad	3	1	7	1	25	1	3
2	Gandhinagar	2	2	14	4	19	2	2
3	Rajkot	6	13	1	3	21	3	5
4	Navsari	4	3	2	13	23	4	1
5	Surat	10	7	8	2	22	5	6
6	Bharuch	14	6	5	7	7	6	7
7	Valsad	5	10	6	16	11	7	4
8	Porbandar	12	11	10	8	8	8	9
9	Junagadh	11	12	12	6	18	9	10
10	Jamnagar	7	19	3	9	20	10	8
11	Vadodara	21	14	4	5	15	11	13
12	Kheda	9	8	17	10	5	12	12
13	Anand	8	5	16	15	9	13	11
14	Mehsana	16	4	18	14	4	14	18
15	Amreli	17	15	11	11	13	15	15
16	Bhavnagar	13	16	13	12	17	16	16
17	Sabarkantha	20	9	19	19	1	17	19
18	Kachchh	1	23	21	18	12	18	17
19	Narmada	15	17	9	21	2	19	14
20	Patan	18	18	15	20	10	20	20
21	Surendranagar	19	20	20	17	3	21	21
22	Panchmahals	23	21	22	23	14	22	22
23	Banaskantha	25	25	24	22	6	23	24
24	Dangs	24	22	23	24	24	24	23
25	Dahod	22	24	25	25	16	25	25

## 22 Ranking of districts, HDM-1, Gujarat, 1991

HDM-1 rank	Districts	Income rank	Education rank	Health rank	Housing rank	Participation rank	HDM-1 rank	HDI rank
1	Ahmedabad	3	2	6	1	25	1	1
2	Gandhinagar	1	1	11	2	23	2	2
3	Rajkot	11	7	8	5	19	8	7
4	Navsari	5	3	1	15	4	4	3
5	Surat	9	10	4	4	7	3	5
6	Bharuch	16	6	3	7	3	6	6
7	Valsad	5	11	1	15	6	5	4
8	Porbandar	12	12	9	12	12	12	11
9	Junagadh	12	13	9	12	21	15	13
10	Jamnagar	10	14	7	11	16	10	8
11	Vadodara	4	16	13	3	14	7	9
12	Kheda	7	8	16	9	17	13	14
13	Anand	7	5	16	9	13	11	12
14	Mehsana	17	4	19	17	5	17	17
15	Amreli	20	15	12	19	10	18	18
16	Bhavnagar	15	17	14	14	9	16	16
17	Sabarkantha	21	9	15	21	11	19	19
18	Kachchh	2	21	18	8	20	14	15
19	Narmada	14	19	5	6	2	9	10
20	Patan	18	18	21	18	18	20	20
21	Surendranagar	19	20	20	20	8	21	21
22	Panchmahals	22	22	22	22	22	22	22
23	Banaskantha	24	25	25	24	15	25	25
24	Dangs	25	23	24	25	1	23	24
25	Dahod	22	24	22	22	24	24	23

## 23 Index values, GDM-1, districts, Gujarat, 2001

HDM-1 rank	Districts	Income index	Education index	Health index	Housing index	Participation index	GDM-1	GDI
1	Ahmedabad	0.199	0.756	0.742	0.682	0.305	0.537	0.566
2	Gandhinagar	0.168	0.747	0.684	0.498	0.351	0.490	0.533
3	Rajkot	0.468	0.652	0.830	0.546	0.375	0.574	0.650
4	Navsari	0.150	0.730	0.806	0.407	0.364	0.491	0.562
5	Surat	0.071	0.710	0.727	0.550	0.361	0.484	0.503
6	Bharuch	0.015	0.708	0.762	0.471	0.378	0.467	0.495
7	Valsad	0.150	0.695	0.736	0.374	0.408	0.473	0.527
8	Porbandar	0.645	0.680	0.712	0.464	0.350	0.570	0.679
9	Junagadh	0.644	0.674	0.698	0.484	0.351	0.570	0.672
10	Jamnagar	0.415	0.611	0.765	0.447	0.338	0.515	0.597
11	Vadodara	0.166	0.638	0.673	0.487	0.368	0.467	0.492
12	Kheda	0.238	0.689	0.623	0.420	0.437	0.481	0.517
13	Anand	0.239	0.704	0.651	0.379	0.397	0.474	0.531
14	Mehsana	0.214	0.708	0.596	0.397	0.449	0.473	0.506
15	Amreli	0.423	0.638	0.695	0.414	0.381	0.510	0.586
16	Bhavnagar	0.363	0.632	0.676	0.412	0.361	0.489	0.557
17	Sabarkantha	0.092	0.685	0.613	0.291	0.434	0.423	0.463
18	Kachchh	0.441	0.532	0.539	0.296	0.402	0.442	0.504
19	Narmada	0.037	0.624	0.709	0.184	0.452	0.401	0.457
20	Patan	0.210	0.610	0.512	0.278	0.380	0.398	0.444
21	Surendranagar	0.390	0.598	0.534	0.357	0.475	0.471	0.507
22	Panchmahals	0.127	0.550	0.517	0.150	0.406	0.350	0.398
23	Banaskantha	0.186	0.437	0.399	0.169	0.421	0.322	0.341
24	Dangs	0.127	0.548	0.447	0.050	0.375	0.309	0.374
25	Dahod	0.125	0.470	0.406	0.028	0.392	0.284	0.334

## 24 Index values, GDM-1, districts, Gujarat, 1991

HDM-1 rank	Districts	Income index	Education index	Health index	Housing index	Participation index	GDM-1	GDI
1	Ahmedabad	0.009	0.716	0.572	0.495	0.243	0.407	0.432
2	Gandhinagar	0.005	0.726	0.518	0.426	0.310	0.397	0.416
3	Rajkot	0.240	0.659	0.568	0.306	0.317	0.418	0.489
4	Navsari	0.163	0.686	0.622	0.199	0.406	0.415	0.490
5	Surat	0.038	0.653	0.610	0.371	0.379	0.410	0.434
6	Bharuch	0.134	0.655	0.616	0.274	0.395	0.415	0.468
7	Valsad	0.168	0.648	0.622	0.199	0.410	0.410	0.479
8	Porbandar	0.405	0.637	0.523	0.219	0.314	0.420	0.522
9	Junagadh	0.400	0.622	0.523	0.219	0.306	0.414	0.515
10	Jamnagar	0.198	0.610	0.570	0.236	0.305	0.384	0.459
11	Vadodara	0.148	0.595	0.367	0.378	0.323	0.362	0.370
12	Kheda	0.109	0.633	0.403	0.247	0.299	0.338	0.382
13	Anand	0.108	0.657	0.403	0.247	0.320	0.347	0.389
14	Mehsana	0.256	0.663	0.350	0.180	0.382	0.366	0.423
15	Amreli	0.431	0.599	0.464	0.139	0.350	0.397	0.498
16	Bhavnagar	0.258	0.578	0.486	0.208	0.365	0.379	0.441
17	Sabarkantha	0.212	0.640	0.447	0.133	0.385	0.363	0.433
18	Kachchh	0.180	0.532	0.431	0.271	0.329	0.348	0.381
19	Narmada	0.137	0.573	0.589	0.285	0.405	0.398	0.433
20	Patan	0.245	0.566	0.330	0.168	0.304	0.323	0.380
21	Surendranagar	0.354	0.558	0.420	0.137	0.370	0.368	0.444
22	Panchmahals	0.201	0.472	0.378	0.100	0.325	0.295	0.351
23	Banaskantha	0.179	0.362	0.200	0.094	0.328	0.233	0.247
24	Dangs	0.166	0.477	0.307	0.039	0.526	0.303	0.317
25	Dahod	0.202	0.411	0.379	0.100	0.340	0.286	0.331



## 25 Ranking of districts, GDM-1, Gujarat, 2001

HDM-1 rank	Districts	Income rank	Education rank	Health rank	Housing rank	Participation rank	GDM-1 rank	GDI rank
1	Ahmedabad	13	1	5	1	25	4	6
2	Gandhinagar	15	2	12	4	21	8	9
3	Rajkot	3	13	1	3	15	1	3
4	Navsari	18	3	2	13	18	7	7
5	Surat	23	4	7	2	20	10	16
6	Bharuch	25	5	4	7	14	16	17
7	Valsad	17	8	6	16	7	14	11
8	Porbandar	1	11	8	8	23	3	1
9	Junagadh	2	12	10	6	22	2	2
10	Jamnagar	6	18	3	9	24	5	4
11	Vadodara	16	15	14	5	17	17	18
12	Kheda	10	9	16	10	4	11	12
13	Anand	9	7	15	15	10	12	10
14	Mehsana	11	6	18	14	3	13	14
15	Amreli	5	14	11	11	12	6	5
16	Bhavnagar	8	16	13	12	19	9	8
17	Sabarkantha	22	10	17	19	5	19	19
18	Kachchh	4	23	19	18	9	18	15
19	Narmada	24	17	9	21	2	20	20
20	Patan	12	19	22	20	13	21	21
21	Surendranagar	7	20	20	17	1	15	13
22	Panchmahals	20	21	21	23	8	22	22
23	Banaskantha	14	25	25	22	6	23	24
24	Dangs	19	22	23	24	16	24	23
25	Dahod	21	24	24	25	11	25	25

## 26 Ranking of districts, GDM-1, Gujarat, 1991

HDM-1 rank	Districts	Income rank	Education rank	Health rank	Housing rank	Participation rank	GDM-1 rank	GDI rank
1	Ahmedabad	24	2	6	1	25	8	14
2	Gandhinagar	25	1	11	2	20	10	16
3	Rajkot	8	5	8	5	18	2	5
4	Navsari	17	3	2	15	3	3	4
5	Surat	23	8	4	4	8	6	11
6	Bharuch	20	7	3	7	5	4	7
7	Valsad	15	9	1	15	2	7	6
8	Porbandar	2	11	9	12	19	1	1
9	Junagadh	3	13	10	12	21	5	2
10	Jamnagar	12	14	7	11	22	12	8
11	Vadodara	18	16	21	3	16	17	21
12	Kheda	21	12	17	9	24	20	18
13	Anand	22	6	18	9	17	19	17
14	Mehsana	6	4	22	17	7	15	15
15	Amreli	1	15	13	19	11	11	3
16	Bhavnagar	5	17	12	14	10	13	10
17	Sabarkantha	9	10	14	21	6	16	12
18	Kachchh	13	21	15	8	13	18	19
19	Narmada	19	18	5	6	4	9	13
20	Patan	7	19	23	18	23	21	20
21	Surendranagar	4	20	16	20	9	14	9
22	Panchmahals	11	23	20	22	15	23	22
23	Banaskantha	14	25	25	24	14	25	25
24	Dangs	16	22	24	25	1	22	24
25	Dahod	10	24	19	22	12	24	23

## 27 Index values, GEI, districts, Gujarat, 2001

HDM-1 rank	Districts	Income index	Education index	Health index	Participation index	GEI
1	Ahmedabad	0.751	0.850	0.938	0.308	0.712
2	Gandhinagar	1.000	0.803	1.224	0.341	0.842
3	Rajkot	0.653	0.853	1.098	0.410	0.753
4	Navsari	0.890	0.878	1.093	0.395	0.814
5	Surat	0.609	0.871	1.107	0.396	0.746
6	Bharuch	1.056	0.826	0.868	0.353	0.776
7	Valsad	0.890	0.847	1.093	0.417	0.812
8	Porbandar	0.581	0.794	1.016	0.323	0.678
9	Junagadh	0.581	0.780	1.016	0.344	0.680
10	Jamnagar	0.441	0.790	1.100	0.345	0.669
11	Vadodara	0.776	0.799	0.753	0.354	0.670
12	Kheda	0.654	0.744	0.837	0.443	0.670
13	Anand	0.654	0.772	0.837	0.368	0.658
14	Mehsana	0.840	0.769	0.785	0.428	0.705
15	Amreli	0.803	0.804	0.838	0.356	0.700
16	Bhavnagar	0.569	0.742	0.862	0.341	0.628
17	Sabarkantha	0.732	0.725	1.068	0.400	0.731
18	Kachchh	0.639	0.714	1.125	0.392	0.718
19	Narmada	1.005	0.756	0.848	0.437	0.762
20	Patan	0.813	0.697	0.780	0.363	0.663
21	Surendranagar	0.738	0.717	1.108	0.523	0.772
22	Panchmahals	0.680	0.620	1.052	0.408	0.690
23	Banaskantha	0.706	0.527	0.752	0.405	0.597
24	Dangs	1.000	0.753	1.071	0.434	0.815
25	Dahod	0.680	0.590	1.052	0.433	0.689

## 28 Ranking of districts, GEI, Gujarat, 2001

HDM-1 rank	Districts	Income rank	Education rank	Health rank	Participation rank	GEI rank
1	Ahmedabad	11	4	15	25	12
2	Gandhinagar	4	8	1	22	1
3	Rajkot	19	3	6	8	8
4	Navsari	5	1	8	13	3
5	Surat	21	2	4	12	9
6	Bharuch	1	6	16	19	5
7	Valsad	6	5	7	7	4
8	Porbandar	23	10	14	24	18
9	Junagadh	22	12	13	21	17
10	Jamnagar	25	11	5	20	21
11	Vadodara	10	9	24	18	19
12	Kheda	18	17	21	2	20
13	Anand	17	13	20	15	23
14	Mehsana	7	14	22	6	13
15	Amreli	9	7	19	17	14
16	Bhavnagar	24	18	17	23	24
17	Sabarkantha	13	19	10	11	10
18	Kachchh	20	21	2	14	11
19	Narmada	2	15	18	3	7
20	Patan	8	22	23	16	22
21	Surendranagar	12	20	3	1	6
22	Panchmahals	16	23	12	9	15
23	Banaskantha	14	25	25	10	25
24	Dangs	3	16	9	4	2
25	Dahod	15	24	11	5	16

## 29 Index values, GEI, districts, Gujarat, 1991

HDM-1 rank	Districts	Income index	Education index	Health index	Participation index	GEI
1	Ahmedabad	0.194	0.827	0.938	0.147	0.527
2	Gandhinagar	0.296	0.800	1.224	0.178	0.625
3	Rajkot	0.290	0.822	1.098	0.179	0.597
4	Navsari	0.586	0.851	1.093	0.209	0.685
5	Surat	0.304	0.843	1.107	0.189	0.611
6	Bharuch	0.508	0.789	0.868	0.193	0.590
7	Valsad	0.586	0.820	1.093	0.203	0.675
8	Porbandar	0.333	0.763	1.016	0.190	0.575
9	Junagadh	0.333	0.746	1.016	0.178	0.568
10	Jamnagar	0.279	0.758	1.100	0.168	0.576
11	Vadodara	0.352	0.771	0.753	0.158	0.508
12	Kheda	0.487	0.704	0.837	0.151	0.545
13	Anand	0.487	0.739	0.837	0.162	0.556
14	Mehsana	0.553	0.740	0.785	0.191	0.567
15	Amreli	0.466	0.781	0.838	0.174	0.565
16	Bhavnagar	0.288	0.706	0.862	0.205	0.515
17	Sabarkantha	0.565	0.688	1.068	0.196	0.629
18	Kachchh	0.318	0.685	1.125	0.170	0.574
19	Narmada	0.485	0.718	0.848	0.200	0.563
20	Patan	0.528	0.673	0.780	0.154	0.534
21	Surendranagar	0.461	0.693	1.108	0.193	0.614
22	Panchmahals	0.732	0.562	1.052	0.167	0.628
23	Banaskantha	0.384	0.475	0.752	0.142	0.438
24	Dangs	0.647	0.707	1.071	0.415	0.710
25	Dahod	0.732	0.540	1.052	0.187	0.628

### 30 Ranking of districts, GEI, Gujarat, 1991

HDM-1 rank	Districts	Income rank	Education rank	Health rank	Participation rank	GEI rank
1	Ahmedabad	25	3	15	24	22
2	Gandhinagar	21	6	1	14	7
3	Rajkot	22	4	6	13	10
4	Navsari	4	1	7	2	2
5	Surat	20	2	4	11	9
6	Bharuch	9	7	16	7	11
7	Valsad	5	5	8	4	3
8	Porbandar	18	10	14	10	13
9	Junagadh	17	12	13	15	15
10	Jamnagar	24	11	5	18	12
11	Vadodara	16	9	24	21	24
12	Kheda	11	18	21	23	20
13	Anand	10	14	20	20	19
14	Mehsana	7	13	22	9	16
15	Amreli	13	8	19	16	17
16	Bhavnagar	23	17	17	3	23
17	Sabarkantha	6	20	10	6	4
18	Kachchh	19	21	2	17	14
19	Narmada	12	15	18	5	18
20	Patan	8	22	23	22	21
21	Surendranagar	14	19	3	8	8
22	Panchmahals	2	23	12	19	5
23	Banaskantha	15	25	25	25	25
24	Dangs	3	16	9	1	1
25	Dahod	1	24	11	12	6

### 31 Index values, HDM-2, districts, Gujarat, 2001

HDM-1 rank	Districts	Environment index	Basic services index	Regional equality index	Patriarchy index	HDM-2
1	Ahmedabad	0.627	0.596	0.558	0.503	0.571
2	Gandhinagar	0.940	0.874	0.675	0.403	0.723
3	Rajkot	0.435	0.470	0.699	0.598	0.551
4	Navsari	0.786	0.508	0.516	0.650	0.615
5	Surat	0.739	0.682	0.717	0.595	0.683
6	Bharuch	0.785	0.415	0.700	0.648	0.637
7	Valsad	0.786	0.367	0.566	0.669	0.597
8	Porbandar	0.000	0.339	0.849	0.625	0.453
9	Junagadh	0.000	0.419	0.586	0.626	0.408
10	Jamnagar	0.340	0.172	0.000	0.620	0.283
11	Vadodara	0.803	0.213	0.566	0.537	0.530
12	Kheda	0.823	0.310	0.475	0.435	0.511
13	Anand	0.823	0.524	0.504	0.429	0.570
14	Mehsana	0.841	0.806	0.455	0.430	0.633
15	Amreli	0.820	0.260	0.600	0.635	0.579
16	Bhavnagar	0.444	0.222	0.799	0.581	0.511
17	Sabarkantha	0.333	0.407	0.638	0.554	0.483
18	Kachchh	0.057	0.481	0.555	0.654	0.437
19	Narmada	1.000	0.487	0.806	0.675	0.742
20	Patan	0.426	0.294	0.737	0.487	0.486
21	Surendranagar	0.173	0.643	0.785	0.575	0.544
22	Panchmahals	0.528	0.247	0.559	0.595	0.482
23	Banaskantha	0.296	0.334	0.711	0.548	0.472
24	Dangs	0.855	0.238	0.731	0.651	0.619
25	Dahod	0.528	0.321	1.000	0.620	0.617

### 32 Ranking of districts, HDM-2, Gujarat, 2001

HDM-1 rank	Districts	Environment rank	Basic services rank	Regional equality rank	Patriarchy rank	HDM-2 rank
1	Ahmedabad	13	5	19	20	11
2	Gandhinagar	2	1	12	25	2
3	Rajkot	17	10	11	12	13
4	Navsari	9	7	21	5	8
5	Surat	12	3	8	14	3
6	Bharuch	11	12	10	6	4
7	Valsad	10	14	17	2	9
8	Porbandar	25	15	2	9	22
9	Junagadh	24	11	15	8	24
10	Jamnagar	19	25	25	11	25
11	Vadodara	8	24	16	19	15
12	Kheda	6	18	23	22	17
13	Anand	5	6	22	24	12
14	Mehsana	4	2	24	23	5
15	Amreli	7	20	14	7	10
16	Bhavnagar	16	23	4	15	16
17	Sabarkantha	20	13	13	17	19
18	Kachchh	23	9	20	3	23
19	Narmada	1	8	3	1	1
20	Patan	18	19	6	21	18
21	Surendranagar	22	4	5	16	14
22	Panchmahals	15	21	18	13	20
23	Banaskantha	21	16	9	18	21
24	Dangs	3	22	7	4	6
25	Dahod	14	17	1	10	7



### 33 Index values, HDM-2, districts, Gujarat, 1991

HDM-1 rank	Districts	Environment index	Basic services index	Regional equality index	Patriarchy index	HDM-2
1	Ahmedabad	0.627	0.397	0.832	0.572	0.607
2	Gandhinagar	0.940	0.820	1.000	0.445	0.801
3	Rajkot	0.435	0.466	0.844	0.643	0.597
4	Navsari	0.786	0.643	0.820	0.694	0.736
5	Surat	0.739	0.345	0.981	0.650	0.679
6	Bharuch	0.785	0.544	0.589	0.697	0.654
7	Valsad	0.786	0.643	0.573	0.694	0.674
8	Porbandar	0.000	0.180	0.853	0.652	0.421
9	Junagadh	0.000	0.180	0.847	0.652	0.420
10	Jamnagar	0.340	0.233	0.854	0.639	0.516
11	Vadodara	0.803	0.302	0.884	0.586	0.644
12	Kheda	0.823	0.578	0.830	0.455	0.671
13	Anand	0.823	0.578	0.814	0.455	0.667
14	Mehsana	0.841	0.390	0.792	0.519	0.635
15	Amreli	0.820	0.307	0.858	0.664	0.662
16	Bhavnagar	0.444	0.170	0.877	0.607	0.524
17	Sabarkantha	0.333	0.333	0.750	0.594	0.503
18	Kachchh	0.057	0.218	0.847	0.661	0.446
19	Narmada	1.000	0.517	0.830	0.685	0.758
20	Patan	0.426	0.371	0.775	0.526	0.524
21	Surendranagar	0.173	0.310	0.831	0.620	0.483
22	Panchmahals	0.528	0.439	0.480	0.630	0.519
23	Banaskantha	0.296	0.256	0.965	0.571	0.522
24	Dangs	0.855	0.209	0.899	0.682	0.661
25	Dahod	0.528	0.439	0.000	0.630	0.399

### 34 Ranking of districts, HDM-2, Gujarat, 1991

HDM-1 rank	Districts	Environment rank	Basic services rank	Regional equality rank	Patriarchy rank	HDM-2 rank
1	Ahmedabad	13	11	13	14	13
2	Gandhinagar	2	1	1	22	1
3	Rajkot	17	8	12	1	14
4	Navsari	9	2	17	8	3
5	Surat	12	14	2	10	6
6	Bharuch	11	6	22	11	11
7	Valsad	10	3	23	9	8
8	Porbandar	25	24	9	6	23
9	Junagadh	24	23	11	5	24
10	Jamnagar	19	20	8	4	17
11	Vadodara	8	18	5	16	10
12	Kheda	6	5	15	25	4
13	Anand	5	4	18	24	5
14	Mehsana	4	12	19	19	9
15	Amreli	7	17	7	3	7
16	Bhavn	16	25	6	12	16
17	Sabarkantha	20	15	21	15	19
18	Kachchh	23	21	10	2	22
19	Narmada	1	7	16	13	2
20	Patan	18	13	20	18	15
21	Surendranagar	22	16	14	7	21
22	Panchmahals	15	10	24	21	20
23	Banaskantha	21	19	3	17	18
24	Dangs	3	22	4	23	12
25	Dahod	14	9	25	20	25

### 35 Comparing HDM-1, GDM-1, and HDM-2 indices, 2001 and change in district ranks in 1990s, Gujarat

HDM-1 rank	Districts	HDM-1, 1991	HDM-1, 1991-2001* rank	GDM-1, 2001 rank	GDM-1, 1991 rank	GDM-1, 1991 -GDM-1, 2001* rank	HDM-1 GDM-1, 2001** rank	HDM-2, 2001 rank	GEI, 2001 rank
1	Ahmedabad	1	0	4	8	4	-3	11	12
2	Gandhinagar	2	0	8	10	2	-6	2	4
3	Rajkot	8	5	1	2	1	2	13	8
4	Navsari	4	0	7	3	-4	-3	8	5
5	Surat	3	-2	10	6	-4	-5	3	20
6	Bharuch	6	0	16	4	-12	-10	4	1
7	Valsad	5	-2	14	7	-7	-7	9	6
8	Porbandar	11	3	3	1	-2	5	22	16
9	Junagadh	14	5	2	5	3	7	24	13
10	Jamnagar	10	0	5	12	7	5	25	24
11	Vadodara	7	-4	17	17	0	-6	15	15
12	Kheda	12	0	11	20	9	1	17	14
13	Anand	15	2	12	19	7	1	12	18
14	Mehsana	17	3	13	15	2	1	5	10
15	Amreli	18	3	6	11	5	9	10	9
16	Bhavnagar	16	0	9	13	4	7	16	21
17	Sabarkantha	19	2	19	16	-3	-2	19	19
18	Kachchh	13	-5	18	18	0	0	23	11
19	Narmada	9	-10	20	9	-11	-1	1	3
20	Patan	20	0	21	21	0	-1	18	17
21	Surendranagar	21	0	15	14	-1	6	14	7
22	Panchmahals	22	0	22	23	1	0	20	22
23	Banaskantha	25	2	23	25	2	0	21	25
24	Dangs	23	-1	24	22	-2	0	6	2
25	Dahod	24	-1	25	24	-1	0	7	23

\* Negative values mean districts falling behind during the decade of 1990s.

\*\* Negative values mean gender development falling behind overall human development.

### 36 Human Poverty Index-1981

S. No.	State	Rural		Urban		Combined	
		Value	Rank	Value	Rank	Value	Rank
1	Kerala	34.20	1	22.80	3	32.10	1
2	Maharashtra	47.29	5	20.53	1	38.63	4
3	Punjab	37.33	2	21.73	2	33.00	2
4	Tamil Nadu	49.23	6	25.28	7	42.05	6
5	Karnataka	50.11	7	27.40	8	43.96	7
<b>6</b>	<b>Gujarat</b>	<b>42.46</b>	<b>3</b>	<b>24.71</b>	<b>6</b>	<b>37.31</b>	<b>3</b>
7	West Bengal	56.06	8	23.61	5	47.64	8
8	Haryana	43.36	4	22.82	4	38.97	5
9	Andhra Pradesh	56.16	9	29.97	9	50.09	9
10	Assam	60.19	13	33.37	12	56.00	13
11	Madhya Pradesh	57.74	10	30.30	10	52.15	10
12	Rajasthan	59.54	12	33.47	13	54.16	11
13	Orissa	62.50	15	37.90	15	59.34	15
14	Uttar Pradesh	59.29	11	36.01	14	54.84	12
15	Bihar	61.07	14	33.25	11	57.57	14
	<b>INDIA</b>	<b>53.28</b>		<b>27.21</b>		<b>47.33</b>	

Note:

1. The Human Poverty Index is a composite of variables capturing deprivation in three dimensions of human development viz. economic, educational and health. These have been captured by proportion of population below poverty line, proportion of population without access to safe drinking water/sanitation/electricity, medical attention at birth/vaccination and proportion living in *kachcha* houses; proportion of illiterate population and children not enrolled in schools; and proportion of population not likely to survive beyond age 40.

2. For the sake of completeness, for some variables used in estimating the indices, the data for all States/UTs have been estimated/assumed following, in general, principles of physical contiguity or similarity in socio-economic or demographic profile.

Source: Planning Commission (2002).

### 37 Human Poverty Index-1991 (comparable with 1981)

S. No.	State	Rural		Urban		Combined	
		Value	Rank	Value	Rank	Value	Rank
1	Kerala	21.75	1	14.43	1	19.93	1
2	Maharashtra	36.53	6	16.23	2	29.25	4
3	Punjab	27.95	2	18.26	4	25.06	2
4	Tamil Nadu	33.98	5	18.71	5	29.28	5
5	Karnataka	37.54	7	20.69	7	32.70	7
<b>6</b>	<b>Gujarat</b>	<b>33.59</b>	<b>4</b>	<b>20.29</b>	<b>6</b>	<b>29.46</b>	<b>6</b>
7	West Bengal	47.00	9	21.52	8	40.48	9
8	Haryana	32.29	3	17.49	3	28.55	3
9	Andhra Pradesh	45.04	8	24.78	10	39.78	8
10	Assam	52.57	12	21.79	9	48.95	13
11	Madhya Pradesh	48.43	10	25.04	11	43.47	10
12	Rajasthan	53.28	14	27.79	12	46.67	11
13	Orissa	53.07	13	29.23	14	49.85	14
14	Uttar Pradesh	52.43	11	31.20	18	48.27	12
15	Bihar	55.85	15	28.04	13	52.34	15
	<b>INDIA</b>	<b>44.81</b>		<b>22.00</b>		<b>39.36</b>	

Note: Same as for Table 37

Source: Planning Commission (2002)

### 38 Human Poverty Index-1991 (not comparable with 1981)

S. No.	State	Rural		Urban		Combined	
		Value	Rank	Value	Rank	Value	Rank
1	Kerala	24.57	1	17.23	1	22.73	1
2	Maharashtra	29.30	3	17.65	2	24.73	2
3	Punjab	28.04	2	18.47	3	25.25	3
4	Tamil Nadu	30.31	4	18.61	5	26.45	4
5	Karnataka	35.28	7	21.59	7	30.99	7
<b>6</b>	<b>Gujarat</b>	<b>31.83</b>	<b>6</b>	<b>20.87</b>	<b>6</b>	<b>28.05</b>	<b>6</b>
7	West Bengal	42.43	8	23.22	9	37.35	8
8	Haryana	31.64	5	18.57	4	27.41	5
9	Andhra Pradesh	43.19	9	25.12	10	38.34	9
10	Assam	49.32	12	22.52	8	46.29	13
11	Madhya Pradesh	45.43	10	25.69	11	40.79	10
12	Rajasthan	51.17	14	26.73	12	44.73	11
13	Orissa	47.97	11	28.29	13	45.22	12
14	Uttar Pradesh	50.02	13	32.62	15	46.65	14
15	Bihar	53.65	15	29.70	14	50.48	15
<b>INDIA</b>		<b>42.25</b>		<b>23.03</b>		<b>37.42</b>	

Note:

1 Methodology same as for Tables 37 and 38.

2 These indices are not comparable with HPIs estimated for 1981 on account of different variables used for capturing economic deprivation. The change facilitates use of more appropriate variables available since 1991.

