Rajasthan Human Development Report 2002

Message from Ashok Gehlot, Chief Minister, Rajasthan

It gives me great pleasure to intrnduce the present Human Development Report for Rajasthan. This will surely go a long way in enabling us to focus attention on the important and current issues in human development in the State and to prioritise them. In this era of globalisation when emphasis is often laid primarily on investment, growth, pace of expenditure, rate of return, etc., the qualitative aspects of development like distributive economic equity are often ignored. This results in a skewed kind of development with attendant problems of its own.

Investments in the social sector in health, education and rural development require a perspective which can only be built with reference to the Human Development Index of the State. In the last 50 years, enormous investments have been made in the fields of health, education, poverty eradication, etc., but we still have a less than complete picture as to whether our achievements can give us cause for satisfaction and whether and what mid-course corrections are required. This report I fell would defmitely help in reassessing our investment strategy and focusing attention on areas which, although deserving, did not receive due attension in the past. As such, therefore, this report will hopefully be a strong tool for policy advocacy.

I would like to take this opportunity to congratulate UNDP for having taken the initiative in this regard and would like to place on record my appreciation of the senior UNDP officials who have taken keen interest in preparing this report. The officers of the Government of Rajasthan also deserve a word of thanks for putting together their collective efforts in order to finalise this publication. I am very grateful to Dr.(Mrs.) Rohini Nayyar, Advisor (RD), Planning Commission, Government of India for extending her co-operation in this effort. I do hope that the report will substantively help in reorienting our development strategy in a more meanigful way for the creation of a more equitable and humane quality of life in Rajasthan.

Message from Deependra Singh,
State Minister
Planning, Man Power, Agriculture Marketing,
Information Technology, Local Self Govt.,
Urban Development and Housing
Govt. of Rajasthan

Rajasthan, India's largest state in terms of area, is also one of the most diverse in terms of modes of production, customs, folklore and culture. Since its formation on 1st April 1949 the state has achieved tremendous progress in all areas of human development, especially improvements in literacy, decline in poverty, low infant mortality and other social indicators. Inspite of this progress there are still several formidable challenges ahead.

The task of further improving human development in a scenario of shrinking resources, ensuring sustainable livelihoods in an eco-friendly manner and above all ensuring the participation of the poorest of the poor, especially women, dalits and tribals -these are important areas for future action for government and civil society in Rajasthan.

Under the dynamic leadership and guidance of the Hon'ble Chief Minister the state government has sponsored the Rajasthan Human Development Report. Since Development Report is expected to be a milestone in the human development agenda for Rajasthan in the years ahead. We would like to take up the challenges identified in the report for priority action. With this in mind I am extremely pleased to share the report with the people of Rajasthan and all who have a stake in the future progress of this strategic state.

Finally I would like to thank the Planning Commission, Government of India and the UNDP India Coutry Office for their support and assistance and we look forward to exciting partnerships in the future as we follow up the Rajasthan HDR.

Message from Kamaluddin Ahmed, Member, Planning Commission

There has been a paradigm shift in the approach to development plannIng m the Nineties. The focus has shifted from growth per se in a market driven economic environment to planning for enhancement in human well being where public policy has a critical role to play particularly, in the developing countries. Much of the credit for popularizing this framework goes to the UNDP's Human Development Reports. For over a decade now these reports have highlighted gaps in various social sector development outcomes, institutions of governance and delivery mechanisms that have a direct bearing on a person's well being.

A starting point for bringing about the necessary adjustments and building the focus of our public programmes and policies to explicitly address issues of human development requires appropriate and adequate information base for formulating development strategies that take into account the local conditions.

In this context, I am happy to note that Government of Rajasthan has taken the initiative to prepare its first State Human Development Report. I am aware that despite its unfavourable climatic and topographic resources Rajasthan has done well in tenns of providing its people with access to nutrition and basic minimum services, particl,llarly in recent years. There has been some visible decentralization throu~h Panchayati Raj Institutions. It has also supported several NGOs and voluntary initiatives in the fight against poverty and deprivation. The State has also taken steps to bring about greater transparency in implementing Government programmes and has passed recently a bill to the Right to Information.

The State Human Development Report provides a profile of gaps in development outcomes and attainments across districts. The analysis that the report presents has to be now translated into specific programmes of action and policies addressed at regions, sectors and population strata that need to be brought in the mainstream of the development process. I have no doubt that the Government of Rajasthan would measure well in pursuing this agenda.