Source: Planning Commission (2002)

### 39 Indicators of human development measure-1 (HDM-1), States, 2001

States	Per capita income	Adult literacy rate (+7)	% attending school (age 6-14) (after V)	IMR	TFR	% households with all three facilities	% population voting in last state assembly + parliamentary elections	Contestants in last state assembly + parliamentary elections per lakh population	% main workers to total population
	2001	2001	1999-00	1999	1996-98	1991	#	#	2001
	a	b	d	e	f	c	g	g	b
Kerala	21,046	90.92	97.06	16.4	1.80	8.89	57.96	1.83	25.87
Maharashtra	23,726	77.27	82.81	31.3	2.70	25.82	60.94	1.22	36.87
Punjab	25,048	69.95	86.30	39.3	2.70	30.51	60.63	2.12	32.35
Tamil Nadu	19,889	69.68	90.15	39.4	2.00	15.57	58.53	1.12	38.13
Karnataka	18,041	67.04	77.71	24.5	2.50	17.63	67.62	1.44	36.71
<b>Gujarat</b>	<b>19,228</b>	<b>69.67</b>	<b>79.03</b>	<b>44.6</b>	<b>3.00</b>	<b>26.63</b>	<b>53.16</b>	<b>1.34</b>	<b>33.66</b>
West Bengal	16,072	69.22	75.18	40.3	2.50	20.48	75.17	0.83	28.75
Haryana	23,742	68.59	85.44	58.0	3.40	20.28	66.34	2.63	29.62
Andhra Pradesh	16,373	61.11	75.58	37.4	2.50	12.27	69.15	1.62	38.10
Assam	10,198	64.28	78.77	35.8	3.20	9.25	72.94	2.14	26.59
Madhya Pradesh	10,803	64.11	72.23	55.3	4.00	11.97	57.55	1.86	31.66
Rajasthan	11,978	61.03	72.16	59.1	4.20	15.72	58.62	1.52	30.86
Orissa	8,547	63.61	71.24	64.6	3.00	5.40	57.37	1.35	26.08
Uttar Pradesh	9,721	57.36	72.20	65.8	4.80	16.00	53.69	1.99	23.74
Bihar	5,909	47.53	53.50	55.1	4.40	7.13	62.03	2.67	25.40
<b>INDIA</b>	<b>16,487</b>	<b>65.16</b>	<b>75.30</b>	<b>43.8</b>	<b>3.30</b>	<b>16.07</b>	<b>61.48</b>	<b>1.69</b>	<b>30.55</b>

# Parliamentary elections are of 1999.

Year of holding assembly elections for states are: 1998 (Gujarat, Madhya Pradesh, Rajasthan); 1999 (Andhra Pradesh, Karnataka, Maharashtra); 2000 (Bihar, Haryana, Orissa); 2001 (Assam, Kerala, Tamil Nadu, West Bengal); 2002 (Uttar Pradesh, Punjab). For the average all India figure on voting and number of contestants per lakh electors simple average across the states for whatever year the assembly elections were held is taken.

Source:

a SDP estimates

c India's Social Sector, CMIE (Feb. 1996)

d Based on CMIE (1996)

f Guilhoto and Rajan (2002), pp. 667 (based on SRS data)

b Population Census, 2001

d Calculated from NSS 55th Round

e SRS Bulletin, 2002.

g <http://www.eci.gov.in>

## 40 Indicators of human development measure-1 (HDM-1), States, 1991

States	Per capita income	Adult literacy rate (+7)	% attending school (age 6-14) (after V)	IMR	TFR	% households with all three facilities	% population voting in last state assembly + parliamentary elections	Contestants in last state Assembly + Parliamentary elections per lakh population	% main workers to total population
	1991-92	1991	1991	1991-93	1991-93	1991	#	#	1991
	a	b	c	d	e	f	g	g	b
Kerala	4,618	89.81	92.07	15	1.7	8.89	72.04	2.34	27.26
Maharashtra	8,180	64.87	71.73	56	2.9	25.82	59.62	3.74	37.68
Punjab	9,643	58.51	69.04	55	3.1	30.51	41.95	2.53	29.84
Tamil Nadu	5,978	62.66	75.17	57	2.2	15.57	60.89	3.89	39.20
Karnataka	5,555	56.04	62.39	72	3.0	17.63	66.75	4.35	37.15
<b>Gujarat</b>	<b>6,425</b>	<b>61.29</b>	<b>64.62</b>	<b>64</b>	<b>3.2</b>	<b>26.63</b>	<b>55.75</b>	<b>4.05</b>	<b>33.44</b>
West Bengal	5,383	57.70	51.67	65	3.0	20.48	77.99	2.59	29.64
Haryana	8,690	55.85	66.58	70	3.8	20.28	67.49	10.33	28.45
Andhra Pradesh	5,570	44.09	54.07	69	2.8	12.27	68.51	4.01	41.55
Assam	4,230	52.89	52.42	79	3.4	9.25	67.86	7.32	30.97
Madhya Pradesh	4,077	44.20	51.03	109	4.5	11.97	60.38	4.97	37.17
Rajasthan	4,361	38.55	40.81	84	4.5	15.72	60.42	4.67	31.49
Orissa	4,068	49.09	55.25	116	3.2	5.40	57.33	2.60	32.57
Uttar Pradesh	4,012	41.60	41.88	96	5.2	16.00	56.31	5.93	29.79
Bihar	2,904	38.48	39.75	71	4.5	7.13	63.60	6.70	29.68
<b>INDIA</b>	<b>5,583</b>	<b>52.21</b>	<b>55.29</b>	<b>78</b>		<b>16.07</b>	<b>62.27</b>	<b>4.66</b>	<b>33.43</b>

# Parliamentary elections are of 1996.

Year of holding assembly elections for states are: 1989-90 (Bihar, Gujarat, Maharashtra and Orissa); 1991-92 (Assam, Haryana, Kerala, Punjab, Tamil Nadu and West Bengal); 1993-94 (Andhra Pradesh, Karnataka, Madhya Pradesh, Rajasthan, Uttar Pradesh). For the average all India figure on voting and number of contestants per lakh electors simple average across the states for whatever year the assembly elections were held is taken.

Source:

- a SDP estimates
- b Population Census, 1991
- c Socio-Cultural Tables, 1991
- d SRS Bulletins
- e SRS Bulletin
- f India's Social Sector, CMIE (Feb. 1996)
- g <http://www.eci.gov.in>

## 41 Indicators of gender development measure-1 (GDM-1), States, 2001

States	Per capita income		Adult literacy rate (+7)		% attending school (age 6-14) (after V)		IMR		TFR	% households with all three facilities	% population voting in last state assembly + parliamentary elections		Contestants in last state assembly + parliamentary elections per lakh pop.		% main workers to total population	
	2001		2001		1999-00		1999		1996-98	1991	#		#		2001	
	a		b		d		e		f	c	g		g		b	
	M	F	M	F	M	F	M	F			M	F	M	F	M	F
Kerala	36,282	6,649	94.20	87.86	97.07	97.04	18.0	14.9	1.80	8.89	45.18	70.22	3.66	0.10	41.89	10.74
Maharashtra	29,199	17,791	86.27	67.51	85.98	79.3	20.5	42.8	2.70	25.82	63.62	58.03	2.24	0.12	48.65	24.10
Punjab	35,921	12,500	75.63	63.55	87.61	84.83	56.5	16.2	2.70	30.51	61.73	59.39	3.65	0.37	49.97	12.01
Tamil Nadu	31,205	8,416	82.33	61.46	91.66	88.49	33.8	45.1	2.00	15.57	61.13	55.90	2.16	0.06	52.28	23.79
Karnataka	24,736	11,092	76.29	57.45	79.63	75.84	18.5	31.5	2.50	17.63	70.35	64.78	2.69	0.15	51.92	20.92
<b>Gujarat</b>	<b>25,133</b>	<b>12,805</b>	<b>80.50</b>	<b>58.60</b>	<b>83.73</b>	<b>73.73</b>	<b>45.7</b>	<b>43.3</b>	<b>3.00</b>	<b>26.63</b>	<b>58.12</b>	<b>47.90</b>	<b>2.47</b>	<b>0.10</b>	<b>51.25</b>	<b>14.53</b>
West Bengal	23,532	7,962	77.58	60.22	78.43	71.64	55.1	24.0	2.50	20.48	77.27	72.89	1.56	0.06	46.99	8.93
Haryana	32,436	13,647	79.25	56.31	89.16	81.19	69.4	43.5	3.40	20.28	69.09	63.06	4.66	0.27	43.62	13.37
Andhra Pradesh	23,073	9,518	70.85	51.17	80.47	70.30	35.1	39.9	2.50	12.27	71.98	66.32	2.97	0.24	50.71	25.21
Assam	15,034	5,010	71.93	56.03	81.31	75.88	36.1	35.6	3.20	9.25	75.03	70.68	4.02	0.11	42.35	9.68
Madhya Pradesh	13,548	7,818	76.8	50.28	77.45	66.51	59.6	50.7	4.00	11.97	64.68	49.87	3.35	0.28	44.87	17.31
Rajasthan	14,241	9,524	76.46	44.34	83.26	59.47	75.5	40.5	4.20	15.72	64.21	52.41	2.77	0.17	43.81	16.83
Orissa	12,232	4,757	75.95	50.97	76.76	65.75	63.8	65.5	3.00	5.40	62.38	52.00	2.47	0.19	43.07	8.60
Uttar Pradesh	14,090	4,854	70.23	42.98	78.85	64.68	80.1	49.6	4.80	16.00	57.32	49.29	3.56	0.25	39.58	6.11
Bihar	8,671	2,909	60.32	33.57	60.30	45.18	52.5	57.7	4.40	7.13	69.71	53.30	4.89	0.26	40.72	8.76
<b>INDIA</b>	<b>23,073</b>	<b>9,518</b>	<b>70.85</b>	<b>51.17</b>	<b>80.47</b>	<b>70.30</b>	<b>35.1</b>	<b>39.9</b>	<b>2.50</b>	<b>12.27</b>	<b>71.98</b>	<b>66.32</b>	<b>2.97</b>	<b>0.24</b>	<b>50.71</b>	<b>25.21</b>

Parliamentary elections are of 1999.

Year of holding assembly elections for states are: 1998 (Gujarat, Madhya Pradesh, Rajasthan); 1999 (Andhra Pradesh, Karnataka, Maharashtra); 2000 (Bihar, Haryana, Orissa); 2001 (Assam, Kerala, Tamil Nadu, West Bengal); 2002 (Uttar Pradesh, Punjab). For the average all India figure on voting and number of contestants per lakh electors simple average across the states for whatever year the assembly elections were held is taken.

Source:

- a SDP estimates. b Population Census, 2001.  
c India's Social Sector, CMIE (Feb. 1996). d Calculated from NSS 55th Round.  
d Based on CMIE (1996). e SRS Bulletin, 2002.  
f Guilimoto and Rajan (2002), pp. 667 (based on SRS data). g <http://www.eci.gov.in>



## 42 Indicators of gender development measure-1, States, 1991

States	Per capita income		Adult literacy rate (+7)		% attending school (age 6-14) (after V)		IMR		TFR	% households with all three facilities	% population voting in last state assembly + parliament elections		Contestants in last state assembly + parliament elections per lakh population		% main workers to total population	
	1991-92		1991		1991		1991-93		1991-93	1991	#		#		1991	
	a		b		c		d		e	f	g		g		b	
	M	F	M	F	M	F	M	F			M	F	M	F	M	F
Kerala	8,338	1,029	93.62	86.17	92.25	88.14	16	10	1.7	8.89	72.10	71.99	4.56	0.18	44.82	12.81
Maharashtra	11,151	5,000	76.56	52.32	76.67	66.46	50	50	2.9	25.82	62.75	56.21	6.84	0.36	51.25	26.47
Punjab	17,256	1,024	65.66	50.41	72.31	65.37	49	62	3.1	30.51	43.78	39.83	4.49	0.24	54.12	2.79
Tamil Nadu	8,393	3,494	73.75	51.33	79.11	71.07	57	56	2.2	15.57	63.29	58.44	7.39	0.29	56.10	25.13
Karnataka	7,529	3,500	67.26	44.34	68.54	56.14	69	66	3.0	17.63	69.99	63.42	8.14	0.42	53.53	22.73
<b>Gujarat</b>	<b>8,949</b>	<b>3,723</b>	<b>73.1</b>	<b>48.64</b>	<b>70.75</b>	<b>58.02</b>	<b>58</b>	<b>58</b>	<b>3.2</b>	<b>26.63</b>	<b>60.24</b>	<b>50.99</b>	<b>7.63</b>	<b>0.25</b>	<b>53.17</b>	<b>13.73</b>
West Bengal	8,529	1,764	67.81	46.56	55.86	47.30	57	59	3.0	20.48	78.88	76.99	4.65	0.24	50.66	7.96
Haryana	13,923	2,645	69.10	40.47	73.54	58.55	60	73	3.8	20.28	70.47	63.99	18.69	0.52	48.26	6.01
Andhra Pradesh	7,676	3,404	55.13	32.72	61.65	46.09	70	57	2.8	12.27	71.49	65.53	7.68	0.32	55.13	30.05
Assam	6,151	2,149	61.87	43.03	56.00	48.71	81	81	3.4	9.25	69.03	66.57	13.27	0.47	48.38	12.57
Madhya Pradesh	5,191	2,879	58.42	28.85	59.40	42.06	106	106	4.5	11.97	67.69	52.83	9.40	0.47	51.51	22.82
Rajasthan	5,827	2,747	54.99	20.44	61.18	22.95	82	81	4.5	15.72	65.04	55.27	8.46	0.43	48.53	13.04
Orissa	6,070	2,009	63.09	34.68	62.99	47.41	118	101	3.2	5.40	61.97	52.10	4.63	0.27	52.86	12.10
Uttar Pradesh	6,309	1,400	55.73	25.31	50.72	31.69	87	100	5.2	16.00	61.29	50.26	10.51	0.38	49.31	7.45
Bihar	4,440	1,220	52.49	22.89	48.70	29.55	68	72	4.5	7.13	71.12	55.02	12.19	0.34	47.60	9.97
<b>INDIA</b>			<b>64.13</b>	<b>39.29</b>	<b>62.08</b>	<b>47.93</b>	<b>73</b>	<b>75</b>		<b>16.07</b>	<b>66.14</b>	<b>58.02</b>	<b>8.57</b>	<b>0.35</b>	<b>51.00</b>	<b>16.03</b>

# Parliamentary elections are of 1996.

Year of holding assembly elections for states are: 1989-90 (Bihar, Gujarat, Maharashtra and Orissa); 1991-92 (Assam, Haryana, Kerala, Punjab, Tamil Nadu and West Bengal); 1993-94 (Andhra Pradesh, Karnataka, Madhya Pradesh, Rajasthan, Uttar Pradesh). For the average all India figure on voting and number of contestants per lakh electors simple average across the states for whatever year the assembly elections were held is taken.

Source:

a SDP estimates.

b Population Census, 1991.

c Socio-Cultural Tables, 1991.

d SRS Bulletins.

e SRS Bulletin

f India's Social Sector, CMIE (Feb. 1996).

g <http://www.eci.gov.in>

### 43 Calculating equally distributed income for females, States, 2001

States	% females in population	% males in population	% females in workers	% males in workers	Agri. wage rate per day, female, 2001* (Rs.)	Agri. wage rate per day, male, 2001* (Rs.)	Ratio of female wage to male wage
Kerala	0.514	0.486	0.243	0.757	72.5	120.0	0.604
Maharashtra	0.480	0.520	0.360	0.640	40.0	40.0	1.000
Punjab	0.464	0.536	0.232	0.768	85.0	85.0	1.000
Karnataka	0.491	0.509	0.351	0.649	40.0	50.0	0.800
Tamil Nadu	0.497	0.503	0.347	0.653	30.0	60.0	0.500
<b>Gujarat</b>	<b>0.479</b>	<b>0.521</b>	<b>0.319</b>	<b>0.681</b>	<b>40.0</b>	<b>40.0</b>	<b>1.000</b>
West Bengal	0.479	0.521	0.237	0.763	65.0	65.0	1.000
Haryana	0.463	0.537	0.318	0.682	70.0	90.0	0.778
Andhra Pradesh	0.494	0.506	0.377	0.623	40.0	60.0	0.667
Assam	0.482	0.518	0.280	0.720	40.0	50.0	0.800
Madhya Pradesh	0.479	0.521	0.371	0.629	45.0	50.0	0.900
Rajasthan	0.480	0.520	0.381	0.619	60.0	60.0	1.000
Orissa	0.493	0.507	0.312	0.688	37.5	45.0	0.833
Uttar Pradesh	0.473	0.527	0.236	0.764	65.0	65.0	1.000
Bihar	0.479	0.521	0.266	0.734	51.0	60.0	0.850

Contd.

### 43 Contd.: Calculating equally distributed income for females, States, 2001

States	Average wage	Ratio of female wage to average wage	Ratio of male wage to average wage	Share of earned income, female	Share of earned income, male	Proportional income shares, female	Proportional income shares, male	Values with epsilon	Per capita SDP (Rs.)	EDI (Rs.)
Kerala	0.904	0.668	1.106	0.162	0.838	0.316	1.724	0.524	21,046	11,023
Maharashtra	1.000	1.000	1.000	0.360	0.640	0.750	1.231	0.941	23,726	22,330
Punjab	1.000	1.000	1.000	0.232	0.768	0.499	1.434	0.767	25,048	19,211
Karnataka	0.930	0.860	1.075	0.302	0.698	0.615	1.371	0.855	18,041	15,425
Tamil Nadu	0.826	0.605	1.210	0.210	0.790	0.423	1.569	0.669	19,889	13,309
<b>Gujarat</b>	<b>1.000</b>	<b>1.000</b>	<b>1.000</b>	<b>0.319</b>	<b>0.681</b>	<b>0.666</b>	<b>1.307</b>	<b>0.895</b>	<b>19,228</b>	<b>17,201</b>
West Bengal	1.000	1.000	1.000	0.237	0.763	0.495	1.464	0.756	16,072	12,149
Haryana	0.929	0.837	1.076	0.266	0.734	0.575	1.366	0.835	23,742	19,813
Andhra Pradesh	0.874	0.762	1.144	0.287	0.713	0.581	1.409	0.827	16,373	13,541
Assam	0.944	0.847	1.059	0.237	0.763	0.491	1.474	0.750	10,198	7,650
Madhya Pradesh	0.963	0.935	1.039	0.347	0.653	0.724	1.254	0.928	10,803	10,027
Rajasthan	1.000	1.000	1.000	0.381	0.619	0.795	1.189	0.961	11,978	11,507
Orissa	0.948	0.879	1.055	0.274	0.726	0.557	1.431	0.806	8,547	6,892
Uttar Pradesh	1.000	1.000	1.000	0.236	0.764	0.499	1.449	0.763	9,721	7,416
Bihar	0.960	0.885	1.042	0.236	0.764	0.492	1.467	0.753	5,909	4,448

Source: \* From Ministry of Agriculture, Government of India.

#### 44 Calculating equally distributed income for females, States, 1991

States	% females in population	% males in population	% females in workers	% males in workers	Agri. wage rate per day, female, 1991* (Rs.)	Agri. wage rate per day, male, 1991* (Rs.)	Ratio of female wage to male wage
Kerala	0.509	0.491	0.147	0.853	23.29	31.36	0.743
Maharashtra	0.483	0.517	0.372	0.628	14.23	20.12	0.707
Punjab	0.469	0.531	0.067	0.933	27.08	37.11	0.730
Tamil Nadu	0.493	0.507	0.340	0.660	12.11	15.41	0.786
Karnataka	0.490	0.510	0.343	0.657	13.27	15.51	0.856
<b>Gujarat</b>	<b>0.483</b>	<b>0.517</b>	<b>0.312</b>	<b>0.688</b>	<b>16.32</b>	<b>19.04</b>	<b>0.857</b>
West Bengal	0.465	0.535	0.167	0.833	19.13	21.34	0.896
Haryana	0.464	0.536	0.161	0.839	30.13	35.15	0.857
Andhra Pradesh	0.493	0.507	0.376	0.624	13.18	18.42	0.716
Assam	0.480	0.520	0.287	0.713	18.06	22.54	0.801
Madhya Pradesh	0.482	0.518	0.368	0.632	16.61	18.74	0.886
Rajasthan	0.476	0.524	0.336	0.664	14.44	17.06	0.846
Orissa	0.493	0.507	0.273	0.727	12.41	14.48	0.857
Uttar Pradesh	0.468	0.532	0.179	0.821	19.11	21.34	0.896
Bihar	0.477	0.523	0.220	0.780	17.09	19.23	0.889

Contd.

#### 44 Contd.: Calculating equally distributed income for females, States, 1991

States	Average wage	Ratio of female wage to average wage	Ratio of male wage to average wage	Share of earned income, female	Share of earned income, male	Proportional income shares, female	Proportional income shares, male	Values with epsilon	Per capita SDP (Rs.)	EDI (Rs.)
Kerala	0.962	0.772	1.039	0.113	0.887	0.223	1.806	0.391	4,618	1,807
Maharashtra	0.891	0.794	1.122	0.295	0.705	0.611	1.363	0.855	8,180	6,995
Punjab	0.982	0.743	1.018	0.050	0.950	0.106	1.789	0.212	9,643	2,046
Tamil Nadu	0.927	0.848	1.079	0.288	0.712	0.585	1.404	0.830	5,978	4,963
Karnataka	0.950	0.900	1.052	0.309	0.691	0.630	1.355	0.867	5,555	4,814
<b>Gujarat</b>	<b>0.955</b>	<b>0.897</b>	<b>1.047</b>	<b>0.280</b>	<b>0.720</b>	<b>0.580</b>	<b>1.393</b>	<b>0.830</b>	<b>6,425</b>	<b>5,334</b>
West Bengal	0.983	0.912	1.018	0.152	0.848	0.328	1.584	0.569	5,383	3,064
Haryana	0.977	0.877	1.024	0.141	0.859	0.304	1.602	0.538	8,690	4,675
Andhra Pradesh	0.893	0.801	1.120	0.301	0.699	0.611	1.378	0.851	5,570	4,742
Assam	0.943	0.850	1.060	0.244	0.756	0.508	1.454	0.768	4,230	3,248
Madhya Pradesh	0.958	0.925	1.044	0.340	0.660	0.706	1.273	0.918	4,077	3,743
Rajasthan	0.948	0.892	1.054	0.300	0.700	0.630	1.336	0.871	4,361	3,800
Orissa	0.961	0.892	1.041	0.243	0.757	0.494	1.492	0.747	4,068	3,040
Uttar Pradesh	0.981	0.913	1.019	0.163	0.837	0.349	1.573	0.596	4,012	2,389
Bihar	0.976	0.911	1.025	0.200	0.800	0.420	1.529	0.677	2,904	1,966

Source: \* From Ministry of Agriculture, Government of India.

#### 45 Indicators of human development measure-2 (HDM-2), States, 2001

States	% area as wastelands	% villages connected with all weather roads	% villages with primary school (within village)	Doctors per lakh population	Inter-district variations in relative index of development	Juvenile sex ratio	% women ever married in age (10-14)
	1995	1992-93	1993	1993	1993	2001	1991
	a	b	c	c	d	e	e
Kerala	4.25	100.00	61.64	56.55	0.25	963	0.54
Maharashtra	25.77	52.90	64.70	62.54	1.17	917	1.87
Punjab	7.50	98.80	80.82	131.33	0.24	793	1.90
Tamil Nadu	17.67	63.20	53.46	81.61	0.69	939	1.80
Karnataka	14.15	32.90	60.36	98.23	0.46	949	2.62
<b>Gujarat</b>	<b>23.40</b>	<b>73.60</b>	<b>90.43</b>	<b>52.80</b>	<b>0.43</b>	<b>878</b>	<b>2.27</b>
West Bengal	5.68	41.40	38.35	61.29	1.12	963	1.96
Haryana	8.45	99.10	82.47	3.18	0.40	820	2.37
Andhra Pradesh	15.86	43.00	69.73	49.51	0.50	964	3.63
Assam	19.18	64.60	54.51	46.83	0.46	964	2.01
Madhya Pradesh	20.71	23.40	58.49	16.90	0.39	929	8.66
Rajasthan	32.19	21.20	51.11	31.92	0.42	909	13.31
Orissa	13.31	15.10	48.96	35.03	0.20	950	1.52
Uttar Pradesh	16.70	42.80	30.42	23.85	0.41	916	7.28
Bihar	14.85	34.90	50.29	30.53	0.39	938	7.32
<b>INDIA</b>	<b>22.98</b>	<b>40.70</b>	<b>49.79</b>	<b>46.99</b>		<b>927</b>	<b>4.63</b>

Source:

a National Remote Sensing Agency (1995).  
c NCERT (1997).

b Tata Consultancy Services.  
d CMIE (1995).

e Registrar General and Census Commissioner (1998a).

#### 46 Indicators of human development measure-2 (HDM-2), States, 1991

States	% area as wastelands	% villages connected with all weather roads	% villages with primary school (within village)	Doctors per lakh population	Inter-district variations in relative index of development	Juvenile sex ratio	% women ever married in age (10-14)
	1995	1992-93	1993	1993	1993	1991	1991
	a	b	c	c	d	e	e
Kerala	4.25	100.00	61.64	56.55	0.25	950	0.54
Maharashtra	25.77	52.90	64.70	62.54	1.17	941	1.87
Punjab	7.50	98.80	80.82	131.33	0.24	869	1.90
Tamil Nadu	17.67	63.20	53.46	81.61	0.69	950	1.80
Karnataka	14.15	32.90	60.36	98.23	0.46	958	2.62
<b>Gujarat</b>	<b>23.40</b>	<b>73.60</b>	<b>90.43</b>	<b>52.80</b>	<b>0.43</b>	<b>927</b>	<b>2.27</b>
West Bengal	5.68	41.40	38.35	61.29	1.12	967	1.96
Haryana	8.45	99.10	82.47	3.18	0.40	875	2.37
Andhra Pradesh	15.86	43.00	69.73	49.51	0.50	1228	3.63
Assam	19.18	64.60	54.51	46.83	0.46	973	2.01
Madhya Pradesh	20.71	23.40	58.49	16.90	0.39	954	8.66
Rajasthan	32.19	21.20	51.11	31.92	0.42	919	13.31
Orissa	13.31	15.10	48.96	35.03	0.20	967	1.52
Uttar Pradesh	16.70	42.80	30.42	23.85	0.41	928	7.28
Bihar	14.85	34.90	50.29	30.53	0.39	961	7.32
<b>INDIA</b>	<b>22.98</b>	<b>40.70</b>	<b>49.79</b>	<b>46.99</b>		<b>945</b>	<b>4.63</b>

Source:

a National Remote Sensing Agency (1995).  
c NCERT (1997).

b Tata Consultancy Services.  
d CMIE (1995).

e Registrar General and Census Commissioner (1998a).

## 47 Indicators of human development measure-1 (HDM-1), Districts, 2001

Districts	Per capita bank deposit	Adult literacy rate (+7)	% Attending school (age 6-14) (after V)	IMR	TFR	% of households			% population voting in last state assembly + parliamentary elections	Contestants in last state assembly + parliamentary elections per lakh population	% main workers to total population
						having reliable source of drinking water	having electricity	having toilets			
						2001	2001	2001			
	2000	2001	1991	1991	2001	2001	2001	2001	#	#	2001
	a	b	c	c	d	b	b	b	e	e	b
Ahmedabad	15,657	79.89	72.32	64	2.30	49.53	91.37	74.60	55.61	1.15	30.91
Gandhinagar	21,275	76.83	74.33	78	2.40	42.59	80.72	47.67	58.81	1.07	32.73
Rajkot	9,687	65.14	66.15	54	1.90	30.62	93.09	53.42	56.92	1.27	31.74
Navsari	14,586	75.98	70.58	55	2.00	19.91	86.46	36.10	60.20	0.85	30.46
Surat	8,630	74.99	67.51	60	2.50	37.06	84.75	60.71	51.28	1.06	33.80
Bharuch	5,155	74.79	68.18	49	2.50	27.35	90.97	39.58	59.43	2.21	34.25
Valsad	14,586	69.41	70.58	55	2.50	19.91	83.22	32.06	58.94	1.08	35.69
Porbandar	7,985	69.09	68.61	63	2.50	21.91	92.81	39.98	57.65	2.92	33.82
Junagadh	7,985	68.35	68.61	63	2.60	21.91	94.36	43.01	61.30	1.54	31.45
Jamnagar	9,561	57.82	66.03	51	2.40	23.60	87.20	42.25	56.19	1.78	32.18
Vadodara	2,030	71.32	57.96	51	2.40	37.79	78.08	53.09	61.49	1.13	33.05
Kheda	8,816	72.71	68.28	84	2.60	24.73	80.36	43.99	62.52	0.90	36.17
Anand	8,816	74.95	68.28	84	2.40	24.73	73.34	43.24	66.86	0.76	33.26
Mehsana	3,165	75.54	68.64	89	2.50	18.01	82.87	40.34	70.71	1.17	34.26
Amreli	3,154	67.72	61.53	64	2.50	13.94	89.64	38.65	61.64	1.39	33.79
Bhavnagar	5,163	66.98	62.24	54	3.00	20.83	77.68	49.15	64.67	0.61	31.65
Sabarkantha	2,074	67.31	73.12	75	2.90	13.32	75.18	27.76	67.10	0.85	39.67
Kachchh	21,987	50.95	58.48	79	3.40	27.10	65.68	30.27	61.89	1.15	34.38
Narmada	4,811	60.37	67.05	49	2.80	28.50	52.02	18.90	65.73	1.44	37.17
Patan	2,829	60.59	65.42	54	3.10	16.80	68.48	30.67	67.36	1.15	32.35
Surendranagar	2,816	62.46	60.62	78	3.40	13.74	86.51	28.30	63.57	1.60	36.75
Panchmahals	1,855	61.50	54.81	79	3.50	10.02	57.50	19.07	64.06	0.75	33.46
Banaskantha	1,398	51.26	45.64	85	3.90	9.35	61.15	19.37	68.69	0.68	33.17
Dangs	1,500	60.23	51.92	87	3.80	3.93	48.30	11.40	56.22	1.80	30.36
Dahod	1,855	45.65	54.81	79	4.30	10.02	39.22	13.15	55.34	0.92	35.02
<b>Gujarat</b>	<b>8,515</b>	<b>59.75</b>	<b>64.62</b>	<b>78</b>	<b>2.60</b>	<b>26.63</b>	<b>80.41</b>	<b>44.60</b>	<b>60.42</b>	<b>0.25</b>	<b>33.66</b>

# Parliament elections of 1998 and Assembly elections of 2002.

Source:

a Profiles of Districts, CMIE (2000),

c Population Census, Socio-Cultural Tables.

e <http://www.eci.gov.in>

b Population Censur, Provisional Population Tables, 2001.

d Guilmo and Rajan (2002), p. 668 (estimated by the authors).

#### 48 Indicators of human development measure-1 (HDM-1), Districts, 1991

Districts	Per capita bank deposit	Adult literacy rate (+7)	% attending school (age 6-14) (after V)	IMR	TFR	% of households with all three facilities	% population voting in last state assembly +Parliamentary elections	Contestants In last state Assembly +Parliamentary elections per lakh population	% main workers to total population
	1990	1991	1991	1991	1991	1991	#	#	1991
	a	b	c	c	c	d	e	e	b
Ahmedabad	5,028	73.64	72.32	64	3.55	49.53	43.03	4.35	30.96
Gandhinagar	5,419	73.78	74.33	78	3.76	42.59	48.97	3.88	31.89
Rajkot	2,524	66.96	66.15	54	4.00	30.62	45.65	3.85	33.67
Navsari	3,489	68.29	70.58	55	3.43	19.91	53.69	2.15	38.77
Surat	3,081	64.36	67.51	60	3.45	37.06	48.41	2.62	39.14
Bharuch	1,325	65.76	68.18	49	3.63	27.35	57.32	3.66	37.00
Valsad	3,489	60.33	70.58	55	3.43	19.91	53.69	2.15	38.17
Porbandar	2,017	61.85	68.61	63	3.99	21.91	47.98	6.16	31.94
Junagadh	2,017	59.63	68.61	63	3.99	21.91	46.77	4.08	32.63
Jamnagar	2,616	58.97	66.03	51	4.01	23.60	47.51	4.69	32.81
Vadodara	4,113	63.73	57.96	51	4.61	37.79	49.31	3.33	34.64
Kheda	3,201	63.97	68.28	84	4.14	24.73	50.15	3.70	33.06
Anand	858	67.92	68.28	84	4.14	24.73	52.48	3.47	34.02
Mehsana	1,058	68.33	68.64	89	4.14	18.01	58.87	3.51	34.37
Amreli	858	60.46	61.53	64	4.23	13.94	54.41	4.25	33.83
Bhavnagar	1,485	57.75	62.24	54	4.56	20.83	52.46	4.02	34.98
Sabarkantha	581	59.03	73.12	75	4.26	13.32	56.26	3.08	34.17
Kachchh	5,090	52.75	58.48	79	4.39	27.01	50.07	3.37	32.63
Narmada	1,632	51.38	67.05	49	3.74	28.50	57.04	3.66	37.55
Patan	982	53.91	65.42	88	4.30	16.80	52.52	3.53	31.72
Surendranagar	875	54.77	60.62	78	4.43	13.74	53.08	4.03	34.80
Panchmahals	564	49.62	54.81	79	4.70	10.02	49.89	2.60	33.62
Banaskantha	513	39.50	45.64	85	5.29	9.35	59.10	2.50	31.92
Dangs	490	47.56	51.92	87	5.04	3.93	53.99	0.37	46.88
Dahod	564	35.78	54.81	79	4.70	10.02	48.89	2.64	32.87
<b>Gujarat</b>	<b>2,525</b>	<b>61.29</b>	<b>64.62</b>	<b>78</b>	<b>4.20</b>	<b>26.63</b>	<b>50.00</b>	<b>3.30</b>	<b>34.18</b>

# Parliament elections of 1996 and Assembly elections of 1996.

Source:

- a Profiles of Districts, CMIE (2000),      b Population Census, Provisional Population Tables, 2001.  
c Population Census, Socio-Cultural Tables      d Profiles of Districts, CMIE (1997).  
e <http://www.eci.gov.in>

## 49 Indicators of gender development measure-1 (GDM-1), Districts, 2001

Districts	Per capita agricultural wages		Adult literacy rate (+7)		% attending school (age 6-14) (after V)		IMR		TFR	% of households			% of households		% of households		% Labour in non-farm sector	
										having reliable source of drinking water	having electricity	having toilets						
	1998-99		2001		1991 <sup>b</sup>		1991 <sup>c</sup>		2001	2001	2001	2001	#		#		1991 <sup>b</sup>	
	a	b	c	d	e	f	g	h	i	j	k	l	m	n	o	p	q	r
M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	
Ahmedabad	47.70	35.84	87.81	71.12	76.29	67.93	61	65	2.30	49.53	91.37	74.60	59.09	51.82	2.12	0.05	51.03	8.36
Gandhinagar	37.50	37.50	87.92	64.85	79.22	68.85	82	67	2.40	42.59	80.72	47.67	62.89	54.59	1.97	0.08	52.26	11.97
Rajkot	81.55	53.27	72.07	57.69	69.34	62.76	56	51	1.90	30.62	93.09	53.42	61.09	53.98	2.33	0.13	46.44	16.22
Navsari	38.33	34.13	82.93	68.74	73.20	67.84	78	78	2.00	19.91	86.46	36.10	62.27	58.07	1.57	0.08	46.21	13.70
Surat	43.25	26.36	81.85	66.71	70.03	64.89	62	56	2.50	37.06	84.75	60.71	54.03	48.18	1.84	0.14	50.58	15.64
Bharuch	23.94	25.29	83.43	65.42	72.84	63.17	46	53	2.50	27.35	90.97	39.58	63.44	55.18	4.23	0.00	52.65	14.25
Valsad	38.33	34.13	78.10	59.92	73.20	67.84	59	54	2.50	19.91	83.22	32.06	60.86	56.97	2.01	0.07	51.92	18.04
Porbandar	109.31	63.47	78.88	58.83	74.32	62.58	78	78	2.50	21.91	92.81	39.98	62.19	52.89	5.68	0.00	54.14	11.97
Junagadh	109.31	63.47	79.37	56.92	74.32	62.58	64	63	2.60	21.91	94.36	43.01	65.10	57.29	2.85	0.17	50.64	11.08
Jamnagar	103.36	45.56	66.03	49.09	71.71	59.99	55	50	2.40	23.60	87.20	42.25	60.18	51.52	3.25	0.22	51.65	11.79
Vadodara	43.48	33.76	80.65	61.24	62.81	52.66	67	89	2.40	37.79	78.08	53.09	65.28	57.45	2.09	0.09	51.71	12.74
Kheda	57.12	37.38	86.58	57.77	74.58	61.19	77	92	2.60	24.73	80.36	43.99	66.41	58.48	1.67	0.05	49.81	21.44
Anand	57.12	37.38	86.31	62.53	74.58	61.19	63	63	2.40	24.73	73.34	43.24	71.62	61.80	1.39	0.06	50.47	14.33
Mehsana	45.74	38.40	86.52	63.96	75.85	60.51	84	107	2.50	18.01	82.87	40.34	74.52	66.91	2.20	0.06	48.61	19.12
Amreli	67.32	54.03	77.68	57.77	65.90	57.00	62	74	2.50	13.94	89.64	38.65	66.47	56.57	2.77	0.00	52.35	14.99
Bhavnagar	78.05	44.44	78.83	54.46	69.22	54.85	50	58	3.00	20.83	77.68	49.15	68.12	60.97	1.14	0.04	51.00	10.99
Sabarkantha	38.54	28.22	81.19	52.85	81.05	64.71	78	73	2.90	13.32	75.18	27.76	70.67	63.52	1.46	0.20	58.89	16.66
Kachchh	79.98	51.13	59.83	41.52	67.09	49.18	81	72	3.40	27.10	65.68	30.27	65.85	57.83	2.24	0.00	49.96	17.27
Narmada	26.09	26.22	72.88	47.16	7.38	5.41	48	57	2.80	28.50	52.02	18.90	68.66	62.69	2.60	0.20	53.33	20.24
Patan	46.31	37.64	74.07	46.36	72.35	61.10	56	53	3.10	16.80	68.48	30.67	70.97	63.77	1.98	0.27	52.59	10.95
Surendranagar	67.35	49.71	75.33	48.72	67.44	53.10	82	74	3.40	13.74	86.51	28.30	68.01	58.81	2.95	0.15	46.16	27.21
Panchmahals	44.42	30.19	76.62	45.43	66.40	42.96	81	77	3.50	10.02	57.50	19.07	67.19	60.69	1.40	0.05	48.88	16.92
Banaskantha	48.73	34.41	66.91	34.54	58.55	31.49	82	109	3.90	9.35	61.15	19.37	73.93	63.30	1.28	0.04	47.80	17.44
Dangs	34.00	34.00	71.35	48.99	56.74	46.55	90	84	3.80	3.93	48.30	11.40	59.15	53.26	3.57	0.00	42.72	17.81
Dahod	44.42	30.19	59.45	31.70	66.40	42.96	84	84	4.30	10.02	39.22	13.15	57.66	52.98	1.77	0.06	49.39	19.24
<b>Gujarat</b>	<b>57.67</b>	<b>39.84</b>	<b>68.56</b>	<b>50.19</b>	<b>70.75</b>	<b>58.02</b>	<b>74</b>	<b>82</b>	<b>2.60</b>	<b>26.63</b>	<b>80.41</b>	<b>44.60</b>	<b>64.10</b>	<b>56.54</b>	<b>2.09</b>	<b>0.09</b>	<b>51.25</b>	<b>14.53</b>

# Parliament elections of 1998 and Assembly elections of 2002.

Source:

a Department of Agriculture, Government of Gujarat.

b Population Census, Provisional Population Tables, 2001.

c Population Census, Socio-Cultural Tables.

d Guilmo and Rajan (2002), p. 668 (estimated by the authors).

e <http://www.eci.gov.in>

## 50 Indicators of gender development measure-1 (GDM-1), Districts, 1991

Districts	Per capita agricultural wages		Adult literacy rate (+7)		% attending school (age 6 - 14) (after V)		IMR		TFR	% households with all three facilities	% population voting in last state assembly + Parliamentary elections		Contestants in last state assembly + Parliamentary elections per lakh population		% Labour in non-farm sector	
	1995		1991		1991		1991		1991	1991	1998		1998		1991	
	a		b		c		c		c	d	e		e		b	
	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F
Ahmedabad	19.35	3.75	82.94	63.28	76.29	67.93	61	65	3.55	49.53	47.66	38.01	8.04	0.26	50.86	8.77
Gandhinagar	12.42	3.68	84.85	62.04	79.22	68.85	82	67	3.76	42.59	53.39	44.27	6.81	0.70	50.85	11.57
Rajkot	27.75	8.04	76.76	56.66	69.34	62.76	56	51	4.00	30.62	49.93	41.09	7.17	0.34	53.14	13.09
Navsari	12.56	7.36	76.74	59.47	73.20	67.84	59	54	3.43	19.91	55.88	51.44	4.13	0.13	56.33	20.44
Surat	13.92	4.23	72.61	55.13	70.03	64.89	62	56	3.45	37.06	50.61	45.95	4.76	0.22	58.39	17.75
Bharuch	12.69	6.45	76.31	54.27	72.84	63.17	46	53	3.63	27.35	60.69	53.77	6.76	0.31	55.76	16.70
Valsad	12.56	7.36	70.16	50.02	73.20	67.84	59	54	3.43	19.91	55.88	51.44	4.13	0.13	55.92	19.62
Porbandar	35.44	11.81	73.24	50.08	74.32	62.58	64	63	3.99	21.91	51.92	43.85	11.65	0.44	52.20	11.86
Junagadh	35.44	11.81	72.04	46.78	74.32	62.58	64	63	3.99	21.91	50.56	42.76	7.54	0.49	52.21	12.25
Jamnagar	26.21	7.31	69.87	47.53	71.71	59.99	55	50	4.01	23.60	51.52	43.27	9.09	0.06	52.67	12.00
Vadodara	18.17	6.39	74.19	52.22	62.81	52.66	67	89	4.61	37.79	53.34	44.97	6.11	0.28	54.98	12.37
Kheda	11.98	5.83	79.83	46.90	74.58	61.19	77	92	4.14	24.73	56.18	43.85	6.94	0.17	53.28	11.18
Anand	11.98	5.83	81.23	53.38	74.58	61.19	77	92	4.14	24.73	58.74	45.89	6.34	0.35	53.88	12.26
Mehsana	17.19	9.51	80.94	55.22	75.85	60.51	84	107	4.14	18.01	63.76	53.97	6.50	0.32	52.26	15.56
Amreli	28.27	13.16	71.21	49.68	65.90	57.00	62	74	4.23	13.94	59.48	49.14	8.20	0.23	53.84	13.51
Bhavnagar	29.61	8.52	70.91	43.88	69.22	54.85	50	58	4.56	20.83	57.98	46.55	7.51	0.34	52.69	16.23
Sabarkantha	14.79	8.35	74.53	43.08	81.05	64.71	78	73	4.26	13.32	60.86	51.66	5.89	0.16	51.28	16.44
Kachchh	22.18	7.06	64.26	40.89	67.09	49.18	81	72	4.39	27.10	52.90	47.23	6.43	0.15	51.25	13.31
Narmada	13.29	6.44	64.86	37.03	71.73	62.02	48	57	3.74	28.50	60.47	53.42	6.75	0.31	56.32	17.73
Patan	17.41	9.19	67.91	39.20	73.43	56.45	84	107	4.30	16.80	58.11	46.96	6.43	0.45	51.70	10.55
Surendranagar	24.16	11.13	67.83	40.65	67.44	53.10	82	74	4.43	13.74	58.07	47.72	7.64	0.08	52.40	15.71
Panchmahals	12.08	8.84	66.25	31.67	66.40	42.96	81	77	4.70	10.02	53.31	46.21	4.86	0.21	52.29	13.63
Banaskantha	18.79	7.21	55.17	22.71	58.55	31.49	82	109	5.29	9.35	65.35	52.65	4.57	0.26	51.55	10.88
Dangs	11.77	7.61	59.55	35.31	56.74	46.55	90	84	5.04	3.93	56.54	51.38	0.64	0.08	53.30	40.35
Dahod	12.08	8.84	49.66	21.46	66.40	42.96	81	77	4.70	10.02	51.33	46.38	5.06	0.09	49.86	15.46
<b>Gujarat</b>			<b>60.99</b>	<b>40.62</b>	<b>70.75</b>	<b>58.02</b>	<b>97</b>	<b>104</b>	<b>4.20</b>	<b>26.63</b>	<b>65.75</b>	<b>57.14</b>	<b>4.09</b>	<b>0.20</b>	<b>48.39</b>	<b>24.34</b>

# Parliamentary elections of 1996 and Assembly elections of 1996.

Source:

a Profiles of Districts, CMIE (2000).

b Population Census, Provisional Population Tables, 2001.

c Population Census, Socio-Cultural Tables.

d Profiles of Districts, CMIE (1997).

e <http://www.eci.gov.in>



## 51 Indicators of human development measure-2 (HDM-2), Districts, 2001

Districts	% area under wastelands	% villages connected with pucca roads	% villages with high school	% village sub-centres having buildings	Inter-district variations in relative index of development	Juvenile sex ratio	% women ever married in age (10-14)
	1995	2000	2000	2000	2000	2001	1991
	a	b	b	b	b	c	d
Ahmedabad	12.63	97.28	5.08	53.50	0.36	814	2.45
Gandhinagar	4.14	100.00	11.76	59.50	0.27	816	5.17
Rajkot	17.82	91.55	2.11	63.00	0.25	853	0.79
Navsari	8.31	93.90	9.02	34.20	0.40	912	0.71
Surat	9.59	99.58	4.57	61.70	0.24	873	1.32
Bharuch	8.36	85.78	3.67	64.70	0.25	909	0.71
Valsad	8.31	89.62	5.30	40.60	0.36	934	0.71
Porbandar	29.61	92.93	1.63	42.00	0.13	897	1.03
Junagadh	29.61	95.25	3.13	41.30	0.34	898	1.03
Jamnagar	20.41	88.17	3.17	24.80	0.81	893	1.10
Vadodara	7.86	90.49	3.24	24.10	0.36	873	2.85
Kheda	7.33	93.44	1.58	36.60	0.43	880	5.74
Anand	7.33	86.12	13.31	40.90	0.41	873	5.74
Mehsana	6.84	95.90	11.62	61.50	0.45	798	4.05
Amreli	7.39	92.17	2.28	30.00	0.33	894	0.71
Bhavnagar	17.59	89.20	1.27	36.90	0.17	886	1.98
Sabarkantha	20.59	91.71	9.63	23.10	0.30	876	2.46
Kachchh	28.06	92.23	7.93	39.30	0.37	918	0.74
Narmada	2.53	90.29	1.83	70.10	0.17	952	0.94
Patan	18.08	87.67	2.94	44.90	0.22	862	3.94
Surendranagar	24.92	98.62	1.38	71.60	0.18	861	1.57
Panchmahals	15.32	84.90	5.79	34.30	0.36	934	2.67
Banaskantha	21.59	91.21	2.85	41.20	0.24	907	3.31
Dangs	6.46	82.51	3.90	47.10	0.22	974	2.05
Dahod	15.32	91.64	1.29	44.40	0.01	964	2.67
<b>Gujarat</b>	<b>18.38</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>0.00</b>	<b>880</b>	<b>2.27</b>

Source:

- a NRSA (1995). b Directorate of Economics and Statistics, village amenities survey.  
c Population Census, 2001. d Socio-Cultural Tables, Population Census, 1991.

## 52 Indicators of human development measure-2 (HDM-2), Districts, 1991

Districts	% area under wastelands	% villages connected with all weather roads	% villages with primary school	% villages with any primary health facility	Inter-district variations in relative index of development	Juvenile sex ratio	% women ever married in age (10-14)
	1995	1991	1991	1991	1991	1991	1991
	a	b	b	b	b	c	d
Ahmedabad	12.63	63.50	65.20	17.70	0.160	897	2.45
Gandhinagar	4.14	90.70	85.30	53.30	0.001	867	5.17
Rajkot	17.82	59.10	68.70	35.10	0.149	908	0.79
Navsari	8.31	73.20	71.00	52.60	0.171	965	0.71
Surat	9.59	52.70	61.50	24.60	0.019	940	1.32
Bharuch	8.36	63.60	88.10	26.20	0.390	968	0.71
Valsad	8.31	73.20	71.00	52.60	0.406	965	0.71
Porbandar	29.61	45.40	28.20	32.30	0.141	929	1.03
Junagadh	29.61	45.40	28.20	32.30	0.146	929	1.03
Jamnagar	20.41	49.80	51.70	14.00	0.140	917	1.10
Vadodara	7.86	42.30	64.20	26.30	0.110	932	2.85
Kheda	7.33	79.70	75.30	25.30	0.162	904	5.74
Anand	7.33	79.70	75.30	25.30	0.177	904	5.74
Mehsana	6.84	48.90	65.30	35.50	0.198	905	4.05
Amreli	7.39	52.90	44.70	33.10	0.136	929	0.71
Bhavnagar	17.59	47.20	37.30	18.40	0.118	917	1.98
Sabarkantha	20.59	43.00	71.40	24.60	0.237	924	2.46
Kachchh	28.06	46.80	45.90	20.50	0.146	926	0.74
Narmada	2.53	61.26	85.47	26.21	0.162	964	0.94
Patan	18.08	47.95	66.14	31.82	0.214	909	3.94
Surendranagar	24.92	52.00	65.30	13.90	0.161	915	1.57
Panchmahals	15.32	45.20	88.90	27.00	0.494	976	2.67
Banaskantha	21.59	42.10	71.30	9.20	0.034	935	3.31
Dangs	6.46	36.00	67.20	11.30	0.097	1010	2.05
Dahod	15.32	45.20	88.90	27.00	0.948	976	2.67
<b>Gujarat</b>	<b>18.38</b>	<b>51.70</b>	<b>65.10</b>	<b>25.50</b>	<b>-</b>	<b>927</b>	<b>2.27</b>

Source:

a NRSA (1995).

b Directorate of Economics and Statistics, village amenities survey.

c Population Census, 1991.

d Socio-Cultural Tables, Population Census, 1991.

### 53 Per capita income in major States, India (in Rs.)

States	1970-71	1980-81	1990-91	1995-96	2000-01
	(1970-71 prices)		(1980-81 prices)		(1993-94 prices)
Kerala	594	621	1,815	2,353	10,712
Maharashtra	783	957	3,486	4,500	15,172
Punjab	1,070	1,354	3,730	4,175	1,5390
Tamil Nadu	581	584	2,235	2,744	1,2779
Karnataka	641	687	2,034	2,425	11,910
<b>Gujarat</b>	<b>829</b>	<b>904</b>	<b>2,659</b>	<b>3,172</b>	<b>12,975</b>
West Bengal	722	797	2,145	2,668	9,778
Haryana	877	1,060	3,509	3,670	14,331
Andhra Pradesh	585	647	1,779	1,913	9,982
Assam	335	558	1,544	1,593	9,013
Madhya Pradesh	484	516	1,698	1,784	7,003
Rajasthan	651	535	1,942	2,051	7,932
Orissa	478	477	1,383	1,630	5,187
Uttar Pradesh	486	519	1,652	1,666	5,770
Bihar	402	441	1,204	1,149	3,859
<b>INDIA</b>	<b>623</b>	<b>698</b>	<b>2,267</b>	<b>2,648</b>	

Source: CSO's estimates of net state domestic product in EPW Research Foundation (1998).

### 54 Population growth rates by States

States	Population			CARG	
	1981	1991	2001	1981-91	1991-2001
Kerala	25.45	29.10	31.84	1.35	0.90
Maharashtra	62.78	78.94	96.75	2.32	2.06
Punjab	16.79	20.28	24.29	1.91	1.82
Tamil Nadu	48.41	55.86	62.11	1.44	1.07
Karnataka	37.14	44.98	52.73	1.93	1.60
<b>Gujarat</b>	<b>34.09</b>	<b>41.31</b>	<b>50.60</b>	<b>1.94</b>	<b>2.05</b>
West Bengal	54.58	68.08	80.22	2.23	1.65
Haryana	12.92	16.46	21.08	2.45	2.50
Andhra Pradesh	53.55	66.51	75.73	2.19	1.31
Assam	19.90	22.41	26.64	1.19	1.74
Madhya Pradesh	52.18	66.18	81.18	2.41	2.06
Rajasthan	34.26	44.01	56.47	2.54	2.52
Orissa	22.37	31.66	36.71	1.85	1.49
Uttar Pradesh	110.86	139.11	174.53	2.30	2.29
Bihar	69.91	86.37	109.79	2.14	2.43

Source: Based on population census

## 55 Population composition, States

States	Sex ratio	% scheduled castes	% scheduled tribes	% scheduled castes + tribes
Kerala	1,036	9.92	1.10	11.02
Maharashtra	933	11.10	9.27	20.37
Punjab	881	28.31	-	28.31
Tamil	973	19.18	1.03	20.21
Karnataka	959	16.38	4.26	20.64
<b>Gujarat</b>	<b>934</b>	<b>7.41</b>	<b>14.92</b>	<b>22.33</b>
West Bengal	917	23.62	5.60	29.22
Haryana	865	19.75	-	19.75
Andhra Pradesh	972	15.93	6.31	22.24
Assam	922	7.40	12.82	20.22
Madhya Pradesh	931	14.54	23.27	37.81
Rajasthan	909	17.29	12.44	29.73
Orissa	970	16.20	22.21	38.41
Uttar Pradesh	878	21.04	0.21	21.25
Bihar	910	14.56	7.66	22.22
<b>INDIA</b>	<b>926</b>	<b>16.48</b>	<b>8.08</b>	<b>24.56</b>

Note: All figures pertain to 1991.

Source: Population Census, 1991.

## 56 Vital statistics, States

States	Birth Rate	Death rate <sup>b</sup>			Life expectancy at birth <sup>b</sup>			Infant mortality rate		
		Persons	Male	Female	Persons	Male	Female	Persons	Male	Female
	1994 <sup>a</sup>	1993	1993	1993	1989-93	1989-93	1989-93	1995 <sup>c</sup>	1993 <sup>b</sup>	1993 <sup>b</sup>
Kerala	17.4	6.0	7.2	4.9	72.0	68.8	74.7	16	16	10
Maharashtra	25.1	7.3	7.5	7.0	64.2	63.0	65.4	55	50	50
Punjab	25.0	7.9	8.7	7.0	66.4	65.2	67.6	54	49	62
Tamil Nadu	19.2	8.2	8.7	7.7	62.4	61.4	63.4	56	57	56
Karnataka	25.0	8.0	8.5	7.5	61.9	60.2	63.5	62	69	66
<b>Gujarat</b>	<b>27.1</b>	<b>8.2</b>	<b>8.8</b>	<b>7.5</b>	<b>60.1</b>	<b>59.0</b>	<b>61.1</b>	<b>62</b>	<b>58</b>	<b>58</b>
West Bengal	25.2	7.4	7.4	7.4	61.5	60.8	62.3	59	57	59
Haryana	30.8	7.9	7.9	7.9	62.9	62.5	63.7	68	60	73
Andhra Pradesh	23.8	8.6	9.0	8.1	60.6	59.5	61.5	66	70	57
Assam	30.8	10.2	10.2	10.1	54.9	54.6	55.3	77	81	81
Madhya Pradesh	33.0	12.6	12.5	12.7	54.0	54.1	53.8	99	106	106
Rajasthan	33.7	9.1	9.5	8.5	58.0	57.4	58.5	85	82	81
Orissa	28.0	12.2	12.7	11.7	55.5	55.7	55.3	103	118	101
Uttar Pradesh	35.4	11.6	11.2	11.7	55.9	56.5	55.1	86	87	100
Bihar	32.5	10.6	9.8	11.5	58.5	59.7	57.2	73	68	72
<b>INDIA</b>	<b>28.7</b>	<b>9.3</b>	<b>9.5</b>	<b>9.1</b>	<b>59.4</b>	<b>59.0</b>	<b>59.7</b>	<b>74</b>	<b>73</b>	<b>75</b>

Source:

a Sample Registration Bulletin, 1997.

b Department of Women and Child Development (1997).

c Sample Registration Bulletin, Provisional.

## 57 Indicators of patriarchy

States	Sex ratio, 1991		Child women ratio		% married females to total females in the age-group		Mean age at marriage of currently married women	% of currently married women with age at marriage below 18
	Rural	Urban	(0-4)	(5-9)	(10-14)	(15-19)	Total	Total
Kerala	1,037	1,034	329	408	0.5	11.3	19.8	27.0
Maharashtra	972	875	496	565	1.8	27.2	17.9	50.5
Punjab	888	868	480	562	1.9	12.3	19.7	24.7
Tamil Nadu	981	960	348	447	1.7	17.8	19.1	31.6
Karnataka	973	930	464	584	2.5	27.1	18.0	47.8
<b>Gujarat</b>	<b>949</b>	<b>907</b>	<b>467</b>	<b>571</b>	<b>2.2</b>	<b>22.4</b>	<b>19.0</b>	<b>27.2</b>
West Bengal	940	858	481	629	1.9	33.0	17.2	63.4
Haryana	964	868	588	706	2.4	34.7	17.9	52.6
Andhra Pradesh	977	959	437	601	3.5	45.5	16.8	65.5
Assam	934	838	575	737	1.9	23.2	18.2	48.4
Madhya Pradesh	943	893	599	671	8.5	51.4	16.6	68.0
Rajasthan	919	879	608	745	13.2	55.9	16.7	65.6
Orissa	988	866	465	605	1.3	22.0	18.0	51.5
Uttar Pradesh	884	860	631	752	7.1	46.7	17.3	57.6
Bihar	921	844	608	754	7.2	55.3	16.9	64.5
<b>INDIA</b>	<b>939</b>	<b>894</b>	<b>515</b>	<b>632</b>	<b>4.5</b>	<b>35.3</b>	<b>17.7</b>	<b>53.3</b>

Source: Registrar General and Census Commissioner (1998a).

## 58 Selected indicators on literacy and education, States

States	Literacy rate for the age group				% of population who are matric but below graduate		Graduate and above		% population attending school in age group			
	(10-14)		(15-19)		M	F	M	F	(6-10)		(11-13)	
	M	F	M	F					M	F	M	F
Kerala	98.7	98.5	98.3	97.7	21.2	17.0	5.2	3.8	91.3	91.1	94.7	94.4
Maharashtra	89.9	80.5	87.6	74.2	21.8	9.1	7.4	3.6	72.9	65.1	83.7	71.2
Punjab	84.0	77.3	76.5	71.8	23.0	12.0	6.0	4.1	68.3	63.2	80.5	71.8
Tamil Nadu	89.7	80.6	83.6	69.2	19.0	9.1	5.9	2.6	79.8	74.8	79.9	68.5
Karnataka	81.7	67.7	75.0	60.2	18.8	8.5	6.5	2.5	66.6	57.2	73.6	57.6
<b>Gujarat</b>	<b>88.1</b>	<b>73.6</b>	<b>81.8</b>	<b>64.9</b>	<b>18.5</b>	<b>8.8</b>	<b>6.1</b>	<b>2.8</b>	<b>67.2</b>	<b>57.1</b>	<b>78.5</b>	<b>62.7</b>
West Bengal	73.9	63.5	74.5	61.2	13.8	6.2	7.5	3.2	49.2	42.4	68.6	57.4
Haryana	88.0	71.4	82.3	59.4	23.1	7.6	5.8	2.9	67.5	56.2	84.2	65.7
Andhra Pradesh	73.3	55.0	67.9	46.9	14.4	5.0	6.0	1.8	59.2	46.7	67.2	47.1
Assam	73.0	63.3	70.8	58.7	15.1	7.3	4.5	1.6	49.0	42.9	69.2	59.7
Madhya Pradesh	74.5	52.5	73.0	42.0	12.2	3.7	5.6	2.2	53.5	40.9	70.2	46.3
Rajasthan	72.1	34.0	72.3	29.7	12.4	2.8	5.5	1.7	50.3	26.3	72.1	31.4
Orissa	75.5	56.9	72.5	50.1	10.1	3.3	4.8	1.3	60.6	48.0	69.2	49.5
Uttar Pradesh	68.1	42.0	68.3	38.6	16.0	4.1	5.8	2.1	43.7	28.8	64.2	38.8
Bihar	65.1	39.9	65.1	34.3	15.8	3.6	5.9	1.1	41.7	26.1	63.1	37.7
<b>INDIA</b>	<b>77.0</b>	<b>59.7</b>	<b>75.3</b>	<b>54.9</b>	<b>16.7</b>	<b>6.7</b>	<b>6.3</b>	<b>2.6</b>	<b>56.6</b>	<b>45.4</b>	<b>72.5</b>	<b>54.2</b>

Source: Registrar General and Census Commissioner (1998a).

## 59 Net enrolment rate, age 5-9 and age 10-14, States

States	Net enrolment (age 5-9)			Net enrolment (age 10-14)		
	Total	Males	Females	Total	Males	Females
Kerala	76.67	76.36	76.99	93.76	94.04	93.48
Maharashtra	53.88	56.45	51.17	76.26	82.42	69.59
Punjab	50.06	51.41	48.53	74.66	78.88	69.89
Tamil Nadu	65.70	67.15	64.21	73.92	79.53	68.06
Karnataka	49.17	52.19	46.11	64.30	72.19	56.18
<b>Gujarat</b>	<b>47.19</b>	<b>50.17</b>	<b>44.01</b>	<b>69.06</b>	<b>76.59</b>	<b>60.77</b>
West Bengal	32.89	34.98	30.72	61.06	66.41	55.41
Haryana	46.46	49.79	42.67	74.04	82.66	63.84
Andhra Pradesh	43.28	47.53	38.92	56.02	65.51	45.72
Assam	33.63	35.46	31.76	62.57	67.12	57.79
Madhya Pradesh	36.08	40.01	32.00	57.14	68.10	44.92
Rajasthan	29.48	36.98	21.17	51.00	69.32	30.10
Orissa	43.59	48.01	39.03	57.64	67.39	47.81
Uttar Pradesh	25.35	29.61	20.58	50.64	61.91	37.14
Bihar	23.28	27.78	18.41	49.20	60.30	35.76
<b>INDIA</b>	<b>39.08</b>	<b>42.47</b>	<b>35.47</b>	<b>61.57</b>	<b>70.19</b>	<b>51.99</b>

Source: Census of India, 1991.