I wish them all success in their endeavour.

Message from Dr. Brenda Gael McSweeney, UNDP Resident Representative & UN Resident Coordinator

It is a matter of great significance that the Government of Rajasthan has prepared the Rajasthan State Human Development Report (HDR) which indicates the way forward in the spheres of decentralised governance and sustainable livelihoods in the State.

The Rajasthan HDR is a frank assessment of the status of human development in the State. It highlights the issues of income & employment generation, reduction in poverty and regional disparities, provision of basic minimum services, people's participation, and development of human capabilities, especially that of the income poor. The Report has flagged the critical importance of ensuring sustainable livelihoods and minimising the impact of drought through appropriate, community-centred strategies such as rainwater harvesting and watershed management.

Sustainability of livelihood is thus at the forefront of the "people's agenda" in Rajasthan. These issues are appraised objectively against the yardstick of national and global targets. We would like to congratulate the State Government for the remarkable improvement in its literacy rates during the 1990s, as the data from the 2001 Census shows.

The Report also suggests areas for policy action and cooperation between Government and civil society institutions, focussing especially on gender equality and decentralisation, both of which are also key themes of the Government of India's UNDAF (United Nations Development Assistance Framework).

I compliment Hon'ble Chief Minister Gehlot and the Government of Rajasthan for their commitment to the cause of human development. The active participation of Government, Panchayati Raj Institutions, NGOs, social groups and, above all, the people in this endeavour will ensure that the advocacy messages of the Rajasthan HDR will have wide ownership and as such lead to ever more effective action. I am confident that the Report will be a crucial tool for helping to ensure lasting people-centred development in Rajasthan.

New Delhi, September 2001

Brenda Gael McSweeney
UNDP Resident Representative &
UN Resident Coordinator

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Explanatory Notes

Abortion	Abortion is the case of foetus born before completion of 28 weeks since conception and showing no sign of life at birth.
Age at Effective Marriage	The age at which a woman starts to live with her husband, or starts effective marriage, eg. the age of *gauna*.
Age of Marriage	The age at which a woman is actually married
Agriculture labourer	A person who works in another person's land for wages in money kind or share should be regarded as an agriculture labourer. He or she has no risk in the cultivation but he/ she merely works in another person's land for wages. An agricultural labourer has no right of lease or contract on land on which he/she works.
ANM	Auxillary Nurse Midwife
Ante Natal Care	Pregnancy related health care provided by a doctor or a health worker, in a medical facility or at home
ARI	Acute Respiratory Infection
B. Ed	Bachelor of Education
CHC	Community Health Centre
Child Mortality	Is the number of deaths of children aged one to five years, per 1000 live births
CHW	Community Health Worker
Crude Birth Rate (CBR)	Is the annual number of live births occurring per thousand mid-year populations
Crude Death Rate (CDR)	Is the annual no of deaths occurring per thousand mid year population
Cultivator	For purposes of the census a person is working as cultivator if he or she is engaged either as employer, single worker of family worker in cultivation of land owned or held from government or held from private person or institution for payment in money, kind or share. Cultivation includes supervision or direction of cultivation.
Current Daily Status	A person might be pursuing more than one activity during a week and some times even during a day.
Current Weekly Status	Unique activity status with reference to a period of seven day preceding the date of survey.
Dept.	Department
DFID	Department for International Development
DIET	District Institute for Education Training
DPEP	District Primary Education Programme
Enrolment Rate	The number of children enrolled in school or in particular classes to the total eligible population for those classes
EPI	Expanded Programme on Immunization
Gender-related development index	Is an adjustment of Human Development Index (HDI) for gender equity in life expectancy, educational attainment and income.
General Fertility Rate (GFR)	Number of live births per thousand women in the reproductive age group 15-49 years.
GOI/ GoI	Government of India