## 60 Estimated enrolment (%) of all classes under different age groups, States

States	6-11			11-14			6-14		
	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total
Kerala	84.73	82.12	83.44	94.98	93.67	94.33	89.85	87.90	88.89
Maharashtra	76.46	70.97	73.79	75.33	64.48	70.14	75.90	67.73	71.96
Punjab	74.99	72.91	74.01	72.18	65.82	69.19	73.58	69.37	71.60
Tamil Nadu	79.58	76.49	78.06	90.99	82.63	86.92	85.29	79.56	82.49
Karnataka	84.71	74.64	79.68	79.60	64.77	72.30	82.15	69.71	75.99
<b>Gujarat</b>	<b>81.39</b>	<b>70.56</b>	<b>76.14</b>	<b>90.63</b>	<b>72.92</b>	<b>82.23</b>	<b>86.01</b>	<b>71.74</b>	<b>79.19</b>
West Bengal	60.43	52.57	56.57	67.61	52.15	60.10	64.02	52.36	58.34
Haryana	71.07	67.24	69.27	63.56	52.82	58.65	67.31	60.03	63.96
Andhra Pradesh	69.63	58.61	64.20	47.94	33.83	41.19	58.79	46.22	52.69
Assam	84.71	72.73	78.79	59.30	50.14	54.84	72.00	61.43	66.82
Madhya Pradesh	85.72	70.63	78.36	67.04	37.53	53.11	76.38	54.08	65.74
Rajasthan	72.25	40.04	56.94	65.48	26.98	47.54	68.86	33.51	52.24
Orissa	84.84	67.15	76.10	59.74	40.42	50.14	72.29	53.78	63.12
Uttar Pradesh	57.76	38.33	48.66	52.90	29.78	42.39	55.33	34.05	45.52
Bihar	77.15	47.42	63.05	40.63	20.72	31.64	58.89	34.07	47.35
<b>INDIA</b>	<b>73.20</b>	<b>59.14</b>	<b>66.40</b>	<b>65.02</b>	<b>48.20</b>	<b>57.06</b>	<b>69.11</b>	<b>53.67</b>	<b>61.73</b>

Source: NCERT (1997).

## 61 Distribution of literacy by education level, 1991, States

States	Total literates ('000s)		Percent literates who are									
			Below primary		Primary but below middle		Middle but below matric		Matric but below graduate		Graduate and above	
	M	F	M	F	M	F	M	F	M	F	M	F
Kerala	11,543	11,144	15.7	17.6	30.5	31.1	30.4	29.2	19.6	18.9	3.8	3.2
Maharashtra	25,972	16,515	19.6	24.0	25.4	29.1	25.3	25.8	23.2	16.4	6.5	4.7
Punjab	5,919	4,013	20.9	23.1	25.3	31.7	19.0	16.7	28.6	22.8	6.1	5.7
Tamil Nadu	18,050	12,286	23.1	27.7	31.5	34.3	17.6	17.1	22.2	17.3	5.6	3.7
Karnataka	12,872	8,142	25.6	30.0	26.0	28.5	19.2	20.0	22.9	17.9	6.3	3.7
<b>Gujarat</b>	<b>13,025</b>	<b>8,106</b>	<b>19.3</b>	<b>23.3</b>	<b>39.7</b>	<b>43.5</b>	<b>14.6</b>	<b>12.1</b>	<b>21.0</b>	<b>17.2</b>	<b>5.4</b>	<b>3.9</b>
West Bengal	20,092	12,518	24.5	29.7	28.7	32.7	23.8	22.2	15.6	10.9	7.3	4.5
Haryana	4,950	2,499	24.3	31.3	26.4	31.7	18.2	14.7	25.9	17.6	5.2	4.8
Andhra Pradesh	15,533	8,955	26.8	32.4	30.3	35.6	12.7	11.8	23.0	16.3	7.2	3.9
Assam	5,828	3,689	20.6	23.8	29.0	30.6	26.4	28.0	19.4	15.2	4.6	2.4
Madhya Pradesh	16,101	7,364	33.9	40.4	28.3	29.3	15.1	13.0	16.5	12.0	6.2	5.2
Rajasthan	10,130	3,419	27.7	33.9	28.3	31.1	19.8	16.1	17.8	13.2	6.3	5.7
Orissa	8,419	4,497	34.6	37.8	21.0	24.8	25.4	24.9	13.7	9.9	5.2	2.6
Uttar Pradesh	33,111	13,033	24.1	29.2	24.0	30.2	21.8	18.6	23.4	16.3	6.8	5.8
Bihar	18,969	7,434	20.3	27.2	21.6	26.2	26.4	26.9	24.4	16.1	7.3	3.6
<b>INDIA</b>	<b>229,560</b>	<b>129,763</b>	<b>23.8</b>	<b>27.8</b>	<b>27.3</b>	<b>31.4</b>	<b>21.2</b>	<b>20.4</b>	<b>21.3</b>	<b>16.0</b>	<b>6.4</b>	<b>4.5</b>

Source: Registrar General and Census Commissioner (1998a).

## 62 Per cent villages covered and population with access to primary schools, States

States	% villages with states primary school					Per cent population with access to primary school				
	Within the habitation	Upto 1 km*	Between 1 to 2 km	More than 2.0 km	Total	Within the habitation	Upto 1 km*	Between 1 to 2 km	More than 2.0 km	Total
Kerala	61.64	20.59	10.12	7.65	100.00	76.67	13.01	5.99	4.33	100.00
Maharashtra	64.70	19.52	10.67	5.11	100.00	90.65	5.17	2.65	1.53	100.00
Punjab	80.82	14.90	2.54	1.74	100.00	90.83	8.74	0.43	0.26	100.00
Tamil Nadu	53.46	45.16	0.89	0.49	100.00	77.16	22.38	0.32	0.14	100.00
Karnataka	60.36	23.39	11.23	5.02	100.00	91.11	5.47	2.42	1.00	100.00
<b>Gujarat</b>	<b>90.43</b>	<b>5.33</b>	<b>2.24</b>	<b>2.00</b>	<b>100.00</b>	<b>97.12</b>	<b>1.66</b>	<b>0.70</b>	<b>0.52</b>	<b>100.00</b>
West Bengal	38.35	49.35	10.30	2.00	100.00	61.22	31.84	5.68	1.26	100.00
Haryana	82.47	10.56	4.51	2.46	100.00	94.47	4.00	1.15	0.38	100.00
Andhra Pradesh	69.73	18.84	6.21	5.22	100.00	92.45	5.17	1.38	1.00	100.00
Assam	54.51	31.21	9.25	5.03	100.00	66.27	22.34	7.03	4.36	100.00
Madhya Pradesh	58.49	23.26	10.55	7.70	100.00	84.67	8.88	3.83	2.62	100.00
Rajasthan	51.11	23.47	14.00	11.42	100.00	85.39	7.17	4.21	3.23	100.00
Orissa	48.96	33.46	9.85	7.73	100.00	76.10	17.64	3.86	2.40	100.00
Uttar Pradesh	30.42	49.15	14.88	5.25	100.00	60.50	28.10	8.53	2.87	100.00
Bihar	50.29	37.52	8.02	4.17	100.00	77.19	18.32	3.17	1.32	100.00
<b>INDIA</b>	<b>49.79</b>	<b>33.57</b>	<b>10.72</b>	<b>5.92</b>	<b>100.00</b>	<b>77.81</b>	<b>15.95</b>	<b>4.24</b>	<b>2.00</b>	<b>100.00</b>

\* But not within habitation.

Source: Based on NCERT (1997), Tables V10 & V13, Vol. I.

### 63 Effective literacy rate, States

State	1999-00			1993-94		
	Male	Female	Persons	Male	Female	Persons
Kerala	70.64	52.52	61.63	95.14	88.76	91.78
Maharashtra	69.28	43.57	56.96	79.78	56.35	68.40
Punjab	69.19	46.39	57.69	69.27	55.89	62.88
Tamil Nadu	70.09	35.02	53.16	78.24	55.80	66.93
Karnataka	76.34	50.16	63.70	67.85	46.58	57.36
<b>Gujarat</b>	<b>80.19</b>	<b>57.96</b>	<b>69.34</b>	<b>76.75</b>	<b>51.57</b>	<b>64.61</b>
West Bengal	68.31	41.06	55.12	73.52	53.67	63.97
Haryana	79.06	56.81	68.36	74.02	47.32	61.55
Andhra Pradesh	63.91	44.03	54.09	59.13	35.67	47.39
Assam	79.15	63.55	71.83	78.71	61.76	70.99
Madhya Pradesh	94.76	87.60	90.99	63.21	34.60	49.62
Rajasthan	74.05	61.59	68.06	61.90	25.70	44.63
Orissa	79.79	59.08	69.82	64.05	38.76	51.52
Uttar Pradesh	80.79	62.38	71.59	63.37	32.78	48.89
Bihar	58.22	32.08	45.72	58.22	26.66	43.36
<b>INDIA</b>	<b>75.42</b>	<b>56.15</b>	<b>66.13</b>	<b>69.27</b>	<b>44.67</b>	<b>57.37</b>

Source: Respective NSS Rounds.

### 64 Enrolment rate, 1993-94, States

State	% 6-14 going to school			Net enrolment in elementary school		
	Boys	Girls	Person	Boys	Girls	Person
Kerala	94.09	93.93	94.02	90.02	90.23	90.12
Maharashtra	87.19	79.21	83.37	78.48	70.51	74.67
Punjab	83.83	78.95	81.57	65.07	64.37	64.75
Tamil Nadu	84.70	77.89	81.33	80.56	74.23	77.42
Karnataka	78.07	68.83	73.55	74.69	65.54	70.21
<b>Gujarat</b>	<b>82.57</b>	<b>69.55</b>	<b>76.37</b>	<b>75.70</b>	<b>62.82</b>	<b>69.56</b>
West Bengal	74.87	66.14	70.68	65.10	56.59	61.01
Haryana	85.13	75.25	80.67	65.65	55.64	61.13
Andhra Pradesh	72.32	56.86	64.47	63.82	50.59	57.11
Assam	80.66	77.43	79.23	78.78	74.12	76.72
Madhya Pradesh	70.94	55.99	64.03	58.68	46.13	52.88
Rajasthan	74.87	40.88	59.25	62.26	32.34	48.51
Orissa	71.11	59.37	65.42	45.86	38.57	42.32
Uttar Pradesh	72.65	50.91	62.82	62.76	43.19	53.91
Bihar	63.12	43.70	54.49	46.63	31.12	39.74
<b>INDIA</b>	<b>76.23</b>	<b>62.42</b>	<b>69.74</b>	<b>65.50</b>	<b>53.51</b>	<b>59.87</b>

Source: Calculated using NSS data.



## 65 Crude birth rate, States

States	SRS 2001			SRS 1999-00		
	Total	Rural	Urban	Total	Rural	Urban
Kerala	17.2	17.4	16.6	17.7	17.8	17.3
Maharashtra	20.6	21.0	20.1	20.9	21.3	20.2
Punjab	21.2	22.1	18.7	21.4	22.4	18.6
Tamil Nadu	19.0	19.6	17.8	19.2	19.8	18.0
Karnataka	22.2	23.6	19.0	22.2	23.5	19.1
<b>Gujarat</b>	<b>24.9</b>	<b>26.6</b>	<b>21.5</b>	<b>25.2</b>	<b>26.8</b>	<b>21.8</b>
West Bengal	20.5	22.8	13.8	20.6	22.9	14.0
Haryana	26.7	27.8	22.8	26.8	27.8	23.0
Andhra Pradesh	20.8	21.3	19.6	21.3	21.7	20.1
Assam	26.8	27.8	18.5	26.9	27.9	18.7
Madhya Pradesh	30.8	32.8	23.0	31.0	33.0	23.4
Rajasthan	31.0	32.3	24.7	31.1	32.5	24.9
Orissa	23.4	23.9	19.6	23.9	24.4	20.0
Uttar Pradesh	32.1	33.2	27.0	32.6	33.7	27.2
Bihar	31.2	32.3	23.4	31.5	32.5	24.7
<b>INDIA</b>	<b>25.4</b>	<b>27.1</b>	<b>20.2</b>	<b>25.8</b>	<b>25.8</b>	<b>20.6</b>

Source: SRS Bulletins.

## 66 Crude death rate, States

States	2001			1999-00		
	Total	Rural	Urban	Total	Rural	Urban
Kerala	6.6	6.8	6.1	6.5	6.6	6.2
Maharashtra	7.5	8.5	5.9	7.5	8.6	5.7
Punjab	7.0	7.2	6.4	7.2	7.6	6.1
Tamil Nadu	7.6	8.4	6.0	7.8	8.6	6.3
Karnataka	7.6	8.2	6.4	7.7	8.5	5.9
<b>Gujarat</b>	<b>7.8</b>	<b>8.8</b>	<b>5.6</b>	<b>7.7</b>	<b>8.6</b>	<b>5.8</b>
West Bengal	6.8	7.0	6.4	7.0	7.1	6.6
Haryana	7.6	7.6	7.4	7.6	7.8	6.7
Andhra Pradesh	8.1	8.9	5.6	8.2	9.0	5.7
Assam	9.5	9.8	6.6	9.6	10.0	6.3
Madhya Pradesh	10.0	10.8	7.2	10.2	11.0	7.4
Rajasthan	7.9	8.3	6.2	8.2	8.7	6.4
Orissa	10.2	10.7	6.8	10.5	10.9	7.0
Uttar Pradesh	10.1	10.6	7.8	10.3	10.8	8.0
Bihar	8.2	8.5	6.3	8.6	8.9	6.8
<b>INDIA</b>	<b>8.4</b>	<b>9.0</b>	<b>6.3</b>	<b>8.5</b>	<b>9.2</b>	<b>6.3</b>

Source: SRS Bulletins.

## 67 Infant mortality rate, States

States	2001			1999-00			1991-01 change (% per annum)		
	Total	Rural	Urban	Total	Rural	Urban	Total	Rural	Urban
Kerala	11	12	9	13	13	13	-1.4	-1.8	0.8
Maharashtra	45	55	27	47	57	30	-1.7	-1.5	-1.7
Punjab	51	55	37	52	56	8	-0.6	-0.7	-0.5
Tamil Nadu	49	54	35	51	56	37	-1.2	-1.6	-0.9
Karnataka	58	69	27	58	69	25	-2.2	-1.9	-5.3
<b>Gujarat</b>	<b>60</b>	<b>67</b>	<b>42</b>	<b>62</b>	<b>69</b>	<b>44</b>	<b>-0.4</b>	<b>-0.2</b>	<b>-1.5</b>
West Bengal	51	53	38	51	54	38	-2.3	-2.6	-0.2
Haryana	65	68	54	67	69	56	-0.5	-0.7	0.6
Andhra Pradesh	66	74	39	66	74	37	-0.5	-0.1	-2.5
Assam	73	76	33	75	78	35	-0.6	-0.4	-4.3
Madhya Pradesh	86	92	53	88	94	54	-2.1	-2.1	-2.7
Rajasthan	79	83	57	80	84	58	-0.5	-0.6	0.4
Orissa	90	94	60	94	98	64	-2.0	-2.1	-1.2
Uttar Pradesh	82	86	62	83	87	64	-1.4	-1.4	-1.3
Bihar	62	63	52	62	63	53	-1.3	-1.4	1.7
<b>INDIA</b>	<b>66</b>	<b>72</b>	<b>42</b>	<b>68</b>	<b>74</b>	<b>43</b>	<b>-1.4</b>	<b>-1.4</b>	<b>-1.5</b>

Source: SRS Bulletins.

## 68 Nutritional status of children, States, NFHS-2

State	Weight-for-age		Height-for-age		Weight-for-height	
	% below -3 SD	% below -2 SD*	% below -3 SD	% below -2 SD*	% below -3 SD	% below -2 SD*
Kerala	4.7	26.9	7.3	21.9	0.7	11.1
Maharashtra	17.6	49.6	14.1	39.9	2.5	21.2
Punjab	8.8	28.7	17.2	39.2	0.8	7.1
Tamil Nadu	10.6	36.7	12.0	29.4	3.8	19.9
Karnataka	16.5	43.9	15.9	36.6	3.9	20.0
<b>Gujarat</b>	<b>16.2</b>	<b>45.1</b>	<b>23.3</b>	<b>43.6</b>	<b>2.4</b>	<b>16.2</b>
West Bengal	16.3	48.7	19.2	41.5	1.6	13.6
Haryana	10.1	34.6	24.3	50.0	0.8	5.3
Andhra Pradesh	10.3	37.7	14.2	38.6	1.6	9.1
Assam	13.3	36.0	33.7	50.2	3.3	13.3
Madhya Pradesh	24.3	55.1	28.3	51.0	4.3	19.8
Rajasthan	20.8	50.6	29.0	52.0	1.9	11.7
Orissa	20.7	54.4	17.6	44.0	3.9	24.3
Uttar Pradesh	21.9	51.7	31.0	55.5	2.1	11.1
Bihar	25.5	54.4	33.6	53.7	5.5	21.0
<b>INDIA</b>	<b>18.0</b>	<b>47.0</b>	<b>23.0</b>	<b>45.5</b>	<b>2.8</b>	<b>15.5</b>

Note: Each index is expressed in standard deviation units (SD) from the median of the International Reference Population.

\* Includes children who are below -3 SD from the International Reference Population median.

Source: International Institute for Population Sciences (2002), p. 270.

## 69 Anaemia among children, States, NFHS-2

States	% of children with anaemia	% of children with		
		Mild anaemia	Moderate anaemia	Severe anaemia
Kerala	43.9	24.4	18.9	0.5
Maharashtra	76.0	24.1	47.4	4.4
Punjab	80.0	17.4	56.7	5.9
Tamil Nadu	69.0	21.9	40.2	6.9
Karnataka	70.6	19.6	43.3	7.6
<b>Gujarat</b>	<b>74.5</b>	<b>24.2</b>	<b>43.7</b>	<b>6.7</b>
West Bengal	78.3	26.9	46.3	5.2
Haryana	83.9	18.0	58.8	7.1
Andhra Pradesh	72.3	23.0	44.9	4.4
Assam	63.2	31.0	32.2	0.0
Madhya Pradesh	75.0	22.0	48.1	4.9
Rajasthan	82.3	20.1	52.7	9.5
Orissa	72.3	26.2	43.2	2.9
Uttar Pradesh	73.9	19.4	47.8	6.7
Bihar	81.3	26.9	50.3	4.1
<b>INDIA</b>	<b>74.3</b>	<b>22.9</b>	<b>45.9</b>	<b>5.4</b>

Note: Haemoglobin levels are adjusted for altitude when calculating the degree of anaemia.  
Source: International Institute for Population Sciences (2002), p. 273.

## 70 Nutritional status of women, States, NFHS-2

States	Height		Weight-for-height	
	Mean height in (cm)	% below 145 cm	Mean body mass index (BMI)Kg/m <sup>2</sup>	% with BMI below 18.5 kg/m <sup>2</sup>
Kerala	152.6	8.8	22.0	18.7
Maharashtra	151.4	11.9	20.2	39.7
Punjab	154.5	4.1	23.0	16.9
Tamil Nadu	151.5	12.0	21.0	29.0
Karnataka	152.0	9.6	20.4	38.8
<b>Gujarat</b>	<b>151.8</b>	<b>10.2</b>	<b>20.7</b>	<b>37.0</b>
West Bengal	150.0	19.2	19.7	43.7
Haryana	154.3	4.6	21.3	25.9
Andhra Pradesh	151.2	12.7	20.3	37.4
Assam	149.9	17.3	20.1	27.1
Madhya Pradesh	151.7	10.8	19.8	38.2
Rajasthan	153.7	5.6	19.9	36.1
Orissa	150.5	14.9	19.2	48.0
Uttar Pradesh	150.3	16.4	20.0	35.8
Bihar	149.5	19.5	19.4	39.3
<b>INDIA</b>	<b>151.2</b>	<b>13.2</b>	<b>20.3</b>	<b>35.8</b>

Source: International Institute for Population Sciences (2002), p. 246.

## 71 Anaemia among women, States, NFHS-2

States	% of women with anaemia	% of women with		
		Mild anaemia	Moderate anaemia	Severe anaemia
Kerala	22.7	19.5	2.7	0.5
Maharashtra	48.5	31.5	14.1	2.9
Punjab	41.4	28.4	12.3	0.7
Tamil Nadu	56.5	36.7	15.9	3.9
Karnataka	42.4	26.7	13.4	2.3
<b>Gujarat</b>	<b>46.3</b>	<b>29.5</b>	<b>14.4</b>	<b>2.5</b>
West Bengal	62.7	45.3	15.9	1.5
Haryana	47.0	30.9	14.5	1.6
Andhra Pradesh	49.8	32.5	14.9	2.4
Assam	69.7	43.2	25.6	0.9
Madhya Pradesh	54.3	37.6	15.6	1.0
Rajasthan	48.5	32.3	14.1	2.1
Orissa	63.0	45.1	16.4	1.6
Uttar Pradesh	48.7	33.5	13.7	1.5
Bihar	63.4	42.9	19.0	1.5
<b>INDIA</b>	<b>51.8</b>	<b>35.0</b>	<b>14.8</b>	<b>1.9</b>

Note: Haemoglobin levels are adjusted for altitude of the enumeration area and for when calculating the degree of anaemia.  
Source: International Institute for Population Sciences (2002), p. 273.

## 72 Exposure to messages of family planning by States

States	Exposed to family planning message*	Discussed family planning with husband	Discussed family planning with anyone**
Kerala	80.6	17.8	23.8
Maharashtra	62.2	17.5	20.5
Punjab	84.8	49.7	58.8
Tamil Nadu	75.7	13.1	23.8
Karnataka	84.4	14.8	21.8
<b>Gujarat</b>	<b>62.5</b>	<b>11.4</b>	<b>20.6</b>
West Bengal	56.5	17.8	25.2
Haryana	76.6	47.4	57.0
Andhra Pradesh	75.9	10.0	22.7
Assam	60.8	20.5	25.4
Madhya Pradesh	48.9	16.4	23.7
Rajasthan	35.9	17.7	22.6
Orissa	58.9	24.4	31.1
Uttar Pradesh	47.1	18.5	22.7
Bihar	39.7	13.9	19.8
<b>INDIA</b>	<b>59.9</b>	<b>17.8</b>	<b>24.6</b>

\* Women who have heard or seen any message about family planning on the radio, or television, in cinema, film show, newspaper, or magazine, on wall painting, or hoarding, etc.

\*\* Husband, friends, neighbours, or other relatives.

Source: IIPS and MEASURE DHS+ (2002), p. 169.

### 73 Maternal care indicators by States, 1998-99

States	% who received all recommended types of antenatal care*	% of births delivered in a medical institution	% of deliveries assisted by a health professional**	% of non-institutional deliveries with a post-partum check-up within two months of birth***	% of non-institutional deliveries with a post-partum check-up within two days of birth***
Kerala	64.9	93.0	94.0	27.4	7.5
Maharashtra	31.0	52.6	59.4	29.8	6.9
Punjab	31.7	37.5	62.6	20.3	5.7
Tamil Nadu	50.8	79.3	83.8	53.0	10.1
Karnataka	41.5	51.1	59.1	35.3	3.6
<b>Gujarat</b>	<b>25.0</b>	<b>46.3</b>	<b>53.5</b>	<b>10.4</b>	<b>1.6</b>
West Bengal	19.7	40.1	44.2	31.6	7.1
Haryana	20.8	22.4	42.0	15.7	2.5
Andhra Pradesh	35.6	49.8	65.2	44.9	1.6
Assam	15.8	17.6	21.4	25.5	0.5
Madhya Pradesh	10.9	20.1	29.7	10.0	0.5
Rajasthan	8.3	21.5	35.8	6.4	0.5
Orissa	21.4	22.6	33.4	19.2	2.2
Uttar Pradesh	4.4	15.5	22.4	7.2	1.5
Bihar	6.4	14.6	23.4	10.0	1.4
<b>INDIA</b>	<b>20.0</b>	<b>33.6</b>	<b>42.3</b>	<b>16.5</b>	<b>2.3</b>

Note: Table includes only the two most recent births during the three years preceding the survey.

\* Three or more antenatal checkups (with the first check-up within the first trimester of pregnancy), two or more tetanus toxoid injections, and iron and folic acid tablets or syrup for three or more months.

\*\* Doctors, auxiliary nurse midwife, nurse, midwife, lady health visitor or other health professional.

\*\*\* Based on births in the 2-35 months preceding the survey.

Source: IIPS and MEASURE DHS+ (2002), p. 305.

### 74 Mean age at marriage by States

State	1991 Census		NFHS-2 (1998-99)					
	Male	Female	Urban		Rural		Total	
	Male	Female	Male	Female	Male	Female	Male	Female
Kerala	27.7	22.2	28.9	22.7	27.6	21.2	27.9	21.5
Maharashtra	24.8	19.7	26.0	21.3	24.6	18.6	25.3	19.8
Punjab	24.3	21.0	26.4	23.2	25.5	21.6	25.7	22.1
Tamil Nadu	26.4	20.9	27.1	21.7	26.4	20.4	26.6	20.9
Karnataka	26.2	20.1	27.8	21.5	26.1	19.4	26.7	20.1
<b>Gujarat</b>	<b>23.4</b>	<b>19.9</b>	<b>25.0</b>	<b>21.1</b>	<b>23.8</b>	<b>19.6</b>	<b>24.4</b>	<b>20.2</b>
West Bengal	25.9	19.7	29.0	22.4	25.2	18.7	26.2	19.6
Haryana	22.8	18.8	25.2	21.4	24.3	19.2	24.6	19.8
Andhra Pradesh	23.5	18.3	25.8	20.3	23.1	17.6	23.9	18.3
Assam	na	na	29.3	23.6	27.7	21.5	27.8	21.7
Madhya Pradesh	21.7	17.8	26.0	20.9	22.4	18.2	23.5	18.9
Rajasthan	21.3	17.5	24.1	19.9	21.6	17.8	22.3	18.3
Orissa	25.0	20.2	27.7	22.8	26.4	21.0	26.6	21.2
Uttar Pradesh	21.9	18.0	26.2	21.5	22.4	18.3	23.3	19.0
Bihar	22.1	17.5	26.3	20.9	23.5	18.5	23.8	18.8
<b>INDIA</b>	<b>24.0</b>	<b>19.3</b>	<b>26.5</b>	<b>21.5</b>	<b>24.2</b>	<b>19.0</b>	<b>24.9</b>	<b>19.7</b>

na Not available.

Source: IIPS and MEASURE DHS+ (2002), p. 21.

**75 Availability of basic amenities to households and distribution of households by type of house occupied, States**

States	Per cent households having							Per cent households occupying houses of type					
	Electricity	Safe drinking water	Toilet	Electricity and safe drinking water	Toilet and safe drinking water	Electricity and toilet	All the three facilities	None of the three facilities	Pucca	Semi-Pucca	Total	Kutcha	
												Serviceable	Non-serviceable
Kerala	48.40	18.90	51.30	10.50	10.90	40.40	9.00	34.20	56.00	19.10	24.90	17.40	7.50
Maharashtra	69.40	68.50	29.60	51.50	26.60	28.60	25.80	13.40	52.20	36.10	11.70	7.80	3.80
Punjab	82.30	92.70	33.20	77.40	31.40	32.20	30.50	2.20	77.00	11.10	12.00	11.00	0.90
Tamil Nadu	54.70	67.40	23.10	37.80	16.50	21.80	15.60	15.20	45.50	18.00	36.40	33.70	2.80
Karnataka	52.50	71.70	24.10	39.70	18.80	22.50	17.60	15.00	42.50	40.90	16.50	11.80	4.70
<b>Gujarat</b>	<b>65.90</b>	<b>69.80</b>	<b>30.70</b>	<b>50.90</b>	<b>27.30</b>	<b>29.80</b>	<b>26.60</b>	<b>15.00</b>	<b>56.90</b>	<b>39.00</b>	<b>4.10</b>	<b>2.30</b>	<b>1.70</b>
West Bengal	32.90	82.00	31.50	27.90	27.50	23.50	20.50	12.00	32.60	29.40	38.00	29.40	8.60
Haryana	70.40	74.30	22.40	55.10	21.00	21.60	20.30	10.20	50.10	35.70	14.10	13.30	0.80
Andhra Pradesh	46.30	55.10	18.40	27.80	13.00	17.40	12.30	26.10	64.90	14.40	20.60	15.10	5.50
Assam	18.70	45.90	37.40	11.20	19.80	15.00	9.20	34.80	14.60	15.20	70.20	8.10	62.10
Madhya Pradesh	43.30	53.40	15.10	28.20	12.50	14.30	12.00	31.20	30.50	64.90	4.70	3.60	1.10
Rajasthan	35.00	59.00	19.60	27.40	17.00	17.50	15.70	32.70	56.10	22.90	20.90	19.60	1.30
Orissa	23.50	39.10	9.80	10.60	5.70	9.10	5.40	47.60	18.70	22.10	59.20	53.70	5.50
Uttar Pradesh	21.90	62.20	18.00	18.50	16.00	14.10	12.70	33.70	41.00	30.30	28.60	26.20	2.50
Bihar	12.60	58.80	11.80	8.90	8.80	9.30	7.10	36.80	30.20	36.00	33.80	12.00	21.80
<b>INDIA</b>	<b>42.40</b>	<b>62.30</b>	<b>23.70</b>	<b>30.40</b>	<b>18.20</b>	<b>20.40</b>	<b>16.10</b>	<b>24.50</b>	<b>41.60</b>	<b>31.00</b>	<b>27.40</b>	<b>19.90</b>	<b>7.60</b>

Source: Registrar General and Census Commissioner (1998a).

**76 Unemployment rates (%) based on CDS for major States (1987-2000)**

S. No.	States	1987-88	1993-94	1999-00
1	Kerala	21.19	15.50	20.77
2	Maharashtra	4.67	4.97	7.09
3	Punjab	5.07	3.08	4.15
4	Tamil Nadu	10.36	11.44	12.05
5	Karnataka	5.06	4.89	4.61
<b>6</b>	<b>Gujarat</b>	<b>5.79</b>	<b>5.73</b>	<b>4.63</b>
7	West Bengal	8.13	9.87	14.95
8	Haryana	7.59	6.59	4.67
9	Andhra Pradesh	7.35	6.67	7.94
10	Assam	50.90	7.96	8.00
11	Madhya Pradesh	2.86	3.42	4.60
12	Rajasthan	5.74	1.33	3.06
13	Orissa	6.44	7.28	7.38
14	Uttar Pradesh	3.44	3.45	4.27
15	Bihar	4.04	6.25	7.35
	<b>INDIA</b>	<b>6.09</b>	<b>6.03</b>	<b>7.29</b>

Source: National Sample Survey (43, 50 & 55 Rounds) Reports.