GOR/ GoR	Government of Rajasthan
HIV/ AIDS	Human Immuno-deficiency Virus/Acquired Immuno-Deficiency Syndrome
Household Industry	Household industry is defined as an industry conducted by the head of the household himself/ herself and or by the members of the household at home or within the village in rural areas and only within the precincts of the house where the household lives in urban areas. The larger proportion of workers in a household industry should consist of members of the household including the head. The industry should not be run on the scale of a registered factory that would qualify or has to be registered under the Indian Factories Act.
HRD	Human Resource Development
ICDS	Integrated Child Development Scheme
IEC	Information Education and Communication
IIEP	Indian Institute of Educational Planning
Infant Mortality Rate (IMR)	Is the number of deaths under one year of age per 1000 live births
Infants immunized with BCG	Is the percentage of infants reaching their first birthday that have been fully immunized (1 dose) against Tuberculosis.
Infants immunized with DPT	Is the percentage of infants reaching their first birthday that have been fully immunized against diphtheria, tetanus and whooping cough
Infants immunized with OPV	Is the percentage of infants reaching their first birthday that have been fully immunized against poliomyelitis
IRDP	Integrated Rural Development Programme
ISB	Industries Services Business
ITI	Industrial Training Institute
JFM	Joint Forest Management
KVIB	Khadi and Village Industries Board
Life Expectancy at birth (e0)	Is the number of years new born children would live if subject to the mortality risk prevailing for a cross section of the population at the time of their birth.
Literacy Rate	It is the ratio of the number of literate aged seven years and above to the total population aged seven years and above
Live birth	When a child shows some evidence of life at birth, irrespective of the interval since conception, it is a case of live birth.
LPG	Liquefied Petroleum Gas
MAF	Million Acre Field
Main Workers	A person who has worked for a major part of the year preceeding the date of enumeration.. For example, one who was engaged in any economically productive activity for 183 days or more ie six months or more in the previous year.
Marginal Workers	A person who has done some work in the year preceding the date of enumeration but does not qualify to be called a 'main worker' ie, period of work in less than 183 days.
Maternal Mortality Rate (MMR)	Number of deaths of women while pregnant or within 42 days of termination of pregnancy from any cause related to pregnancy and child birth per one lakh live births in a given year.

MCH	Maternal and Child Health
MCW	Mother and Child Welfare
MHRD	Ministry of Human Resource Development
MLL	Minimum Levels of Learning
MLPC	Mine Labour Protection Campaign
MOE	Ministry of Education
MPW	Multi-Purpose Health Worker
MTP	Medical Termination of Pregnancy
n.a.	Not available
NACO	National AIDS Control Organization
NCERT/ NCRT	National Council for Education Research and Training
NCTE	National Council for Technical Education
NFE	Non Formal Education
NFHS	National Family Health Survey
NFS	Non Farm Sector
NGO	Non Government Organization/ Non Governmental Organization
NIC	National Industrial Classification
NIEPA	National Institute of Education and Planning
NSDP	Net State Domestic Product
NSS	National Sample Survey
NSSO	National Sample Survey Organization
NTFP	Non Timber Forest Produce
NWDPRA	National Watershed Development Programme for Rainfed Areas
OBC	Other Backward Castes
ORS/ RHS	Oral Rehydration Salt/ Recommended Home Solution
ORT	Oral Rehydration Therapy
PAWDI	Participatory Watershed Development Initiative
PCA	Primary Census Abstract
PHC	Primary Health Centre
Pre-natal care	Pre-natal care services include regular medical check-up and monitoring of pregnant women, which includes medical intervention as is necessary in individual cases and professional advice regarding health, hygiene, nutrition and other related areas regarding pregnancy and child bearing.
Principal and Subsidiary Status	A person categorized as 'worker' or 'employed' on the basis of the principal status is called a 'Principal status worker' or 'Principal status employed'. A person categorised as a non-worker (i.e unemployed or out of labour force) who pursued some economic activity in a subsidiary capacity is called a 'subsidiary status worker' or subsidiary status employed.
Principal Status	Status of activity on which a person spent relatively longer time of the preceding 365 days from the date of survey is considered as the principal usual status activity of the person.
PVC	Poly Vinyl Chloride
RGSJP	Rajiv Gandhi Swarn Jayanti Patshalas
RNFS	Rural Non Farm Sector

RTI	Reproductive Tract Infection
SC	Scheduled Caste
SDP	State Domestic Product
SEEUY	Self Employment for Educated Unemployed Youth
Sex Ratio	Number of females per thousand males in a population
SIDA	Swedish International Development Agency
SIERT	State Institute of Education Research and Training
SKP	Shiksha Karmi Project
SRS	Sample Registration System
SRS	Sample Registration Scheme
ST	Scheduled Tribe
STC	State Teacher's College
STD	Sexually Transmitted Disease
Still birth	It is the case of a baby born after 28 weeks of gestation but showing no sign of life. The birth of a foetus caused by abortion is not considered a still birth
TBA	Trained Birth Attendants
Total Fertility Rate (TFR)	Average number of children expected to be born per woman during her entire span of reproductive period assuming that the age specific fertility rates , to which she is exposed to, continue to be the same and also there is no mortality.
TRYSEM	Training Rural Youth for Self Employment
UEE	Universal Elementary Education
UIP	Universal Immunization Programme
Under five mortality rate	Is the number of death of children under five years per thousand live births
UNFPA	United Nations Population Fund
UNICEF	United Nations Children's Fund
UPE	Upper Primary Education
Usual Status Employment	Status of activity on which a person spent relatively longer time of the preceding 365 days from the date of survey is considered as the principal usual status activity of the person.
WHO	World Health Organization
Worker Participation Rate (WPR)	The ratio of number of workers (main and marginal) according to Census or NSS to total population.
WPR	Worker Participation Ratio

Chapter I - Rajasthan and Human Development: An Introduction

The Rajasthan Human Development Report maps the status and role of people at the centre-stage of development. It illustrates the State's commitment to sustainable human development. The Report is a baseline document on several shared and interrelated concerns about human development.

Rajasthan, with a total geographical area of 3,42,239 square kilometres, is India's largest State. It was formed as a state of the Union of India in March 1949, by a merger of 19 Principalities and 2 Chiefships, with Ajmer-Merwara being added in 1956, as recommended by the States' Reorganisation Commission.

The population of Rajasthan is over 5.6 crores (2001), recording a decadal growth rate of 28.33 percent, with a density of 165 persons per square kilometre. In 1991 the population was 4.4 crores (1991), with a density of a little over 129 persons per square kilometre, with the highest proportion of Scheduled Caste (SC) population in India (averaging over 17 percent) and a high proportion of Scheduled Tribe (ST) population (12.4 percent). The State is characterised by a non-nucleated, dispersed pattern of settlement, with diverse physiography ranging from desert and semi-arid regions of Western Rajasthan to the greener belt east of the Aravallis, and the hilly tribal tracts in the Southeast.

Set within this diverse geographical terrain, Rajasthan encompasses a wide range of livelihoods. The State is home to, on one hand, prosperous "Green Revolution" peasantry in Ganganagar, and, on the other hand, subsistence farmers in Dholpur. Other contrasts are between the small artisans engaged in traditional crafts and the trading empires of the Marwari community, as well as the nomadic herders of sheep and camel to the dairy producers relying on stall-fed milch cattle.

Given the wide variations in terrain, social structure, livelihoods and cultural patterns within the State, no uni-dimensional measure of growth such as income can be adequate. A more comprehensive, people-oriented approach is needed to capture dynamics of local economies and social transactions and provide a vision of the direction in which the State and its people can develop. In this context human development approaches and measures, which go beyond income to include dimensions related to human capabilities such as quality of life, are indispensable.

Theme Statement: Sustainable Livelihoods in an era of Globalisation

The fiftieth anniversary of the State was in 1999. Plans and priorities of the government and citizenry alike revolve around issues of livelihood security. A basic goal is that the growth path of the State should be one of reform with a human face, with people at centre-stage. The State confronts imperatives of fiscal reform, macro-economic stabilisation and more effective sustainable human development. The task ahead is not only ensuring rapid growth, but also to ensure the kind of growth that is pro-poor, pro-nature, pro-women and pro-jobs. Sustaining livelihoods is a priority for the government, as well as for poor households, social groups and communities. Sustainability of livelihood is at the forefront of the "people's agenda" in Rajasthan.

The Ninth Plan document for Rajasthan highlights some major constraints in the speedy development of the State. These are:

- More than 60 percent of the State's total area is desert, with sparsely distributed population, entailing a very high unit cost of providing basic services.
- Agriculture continues to be dependent on rainfall. Failure of the monsoon causes severe drought and scarcity conditions.
- Growth of population continues to be high, with decadal rates being the highest in India. Growth in labour force outpaces employment generation.
- Rajasthan is deficient in water (surface and ground). Ground water at many places is unfit for human and livestock consumption.
- Literacy level, especially for girls, is among the lowest in the country.
- Other social and economic infrastructure is also deficient.