## 77 District-wise population, 1991

District	Rural			Urban			Total		
	Male	Female	Person	Male	Female	Person	Male	Female	Person
Ahmedabad	538,282	493,902	1,032,184	1,879,810	1,675,497	3,555,307	2,418,092	2,169,399	4,587,491
Gandhinagar	391,586	371,102	762,688	165,643	149,075	314,718	557,229	520,177	1,077,406
Rajkot	679,585	650,571	133,056	612,373	571,593	1,183,966	1,291,958	1,222,164	2,514,122
Navsari	393,835	385,011	778,846	160,793	146,053	306,846	554,628	531,064	1,085,692
Surat	858,608	821,171	1,679,779	929,280	788,841	1,718,121	1,787,888	1,610,012	3,397,900
Bharuch	447,566	416,068	863,634	149,044	135,574	284,618	596,610	551,642	1,148,252
Valsad	438,398	424,573	862,971	117,606	107,403	225,009	556,004	531,976	1,087,980
Porbandar	130,739	125,891	256,630	108,838	104,004	212,842	239,577	229,895	469,472
Junagadh	762,124	735,881	1,498,005	304,616	288,561	593,177	1,066,740	1,024,442	2,091,182
Jamnagar	475,560	457,156	932,716	326,602	304,240	630,842	802,162	761,396	1,563,558
Vadodara	889,661	820,402	1,710,063	698,374	629,690	1,328,064	1,588,035	1,450,092	3,038,127
Kheda	736,245	679,327	1,415,572	192,255	178,967	371,222	928,500	858,294	1,786,794
Anand	643,988	585,224	1,229,212	214,973	198,430	413,403	858,961	783,654	1,642,615
Mehsana	659,326	632,216	1,291,542	181,391	167,318	348,709	840,717	799,534	1,640,251
Amreli	501,190	498,879	1,000,069	158,208	150,590	308,798	659,398	649,469	1,308,867
Bhavnagar	682,551	648,347	1,330,898	381,979	357,076	739,055	1,064,530	1,005,423	2,069,953
Sabarkantha	800,334	775,584	1,575,918	95,676	89,492	185,168	896,010	865,076	1,761,086
Kachchh	440,279	434,371	874,650	202,544	185,313	387,857	642,823	619,684	1,262,507
Narmada	208,088	197,078	405,166	22,771	21,439	44,210	230,859	218,517	449,376
Patan	426,705	403,542	830,247	106,313	99,459	205,772	533,018	503,001	1,036,019
Surendranagar	440,251	405,898	846,149	188,918	173,805	362,723	629,169	579,703	1,208,872
Panchmahals	766,286	716,747	1,483,033	103,725	95,575	199,300	870,011	812,322	1,682,333
Banaskantha	922,655	862,675	1,785,330	102,152	94,031	196,183	1,024,807	956,706	1,981,513
Dangs	64,308	63,872	128,180	8,366	7,545	15,911	72,674	71,417	144,091
Dahod	586,149	573,734	1,159,883	58,660	55,580	114,240	644,809	629,314	1,274,123
<b>Gujarat</b>	<b>13,884,299</b>	<b>13,179,222</b>	<b>27,063,521</b>	<b>7,470,910</b>	<b>6,775,151</b>	<b>14,246,061</b>	<b>21,355,209</b>	<b>19,954,373</b>	<b>41,309,548</b>

Source: Population Census, Provisional Population Tables Paper-2 of 2001.

## 78 District-wise population, 2001

District	Rural			Urban			Total		
	Male	Female	Person	Male	Female	Person	Male	Female	Person
Ahmedabad	603,211	553,132	1,156,343	2,466,650	2,185,385	4,652,035	3,069,861	2,738,517	5,808,378
Gandhinagar	450,893	416,680	867,573	247,467	2,19,691	467,158	698,360	636,371	1,334,731
Rajkot	596,916	568,403	1,165,319	735,629	670,983	1,406,612	1,332,545	1,239,386	2,571,931
Navsari	453,321	439,708	893,029	175,493	160,728	336,221	628,814	600,436	1,229,250
Surat	1,026,748	973,989	2,000,737	1,695,927	1,299,727	2,995,654	2,722,675	2,273,716	4,996,391
Bharuch	528,563	488,822	1,017,385	184,912	167,807	352,719	713,475	656,629	1,370,104
Valsad	526,285	503,009	1,029,294	208,660	172,726	381,386	734,945	675,735	1,410,680
Porbandar	141,119	134,328	275,447	130,802	126,605	257,407	271,921	260,933	532,854
Junagadh	885,766	851,335	1,737,101	366,692	344,634	711,326	1,252,458	1,195,969	2,448,427
Jamnagar	498,914	479,402	978,316	436,695	401,018	837,713	935,609	880,420	1,816,029
Vadodara	1,032,927	959,531	1,992,458	863,932	783,385	1,647,317	1,896,859	1,742,916	3,639,775
Kheda	841,482	775,749	1,617,231	211,387	194,736	406,123	1,052,869	970,485	2,023,354
Anand	706,977	642,147	1,349,124	265,378	242,210	507,588	972,355	884,357	1,856,712
Mehsana	737,322	688,744	1,426,066	216,684	194,946	411,630	954,006	883,690	1,837,696
Amreli	540,164	540,259	1,080,423	161,220	151,652	312,872	701,384	691,911	1,393,295
Bhavnagar	782,429	752,158	1,534,587	492,900	441,777	934,677	1,275,329	1,193,935	2,469,264
Sabarkantha	951,394	905,153	1,856,547	118,208	108,661	226,869	1,069,602	1,013,814	2,083,416
Kachchh	-	-	-	-	-	-	782,335	743,986	1,526,321
Narmada	236,722	225,254	461,976	27,211	24,896	52,107	263,933	250,150	514,083
Patan	486,954	457,178	944,132	124,532	113,277	237,809	611,486	570,455	1,181,941
Surendranagar	576,675	535,797	1,112,472	211,110	191,565	402,675	787,785	727,362	1,515,147
Panchmahals	912,174	859,357	1,771,531	132,036	121,316	253,352	1,044,210	980,673	2,024,883
Banaskantha	1,151,639	1,075,781	2,227,420	144,776	130,647	275,423	1,296,415	1,206,428	2,502,843
Dangs	94,001	92,711	186,712	0	0	0	94,001	92,711	186,712
Dahod	743,763	735,233	1,478,996	80,205	76,173	156,378	823,968	811,406	1,635,374
<b>Gujarat</b>	<b>15,506,359</b>	<b>14,653,860</b>	<b>30,160,219</b>	<b>9,702,506</b>	<b>8,524,545</b>	<b>18,227,051</b>	<b>25,208,865*</b>	<b>23,178,405*</b>	<b>48,387,270*</b>

\* Does not include the population and other figures of areas where Census 2001 was postponed due to earthquake.  
Source: Population Census, Provisional Population Tables Paper-2 of 2001.



## 79 District-wise sex ratio (no. of females per 1000 males)

District	Rural		Urban		Total	
	1991	2001	1991	2001	1991	2001
Ahmedabad	918	917	891	886	897	892
Gandhinag	948	924	900	888	934	911
Rajkot	957	952	933	912	946	930
Navsari	978	970	908	916	958	955
Surat	956	949	849	766	901	835
Bharuch	930	925	910	907	925	920
Valsad	968	956	913	828	957	919
Porbandar	963	952	956	968	960	960
Junagadh	966	961	947	940	960	955
Jamnagar	961	961	932	918	949	941
Vadodara	922	929	902	907	913	919
Kheda	923	922	931	921	924	922
Anand	909	908	923	913	912	910
Mehsana	959	934	922	900	951	926
Amreli	995	1000	952	941	985	986
Bhavnagar	950	961	935	896	944	936
Sabarkantha	969	951	935	919	965	948
Kachchh	987	-	915	-	964	951
Narmada	947	952	942	915	947	948
Patan	946	939	936	910	944	933
Surendranagar	922	929	920	907	921	923
Panchmahals	935	942	921	919	934	939
Banaskantha	935	934	921	902	934	931
Dangs	993	986	902	-	983	986
Dahod	979	989	947	950	976	985
<b>Gujarat</b>	<b>949</b>	<b>945</b>	<b>907</b>	<b>879</b>	<b>934</b>	<b>919</b>

Source: Population Census, Provisional Population Tables Paper-2 of 2001.

**80 District-wise number of pre-schools, number of students and number of teachers, 1990-91**

Districts	Number of schools	Number of students	Number of teachers	Teacher-pupil ratio
Ahmedabad	455	23,783	518	46
Gandhinagar	86	5,296	560	9
Rajkot	97	9,233	557	17
Navsari	-	-	-	-
Surat	64	7,519	335	22
Bharuch	34	2,170	77	28
Valsad	62	3,537	319	11
Porbandar	-	-	-	-
Junagadh	45	3,247	173	19
Jamnagar	34	7,537	116	65
Vadodara	162	13,027	179	73
Kheda	372	26,632	40	666
Anand	-	-	-	-
Mehsana	418	21,182	109	194
Amreli	32	2,912	54	54
Bhavnaga	32	5,099	40	127
Sabarkantha	286	12,512	87	144
Kachchh	18	1,497	40	37
Narmada	-	-	-	-
Patan	-	-	-	-
Surendranagar	26	2,279	45	51
Panchmahals	51	2,879	47	61
Banaskantha	60	2,998	46	65
Dangs	-	-	-	-
Dahod	-	-	-	-
<b>Gujarat</b>	<b>2,354</b>	<b>153,421</b>	<b>3,458</b>	<b>44</b>

Source: Education Statistics (Primary Education) 1993-94.

## 81 District-wise number of pre-schools, number of students and number of teachers, 1998-99

Districts	Number of schools	Number of students	Number of teachers	Teacher - pupil ratio
Ahmedabad	462	23,562	503	47
Gandhinagar	111	8,493	162	52
Rajkot	66	3,967	103	39
Navsari	53	3,573	45	79
Surat	144	23,746	472	50
Bharuch	27	1,317	45	29
Valsad	54	2,538	41	62
Porbandar	158	11,551	259	45
Junagadh	30	1,530	37	41
Jamnagar	61	8,084	211	38
Vadodara	137	11,559	349	33
Kheda	300	10,939	280	39
Anand	7	513	21	24
Mehsana	234	12,696	273	47
Amreli	31	3,029	72	42
Bhavnagar	96	7,702	236	33
Sabarkantha	301	10,910	336	32
Kachchh	45	3,462	98	35
Narmada	4	198	9	22
Patan	101	4,589	265	17
Surendranagar	21	2,489	44	57
Panchmahals	78	2,997	52	58
Banaskantha	123	5,776	175	33
Dangs	-	-	-	-
Dahod	19	1,392	45	31
<b>Gujarat</b>				<b>40</b>

Source: Education Statistics (Primary Education) 1998-99.

## 82 District-wise number of pre-schools, number of students and number of teachers, 2000-01

Districts	Number of schools	Number of students	Number of teachers	Teacher-pupil ratio
Ahmedabad	471	23,962	513	47
Gandhinagar	191	14,129	198	71
Rajkot	68	4,047	105	39
Navsari	38	2,293	39	59
Surat	263	32,199	481	67
Bharuch	35	1,595	103	15
Valsad	54	2,538	41	62
Porbandar	160	11,690	259	45
Junagadh	17	1,051	22	48
Jamnagar	63	8,255	207	40
Vadodara	154	11,237	288	39
Kheda	202	14,083	396	36
Anand	24	2,819	72	39
Mehsana	302	10,485	275	38
Amreli	75	3,089	75	41
Bhavnagar	60	5,340	229	23
Sabarkantha	252	8,014	278	29
Kachchh	47	7,612	98	78
Narmada	5	210	20	11
Patan	106	5,221	54	97
Surendranagar	31	2,008	53	38
Panchmahals	80	3,057	54	57
Banaskantha	204	6,152	204	30
Dangs	-	-	-	-
Dahod	21	1,420	55	26
<b>Gujarat</b>	<b>2,923</b>	<b>182,506</b>	<b>4,119</b>	<b>44</b>

Source: Education Statistics (Primary Education) 2000-01.

**83 District-wise number of primary schools, number of students and number of teachers, 1990-91**

Districts	Number of schools	Number of students	Number of teachers	Teacher-pupil ratio
Ahmedabad	2,227	882,342	19,030	46
Gandhinagar	203	72,480	1,748	41
Rajkot	1,492	436,148	10,681	41
Navsari	-	-	-	-
Surat	2,246	614,846	13,693	45
Bharuch	1,547	256,395	6,959	37
Valsad	1,658	352,372	9,023	39
Porbandar	-	-	-	-
Junagadh	1,469	413,627	10,241	40
Jamnagar	1,168	276,409	6,217	44
Vadodara	2,408	476,983	11,811	40
Kheda	2,830	583,451	14,868	39
Anand	-	-	-	-
Mehsana	1,760	453,722	11,444	40
Amreli	776	223,080	5,313	42
Bhavnagar	1,340	367,311	8,089	45
Sabarkantha	2,305	329,154	9,315	35
Kachchh	1,249	204,919	4,822	42
Narmada	-	-	-	-
Patan	-	-	-	-
Surendranagar	881	199,524	4,772	42
Panchmahals	3,498	494,747	11,573	43
Banaskantha	1,864	329,946	7,363	45
Dangs	378	31,049	1,021	30
Dahod	-	-	-	-
<b>Gujarat</b>	<b>31,279</b>	<b>6,989,505</b>	<b>167,983</b>	<b>42</b>

Source: Education Statistics (Primary Education) 1993-94.

**84 District-wise number of primary schools, number of students and number of teachers, 1998-99**

Districts	Number of schools	Number of students			Number of teachers	Teacher-pupil ratio
		Total	Boys	Girls		
Ahmedabad	2,368	949,925	523,929	425,996	18,750	51
Gandhinagar	582	145,789	83,477	62,312	3,543	41
Rajkot	1,926	455,159	245,362	209,797	11,655	39
Navsari	791	163,708	84,907	78,801	4,263	38
Surat	2,524	646,425	341,630	304,795	14,893	43
Bharuch	1,082	331,264	239,176	92,088	6,973	48
Valsad	1,007	180,721	96,095	84,626	4,515	40
Porbandar	321	74,712	39,921	34,791	1,883	40
Junagadh	1,690	368,178	199,178	169,000	9,495	39
Jamnagar	1,329	262,677	142,308	120,369	6,340	41
Vadodara	2,634	489,678	273,418	216,260	11,277	43
Kheda	1,758	299,180	170,521	128,69	7,325	41
Anand	1,166	293,502	167,189	126,313	6,168	48
Mehsana	1,139	354,338	232,042	122,296	6,568	54
Amreli	908	238,265	129,443	108,822	5,780	41
Bhavnagar	1,284	404,623	227,631	176,992	8,741	46
Sabarkantha	2,493	306,250	169,125	137,125	8,383	37
Kachchh	1,437	232,631	133,822	98,809	5,269	44
Narmada	706	75,678	41,251	34,427	1,498	51
Patan	823	190,674	112,315	78,359	4,421	43
Surendranagar	934	209,174	120,284	88,890	4,928	42
Panchmahals	1,685	254,750	140,918	113,832	5,450	47
Banaskantha	1,991	383,210	237,538	145,672	7,138	54
Dangs	400	40,790	21,276	19,514	1,013	40
Dahod	1,855	282,976	161,775	121,201	6,838	41
<b>Gujarat</b>		<b>7,634,277</b>	<b>4,334,531</b>	<b>3,299,746</b>	<b>173,107</b>	<b>44</b>

Source: Education Statistics (Primary Education) 1998-99.

**85 District-wise number of primary schools, number of students and number of teachers, 2000-01**

Districts	Number of schools	Number of students			Number of teachers	Teacher-pupil ratio
		Total	Boys	Girls		
Ahmedabad	2,404	948,113	622,410	325,703	17,020	56
Gandhinagar	605	200,984	114,298	86,686	3,560	56
Rajkot	1,880	457,786	244,183	213,603	12,688	36
Navsari	819	164,162	84,522	79,640	4,824	34
Surat	2,587	682,255	378,701	303,554	16,938	40
Bharuch	1,230	382,616	201,256	181,360	6,442	59
Valsad	1,030	183,093	96,948	86,145	5,115	36
Porbandar	339	76,060	40,383	35,677	1,888	40
Junagadh	1,726	360,462	189,470	170,992	9,672	37
Jamnagar	1,266	262,018	140,952	121,066	6,720	39
Vadodara	2,676	500,535	297,069	203,466	12,461	40
Kheda	1,813	321,364	180,832	140,532	8,516	38
Anand	1,210	298,444	168,621	129,823	7,639	39
Mehsana	1,077	323,134	180,308	142,826	7,107	45
Amreli	976	242,311	131,211	111,100	6,124	40
Bhavnagar	1,348	437,071	241,002	196,069	9,600	46
Sabarkantha	2,651	337,843	185,001	152,842	11,180	30
Kachchh	1,517	258,488	145,725	112,763	6,522	40
Narmada	747	83,851	45,379	38,472	2,617	32
Patan	880	229,273	132,497	96,776	5,922	39
Surendranagar	1,110	242,616	136,319	106,297	5,080	48
Panchmahals	2,302	371,780	200,495	171,285	10,265	36
Banaskantha	2,159	430,271	258,897	171,374	10,438	41
Dangs	410	45,023	23,263	21,760	1,205	37
Dahod	2,068	346,555	197,536	149,019	6,376	54
<b>Gujarat</b>	<b>36,830</b>	<b>8,186,108</b>	<b>4,637,278</b>	<b>3,548,830</b>	<b>195,919</b>	<b>42</b>

Source: Education Statistics (Primary Education) 2000-01.

**86 District-wise students in educational institutions, 1998-99**

Districts	Number of students					Total
	High school	Higher secondary	Other			
			University and higher education	School level	College level	
Ahmedabad	87,425	222,987	88,660	2,322	1,207	402,601
Gandhinagar	18,063	36,370	8,250	60	278	63,021
Rajkot	67,607	77,445	29,309	689	270	175,320
Navsari	17,976	49,118	11,370	-	-	78,464
Surat	54,124	134,009	29,260	311	123	217,827
Bharuch	19,822	29,168	6,830	273	73	56,166
Valsad	16,587	34,502	9,493	767	96	61,445
Porbandar	6,638	13,323	3,278	26	-	23,265
Junagadh	50,675	51,947	17,672	231	262	120,787
Jamnagar	29,070	37,393	8,899	212	136	75,710
Vadodara	43,946	103,386	33,554	49	1,701	182,636
Kheda	34,432	42,355	12,928	267	459	90,441
Anand	34,747	47,072	24,779	633	185	107,416
Mehsana	41,444	72,098	19,733	510	263	134,048
Amreli	21,586	31,148	6,805	38	-	54,577
Bhavnagar	33,190	44,370	12,555	211	291	90,617
Sabarkantha	36,982	73,925	17,425	106	140	127,578
Kachchh	18,048	28,508	6,543	-	-	53,099
Narmada	5,313	10,682	2,638	-	269	18,902
Patan	17,535	28,400	10,636	-	191	56,762
Surendranagar	19,139	24,478	5,965	220	86	49,888
Panchmahals	27,896	28,558	6,516	85	49	63,104
Banaskantha	23,274	34,00	6,117	60	269	63,720
Dangs	2,082	1,851	501	-	-	4,434
Dahod	26,513	32,484	6,609	-	-	65,606
<b>Gujarat</b>	<b>754,114</b>	<b>1,288,577</b>	<b>386,325</b>	<b>7,070</b>	<b>6,348</b>	<b>2,442,434</b>

Source: Education Statistics Secondary, Higher Secondary and 1998-99.



## 87 Number of primary schools and middle & high schools per lakh population

Districts	Primary schools		Middle & high schools	
	1995	2000	1995	2000
Ahmedabad	30.41	22.31	26.21	27.01
Gandhinagar	30.22	11.12	40.44	57.18
Rajkot	18.56	11.65	58.14	56.09
Navsari	-	-	-	-
Surat	34.14	28.20	29.64	33.22
Bharuch	49.01	46.26	47.92	47.43
Valsad	36.66	35.55	39.19	37.59
Porbandar	-	-	-	-
Junagadh	16.76	20.11	48.90	51.64
Jamnagar	16.37	15.81	60.40	61.17
Vadodara	46.10	41.33	36.35	36.76
Kheda	50.17	37.88	42.51	39.22
Anand	-	-	-	-
Mehs ana	33.90	20.32	41.23	38.85
Amreli	18.88	17.08	45.43	47.16
Bhavnagar	18.30	15.92	42.84	39.04
Sabarkantha	91.76	72.99	52.75	55.44
Kachchh	25.24	21.21	77.11	79.15
Narmada	-	-	-	-
Patan	-	-	-	-
Surendranagar	26.89	24.41	45.07	45.42
Panchma hals	58.25	58.31	42.90	41.96
Banaskantha	42.93	36.36	42.43	42.46
Dangs	181.15	173.96	62.49	60.19
Dahod	-	-	-	-
<b>Gujarat</b>	<b>37.50</b>	<b>31.14</b>	<b>42.70</b>	<b>42.39</b>

Source: Profiles of Districts, CMIE (October 2000).

## 88 Gross enrolment rate age group 6-14

District	1990-91		1996-97		2000-01		
	Total	Boys	Girls	Total	Boys	Girls	Total
Ahmedabad	100	105	92	99	108	63	87
Gandhinagar	95	61	61	61	138	124	132
Rajkot	88	107	62	85	77	73	75
Navsari	-	-	-	-	78	77	78
Surat	103	87	86	87	85	76	81
Bharuch	92	102	73	88	159	156	158
Valsad	93	93	80	87	78	75	76
Porbandar	-	-	-	-	73	69	71
Junagadh	86	85	74	80	76	72	74
Jamnagar	86	86	69	78	71	65	68
Vadodara	86	90	72	81	89	66	78
Kheda	92	96	78	88	93	81	88
Anand	-	-	-	-	94	82	89
Mehsana	84	99	82	91	101	92	97
Amreli	84	91	75	83	92	80	86
Bhavnagar	78	101	72	87	84	73	79
Sabarkantha	95	88	77	83	89	79	84
Kachchh	80	91	66	79	91	77	85
Narmada	-	-	-	-	97	86	92
Patan	-	-	-	-	114	94	105
Surendranagar	81	81	64	73	87	74	81
Panchmahals	84	91	62	77	99	88	93
Banaskantha	74	89	54	72	99	72	86
Dangs	110	118	120	119	123	129	126
Dahod	-	-	-	-	124	93	109
<b>Gujarat</b>	<b>89</b>	<b>93</b>	<b>74</b>	<b>84</b>	<b>94</b>	<b>78</b>	<b>86</b>

Note: Age break-up of the population taken from the Socio-cultural tables from Registrar General and Census Commissioner (1998a).  
Source: Based on Education Statistics (Primary Education) 1993-94, 1996-97, 2000-01.

**89 SC students in primary school**

District	Boys		Girls		Total	
	1996-97	2000-01	1996-97	2000-01	1996-97	2000-01
Ahmedabad	76,440	73,526	67,862	68,690	144,302	142,216
Gandhinagar	5,662	6,706	5,130	5,467	10,792	12,173
Rajkot	24,059	24,930	21,043	21,993	45,102	46,923
Navsari	-	2,480	-	2,596	-	5,076
Surat	16,285	17,046	14,883	15,361	31,168	32,407
Bharuch	7,564	10,448	6,534	8,415	14,098	18,863
Valsad	6,227	2,795	6,029	2,698	12,256	5,493
Porbandar	-	4,152	-	3,835	-	7,987
Junagadh	23,376	22,680	19,477	20,510	42,853	43,190
Jamnagar	15,706	14,688	11,993	12,946	27,699	27,634
Vadodara	20,902	18,876	18,300	16,962	39,202	35,88
Kheda	22,288	10,357	18,194	8,861	40,482	19,218
Anand	-	9,026	-	7,776	-	16,802
Mehsana	29,234	16,973	24,458	13,434	53,692	30,407
Amreli	13,099	14,189	10,754	12,126	23,853	26,315
Bhavnagar	18,028	15,974	14,220	13,091	32,248	29,065
Sabarkantha	14,104	15,403	13,030	13,940	27,134	29,343
Kachchh	19,305	23,916	13,450	18,837	32,755	42,753
Narmada	-	915	-	798	-	1,713
Patan	-	14,339	-	11,913	-	26,252
Surendranagar	15,606	17,194	12,671	14,287	28,277	31,481
Panchmahals	12,168	9,802	11,046	8,978	23,214	18,780
Banaskantha	29,276	32,076	19,962	24,473	49,238	56,549
Dangs	95	102	86	96	181	198
Dahod	-	47,996	-	38,296	-	86,292
<b>Gujarat</b>	<b>369,424</b>	<b>426,589</b>	<b>309,122</b>	<b>366,379</b>	<b>678,546</b>	<b>792,968</b>

Source: Education Statistics (Primary Education) 2000-01.

## 90 ST students in primary school

District	Boys		Girls		Total	
	1996-97	2000-01	1996-97	2000-01	1996-97	2000-01
Ahmedabad	11,646	18,854	6,998	11,273	18,644	30,127
Gandhinagar	1,570	2,043	1,186	1,646	2,756	3,689
Rajkot	1,105	1,490	956	1,302	2,061	2,792
Navsari	-	41,815	-	42,245	-	84,060
Surat	108,416	117,945	99,526	105,902	207,942	223,847
Bharuch	67,390	73,794	56,145	66,473	123,535	140,267
Valsad	100,243	60,485	87,753	53,746	187,996	114,231
Porbandar	-	234	-	179	-	413
Junagadh	1,519	1,179	1,156	1,131	2,675	2,310
Jamnagar	909	1,415	827	1,199	1,736	2,614
Vadodara	73,091	71,911	51,504	57,728	124,595	129,639
Kheda	6,619	3,743	4,445	2,909	11,064	6,652
Anand	-	2,785	-	2,199	-	4,984
Mehsana	2,129	1,297	1,305	1,030	3,434	2,327
Amreli	324	468	290	404	614	872
Bhavnagar	958	1,180	718	961	1,676	2,141
Sabarkantha	37,310	43,001	30,199	35,384	67,509	78,385
Kachchh	9,854	10,097	4,483	7,816	14,337	17,913
Narmada	-	36,702	-	30,996	-	67,698
Patan	-	1,496	-	1,095	-	2,591
Surendranagar	947	1,794	485	1,304	1,432	3,098
Panchmahals	142,466	60,353	99,513	49,887	241,979	110,240
Banaskantha	14,845	25,453	7,153	12,400	21,998	37,853
Dangs	19,421	22,565	17,435	21,107	36,856	43,672
Dahod	-	146,661	-	110,413	-	257,074
<b>Gujarat</b>	<b>600,762</b>	<b>748,760</b>	<b>472,077</b>	<b>620,729</b>	<b>1,072,839</b>	<b>1,369,489</b>

Source: Education Statistics (Primary Education) 2000-01.

## 91 District-wise Crime against Women (Number of reported cases per lakh population)

Districts	Rape Cases			Molestation			Eve-Teasing			Torture			Dowry Death		
	2000	2001	2002	2000	2001	2002	2000	2001	2002	2000	2001	2002	2000	2001	2002
Ahmedabad	0.39	0.29	0.30	1.94	1.34	0.89	0.71	0.45	0.30	11.65	10.33	7.85	0.09	0.12	0.13
Gandhinagar	0.54	0.30	0.51	1.99	2.85	1.10	0.15	0.60	0.37	6.97	8.02	8.07	0.31	0.07	0.07
Rajkot	1.01	0.97	0.81	2.77	2.49	2.83	1.01	0.62	0.81	13.72	14.31	12.69	0.43	0.19	0.23
Navsari	0.08	0.08	0.32	0.25	0.24	0.00	0.00	0.00	0.00	1.07	0.16	0.56	0.00	0.00	0.00
Surat	0.64	0.44	0.39	0.77	0.44	0.67	0.17	0.04	0.13	2.97	2.88	2.16	0.08	0.10	0.04
Bharuch	0.82	0.29	0.29	2.01	1.46	1.72	0.00	0.00	0.00	2.97	2.12	2.65	0.00	0.07	0.07
Valsad	0.29	0.64	0.21	1.16	0.71	0.83	0.00	0.00	0.00	3.71	3.54	2.21	0.00	0.00	0.00
Porbandar	0.95	0.75	0.93	3.80	2.44	2.96	0.19	0.38	0.37	16.16	11.64	11.49	0.00	0.00	0.19
Junagadh	0.41	0.57	0.44	2.28	1.76	1.45	0.71	0.29	0.60	15.93	14.29	14.51	0.04	0.25	0.04
Jamnagar	1.23	1.10	1.36	1.57	0.99	0.98	0.39	0.11	0.22	8.94	8.98	9.33	0.17	0.11	0.00
Vadodara	0.50	0.41	0.54	1.37	1.43	1.03	0.36	0.27	0.11	5.01	3.46	2.51	0.03	0.00	0.00
Kedha	0.35	0.40	0.29	2.85	2.17	2.05	0.00	0.00	0.05	8.36	5.63	4.39	0.10	0.00	0.00
Anand	0.55	0.27	0.37	1.80	1.35	0.96	0.22	0.11	0.11	7.96	5.33	4.58	0.00	0.00	0.00
Mehsana	0.99	0.22	0.70	3.41	2.78	2.37	0.39	0.11	0.00	10.95	9.41	8.55	0.06	0.11	0.00
Amreli	0.79	0.29	0.36	1.08	1.72	1.28	0.00	0.50	0.36	3.90	6.17	5.71	0.22	0.07	0.50
Bhavnagar	0.54	0.36	0.44	1.77	1.34	1.91	0.04	0.04	0.16	5.19	4.78	3.98	0.41	0.28	0.28
Sabarkantha	0.63	0.53	0.52	2.49	2.74	3.02	0.15	0.05	0.14	7.13	5.71	4.86	0.10	0.00	0.00
Kachchh	0.47	0.13	0.19	2.14	1.64	1.80	0.33	0.07	0.00	12.75	10.16	10.09	0.00	0.13	0.13
Narmada	2.96	1.36	1.34	3.75	0.97	0.77	0.00	0.00	0.00	2.76	1.36	1.34	0.00	0.00	0.19
Patan	0.51	0.51	0.50	2.91	2.03	2.00	0.00	0.00	0.00	6.43	5.67	6.10	0.00	0.00	0.00
Surendranagar	0.68	0.66	0.84	2.23	3.17	2.45	0.07	0.20	0.13	3.71	3.89	4.00	0.14	0.07	0.26
Panchmahals	0.70	0.30	0.39	3.32	1.63	1.55	0.25	0.05	0.05	3.72	2.42	2.42	0.00	0.00	0.00
Banaskantha	0.70	0.68	0.59	2.62	2.00	2.26	0.12	0.00	0.00	4.83	4.95	4.10	0.25	0.12	0.00
Dangs	2.75	2.14	2.61	1.65	2.14	1.04	0.00	0.00	0.00	7.70	5.36	9.39	0.00	0.00	0.00
Dahod	0.69	0.43	0.83	1.38	1.16	1.13	0.25	0.00	0.00	1.57	0.61	0.42	0.06	0.00	0.00
<b>Gujarat</b>	<b>0.66</b>	<b>0.49</b>	<b>0.53</b>	<b>2.05</b>	<b>1.66</b>	<b>1.54</b>	<b>0.31</b>	<b>0.19</b>	<b>0.19</b>	<b>7.48</b>	<b>6.59</b>	<b>5.82</b>	<b>0.12</b>	<b>0.09</b>	<b>0.08</b>

Contd.

**91 Contd.: District-wise Crime against Women (Number of reported cases per lakh population)**

Districts	Abetment to Suicide			Attempt to Suicide			Suicide			Accidental Death			Child Marriage		
	2000	2001	2002	2000	2001	2002	2000	2001	2002	2000	2001	2002	2000	2001	2002
Ahmedabad	1.06	1.07	0.87	1.06	0.77	0.57	3.91	3.24	2.88	8.02	5.70	7.62	0.00	0.00	0.08
Gandhinagar	1.15	0.67	1.03	0.00	0.00	0.00	1.76	2.10	1.39	6.05	5.39	5.94	0.00	0.00	0.00
Rajkot	1.71	1.91	2.06	0.12	0.27	0.12	4.25	3.62	3.06	4.21	2.92	2.79	0.00	0.04	0.00
Navsari	0.00	0.00	0.00	0.00	0.00	0.00	0.16	0.16	0.40	0.25	0.57	0.40	0.00	0.00	0.00
Surat	0.67	0.58	0.46	0.06	0.02	0.04	3.70	4.16	3.58	6.80	6.46	5.89	0.00	0.02	0.00
Bharuch	0.30	0.51	0.29	0.59	1.02	0.29	2.01	2.48	1.65	7.87	6.64	4.59	0.00	0.07	0.00
Valsad	0.22	0.57	0.35	0.00	0.00	0.00	0.87	0.35	0.00	0.95	0.21	0.00	0.00	0.00	0.00
Porbandar	1.90	1.31	1.11	2.09	2.44	2.04	10.64	8.45	7.41	8.17	9.95	10.38	0.19	0.00	0.00
Junagadh	1.33	0.98	0.64	0.00	0.08	0.00	5.68	5.60	4.82	8.17	7.60	6.39	0.00	0.00	0.00
Jamnagar	1.62	1.82	1.52	0.78	1.16	0.76	5.87	5.12	5.32	7.77	8.20	8.73	0.11	0.00	0.05
Vadodara	0.73	0.74	0.78	0.84	0.55	0.30	2.80	3.43	2.91	9.90	8.71	9.39	0.08	0.00	0.00
Kheda	1.20	0.94	0.78	0.10	0.15	0.15	1.85	1.93	1.12	4.95	3.41	3.12	0.00	0.00	0.00
Anand	1.20	0.86	0.74	0.16	0.59	0.27	2.34	2.85	2.77	4.96	3.23	3.56	0.33	0.00	0.00
Mehsana	1.98	1.25	1.18	0.17	0.11	0.22	2.59	2.29	2.10	5.39	4.68	3.87	0.00	0.00	0.00
Amreli	1.59	1.36	0.86	0.36	0.29	0.21	6.21	7.46	5.92	6.72	7.61	8.27	0.22	0.07	0.00
Bhavnagar	1.32	1.30	0.44	0.16	0.12	0.00	6.18	4.33	4.50	11.25	9.84	9.55	0.00	0.04	0.56
Sabarkantha	1.17	1.34	1.60	0.15	0.00	0.05	2.29	2.21	1.51	3.86	3.26	2.78	0.00	0.05	0.09
Kachchh	1.47	1.38	0.90	0.00	0.00	0.00	6.01	4.52	4.69	9.21	9.63	9.45	0.13	0.07	0.06
Narmada	0.59	0.19	0.77	0.00	0.00	0.19	5.13	3.89	3.07	3.94	4.47	4.41	0.00	0.00	0.00
Patan	0.77	0.59	0.58	0.17	0.34	0.50	1.46	2.79	1.42	3.69	3.98	2.67	0.00	0.08	0.00
Surendranagar	0.95	1.19	1.29	0.07	0.00	0.00	5.13	4.69	4.58	7.36	9.11	7.23	0.20	0.00	0.00
Panchmahals	0.45	0.79	0.92	0.00	0.00	0.00	0.80	1.63	0.48	2.67	2.42	2.13	0.00	0.00	0.00
Banaskantha	0.33	0.76	0.47	0.00	0.00	0.00	1.60	1.76	1.91	2.04	2.64	2.26	0.00	0.00	0.00
Dangs	3.30	1.07	2.09	0.00	0.00	0.00	2.20	3.75	4.70	15.94	9.64	10.96	0.00	0.00	0.00
Dahod	0.69	0.43	0.83	0.06	0.00	0.00	1.19	0.98	1.13	1.88	1.41	1.55	0.00	0.00	0.00
<b>Gujarat</b>	<b>1.04</b>	<b>0.98</b>	<b>0.88</b>	<b>0.32</b>	<b>0.31</b>	<b>0.21</b>	<b>3.50</b>	<b>3.37</b>	<b>2.96</b>	<b>6.36</b>	<b>5.68</b>	<b>5.46</b>	<b>0.04</b>	<b>0.02</b>	<b>0.05</b>

**91 Contd.: District-wise Crime against Women (Number of reported cases per lakh population)**

Districts	Kidnapping			Attempt to Murder			Murder			Other		
	2000	2001	2002	2000	2001	2002	2000	2001	2002	2000	2001	2002
Ahmedabad	2.27	1.98	1.75	0.19	0.10	0.13	0.60	0.43	0.66	0.65	0.72	1.04
Gandhinagar	1.45	0.82	1.39	0.08	0.22	0.15	0.92	0.52	0.66	0.23	0.15	0.22
Rajkot	2.34	2.68	2.52	0.27	0.19	0.31	1.05	0.66	0.66	6.31	6.30	4.38
Navsari	0.00	0.08	0.08	0.00	0.00	0.00	0.16	0.16	0.16	0.08	0.08	0.00
Surat	1.12	0.94	0.89	0.21	0.10	0.15	0.75	0.66	0.89	0.62	0.20	0.29
Bharuch	1.63	1.82	1.00	0.15	0.29	0.14	0.97	0.51	0.72	0.82	1.02	0.43
Valsad	1.38	0.78	1.11	0.15	0.14	0.28	0.80	0.64	0.48	0.00	0.00	0.14
Porbandar	1.90	0.94	1.11	0.19	0.00	0.19	0.95	0.38	0.19	2.47	0.75	0.74
Junagadh	1.24	1.47	1.37	0.17	0.16	0.12	0.58	0.49	0.56	5.73	4.25	1.89
Jamnagar	1.57	1.21	1.57	0.22	0.33	0.33	0.50	0.44	0.43	1.01	0.61	0.76
Vadodara	1.93	1.43	1.56	0.11	0.33	0.16	0.70	0.66	0.67	1.54	0.60	0.57
Kheda	1.30	1.04	0.88	0.05	0.00	0.00	0.75	0.64	0.73	0.65	0.05	0.00
Anand	1.42	1.18	1.44	0.44	0.22	0.21	0.33	0.32	0.27	0.76	0.92	0.43
Mehsana	2.81	2.61	1.88	0.17	0.05	0.16	0.94	0.54	0.22	0.44	0.49	0.38
Amreli	1.44	2.15	1.36	0.22	0.07	0.21	0.43	0.72	0.21	5.20	6.24	3.92
Bhavnagar	2.02	1.78	1.15	0.21	0.12	0.08	0.66	0.36	0.20	4.82	4.98	2.71
Sabarkantha	0.73	1.06	1.37	0.00	0.14	0.24	0.59	0.58	0.47	0.49	0.77	0.05
Kachchh	2.00	1.44	1.86	0.07	0.20	0.19	0.93	0.52	0.51	0.07	0.07	0.13
Narmada	1.58	0.97	0.38	0.00	0.00	0.00	1.18	0.19	0.77	0.99	0.58	0.19
Patan	0.86	1.44	1.75	0.26	0.00	0.08	0.69	0.08	0.58	0.60	0.51	0.67
Surendranagar	1.42	1.58	1.55	0.14	0.00	0.00	0.47	0.40	0.19	0.20	0.13	0.13
Panchmahals	1.06	2.12	1.02	0.00	0.25	0.05	0.75	0.30	0.53	0.00	0.64	0.29
Banaskantha	1.43	1.08	1.33	0.20	0.20	0.12	0.33	0.48	0.39	0.12	0.04	0.16
Dangs	1.65	1.07	5.74	0.55	1.61	0.52	4.40	4.82	4.18	1.65	0.54	1.04
Dahod	0.63	0.61	0.36	0.13	0.00	0.12	0.50	0.67	0.60	1.88	1.28	0.66
<b>Gujarat</b>	<b>1.61</b>	<b>1.51</b>	<b>1.42</b>	<b>0.17</b>	<b>0.15</b>	<b>0.15</b>	<b>0.70</b>	<b>0.54</b>	<b>0.57</b>	<b>1.58</b>	<b>1.39</b>	<b>0.94</b>

## 92 District-wise number of industries and fixed investment, 1998-99

Districts	Small-scale industries		Medium and large industries	
	Number of working units	Fixed investment (Rs. in lakh)	Number of working units	Fixed investment (Rs. in lakh)
Ahmedabad	39,241	136,912	186	692,966
Gandhinagar	4,138	29,272	90	288,320
Rajkot	18,887	69,676	60	45,872
Navsari	3,590	12,193	22	40,402
Surat	28,865	139,097	388	2,109,487
Bharuch	4,500	29,948	139	144,824
Valsad	5,547	47,656	153	358,360
Porbandar	619	4,231	10	72,373
Junagadh	3,479	14,059	28	299,511
Jamnagar	9,493	28,805	24	2,145,678
Vadodara	7,239	61,422	178	1,255,322
Kheda	3,663	10,304	15	62,776
Anand	4,356	22,106	27	64,468
Mehsana	3,333	18,025	66	203,126
Amreli	2,767	3,655	6	169,321
Bhavnagar	5,860	31,182	46	132,521
Sabarkantha	4,949	15,213	12	26,881
Kachchh	3,235	10,710	26	47,094
Narmada	779	1,090	3	22,155
Patan	2,465	5,789	4	1,597
Surendranagar	4,649	22,676	12	99,484
Panchmahals	3,051	12,633	63	100,738
Banaskantha	3,078	12,970	11	16,253
Dangs	80	130	0	0
Dahod	1,157	4,878	1	361
<b>Gujarat</b>	<b>169,020</b>	<b>744,632</b>	<b>1570</b>	<b>9,699,890</b>

Source: Directorate of Economics and Statistics, Government of Gujarat, 2002-03



### 93 District-wise land use classification, 1998-99 (%)

Districts	Geographical Area	Reporting Area of Land Utilisation	Forest	Area under non-agricultural uses	Barren and unculturable land	Permanent Pasture and other Grazing land	Culturable waste-land	Current Fallow land	Other fallow	Net area sown	Area sown more than once	Gross Cropped area
Ahmedabad	8,707	8,523	1.35	8.48	8.42	3.85	2.66	7.13	0.40	67.70	5.73	73.42
Gandhinagar	653	652	-	19.79	0.31	4.45	2.15	0.15	-	73.16	34.36	107.52
Rajkot	11,203	11,042	3.25	6.32	9.28	7.86	1.16	5.31	0.04	66.78	6.40	73.18
Navsari	-	-	-	-	-	-	-	-	-	-	-	-
Surat	7,762	7,762	18.27	10.91	7.86	3.12	2.98	1.98	-	54.37	6.11	60.47
Bharuch	9,038	7,803	18.17	12.96	3.14	3.11	5.05	4.49	-	53.08	0.33	53.42
Valsad	5,244	5,145	24.26	7.21	3.09	1.52	3.87	0.08	-	59.98	8.73	68.71
Porbandar	-	-	-	-	-	-	-	-	-	-	-	-
Junagadh	10,607	10,561	18.71	4.97	2.94	10.55	1.14	6.10	-	55.60	7.95	63.55
Jamnagar	14,125	10,152	4.19	6.29	15.39	7.62	2.98	5.42	0.43	57.67	7.86	65.53
Vadodara	7,794	7,772	10.40	9.47	3.67	4.32	1.17	3.19	0.01	67.77	4.52	72.29
Kedha	7,194	6,891	1.39	12.57	4.79	3.99	0.42	3.00	0.28	73.56	18.60	92.16
Anand	-	-	-	-	-	-	-	-	-	-	-	-
Mehsana	9,027	9,016	1.97	7.36	1.46	6.03	1.54	2.94	0.04	78.64	21.62	100.26
Amreli	6,760	6,720	5.04	5.73	3.35	7.01	1.43	3.33	0.33	73.78	4.51	78.29
Bhavnagar	11,155	9,789	3.22	7.40	10.39	7.24	2.88	3.61	0.38	64.89	5.21	70.10
Sabarkantha	7,390	7,298	17.50	5.65	4.91	4.70	2.01	3.64	0.07	61.52	14.85	76.38
Kachchh	45,652	45,652	6.31	1.60	37.36	1.53	36.83	1.42	-	14.96	0.87	15.83
Narmada	-	-	-	-	-	-	-	-	-	-	-	-
Patan	-	-	-	-	-	-	-	-	-	-	-	-
Surendranagar	10,489	10,458	4.79	5.13	12.24	4.41	1.28	5.59	0.58	65.98	3.05	69.03
Panchmahals	8,850	8,831	25.13	6.75	3.97	3.16	1.53	5.74	0.15	53.57	16.10	69.68
Banaskantha	12,703	12,327	11.99	5.60	2.99	5.64	2.00	5.33	-	66.46	25.46	91.92
Dangs	1,764	1,724	92.69	7.31	-	-	-	-	-	32.19	0.46	32.66
Dahod	-	-	-	-	-	-	-	-	-	-	-	-
<b>Gujarat</b>	<b>196,117</b>	<b>188,118</b>	<b>9.91</b>	<b>6.06</b>	<b>13.84</b>	<b>4.51</b>	<b>10.49</b>	<b>3.64</b>	<b>0.13</b>	<b>51.69</b>	<b>7.85</b>	<b>59.54</b>

Source: Statistical Abstract of Gujarat, 2002

## 94 District-wise irrigated area, 1998-99

District	Net cropped area (area in '00 ha)	Percentage of net area irrigated to net area sown	Gross cropped area (area in '00 ha)	Percentage of gross irrigated area to gross cropped area	Irrigation intensity	Cropping intensity	Average yield of food crops (kg. per hectares)
	1998-99	1998-99	1998-99	1998-99	1998-99	1998-99	1999-00*
Ahmedabad	5,770	30.05	6,258	32.05	115.69	108.46	1,157.5
Gandhinagar	477	62.05	701	74.89	177.36	146.96	3,077.7
Rajkot	7,374	20.14	8,081	26.17	142.42	109.59	655.2
Navsari	-	-	-	-	-	-	-
Surat	4,220	49.98	4,694	52.07	115.88	111.23	1,624.2
Bharuch	4,142	22.14	4,168	22.53	102.40	100.63	841.0
Valsad	3,086	41.87	3,535	42.01	114.94	114.55	1,586.6
Porbandar	-	-	-	-	-	-	-
Junagadh	5,872	25.95	6,712	24.11	106.17	114.31	1,525.5
Jamnagar	5,855	14.60	6,653	20.07	156.14	113.63	526.1
Vadodara	5,267	35.71	5,618	39.53	118.08	106.66	909.2
Kheda	5,069	60.82	6,351	63.74	131.30	125.29	1,915.6
Anand	-	-	-	-	-	-	-
Mehsana	7,090	54.74	9,039	54.25	126.36	127.49	1,383.6
Amreli	4,958	16.60	5,261	17.49	111.79	106.11	990.3
Bhavnagar	6,352	25.99	6,862	28.64	119.02	108.03	692.8
Sabarkantha	4,490	42.65	5,574	43.00	125.17	124.14	1,332.7
Kachchh	6,829	18.70	7,228	23.17	131.17	105.84	803.2
Narmada	-	-	-	-	-	-	-
Patan	-	-	-	-	-	-	-
Surendranagar	6,900	18.45	7,219	20.54	116.50	104.62	823.3
Panchmahals	4,731	25.51	6,153	27.86	142.00	130.06	863.9
Banaskantha	8,192	44.15 1	1,331	40.66	127.37	138.32	580.6
Dangs	555	-	563	-	125.00	0.00	954.4
Dahod	-	-	-	-	-	-	-
<b>Gujarat</b>	<b>97,229</b>	<b>31.88 1</b>	<b>12,001</b>	<b>34.46</b>	<b>124.60</b>	<b>115.27</b>	<b>1,137.1</b>

Source: Statistical Abstract of Gujarat State, 2002.

\* CMIE (December 2002).

## 95 District-wise infrastructure status, 1999-00

Districts	Percentage of villages having					Village electrified (no.)	Road length (km)	Road density (per sq. km)
	Tap water	Hand pump	Tubewell	Electricity	Sanitation			
Ahmedabad	82.55	4.47	7.40	91.37	74.60	646	3,427	0.42
Gandhinagar	88.64	1.76	6.61	80.72	47.67	73	1,698	0.78
Rajkot	61.99	16.70	4.71	93.09	53.42	841	4,283	0.38
Navsari	47.83	26.38	4.66	86.46	36.10	-	1,693	0.77
Surat	65.13	19.08	6.09	84.75	60.71	1,184	4,112	0.54
Bharuch	70.24	13.75	3.32	77.68	49.15	1,108	2,738	0.42
Valsad	26.01	44.71	5.27	83.22	32.06	820	2,029	0.67
Porbandar	52.15	13.68	2.58	92.81	39.98	-	908	0.40
Junagadh	56.22	18.41	3.98	94.36	43.01	983	3,438	0.39
Jamnagar	55.74	17.88	3.22	87.20	42.25	692	3,509	0.25
Vadodara	68.96	21.55	2.48	78.08	53.09	1,626	4,151	0.55
Kheda	62.00	13.94	7.90	65.68	30.27	965	2,483	0.59
Anand	73.35	8.68	4.92	73.34	43.24	-	1,871	0.64
Mehsana	87.09	0.97	6.12	82.87	40.34	1,093	2,424	0.55
Amreli	46.60	27.10	6.89	89.64	38.65	595	3,183	0.43
Bhavnagar	50.29	18.12	5.03	90.97	39.58	865	4,527	0.45
Sabarkantha	59.34	20.84	3.00	75.18	27.76	1,363	4,442	0.60
Kachchh	77.58	1.37	3.50	80.36	43.99	880	5,565	0.12
Narmada	27.82	59.85	1.76	52.02	18.90	-	1,284	0.47
Patan	81.56	0.79	6.98	68.48	30.67	-	2,276	0.40
Surendranagar	52.81	10.23	5.38	86.51	28.30	648	3,511	0.33
Panchmahals	22.38	39.35	1.78	57.50	19.07	1,881	2,243	0.43
Banaskantha	69.59	5.64	9.66	61.15	19.37	1,368	4,239	0.39
Dangs	10.39	46.81	0.69	48.30	11.40	309	0.52	-
Dahod	10.98	47.36	1.02	39.22	13.15	-	-	-
<b>Gujarat</b>	<b>62.31</b>	<b>16.65</b>	<b>5.13</b>	<b>80.41</b>	<b>44.60</b>	<b>17,940</b>	<b>733,978</b>	<b>0.37</b>

Source: Census of India, 2002.

**96 District-wise banking**

Districts	Deposit (Rs. per capita)	Credit (Rs. per capita)
	2001-02	2001-02
Ahmedabad	25,812.27	20,157.74
Gandhinagar	15,972.96	5,561.87
Rajkot	12,790.55	3,620.99
Navsari	25,579.74	2,297.74
Surat	11,249.46	4,780.93
Bharuch	9,603.36	5,118.44
Valsad	9,696.32	4,060.59
Porbandar	23,755.99	6,902.25
Junagadh	6,814.09	1,756.11
Jamnagar	12,513.97	2,748.57
Vadodara	21,700.79	15,329.52
Kheda	8,941.94	1,424.76
Anand	20,067.68	2,879.44
Mehsana	4,561.85	1,543.94
Amreli	7,403.60	1,748.52
Bhavnagar	8,943.52	4,187.24
Sabarkantha	3,370.19	1,315.58
Kachchh	31,362.00	3,335.54
Narmada	2,353.51	652.42
Patan	4,897.37	1,612.94
Surendranagar	4,423.14	1,645.25
Panchmahals	3,326.61	1,153.10
Banaskantha	2,292.59	1,013.25
Dangs	2,651.14	492.74
Dahod	2,385.45	581.70
<b>Gujarat</b>	<b>1,576.39</b>	<b>5,667.88</b>

Source: CMIE (December 2002).



## References

- Agarwal, Anil. 1996. *Slow Murder: The Deadly Story of Vehicular Pollution in India*. Center for Science and Environment. New Delhi.
- Agarwal, Bina. 1985. "Work Participation of Rural Women in Third World: Some Data and Conceptual Biases." *Economic and Political Weekly* 20(51 and 52):155-64.
- Agarwal, Bina. 1994. "Gender and Command Over Property: A Critical Gap in Economic Analysis and Policy in South Asia." *World Development* 22(10):1455-78.
- Agarwal, Bina. 1997. "Gender, Environment, and Poverty Interlinks: Regional Variations and Temporal Shifts in Rural India, 1971-91." *World Development* 25(1):23-52.
- Ahooja-Patel, Krishna. 1993. "Gender Distance Among Countries." *Economic and Political Weekly* 28(7):295-305.
- Ali, Almas. 1992. "Nutrition." in Voluntary Health Association of India (ed.) *State of India's Health*. VHAI. New Delhi: 1-50.
- Amarnath, L.C. 1994. "Crime Against Women." in Central Statistical Organisation (CSO) (ed.) *Proceedings of the First National Workshop on Improvement of Statistics on Gender Issues*, Department of Statistics. Ministry of Planning and Programme Implementation. Government of India: 45-61.
- Anand, Sudhir and Amartya Sen. 1995. *Gender Inequality in Human Development: Theories and Measurement*, Occasional Paper – 19, Gender Inequality in Human Development. UNDP.
- Avasthi, D.N. 1999. "Recent Change in Industrial Economy in Gujarat: Issues and Evidences." a paper presented at seminar on *Dynamics of Development in Gujarat*. organized by Centre for Development Alternatives. Ahmedabad: 23-24.
- AWAG (Ahmedabad Women's Action Group). 1997. *Feminist Intervention: Getting our Own Spaces*. AWAG. Ahmedabad.
- Barbara, Harriss-White. 2003. *India working: Essay on society and economy*, Cambridge University. United Kingdom.
- Baster, Nancy. 1985. "Social Indicator Research: Some Issues and Debates." in J.G.M. Hilhorst and M. Klatter (ed.) *Social Development in the Third World - Level of Living Indicators and Social Planning*. Croom Helm, London. Sydney. Dover. New Hampshire: 23-46.
- Beckerman, Wilfred. 1984. "The Role of Social Indicators in Development Planning." in UNESCO, (ed.), *Applicability of Indicators of Socio-economic Change for Development Planning*. UNESCO. Paris: 9-36.
- Behavioural Science Centre. 2003. "Humanity at Crossroads in Gujarat, 2002." a Report prepared for the Citizen's Initiative, Rainbow Publishers. NOIDA.
- Bhagwati, Jagdish and T.N. Srinivasan. 1993. *India's Economic Reforms*, Ministry of Finance. Government of India. New Delhi.
- Bhanoji, Rao. V.V. 1991. "Human Development Report 1990: Review and Assessment." *World Development* 19(10):1451-1460.
- Bhasin, Kamla and Nighat Said Khan. 1986. *Some Questions on Feminism and Its Relevance in South Asia*, Kali. New Delhi.
- Bhumbla, and Khare. 1997. *Estimates of Wastelands in India*, Society For Promotion of Wastelands Development. New Delhi.
- Braidottii, R., E. Charkiewicz, S. Hausler and S. Wieringa. 1994. *Women, the Environment and Sustainable Development: Towards a Theoretical Synthesis*, Zed Books in association with INSTRAW. London.
- Brandon, Carter and Kirsten Hommann. 1996. *The Cost of Inaction: Valuing the Economywise Cost of Environmental Degradation in India*, The World Bank. Washington.
- Breet. 1991. "Why Gender is a Development Issue" in Wallace Tina and Candida March, (ed.). *Changing Perceptions- Writing on Gender and Development*. Oxfam. April.
- Cagatay, N. 1998. "Engendering Macroeconomics, Revised Version." a background paper prepared for *The 1999 world survey on the role of women in development*. UNDP. New York.
- Cant, R.G. 1976. "Territorial Indicators and National Planning" in UNESCO, (ed.), *The Use of Socio-economic Indicators in Development Planning*. The UNESCO Press. Paris: 227-252.
- Cant, R.G. 1977. "Planning For Development in the Philippines: Case Studies to Examine the Applicability of Territorial Indicators at National and Regional Levels." in UNESCO, (ed.), *Indicators of Social and Economic Change and Their Applications Reports and Papers in the Social Sciences* (37). UNESCO. Paris: 57-95.
- Carley, Michael J. 1983. *Social Indicators Research*, Sage Publications. Beverly Hills/London/New Delhi.
- Carr-Harris, Jill 1992. "Environment and Health." in Voluntary Health Association of India, (ed.), *State of India's Health*. VHAI. New Delhi: 87-127.
- Census of India 1991. Series 1- India, Part IV A-C Series, *Socio-cultural Tables*, Vol.1. Government of India. New Delhi.

- Census of India 1991. Series 1- India, Part IV A-C Series, *Socio-cultural Tables*, Vol.2. Government of India. New Delhi.
- Census of India 1991. Series 7- Gujarat, Part IV A-C Series, *Socio-cultural Tables*. Government of India. New Delhi.
- Census of India 2001. *Provisional Population Totals, Gujarat, Rural-Urban distribution, Paper-2 of 2001*. Directorate of Census Operations. Gujarat.
- Census of India 2001. *Provisional Population Totals, Gujarat, Workers and their characteristics, Paper-3 of 2001*. Directorate of Census Operations. Gujarat.
- Central Pollution Control Board. 1994. *Inventory of Large & Medium Water Polluting Industries (Volume II – Gujarat)*. CPCB. Delhi.
- Central Social Welfare Board. 1998. *Ranking of Districts in Terms of Indicators of Women's Status*. Central Social Welfare Board. New Delhi.
- Central Statistical Organisation. 1997. *Compendium on Environment Statistics*. Government of India. New Delhi.
- Central Statistical Organisation. 2001. *Women and Men in India 2000*. CSO. Ministry of Statistics and Programme Implementation. Government of India. New Delhi.
- Central Statistical Organisation. 2000. *Compendium of Environment Statistics-2000*. CSO. Ministry of Statistics and Programme implementation. Government of India. New Delhi.
- Centre for Monitoring Indian Economy. 1993. *Profiles of States*. CMIE. Mumbai.
- Centre for Monitoring Indian Economy. 1997. *Profiles of States*. CMIE. Mumbai.
- Centre for Monitoring Indian Economy. 2002. *Monthly Review of Gujarat Economy*. CMIE. Ahmedabad.
- Centre for Monitoring Indian Economy. 2003. *Monthly Review of the Gujarat Economy*. CMIE, Ahmedabad.
- Centre for Monitoring of Indian Economy. 1993. *District Profiles*. CMIE. Bombay.
- Centre for Monitoring of Indian Economy. 1996a. *India's Social Sector*. CMIE. Bombay. February.
- Centre for Monitoring of Indian Economy. 1996b. *India's Agricultural Sector: A Compendium of Statistics*. CMIE. Bombay.
- Centre for Monitoring of Indian Economy. 2000. *Profiles of Districts*. CMIE. Mumbai.
- Centre for Women's Development and Studies. 1994. *Sifting Sands*. CWDS. New Delhi.
- Centre for Women's Development and Studies. 1998. *Ranking of Districts in Terms of Indicators of Women's Status*. Central Social Welfare Board. New Delhi.
- Chaddha, G.K. 1995. *Employment, Earnings and Poverty*. Sage Publication. New Delhi.
- Chakrabarty, G., S.P. Pal. 1995. *Human Development Profile of the Indian States*. National Council of Applied Economic Research. New Delhi. Working Paper No. 52: 32-51.
- Charkha (compiled). 2002. *Manavtano Marag – Gujratma Komi Ekblaas Jaalavava Kettlak Drashtantrup Lokprayaso*. Charkha. Ahmedabad.
- CHETNA. 1995. *Towards Empowerment of Women and Children*. Center for Health Education, Training & Nutrition Awareness. Ahmedabad.
- Chief Electoral Officer. 1995. *A Statistical Report on the General Elections to the Gujarat Legislative Assembly 1995*. Government of Gujarat. Gandhinagar.
- Chief Electoral Officer. 1996. *A Statistical Report on the General Elections to the House of the People 1996*. Government of Gujarat. Gandhinagar.
- Chief Electoral Officer. 1998. *General Elections, 1998, Lok Sabha and Vidhan Sabha, Statistical Report*. Government of Gujarat. Gandhinagar.
- Chief Electoral Officer. 1999. *Lok Sabha Election, 1999, Statistical Report*. Chief Electoral Officer Gujarat State.
- Chief Electoral Officer. 2003. *Gujarat Assembly Elections – 2002, Statistical Report*. Chief Electoral Officer. Gujarat State. Gandhinagar.
- Christophe, Z. Guilimoto and S. Irudaya Rajan. 2002. "District Level Estimates of Fertility from India's 2001 Census." *Economic and Political Weekly* 38 (7).
- Cobb, Clifford, Ted Halstead and Jonathan Rowe. 1995. *If the GDP is UP, Why is America down?*. The Atlantic Monthly.
- ColClough, Christopher 1996. *Human Development: Towards a more Integrated Framework of Planning in the 1990s*. Discussion Paper 323, IDS. Sussex.
- Commissionerate of Health and Medical Services and Medical Education (Health). 1996. *Health Review, Gujarat, 1995-96*. State Bureau of Health Intelligence. Government of Gujarat. Gandhinagar.
- Commissionerate of Health, Medical Services and Medical Education. 2002. *Basic Health Statistics Gujarat, 2001-02*. Government of Gujarat. Gandhinagar.
- Comptroller and the Auditor General of India. 2001. *Report of the Comptroller and Auditor General of India, For the Year Ended March 2001, (Civil)*. Government of Gujarat. Comptroller and the Auditor General of India.
- Comptroller and the Auditor General of India. 2002. *Report of the Comptroller and Auditor General of India, For the Year Ended March 2002, (Civil)*. Government of Gujarat. Comptroller and the Auditor General of India.
- Coomaraswamy, R. 1995. *Violence against Women*. Indian Association of Women's Studies.
- Cornia, G., R. Jolly, and F. Stewart. 1987. *Adjustment with a Human Face: Protecting the Vulnerable and Promoting Growth*. Clarendon Press. Oxford.
- Dam Truong, Thanh. 1997. *Gender and Human Development: A Historical Analysis of the Debate*. Institute of Social Studies. The Hague.
- Dasgupta, Partha and Martin Weale. 1992. "On Measuring the Quality of Life." *World Development*. 20(1):119-131.
- Daswani, C.J.; N.V. Varghese; R. Govinda and J. Acharya. 1997. *Primary Education in India - a Status Report*. Citizen's Initiative on Primary Education in India. Bangalore.

- Datta, Amlan and Agarwal, M.M. 1992. *The Quality of Life (ed.)*. Indian Institute of Advanced Study, Shimla and B.R. Publishing Corporation. Delhi.
- Department of Health and Family Welfare. 1998. *Year Book 1995-96*. Ministry of Health and Family Welfare. Government of India. New Delhi.
- Department of Health and Family Welfare. 1999. *Year Book 1996-97*. Ministry of Health and Family Welfare, Government of India. New Delhi.
- Department of Statistics. 1994. *Methodology for Computation of Human Development Index and Gender Development Index*. Ministry of Planning and Programme Implementation. New Delhi.
- Department of Women and Child Development and National Institute of Public Cooperation & Child Development. 2002. *Gender Budget Analysis of Selected States – An Initiative*. DWCD and NIPCCD. New Delhi.
- Department of Women and Child Development. 1988. *Women in India - A Statistical Profile, 1988*. Ministry of Human Resource Development. Government of India. New Delhi.
- Department of Women and Child Development. 1997. *Women in India - A Statistical Profile, 1997*. Ministry of Human Resource Development. Government of India. New Delhi.
- Department of Women and Child Development. 2003. *Gujarat State Gender Equity Policy: Formulation Process*. Government of Gujarat. Gandhinagar.
- Department of Women and Child Welfare. 1998. "List of Indicators recommended." by the Workshop on *Developing GDI/GEM for State and District level* held on 6-7 November. Ministry of Human Resource Development. Government of India. New Delhi.
- Desai, B.M. 1997. *Colloquium on Development of Agriculture and Allied Sectors in Gujarat: A Strategic Perspective For the Ninth Plan*. Agricultural Finance Corporation. Mumbai.
- Desai, B.M. and N.V. Namboodiri. 1997. "Strategy and Sources of Growth in Crop Agriculture." in Desai B.M. (eds.), *Agricultural Development Paradigm For the Ninth Plan*. Oxford & IBH Co. Ltd. New Delhi.
- Desai, Bhupat, Anil C. Shah and Prakash Singhi. 1999. "Raising Agricultural productivity in Gujarat." *Economic and Political Weekly* February 1999.
- Desai, M. 1994. "Income and Alternative Measures of Well-being" in D.G. Westendorff and D. Ghai, (eds.), *Monitoring Social Progress in the 1990s*. for UNRISD. Avebury. Aldershot. Hong Kong. Singapore. Sydney: 23-39.
- Development Alternatives for Women for a New Era. 1995. "Rethinking Social Development: DAWN's Vision." *World Development* 23(11):2001-4.
- Dey-Abbas, J. and R. Gaiha. 1995. *The Use of Socio-economic Indicators for Evaluating Progress in Implementing the Programme of Action of the World Conference on Agrarian Reform and Rural Development*. UNRISD. Avebury. Aldershot: 234-59.
- Dhagamwar, Vasudha. 1995. "Obstacles to Empowerment of Women: Culture, Custom and Religion." Prepared for a workshop on *Human Development Report 1995 and the Structural Context for Empowering Women in India*. Neemrana. 12-13<sup>th</sup> December.
- Dholakia, Archana. 1999. "Non-Tax Revenue and Subsidies in Gujarat." a paper presented at the seminar on *Dynamics of Development in Gujarat*. Centre for Development Alternatives. Ahmedabad: 23-24<sup>th</sup> April.
- Dholakia, Archana. 2000. *Problems and Prospects of Fiscal Balance in Gujarat*, Occasional Paper Series, No. 3, D.T. Lakdawala Memorial Trust. Gujarat Institute of Development Research. Ahmedabad.
- Dholakia, Ravindra, H. 1999. "Liberalization in Gujarat: Review of Recent Experience." a paper presented at seminar on *Dynamics of Development in Gujarat*. Centre for Development Alternatives. Ahmedabad: 23-24<sup>th</sup> April.
- Dijkstra, A. Geske and Lucia C. Hanmer. 1997. *Measuring Socio-economic Gender Inequality: Towards an Alternatives to the UNDP Gender-Related Development Index*. Working Paper Series No. 251. Institute of Social Studies.
- Dijkstra, A. Geske. 1997. *Methodological Notes for Measuring Socio-economic Gender Inequality*. Institute of Social Studies. The Hague.
- Directorate of Census Operations. 1991. *Socio-Cultural Tables Series 7- Gujarat Part IV A - C Series*. Gujarat.
- Directorate of Economic and Statistics. 2002. *Statistical Abstract of Gujarat State*. Government of Gujarat. Gandhinagar.
- Directorate of Economics and Statistics. 1992. *Budget in Brief, 1992-1993*. Government of Gujarat. Gandhinagar.
- Directorate of Economics and Statistics. 1995. *Gujarat Economic Development through Maps*. Government of Gujarat. Gandhinagar.
- Directorate of Economics and Statistics. 1996. *Budget in Brief, 1996-1997*. Government of Gujarat. Gandhinagar.
- Directorate of Economics and Statistics. 1996. *Social Statistics, Gujarat*. Government of Gujarat. Gandhinagar.
- Directorate of Economics and Statistics. 1996. *Socio-economic Review of Gujarat State 1995-96*. Government of Gujarat. Gandhinagar.
- Directorate of Economics and Statistics. 1997. *Socio-economic Review of Gujarat State 1996-97*. Government of Gujarat. Gandhinagar.
- Directorate of Economics and Statistics. 1998. *Budget in Brief, 1998-1999*. Government of Gujarat. Gandhinagar.
- Directorate of Economics and Statistics. 1998. *Socio-economic Review, 1997-98*. Government of Gujarat. Gandhinagar.
- Directorate of Economics and Statistics. 1999. *Budget in Brief, 1999-2000*. Government of Gujarat. Gandhinagar.
- Directorate of Economics and Statistics. 1999. *Socio-economic Review, 1998-99*. Government of Gujarat. Gandhinagar.
- Directorate of Economics and Statistics. 2002. *Socio-economic Review, Gujarat State 2001-2002*. Directorate of Economics and Statistics. Government of Gujarat. Gandhinagar.



- Directorate of Economics and Statistics. 2003. *Socio-economic Review, Gujarat State 2002-03*. Directorate of Economics and Statistics. Government of Gujarat. Gandhinagar.
- Directorate of Higher Education. 1998. *Statistics on Education: Middle, Secondary and Higher Secondary Levels*. Department of Education. Gandhinagar.
- Directorate of Primary Education. 1995. *Education Statistics - Primary Education, 1994-95*. Government of Gujarat. Gandhinagar.
- Directorate of Primary Education. 1997. *Annual Report*. Government of Gujarat. Gandhinagar.
- Directorate of Primary Education. 2000. *Annual Report*. Government of Gujarat. Gandhinagar.
- Directorate of Primary Education. 2001. *Annual Report*. Government of Gujarat. Gandhinagar.
- Drewnowski, J. 1974. *On Measuring and Planning the Quality of Life*. The Mouton. The Hague.
- Drèze, Jean and Amartya Sen. 1995. *India: Economic Development and Social Opportunity*. Oxford University Press. Delhi.
- Drèze, Jean and H. Gazdar. 1996. "Uttar Pradesh: The Burden of Inertia." in J. Drèze and A.K. Sen, (eds.), *Indian Development: Selected Regional Perspectives*. Oxford University Press. Oxford and Delhi.
- Drèze, Jean and P.V. Srinivasan. 1996. *Poverty in India: Regional Estimates, 1987-88*. Monograph. Feb.
- Dubey, Amresh and Subhashish Gangopadhyay. 1998. *Counting The Poor: Where are the Poor in India*. Sarvekshana Analytical Report Number 1. Dept. of Statistics. Government of India.
- Duggal, Ravi, Sunil Nandraj and Asha Vadair. 1995. "Health Expenditures Across States - Part I and II." *Economic and Political Weekly* 30 (15 & 16):834-44 and 901-8.
- Economic and Political Weekly Research Foundation. 1994. "Social Indicators of Development for India-II: Inter-State Disparities." *Economic and Political Weekly* 21:1300-7.
- Economic and Political Weekly Research Foundation. 1998. "National Income Statistics." *Economic and Political Weekly*. Mumbai.
- Economic Council of Japan. 1973. *Measuring of Net National Welfare of Japan*, Report of the Net National Welfare Measurement Committee. Economic Council of Japan.
- Economic Welfare Bureau. 1979. *Social Indicators - Measures for the Quality of Life*. Economic Planning Agency. Japan.
- Election Commission of India. 1996. *General Elections 1996*. Government of India. New Delhi.
- Environment 1988. "Monitoring the Global Environment: An Assessment of Urban Air Quality." *Environment*. 31 (8): 6-13 and 26-37.
- Forest Survey of India. 1986. *State of Forest in India*. FSI. Dehra Dun.
- Forest Survey of India. 1989. *State of Forest in India*. FSI. Dehra Dun.
- Forest Survey of India. 1991. *State of Forest in India*. FSI. Dehra Dun.
- Forest Survey of India. 1993. *State of Forest in India*. FSI. Dehra Dun.
- Forest Survey of India. 1995. *State of Forest in India*. FSI. Dehra Dun.
- Forest Survey of India. 1997. *State of Forest in India*. FSI. Dehra Dun.
- Forest Survey of India. 2001. *State of Forest in India*. FSI. Dehra Dun.
- Fox, Karl A. 1985. *Social System Accounts - Linking Social and Economic Indicators through Tangible Behaviour Settings*. D. Reidel Publishing Company. Dordrecht, Boston, Lancaster.
- Fromm, E.R. 1968. *The Revolution of Hope: Towards a Humanised Technology*. Bantam Books. Toronto.
- Fuch, Victor, R. 1987. *Economic Aspects of Health*. Chicago University. Chicago.
- Galtung, J. and A. Wirak. 1977. "Human Needs, Human Rights and the Theories of Development." in UNESCO, (ed.), *Indicators of Social and Economic Change and Their Applications*. UNESCO:7-34.
- Ghosh, B. 1991. *Time Utilisation and Productivity of Health Humanpower, A Case Study of a Karnataka PHC*. Indian Institute of Management. Bangalore.
- Gopalan, C. 1994. "Challenges to Public Health Systems." *Economic and Political Weekly* 29(20):1204-9.
- Gopalan, Sarala. 1995. *Women and Employment in India*. Har-Anand Publications. New Delhi.
- Goulet, D. 1992. "Development: Creator and Destroyer of Values." *World Development* 20(3):467-75.
- Government of Gujarat, 2001, 2002, 2003. *Budget Estimates of Forests and Environment Department for 2001-02, 2002-03 and 2003-04*, (3 volumes) Budget Publication No. 8. Government of Gujarat.
- Government of Gujarat, 2001, 2002, 2003. *Budget Estimates of Health and Family Welfare Department for 2001-02, 2002-03 and 2003-04*, (3 volumes) Budget Publication No. 11. Government of Gujarat.
- Government of Gujarat, 2001, 2002, 2003. *Budget Estimates of Labour and Employment Department for 2001-02, 2002-03 and 2003-04*, (3 volumes) Budget Publication No. 15. Government of Gujarat.
- Government of Gujarat, 2001, 2002, 2003. *Budget Estimates of Narmada, Water Resources and Water Supply Department for 2001-02, 2002-03 and 2003-04, Volume - I*, (3 volumes) Budget Publication No. 18 (Part - I). Government of Gujarat.
- Government of Gujarat, 2001, 2002, 2003. *Budget Estimates of Panchayats, Rural Housing, and Rural Development Department for 2001-02, 2002-03 and 2003-04*, (3 volumes) Budget Publication No. 19. Government of Gujarat.
- Government of Gujarat, 2001, 2002, 2003. *Budget Estimates of Roads and Building Department for 2001-02, 2002-03 and 2003-04, Volume - I*, (3 volumes) Budget Publication No. 22 (Part - I). Government of Gujarat.
- Government of Gujarat, 2001, 2002, 2003. *Budget Estimates of Social Justice and Empowerment Department for 2001-02, 2002-03 and 2003-04*, (Part - I, II, III) (3 volumes of each Part) Budget Publication No. 24. Government of Gujarat.

- Government of Gujarat, 2001, 2002, 2003. *Budget Estimates of Urban Development and Housing Department for 2001-02, 2002-03 and 2003-04*, (3 volumes) Budget Publication No. 26. Government of Gujarat.
- Government of Gujarat, 2001, 2002, 2003. *Budget Estimates of Women and Child Development Department for 2001-02, 2002-03 and 2003-04*, (2 volumes) Budget Publication No. 27. Government of Gujarat.
- Government of Gujarat. 1994. *State Programme of Action for the Child in Gujarat*. Government of Gujarat. Gandhinagar.
- Government of Gujarat. 1996. *Gujarat Forest Statistics 1995-96*. Forest Department. Government of Gujarat. Gandhinagar.
- Government of Gujarat. 2001, 2002, 2003. *Annual Financial Statement (Budget) of the Government of Gujarat for the Year 2001-2002, 2002-2003, 2003-2004*, (3 volumes) Budget Publication No. 1. Government of Gujarat.
- Government of Gujarat. 2001, 2002, 2003. *Budget Estimates of Agriculture and Co-operation Department for 2001-02, 2002-03 and 2003-04*, (3 volumes) Budget Publication No. 3. Government of Gujarat.
- Government of Gujarat. 2001, 2002, 2003. *Budget Estimates of Education Department for 2001-02, 2002-03 and 2003-04*, (3 volumes) Budget Publication No. 4. Government of Gujarat.
- Government of Gujarat. 2001, 2002, 2003. *Budget Estimates of Food, Civil Supplies and Consumer Affairs Department for 2001-02, 2002-03 and 2003-04*, (3 volumes) Budget Publication No. 7. Government of Gujarat.
- Government of India, 1993. *Sample Registration Survey Bulletin*. GOI. New Delhi.
- Government of India. 1997. *Estimate of Poverty*, Press Information Bureau. GOI. New Delhi. March 11.
- Government of India. 2002. *National Human Development Report 2001*. Planning Commission. Government of India.
- Govinda, R. 2001. "Providing Education for All in India: An Overview." in R. Govinda. (ed.), *India Education Report – A Profile of Basic Education*. Oxford University Press. New Delhi for National Institute of Educational Planning and Administration and United Nations Educational Scientific and Cultural Organization: 1-20.
- Gowariker, Vasant. 1994. "Demographic Transition in India." *Economic and Political Weekly* 29(49):3106-8.
- Gran, Guy. 1991. "Book Notes." *World Development* 19.
- Greenpeace. 1996. *The Stranger*. Greenpeace. New Delhi.
- Guilmoto, Christophe, Z. and S. Irudaya Rajan. 2002. "District Level Estimates of Fertility from India's 2001 Census." *Economic and Political Weekly* 37(2):665-72.
- Gujarat Ecology Commission. 1995. *Current Ecological Status of Kachchh*, GEC. Vadodara.
- Gujarat Ecology Commission. 1996. *Process of Desertification of Kachchh and Banaskantha Districts of Gujarat 1961-91*. Gujarat Institute of Desert Ecology. Bhuj.
- Gujarat Ecology Commission. 1997. *Ecological Degradation around the Gulf of Kachchh: A Status Report*. GEC. Vadodara.
- Gujarat Pollution Control Board. 1990. *Annual Report*. Government of Gujarat. Gandhinagar.
- Gujarat Pollution Control Board. 1991. *Annual Report*. Government of Gujarat. Gandhinagar.
- Gujarat Pollution Control Board. 1992. *Annual Report*. Government of Gujarat. Gandhinagar.
- Gujarat Pollution Control Board. 1993. *Annual Report*. Government of Gujarat. Gandhinagar.
- Gujarat Pollution Control Board. 1994. *Annual Report*. Government of Gujarat. Gandhinagar.
- Gujarat Pollution Control Board. 1996. *Annual Report*. Government of Gujarat. Gandhinagar.
- Gujarat Pollution Control Board. 2003. *Annual Report*. Government of Gujarat. Gandhinagar.
- Gujarat State AIDS Control Society. 2003. *HIV/AIDS epidemic update of World, India and Gujarat*, Gujarat State AIDS Control Society.
- Gujarat Water Supply and Sewerage Board. 1991. *Annual Report*. GWSSB. Gandhinagar.
- Gujarat Water Supply and Sewerage Board. 1992. *Annual Report*. GWSSB. Gandhinagar.
- Gujarat Water Supply and Sewerage Board. 1993. *Annual Report*. GWSSB. Gandhinagar.
- Gujarat Water Supply and Sewerage Board. 1994. *Annual Report*. GWSSB. Gandhinagar.
- Gujarat Water Supply and Sewerage Board. 1995. *Annual Report*. GWSSB. Gandhinagar.
- Gujarat Water Supply and Sewerage Board. 1996. *Annual Report*. GWSSB. Gandhinagar.
- Gumber, Anil and Berman, Peter. 1995. *Measurement and Pattern of Morbidity and Utilization of Health Services - A Review of Recent Health Interview Surveys in India*, Working Paper No. 65. Gujarat Institute of Development Research. Ahmedabad.
- Hardoy, Jorge, E. 1984. "Indicators for the Design of Human-Settlement Policies in Developing Countries - Preliminary Suggestions." in UNESCO, (ed.), *Applicability of Indicators of Socio-economic Change for Development Planning*. UNESCO: 37-64.
- Hardoy, Jorge, E., Diana Mitlin and David Satterthwaite. 1992. *Environmental Problems in Third World Cities*. Earthscan Publications. London.
- Hema, R. and V.R. Muraleedharan. 1993. "Health and Human Resources Development." *Economic and Political Weekly* 28(43): 2328-30.
- Henderson, D.W. 1974. *Social Indicators – A Rationale and Research Framework*. Economic Council of Canada. Ottawa.

- Hilhorst, J.G.M. and M. Klatter. 1985. *Social Development in the Third World*, Croom Helm, (eds.), London, Sydney, Dover. New Hampshire.
- Hirway, Indira and Darshini Mahadevia. 1996b. "Critique of Gender Development Index – Towards an Alternative." *Economic and Political Weekly* 31(43). October 26.
- Hirway, Indira and Darshini Mahadevia. 1996c. *Preparing Human Development Reports for Indian States*, a paper presented at UNDP/Madhya Pradesh Government Workshop on State HDRs, held at Bhopal. November 30 - December 1.
- Hirway, Indira and Darshini Mahadevia. 1997a. *Gender Audit at Regional Level: Concept, Measurement and Database Issues*, Paper No.3. Human Development in Gujarat, Gandhi Labour Institute. Ahmedabad.
- Hirway, Indira and Darshini Mahadevia. 1997b. *Measuring Gender Development at District Level: Some Issues*, a paper presented at a meeting on preparing Gender Development Index for Measuring Gender Inequality. Department of Women and Child Development, Government of India held at New Delhi. March 3.
- Hirway, Indira and P.P. Patel. 1994. *Dynamics of Drinking Water in Rural Gujarat*, Utthan - Action Aid. Ahmedabad.
- Hirway, Indira and Shah Amita. 1998. Liberalisation, Globalisation and Industrialisation: Conflict and Resolution in a Regional Context.
- Hirway, Indira, Darshini Mahadevia. 1999. *Gujarat Human Development Report*. Mahatma Gandhi Labour Institute. Ahmedabad.
- Hirway, Indira, N. Desai, I. Patel and V. Sherry Chand. 1993. "Towards Empowering Women: Constraints and Possibilities - Evaluation of Mahila Samakhya Programme in Gujarat." in Department of Education, Ministry of Human Resource Development report, *Mahila Samakhya: National Evaluation Report*. Government of India. New Delhi.
- Hirway, Indira. 1993. *Women's Work in Gujarat: An Analysis of the 1991 Census Data*, sponsored by United Nations Development Fund for Women through Indian Association of Population Studies. Gandhi Labour Institute. Ahmedabad.
- Hirway, Indira. 1995. "Safety Net of the National Renewal Fund: Some Basic Issues." *The Indian Journal of Labour Economics* 38(2).
- Hirway, Indira. 1995. "Selective Development and Widening Disparities in Gujarat." *Economic and Political Weekly* October 14 - 21.
- Hirway, Indira. 1997. "Issues in Special Employment Programmes and Agricultural Development: Perspectives" in B.M. Desai, (ed.), *Agricultural Development Paradigm For the Ninth Plan Under New Economic Environment*. Oxford & IBH Publishing Co. Pvt. Ltd., New Delhi.
- Hirway, Indira. 1997. *Urban Water Supply Policy: With Reference to Ahmedabad City*. Ahmedabad Citizens Trust. Ahmedabad.
- Hirway, Indira. 1999. "Dynamics of Development in Gujarat: An Overview." a paper presented at seminar on *Dynamics of Development in Gujarat*. Centre for Development Alternatives. Ahmedabad. April 23-24.
- Hirway, Indira. 1999. *Integrated Environmental and Economic Accounting: The Case of Gujarat Phase - I*. Centre for Development Alternatives. Ahmedabad.
- Hirway, Indira. 2000. *Integrated Environmental and Economic Accounting: The Case of Gujarat – Phase 1*, et at, Gujarat Ecology Commission. Vadodara.
- Hirway, Indira. 2002. "Indian Experiences in Time Use Survey." in Proceedings of the *National Seminar on Applications of Time Use Statistics*. Sponsored by UNIFEM. Central Statistical Organisation, Government of India. New Delhi. October 2002.
- Hirway, Indira. 2002. "Understanding Children's Work in India: An Analysis Based on Time Use Data." in Ramchandran, Nira and Lionel Massün, (eds.), *Coming to Grips with Rural Child Work*. Institute for Human Development and United Nations World Food Programme. New Delhi: 79-109.
- Hirway, Indira. 2002. *Quick Valuation of Depletion and Degradation of Environmental Resources in Gujarat Between Early 1980s and Late 1990s*, et al, Gujarat Ecology Commission. Vadodara.
- Hirway, Indira. and Darshini Mahadevia. 1996a. "Critique of Human Development Index: Towards an Alternative." Paper presented at the *Workshop on HDR*. New Delhi. April.
- Ho, Teresa, J. 1985, 1982. *Measuring Health as a Component of Living Standards*, Living Standards Measurement Study, Working Paper No. 15. The World Bank. Washington DC.
- Indian Council for Medical Research. 1991. *Evaluation of Quality of Welfare Services of Primary Health Centre Level*. ICMR. New Delhi.
- Indian Council of Social Science Research and Central Statistical Organisation. 1983. *Social Information of India - Trends and Structure*. Indian Council of Social Science Research (ICSSR) and Central Statistical Organisation (CSO). New Delhi.
- Indira, Hirway and Darshini Mahadevia. 1997. *Socio-economic development status in Gujarat*, sponsored by Royal Netherlands Embassy. New Delhi. Mahatma Gandhi Labour Institute. Ahmedabad.
- Industrial Extension Bureau. 1995. *Industrial Policy: 2000 AD and Beyond*. Indextb. Government of Gujarat. Ahmedabad.
- Industries Commissionerate. 1997. *Industries in Gujarat*. Government of Gujarat. Gandhinagar.
- Industries Commissionerate. 1997. *Investment in Large Projects in Gujarat*. Government of Gujarat. Gandhinagar.
- Ingram, Gregory. 1992. *Social Indicators and Productivity Conference in Developing Countries*, Working Paper Series 894. The World Bank. Washington D.C.
- Innes, De and Judith Neufville. 1975. *Social Indicators and Public Policy – Interactive Process of Design and Application*. Elsevier Scientific Publishing Company. Amsterdam. Oxford. New York.
- International Institute for Population Sciences and MEASURE DHS+, ORC MACRO. 2001. *National Family Health Survey India, 1998-99*. Gujarat. IIPS. Mumbai.
- International Institute for Population Sciences and MEASURE DHS+, ORC MACRO. 2000. *National Family Health Survey, 1998-99*. India. IIPS. Mumbai.
- Irving, R.T.A. 1991. *Dynamic Approach to Ordering 'QOL' Social Concerns*, (Report of Asian Productivity Organization Study Meeting 9-16 April 1990). Seoul. APO. Tokyo.

- Iyengar, Sudarshan. 1999. "Role of NGO in the Development of Gujarat: A Review on the Eve of New Millennium." a paper presented at seminar on *Dynamics of Development in Gujarat*. Centre for Development Alternatives. Ahmedabad. April, 23-24.
- Jain, Devaki. 1996. "Valuing Work: Time as a Measure." *Economic and Political Weekly* October 26.
- Jain, Devaki. 1997. *Minds, Bodies and Exemplars, Reflected at Beginning and Beyond*. British Council Division. New Delhi.
- Jain, Sharda, Alok Mathur, Shobhita Rajgopal and Juhi Shah. 2001. "Children, Work and Education: Rethinking on Out-of-School Children." in R. Govinda, (ed.), *India Education Report – A Profile of Basic Education*. Oxford University Press. New Delhi for National Institute of Educational Planning and Administration and United Nations Educational, Scientific and Cultural Organization: 47-58.
- Jazairi, N.T. 1976. *Approaches to the Development of Health Indicators*. The OECD Social Indicator Development Programme. Special Studies No.2. OECD. Paris.
- Jhabvala, Renana and Namrata Bali. (n.d.) *My Family My Work - A Sociological Study of SEWA's Urban Members*. SEWA Academy. Ahmedabad.
- Jhabvala, Renana. (n.d.). "Self-Employed Women's Association- Organising Women by Struggle and Development." in edited book *Dignity and Daily Bread*.
- Joshi, Vidyut. 1999. "The Cultural Context of Development in Gujarat." a paper presented at seminar on *Dynamics of Development in Gujarat*. Centre for Development Alternatives. Ahmedabad. April, 23-24.
- Kadekodi Gopal, and Aslam Perwaiz. 1997. *Dimensions of Wastelands and Common Property Resources in India*. Society for Promotion of Wastelands Development. New Delhi.
- Kalpagam, U. 1999. "Women, Work and Domestic Duties: Income Planning for Housewives." *Indian Journal of Labour Economics* 42(4): 567-80.
- Kannan, K.P., K.R. Thanakappan, V. Raman Kutty and K. P. Aravindan. 1991. *Health Status in Rural Kerala: A Study of the Linkages between Socio-economic Status and Health Status*. Integrated Rural Training Centre of Kerala Sastra Sahitya Parishad. Thiruvananthapuram.
- Kashyap, S.P. 1995. "Industrial Scene in Gujarat: A Contrast of Two Patterns." *Amesbak* 25 (1).
- Khanna, Sulbha, Narottam Prajapati and Bhupendra Jani. 1996. Impact and Sustainability of Water Resource Management - A Case Study of Percolation Tanks Constructed by AKRSP (I) in Surendranagar District of Gujarat, India, AKRSP (I). Ahmedabad.
- Kolhatker, Hrishikesh. 1999. *Judicial Activism and its Impact on Control of Industrial Pollution: A Study of Cases in Ahmedabad*. (unpublished masters dissertation. School of Planning). Centre for Environmental Planning and Technology. Ahmedabad.
- Krishnaji, N. 1997. "Human Poverty Index – A Critique." *Economic and Political Weekly* August 30.
- Kundu, Amitabh 1999. "Urbanisation, Employment Generation and Poverty Under the Shadow of Globalisation – The Case of Gujarat: Some Issues." a paper presented at seminar on *Dynamics of Development in Gujarat*. Centre for Development Alternatives. Ahmedabad. April 23-24.
- Kundu, Amitabh. 2002. "Urbanization, Employment Generation and Poverty Under the Shadow of Globalization- The Case of Gujarat." in Hirway, I. et al, *Dynamics of Development in Gujarat*. Concept Publishing Company. New Delhi.
- Lakdawala, D.T. 1972. *Growth of Saurashtra Economy*. Sardar Patel Institute of Economic and Social Research. Ahmedabad.
- Lalitha, N. and A. Oza. 1999. "Employment Trends in the Manufacturing Sectors Of Gujarat." a paper presented at seminar on *Dynamics of Development in Gujarat*. Centre for Development Alternatives. Ahmedabad. April 23-24.
- Land, K.C. 1974. *Social Indicator Models: An Overview*. Russel Sage Foundation. New York: 5-36.
- Mahadevia, Darshini. 1998. *Development Dichotomy in Gujarat*. Research Foundation for Science, Technology and Ecology. New Delhi.
- Mahadevia, Darshini. 1999. "Health for All in Gujarat: Is it Achievable?" a paper presented at seminar on *Dynamics of Development in Gujarat*. Centre for Development Alternatives. Ahmedabad. April 23-24.
- Mahadevia, Darshini. 1999. *Economic Growth and Environment in Gujarat*. Research Foundation for Science, Technology and Ecology. New Delhi.
- Mahila Samakhya Gujarat. 1993. *Explorations, Annual Report, 1992-93*. Mahila Samakhya Gujarat. Ahmedabad.
- Mahila Samakhya Gujarat. 1994. *Ansar, Annual Report, 1993-94*. Mahila Samakhya Gujarat. Ahmedabad.
- Mahila Samakhya Gujarat. 1996. *Annual Report, 1995-96*. Mahila Samakhya Gujarat. Ahmedabad.
- Mahila Samakhya Gujarat. 1997. *What is Mahila Samakhya?* M.S. Office. Government of Gujarat. Ahmedabad.
- Mahila Samakhya Society. 1992. *The Awakening, Annual Report, 1992*. Mahila Samakhya Society. Ahmedabad.
- Mahila Samakhya. 1993. *Evaluation – All India*, (Chairperson - Indira Hirway). Department of Education, Government of India. New Delhi.
- Mahila Samakhya. 1995. *Programme For Education For Women's Equality*. Ministry of Human Resource Development, Department of Education. Government of India. New Delhi.
- Malini, Karkal. 1995. "National Family Health Survey (NFHS) Revisited." a paper presented for *Women's Health Training Research and Advocacy Center*. Women's Studies Research Centre. M.S. University. Vadodara.
- Mathur, Niti and S.P. Kashyap. 1999. "Agricultural Development in Gujarat: Problems and Prospects." a paper presented at seminar on *Dynamics of Development in Gujarat*. Centre for Development Alternatives. Ahmedabad. April 23-24.
- McGillivry, Mark. 1991. "The Human Development Index: Yet Another Redundant Composite Development Indicator?" *World Development* 19(10):1461-68.

- McGillivray, Mark. 1994. "The Impact of Foreign Aid on the Fiscal Behavior of Asian LDC Governments: A Comment on Khan and Hoshino." *World Development* 22.
- Medico Friend Circle. 2002. *Carnage in Gujarat: A Public Health Crisis*. MFC. Pune.
- Meehan, J. 1995. *Feminists Read Habermas*, Routledge, (ed.), New York and London.
- Menon, Gayatri, A. 1996. *Re-Negotiating Gender - Enabling Women to Claim their Right to Land Resources*. UN Conference on Human Settlements – Habitat II. Istanbul. June 1996.
- Menon-Sen, Kalyani. 2002. "A Background Note for Delhi Workshop." presented at a UNDP-Human Development Resource Centre's *Gender Initiatives Workshop*. held in August 2002 at New Delhi.
- Mills, C.A. 1981. "Identification of Social Concerns and Social Indicators, Relevant to Development Planning in Africa." in UNESCO, ed., *Socio-economic Indicators for Planning: Methodological Aspects and Selected Examples*. UNESCO. Paris: 97-122.
- Ministry of Human Resource Development. 1988. *Women in India - A Statistical Profile. 1988*, Department of Women and Child Development. Government of India. New Delhi.
- Ministry of Human Resource Development. 1993a. *Education for All - Widening Horizons*. Government of India. New Delhi.
- Ministry of Human Resource Development. 1993b. *Learning without Burden - Report of the National Advisory Committee*. Government of India. New Delhi.
- Ministry of Human Resource Development. 1993c. *Education for All*. Government of India. New Delhi.
- Ministry of Human Resource Development. 1994a. *Education in India, 1990-91*. Government of India. New Delhi.
- Ministry of Human Resource Development. 1994b. *Selected Educational Statistics, upto 1993*. Government of India. New Delhi.
- Ministry of Human Resource Development. 1996. *National Policy for the Empowerment of Women – 1996 (Final Draft)*. Department of Women and Child Government of India. New Delhi.
- Ministry of Human Resource Development. 1997. *Women in India - A Statistical Profile, 1997*. Department of Women and Child Development. Government of India. New Delhi.
- Ministry of Welfare. 1986. *Handbook on Social Welfare Statistics*. Government of India. New Delhi.
- Morris, D.M. and M.B. McAlpin. 1982. *Measuring the Condition of India's Poor – The Physical Quality of Life Index*. Promila and Co. New Delhi.
- Moser, Caroline, O.N. 1991. "Gender Planning in the Third World: Meeting Practical and Strategic Gender Needs." in Wallace Tina and Candida March, (eds.), *Changing Perceptions - Writing on Gender and Development*. Oxfam.
- Mukherjee, Mukul. 1997. "Building a Framework for Measuring Gender Equality: Report of an International Workshop." *The Journal of Women's Studies* 2 (1).
- Mukherjee, Ramkrishna. 1975. *Social Indicators*, The Macmillan Company of India Ltd.. Delhi, Bombay, Calcutta and Madras.
- Mukherjee, Ramkrishna. 1981. "Use of Social Indicators for Planning." in UNESCO, (ed.), *Socio-economic Indicators for Planning: Methodological Aspects and Selected Examples*. UNESCO. Paris: 9-21.
- Mukherjee, Ramkrishna. 1989. *The Quality of Life: Valuation in Social Research*. Sage Publications. New Delhi/Newburg Park/London.
- Muralcedharan, V.R. 1993. "When is Access to Health Care Equal? - Some Policy Issues." *Economic and Political Weekly* 28(25):1291-6.
- Murthy, M., A.C. Guio and J. Drèze. 1995. *Mortality, Fertility and Gender Bias in India - A District Level Analysis*, Discussion Paper No. 61. Development Economics and Research Programme. STICERD. London School of Economics.
- Nanavaty, Reema. 1994. *We Can We Will - Women's Empowerment and DW CRA Programme*, SEWA Working Paper No.3. Self-Employed Women's Association. Ahmedabad.
- Nandraj, Sunil. 1994. "Beyond the Law and the Lord: Quality of Private Health Care." *Economic and Political Weekly* 29(27):1680-5.
- Narmada Water Resources Department. 1986. *Report of the Committee on Estimation of Groundwater Resources and Irrigation Potential in Gujarat State*. Government of Gujarat. Gandhinagar.
- Narmada Water Resources Department. 1992. *Report of the Committee on Estimation of Groundwater Resources and Irrigation Potential in Gujarat State*. Government of Gujarat. Gandhinagar.
- Narmada Water Resources Department. 1998. *Report of the Committee on Estimation of Groundwater Resources and Irrigation Potential in Gujarat State*. Government of Gujarat. Gandhinagar.
- Nath, S.K. 2002. "Valuation of Unpaid Households and Community Services Using Time Use Statistics." in *Proceedings of the National Seminar on Applications of Time Use Statistics*, sponsored by UNIFEM. Central Statistical Organisation. Government of India, October 2002.
- National Commission on Women. 1997. *In Pursuit of Justice, Empowerment and Equality*. Government of India.
- National Council for Applied Economic Research. 1994. *Non-Enrolment, Drop-out and Private Expenditure on Elementary Education – A Comparison across States and Population Groups*. NCAER. New Delhi.
- National Council of Applied Economic Research. 1992. *Household Survey of Medical Care*. NCAER. New Delhi.
- National Council of Educational Research and Training. 1997. *Sixth All India Educational Survey, Volume I, Educational Facilities in Rural and Urban Areas*. NCERT. New Delhi.
- National Council of Educational Research and Training. 1998. *Sixth All India Educational Survey, Volume VI, Age-wise Enrolment, Repeaters, Incentive Schemes, etc. in Schools*. NCERT. New Delhi.
- National Council of Educational Research and Training. 1998. *Sixth All India Educational Survey: Enrolment in Schools*, National Tables Volume IV. NCERT. New Delhi.
- National Council of Educational Research and Training. 1998. *Sixth All India Educational Survey: Age-wise Enrolment, Repeaters, Incentive Schemes, etc., in Schools*, National Tables Volume VI. NCERT. New Delhi.

- National Council Of Educational Research and Training. 1997. *Sixth All India Educational Survey: Educational Facilities in Rural and Urban Areas*, National Tables Volume I. NCERT. New Delhi.
- National Council of Educational Research and Training. 1998. *Sixth All India Educational Survey: Educational Inputs and Facilities in Secondary and Higher Secondary Schools*, National Tables Volume V. NCERT. New Delhi.
- National Institute of Design. 2000. *Gujarat Jal-Disha 2010: A vision of healthy and equitable future with drinking water, hygiene and sanitation for all*, A report by a Working Group constituted by Gujarat State Drinking Water Infrastructure Co. Ltd. through National Institute of Design, Ahmedabad.
- National Remote Sensing Agency. 1995. *Wasteland Atlas of India*. NRSA. Hyderabad.
- National Sample Survey. 1989. *Draft Report No. 365*. Department of Statistics. GOI. New Delhi.
- Nayar, Usha. 2001. "Education of Girls in India: An Assessment." in R. Govinda, (ed.), *India Education Report – A Profile of Basic Education*. Oxford University Press. New Delhi for National Institute of Educational Planning and Administration and United Nations Educational Scientific and Cultural Organization: 35-46.
- Nirmala, V. and Bhat, K Sham. 1999. "Female Work Participation in the Emerging Labour Market in India." *Indian Journal of Labour Economics* 42(4):613-24.
- Nubler, I. 1992. *The Knowledge Dimension in the Human Development Index: In Search of a Broader Concept*. UNDP. New York.
- Nutritional Foundation of India. 1983. *Scientific Report 1*, The National Goitre Control Programme - Blueprint for its Intensification. NFI. New Delhi.
- Observer Research Foundation. 2003. *India 2003: Observer Statistical Handbook*. Observer Research Foundation. New Delhi.
- Ogwang, T. 1994. "The Choice of Principle Variables for Computing the Human Development Index." *World Development* 22(12):2011-14.
- Organisation for Economic Co-operation and Development. 1976. *Measuring Social Well-Being - A Progress Report on the Development of Social Indicators*. The OECD Indicator Development Programme. OECD. Paris.
- Organisation for Economic Co-operation and Development. 1977. *Basic Disaggregations of Main Social Indicators*. The OECD Social Indicator Development Programme, Special Studies No.4. OECD. Paris.
- Organisation for Economic Co-operation and Development. 1978. *Urban Environmental Indicators*. OECD. Paris.
- Organisation for Economic Co-operation and Development. 1982. *The OECD List of Social Indicators*. The OECD Social Indicators Development Programme, No.5. OECD. Paris.
- Organisation for Economic Co-operation and Development. 1986. *Living Conditions in OECD Countries*. OECD Social Policy Studies No.3. OECD. Paris.
- Oscar, A. and S. Juan. 1980. *Measuring Level of Living in Latin America*. LSMS Working paper No. 3. The World Bank. Washington D.C.
- Oza, A.N. 1997. "Role of Agriculture in Industrialisation." in B.M. Desai, (ed.), *Agricultural Development Perspective for the Ninth Plan*. Oxford and IBH Co. Ltd. New Delhi.
- Pal, S.P. and D.K. Pant. 1993. "An Alternative Human Development Index." *Margin*. Special Issue. Jan-March 1993 – Part II.
- Pandya, C.G. 1988. *Hazards in Chemicals Units*. Oxford & IBH Publishing Co. Pvt. Ltd.
- Pandya, C.G. 1992. *Risks in Chemical Units*. Oxford & IBH Publishing Co. Pvt. Ltd.
- Pangotra, Prem, P.R. Shukla and Prity Goswami 1997. "Management of Urban Energy and Air Quality: Case of Ahmedabad." in P.R. Shukla, (ed.), *Energy Strategies and Greenhouse Gas Mitigation*. Allied New Delhi: 172-187.
- Parikh, Kirit. 1997. *India Development Report*, (ed.), Indira Gandhi Institute of Development Research, Oxford University Press. Bombay.
- Parthasarathy, Soma Kishore and Shveta Mathur. 1999. "Paradoxes in Planning Gender Issues in Planning for the Urban Poor." a paper presented at the workshop on *Urban Policy and the Poor*. Centre For Environmental Planning and Technology. Ahmedabad.
- Parthasarthy, R. 1999. "Participatory Irrigation Management Programme in Gujarat: Institutional And Financial Issues." a paper presented at seminar on *Dynamics of Development in Gujarat*. Centre for Development Alternatives. Ahmedabad. April 23-24.
- Patel, Mafatlal. 1996a. (in Gujarati) *Primary Education in Gujarat: An Overview*. Monograph.
- Patel, P.P. 1998. (in Gujarati) *Water Resources in North Gujarat and Environment*. Department of Sociology, M.S. University. Vadodara.
- Patel, Tushar and C. V. Raiyani. 1997. "Indoor Air Quality: Problems and Perspectives." in P. R. Shukla, (ed.), *Energy Strategies and Greenhouse Gas Mitigation*. Allied. New Delhi. 72-83.
- Pathak, K.B. and B.S. Singh. 1993. "Adolescent Motherhood and Maternal Mortality in India." in K.B. Pathak and U.P. Sinha, (eds.), *Dynamics of Population and Family Welfare*. Himalaya Publishing House. Bombay.
- Pitt, Mark. 1993. "Analyzing Human Resource Effects: Health." in Lionel Demery, Marco Ferroni, Christiaan Grootaert with Jorge Wong-Valle, (eds.), *Understanding the Social Effects of Policy Reform*. The World Bank. Washington D.C.: 137-54.
- Planning Commission. 1993. *Report of the Expert Group on Estimation of Proportion and Number of Poor*. Perspective Planning Division, Government of India. New Delhi.
- Planning Commission. 1997. *Estimate of Poverty*, Press Information Bureau. GOI. New Delhi. March 11.
- Population Research Centre and International Institute of Population Sciences. 1993. *National Family Health Survey – Gujarat*. PRC and IIPS. Bombay.
- Population Research Centre and International Institute of Population Sciences. 1994. *National Family Health Survey*. PRC and IIPS. Bombay.

- Prabhu, Seeta K. and S. Chatterjee. 1993. *Social Sector Expenditure and Human Development: A Study of Indian States*. Department of Economic Analysis. Reserve Bank of India. Bombay.
- Prabhu, Seeta K., and P.C. Sarkar. 1992. "Identification of Levels of Development: Case of Maharashtra." *Economic and Political Weekly* 17(36):1927-37.
- Prabhu, Seeta K., P.C. Sarkar and A. Radha. 1995. "Gender-Related Development Index for Indian States: A Preliminary Exercise." paper presented at the workshop on *The Human Development Report 1995: The Structural Context for Empowering Women in India*. FES and UNDP and held at Neemrana. Rajasthan. December 12-13.
- Prabhu, Seeta K., P.C. Sarkar and A. Radha. 1996. "Gender-Related Development Index for Indian States – Methodological Issues." *Economic and Political Weekly*. October 26.
- Premi, M.K. and S. Raju. 1994. *Gender Issues on Workforce Participation in 1991 Census of India*. Report sponsored by United Nations Development Fund for Women, Indian Association for the Study of Population. New Delhi.
- Prugl, Elisabeth. 1999. *The Global Construction of Gender: Home based work in the Political Economy of the 20<sup>th</sup> century*. Columbia University. New York.
- Purohit, Brijesh C. and Tasleem A. Siddiqui. 1994. "Utilisation of Health Services in India." *Economic and Political Weekly* 29(18):1071-80.
- Pushpangadan, K. and S. Jayachandran. 1997. "Age-specific Analysis of Gender and Well-being in India." a paper prepared for the UNRISD/UNDP/CDS workshop on *Gender, Poverty and Well-being Indicators and Strategies*. Trivandrum. Kerala.
- Pyatt, F.G. 1991. Personal Communication to Inge Kaul.
- Rajan, Irudaya, S. and K.S. James. 1993. "Kerala's Health Status: Some Issues." *Economic and Political Weekly* 28(36):1889-92.
- Rajivan, Anuradha Khati. 1996. "Measurement of Gender Differences - Using Anthropometry." *Economic and Political Weekly* October 26.
- Rampal, Anita. 1995. "Education for a Possible Structural Change." a paper presented at workshop on *The Human Development Report 1995: The Structural Context for Empowering Women in India*. FES and UNDP. New Delhi.
- Rampal, Anita. 2001. "Texts in Context: Development of Curricula, Textbooks, and Teaching Learning Materials." in R. Govinda, (ed.), *India Education Report – A Profile of Basic Education*, Oxford University Press. New Delhi for National Institute of Educational Planning and Administration and United Nations Educational Scientific and Cultural Organization: 153-66.
- Reddy, K.N. and V. Selvaraju. 1994. *Health Care Expenditure by Government in India, 1974-75 to 1990-91*. Seven Hills Publication. New Delhi.
- Registrar General & Census Commissioner. 1998a. *Gujarat State District Profile, 1998*. Census of India. New Delhi.
- Registrar General & Census Commissioner. 1998b. *State Profile 1991, India*. Government of India. New Delhi.
- Registrar General. 2000. *Sample Registration System Bulletin*. Government of India. New Delhi. April.
- Registrar General. 2001. *Sample Registration System Bulletin*. Government of India. New Delhi. April.
- Registrar General. 2001. *Sample Registration System Bulletin*. Government of India. New Delhi. October.
- Registrar General. 2002. *Sample Registration System Bulletin*. Government of India. New Delhi. October.
- Riley, J.C. 1990. "The Risk of Being Sick: The Morbidity Trends in Four Countries." *Population and Development Review* 16.
- Saith, Ruhi and Barbara Harriss-White. 1997. "An Analysis of the Gender Sensitivity of Conventional Well-being Indicators." a paper prepared for the UNRISD/UNDP/CDS workshop on *Gender, Poverty and Well-being Indicators and Strategies*. Trivandrum. Kerala.
- Schrijvers, Joke. 1993. *The Violence of 'Development' – A Choice for Intellectuals*. International Books. The Netherlands and Kali for Women. New Delhi.
- Schumacher 1974. *Small is Beautiful*
- Seetharamu, A.S. 2001. "Status of Elementary Teachers in India: A Review." in R. Govinda, (ed.), *India Education Report – A Profile of Basic Education*. Oxford University Press, New Delhi for National Institute of Educational Planning and Administration and United Nations Educational Scientific and Cultural Organization: 190-201.
- Self Employed Women's Association (SEWA). *Annual Reports*. SEWA. Ahmedabad.
- Sen, Amartya. 1985. *The Standard of Living: Lecture I, Concepts and Critiques*. Cambridge University Press. Cambridge.
- Sen, Amartya. 1996. "Radical Needs and Moderate Reforms." in Jean Drèze and Amartya Sen, (eds.), *Indian Development - Selected Regional Perspectives*. Oxford University Press. Calcutta, Madras, Mumbai for UNU and WIDER: 1-32.
- Seshadri, C. 2001. "Educating the Educators: Review of Primary Teacher Training." in R. Govinda, (ed.), *India Education Report – A Profile of Basic Education*. Oxford University Press, New Delhi for National Institute of Educational Planning and Administration and United Nations Educational Scientific and Cultural Organization: 202-17.
- Seth, Mira, 2001. *Women and Development - The Indian Experience*, Sage Publication. New Delhi.
- Sethi, J.D. 1992. *Quality of Life*. Indian Institute of Advance Study. Shimla and B.R. Publishing Corporation. Delhi: 23-34.
- Shah, Amita. 1999. "Watershed Programme in Gujarat: A Long Way to Go." a paper presented at seminar on *Dynamics of Development in Gujarat*. Centre for Development Alternatives. Ahmedabad. April 23-24.
- Shah, Anil, C. 2000. *Eloquent "Silent" Revolution*. Development Support Centre. Ahmedabad.
- Sharma, Atul. 1999. "Gujarat Finances – Reform of Budgetary Management." a paper presented at the Seminar on *Dynamics of Development in Gujarat*. Centre for Development Alternatives. Ahmedabad. April 23-24.

- Shinoda, Takashi. 1999. "Institutional Change And Entrepreneurial Development Among the Backward Castes in Gujarat." a paper presented at seminar on *Dynamics of Development in Gujarat*. Centre for Development Alternatives. Ahmedabad. April. 23-24.
- Shiv Kumar, A.K. 1991. "UNDP's Gender Related Development Index: A Computation for Indian States." *Economic and Political Weekly* 26(41):2343-45.
- Shiv Kumar, A.K. 1996. "UNDP's Gender Related Development Index: A Computation for Indian States." *Economic and Political Weekly* 31(14):887-95.
- Shiva Kumar, A.K. 1991. "Human Development Index: A Computation for Indian States." *Economic and Political Weekly* October 12.
- Shukla, P.R. 1992. "Energy Dynamics in Domestic Sector of India." *Energy Development Group*. 4. March.
- Singh, Gurdev. 1997. "Employment, Potential of Wastelands Development in India." in B.M. Desai, (ed.), *Agricultural Development Perspective for the Ninth Plan*. Oxford and IBH Co. Ltd.. New Delhi.
- Sinha, S.K., and K.N. Unni. 1994. "Population Statistics Relevant for Gender Issues." in Central Statistical Organisation (CSO), (ed.), *Proceedings of the First National Workshop on Improvement of Statistics on Gender Issues*. Department of Statistics, Ministry of Planning and Programme Implementation, Government of India.
- Smith, Kirk R. 1987. *Biofuels, Air Pollution and Health: A Global Review*. Plenum Publishing Corporation. New Delhi.
- Smith, Kirk R. and Youchang, Liu. 1993. "Indoor Air Pollution in Developing Countries." in Janathan Samet, (ed.), *The Epidemiology of Lung Cancer*. Marcel Drekker. New York.
- Society for Promotion of Wastelands Development. 1998. *Joint Forest Management Update*. Society for Promotion of Wastelands Development. New Delhi.
- State Public Finance Reforms Committee. 2000. *Fiscal consolidation in Gujarat: A medium term Plan*. SPFRC, Government of Gujarat.
- Stewart, F. 1996. *Groups for Good or Ill*. Oxford Development Studies 24(1):9-25.
- Sudha, S. and S. Irudaya Rajan. 1997. "Intensifying Masculinity of Sex Ratios at Birth and Infancy in India: Preliminary Evidence from the 1981 and 1991 Census." a paper prepared for the UNRISD/UNDP/CDS workshop on *Gender, Poverty and Well-being Indicators and Strategies*. Trivandrum. Kerala.
- Sundar, Ramamani. 1995. *Household Survey of Health Care Utilisation and Expenditure*, Working Paper No. 53. National Council of Applied Economic Research. New Delhi.
- Swati, and Michael. 2003. *Taking Responsibility - Learning to Lead*. Mozda Collective. Juna Mozda. May.
- Szalai, A. 1980. *The Meaning of Comparative Research on the Quality of Life*. Sage Studies in International Sociology, 20, sponsored by the International Sociological Association: 7-21.
- Tata Services limited. 1995. *Statistical Outline of India, 1994-95*. Department of Economics and Statistics, TSL. Bombay.
- Tejada-de-Rivero, David. 1981. "Primary Health Care - World Strategy." Keynote address at the third international congress on *Primary Health Care: World Strategy*, World Federation of Public Health Association and Indian Public Health Association. Calcutta.
- The Institution of Engineers. 1985. *National Inventory of Water Polluting Industry and Status of Effluent Treatment Plants*. on the occasion of 2<sup>nd</sup> World Congress on Engineering and Environment, Nov. 7-9. The Institution of Engineers (India).
- The PROBE Team and Centre for Development Economics. 1999. *Public Report on Basic Education in India*. Oxford University Press. New Delhi.
- The World Bank. 1980a. *Health - Sector Policy Paper*. World Bank. Washington D.C.
- The World Bank. 1980b. *Poverty and Human Development*. Oxford University Press. New York.
- The World Bank. 1987. *Social Indicators of Development - 1987*. The World Bank. Washington D.C.
- The World Bank. 1989. *India: Poverty, Employment and Social Services*. World Bank. Washington D.C.
- The World Bank. 1991. *Introduction - Social Indicators of Development 1990*. The John Hopkins University Press. Baltimore. London.
- The World Bank. 1993a. *World Development Report, 1993*. World Bank. Oxford University Press. New York.
- The World Bank. 1993b. "13 Million HIV Positive Women by 2000." Press Release, WHO/69, 7 September 1993. WHO. Geneva.
- The World Bank. 1994. *India, Policy and Finance Strategies for Strengthening Primary Health Care Services*. South Asia Country Department II, Population and Human Resources Operations Division. The World Bank. Washington D.C.
- The World Bank. 1995. *Toward Gender Equality - Role of Public Policy*. The World Bank. Washington D.C.
- Tilak, J.B.G. (n.d.). Education in India: Looking Back to Leap Forward, NIEPA. New Delhi
- Tilak, J.B.G. 1990. "Expenditure on Education in India." *Journal of Education and Social Change* 4 (2). July-Sep. 62-69.
- Tilak, Jandhyala. B.G. 2001. "Financing Elementary Education in India." in R. Govinda, (ed.), *India Education Report - A Profile of Basic Education*. Oxford University Press, New Delhi for National Institute of Educational Planning and Administration and United Nations Educational Scientific and Cultural Organization: 267-93.
- UNESCO. 1974. *Social Indicators: Problems of Definition and of Selection* (Reports and Papers in the Social Sciences No. 30). UNESCO. Paris.
- UNESCO. 1976. *The Use of Socio-economic Indicators in Development Planning*, (ed.). The UNESCO Press. Paris.
- UNESCO. 1977. *Indicators of Social and Economic Change and Their Applications* (Reports and Papers in the Social Sciences, No. 37), (ed.) UNESCO. Paris.



- UNESCO. 1978. *Indicators of Environmental Quality and Quality of Life*, (Reports and Papers in the Social Sciences, No. 38). UNESCO. Paris.
- United Nations 1979. *Convention on the Elimination of All Forms of Discrimination against Women*. United Nations General Assembly.
- United Nations Development Programme. 1990. *Human Development Report, 1990*. Oxford University Press. Oxford.
- United Nations Development Programme. 1991. *Human Development Report, 1991*. Oxford University Press, Oxford.
- United Nations Development Programme. 1992. *Human Development Report, 1992*. Oxford University Press, Oxford.
- United Nations Development Programme. 1993. *Human Development Report, 1993*. Oxford University Press, Oxford.
- United Nations Development Programme. 1994. *Human Development Report, 1994*. Oxford University Press, Oxford.
- United Nations Development Programme. 1995. *Human Development Report, 1995*. Oxford University Press, Oxford.
- United Nations Development Programme. 1996. *Human Development Report, 1996*. Oxford University Press, Oxford.
- United Nations Development Programme. 1997. *Human Development Report, 1997*. Oxford University Press, Oxford.
- United Nations Development Programme. 1997. *India: Road to Human Development*. A report to India Development Forum. Paris. June 23-25. UNDP. New Delhi.
- United Nations Development Programme. 1998. *Human Development Report, 1998*. Oxford University Press, Oxford.
- United Nations Development Programme. 1999. *Human Development Report, 1999*. Oxford University Press, Oxford.
- United Nations Development Programme. 2002. *Human Development Report, 1999*. Oxford University Press, Oxford.
- United Nations Research Institute for Social Development. (n.d.). *Contents and Measurement of Socio-Economic; Development-An Empirical Enquiry*. UNRISD. Geneva.
- United Nations Research Institute for Social Development. 1976. *Improvement of Development Statistics - Report of a Group of Experts*, (Report No. 76.4). UNRISD. Geneva.
- United Nations Research Institute in Social Development. 1990. *Monitoring Social Progress in the 1990s*. UNRISD. Geneva.
- United Nations. 1978. *Social Indicators: Preliminary Guidelines and Illustrative Series* (Statistical Papers, Series M No. 63. Department of International Economic and Social Affairs. UN. New York.
- UNNATI. 2000. *Status of Panchayati Raj Institutions in Gujarat (1995-2000): A report*. UNNATI.
- Vijaya Sherrey, Chand P.G. and Aradhana Malik. 2000. *Status of Implementation of the Convention on the Rights of the Child in Gujarat*. UNICEF. Gandhinagar. Gujarat.
- Vikas, Centre for Development. 1995. *Life and Living of Urban Poor Ahmedabad, India*. Vikas, Centre for Development. Ahmedabad.
- Visaria, Pravin and Anil Gumber. 1994. *Utilization of and Expenditures on Health Care in India, 1986-87*. Gujarat Institute of Development Research. Ahmedabad.
- Visaria, Pravin and Gumber, Anil. 1994. *Utilization of and Expenditures on Health Care in India, 1986-87*, Gujarat Institute of Development Research. Ahmedabad.
- Visaria, Pravin and Visaria, Leelai 1994. "Demographic Transition - Accelerating Fertility Decline in 1980s." *Economic and Political Weekly* 29(51/52):3281-92.
- Visaria, Pravin, Anil Gumber and Chinnam Gopinath. 1992. "Child Labour, Family Life and Fertility in India." a study prepared for *Labour and Population Team for Asia and the Pacific*. Bangkok. Gujarat Institute of Development Research. Ahmedabad. July.
- Vishwanath, L.S. 1996. "Female Infanticide and the Position of Women in India." in A.M. Shah, B.S. Baviskar and E.A. Ramaswamy, (eds.), *Social Structure and Change 2*, Sage. New Delhi: 179-205.
- Voluntary Health Association of India. 1992. *State of India's Health*. VHAI. New Delhi.
- Vyas, Mona. 1998. *Environmental Quality Assessment: A Step Towards Environment Management - Case Study of Ankleshwar GIDC Estate*. (Unpublished Master's dissertation. School of Planning). Centre for Environmental Planning and Technology. Ahmedabad.
- Wadden, Richard, A. and Peter, A. Scheff. 1983. *Indoor Air Pollution, Characterization, Prediction and Control*. John Wiley and Sons. New York.
- Walby, S. 1990. *Theorizing Patriarchy*, Basil Blackwell. Oxford.
- Werner, David. 1995. "Turning Health into an Investment: Assaults on Third World Health Care." *Economic and Political Weekly* 30 (3): 147-151.
- Wieringa, S.E. 1996a. *A Reflection on the Gender Empowerment Measure*. Institute of Social Studies, The Hague. The Netherlands.
- Wieringa, S.E., 1996b. *Rethinking Gender Planning: A Critical Discussion of the Use of the Concept of Gender*. Institute of Social Studies. The Hague. The Netherlands.
- Wolf, C.P. 1983. *Social Impact Assessment - A Methodological Overview*. Sage Publications. Beverly Hills/London/New Delhi.
- Yadav, M.S., Meenakshi Bharadwaj with Mona Sedwal and Neeti Gaur. 2001. "Learning Conditions and Learner Achievement in Primary Schools: A Review." in R. Govinda, (ed.), *India Education Report - A Profile of Basic Education*. Oxford University Press. New Delhi for National Institute of Educational Planning and Administration and United Nations Educational Scientific and Cultural Organization: 167-89.

## Definitions

### Crude Birth Rate (CBR)

$$= \frac{\text{No. of live births in a given year}}{\text{Mid year population}} \times 100$$

### Crude Death Rate (CDR)

$$= \frac{\text{No. of deaths in a given year}}{\text{Mid year population}} \times 100$$

**Natural Increase Rate** is the difference between CBR and CDR.

**Net Migration Rate** is the difference between the In-migration rate and Out-migration rate. It is equal to population growth rate per annum minus the natural increase rate per annum.

**Infant Mortality Rate (IMR)** per 1000 live births – Probability of dying between birth and before completing one year.

**Neonatal Mortality** per 1000 live births – Probability of dying within one month after birth.

**Post Neonatal Mortality** per 1000 live births – Probability of dying after one month after birth but before completing one year.

**Total Fertility Rate (TFR)** per woman in a given year is average number of children born to a woman during the reproductive span (15-49 years) provided she experiences the current age-specific fertility rates.

**General Fertility Rate (GFR)** is defined as the number of births per 1000 women in the reproductive age-group (15-49 years) in a given year.

**Maternal Mortality Rate (MMR)** – reported annual number of deaths of women from pregnancy related causes per lakh live births.

**Sex Ratio** is number of females per thousand males.

**Life Expectancy at Birth (LEB)** is the average no. of years expected to be lived at the time of birth if current mortality trends were to continue.

**Literate** is a person who can read and write with understanding in any language and a person who can merely read but cannot write is taken to be as literate.

**Gross Enrolment Ratio** is the number of students enrolled in a level of education whether or not they belong to the relevant age-group for that level as a percentage of population in the relevant age-group for that level.

**Net Enrolment Ratio** is the number of students enrolled in a level of education who belongs in the relevant age-group as a percentage of the population in the age-group.

**Labour Force** is defined as the total number of persons working (or employed) and seeking or available for work (or unemployed).

**Work force:** Persons engaged in any gainful activity are considered 'workers' (or employed). They are assigned under any one or more of the nine activity categories under the first broad activity category i.e. working or employed.

**Work force participation rate** is defined as the proportion of workers in the population.

**Marginal workers** are those who worked for 183 days in a year.

**Employed and Unemployed according to usual status approach**, (with reference period of 365 days) adopted by National Sample Survey Organisation (NSSO) a person is considered as **working** or **employed** if he/she is engaged relatively for a longer time, during the reference period of last 365 days in any one or more of the work activities. He/she is considered as **seeking or available** for work or **unemployed** if he/she is not working but is either seeking or available for work for a relatively longer period of the specified reference period.

**Principal Status** The activity on which a person spent relatively longer time of the preceding 365 days prior to the date of survey is considered the principal usual activity status of the person.

**Subsidiary Status** A 'non-worker' (on the basis of principal usual activity status) who pursued some gainful activity in a subsidiary capacity is considered to be usually working in a subsidiary capacity.



This is the first Human Development Report of Gujarat. It looks at human development as the goal as well as the development paradigm that is conducive to the promotion of development. The report shows that the status of human development in Gujarat is determined by the macro development path, the efforts made in sectors like literacy and education, health and nutrition etc., and by the micro level preparedness and empowerment of communities. The state has experienced a deceleration in the achievements of human development in the 1990s, in spite of a high rate of economic growth. The report therefore recommends a strategy that strengthens the linkage between economic growth and human development. It also identifies critical areas for interventions at different levels and in diverse sectors for promoting human development in the state.

**Mahatma Gandhi Labour Institute (MGLI)** established in 1979 by the Government of Gujarat as an autonomous society, provides education, training, study and research in labour and related subjects in furtherance of the policy of the Government to promote harmonious industrial relations and social justice. MGLI's main activities are training trade union workers, organized and unorganized labour in rural and urban areas, and labour judiciary; conducting research on various current issues on labour and employment; organizing seminars and workshops on issues of local, national and international relevance and disseminating research findings to a wider audience. The Institute offers diploma courses on labour studies, industrial safety and human resource management. The MGLI has a core faculty and a visiting faculty and a well equipped campus of its own.

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