The State's approach and strategy for the Ninth Five-Year Plan reflects national objectives. The approach paper states that "It shall be the endeavour of the State to accelerate the pace of development for improving the living conditions of the people. The efforts would be to reach the national average in the sectors in which the State is below the national average". In more concrete terms, the priorities are:

- generation of larger employment opportunity;
- reduction in poverty and regional disparities;
- provision of Basic Minimum Services;
- people's participation; and
- development of infrastructure.

This State Human Development Report (SHDR) examines these issues from the perspective of livelihoods and human capabilities, especially that of the poor. These issues are appraised against the yardstick of national and global targets. The Report specifies points for public action.

Salient Observations of Livelihoods in Rajasthan

Rajasthan's growth rates in Gross State Domestic Product (GSDP) compare favourably with the national averages, although there has been some slippage over time. In the 1980s Rajasthan had the highest GSDP growth rates in the country, while in the 1990s, partly due to higher decadal growth rates in population, its rank has dropped to fourth place.[1] Thus, in the new millennium, Rajasthan has to match the performance of other states that have instituted pro-growth reforms.

Analysis of trends in the composition of Net State Domestic Product (NSDP) and of the employment profile of the State indicates the need to diversify employment structure. There is an urgent need to redress the gap between the stagnant agricultural sector, which continues to employ the largest proportion of workforce, and the more dynamic services sector, which accounts for only a small percentage of employment. Present trends could lead to a situation of "jobless growth". The low share (7.5 percent) of industry in employment means that industrial backwardness persists. There is an increase in the share of agricultural labour in total agricultural employment due to lack of other income opportunities for cultivators.

The State government is the largest employer among non-agricultural sectors. The Education and Police departments together employ more people than are employed by all organised industries put together. There is a similar skewedness in the public sector as well. The five new state corporations divided from the earlier Rajasthan State Electricity Board (RSEB) and Rajasthan State Road Transport

[1] See Ahluwalia 2000, for a comparative analysis of growth rates in Indian states during the 1990s.

Corporation (RSRTC) together employ more people than all other Public Sector Units (PSUs) taken together.

Livelihood Options

The class-size distribution of landholdings is highly skewed: 50 percent of total number of landholdings are marginal or small, measuring less than two hectares in size. These cover only 10 percent of total area under cultivation. The poor quality of land and the scarcity of water resources for irrigation are additional constraints even for holdings that are larger in size. Thus, land inequality is compounded by ecological fragility.

Low productivity of agriculture and the dimension of ecological risk make food security and subsistence the primary concern of farmers. Horticulture faces an impasse due to repeated market failures owing to lack of information and absence of co-operative action. Given the high levels of ecological stress upon land, water and forests in the State, compounded by the problem of encroachment by the more powerful interest groups, community response has often taken the shape of protest movements for control over land, water and forest.

In order to capture the State's vulnerability to drought and pestilence in a comprehensive manner, it is essential to examine the incidence of poverty. High levels of urban poverty, with trends consistently higher than rural poverty levels, are a salient feature of Rajasthan's poverty profile. This problem assumes greater proportion given the high rates of growth of urban population (40 percent between 1981-91), in contrast with that of rural population (22.9 percent).

In contrast to agriculture there has been a boom in the off-farm sector as far as income generation is concerned. In particular, mining and quarrying, leather, textile, repairs and small engineering, and tourism have witnessed considerable growth in the State.

Government of Rajasthan was among the first to announce a policy for the Rural Non-Farm Sector, and has encouraged interventions such as Rural Non-Farm Development Agency (RUDA) to meet the requirements of this "hope sector". New initiatives and policy liberalisation have also been undertaken in case of the mining and quarrying sector. However, the challenge of fully tapping the income and employment generation potential of RNFS in Rajasthan is quite formidable, as an appraisal of some of the key sub-sectors under the RNFS rubric indicates.

The leather sub-sector, which traditionally catered to rural demand for durable footwear, has witnessed growth in the urban markets, largely due to demand for *jutis*, leather bags and related products. Interventions such as *Operation Mojari* and technical assistance provided by the National Leather Development Programme have contributed to this growth. Current marketing interventions need to go beyond the "boutique" approach and evolve a strategy to cover all producers, especially in the upstream areas of flaying and tanning. However, this sub-sector faces a paradoxical situation. A State which produces the largest number of hides in the country has to rely upon tanned leather from elsewhere for conversion into finished products. A strategy to ensure that value-addition takes place within the state would involve social organisation of flayers and tanners, with proper credit, institutional, marketing and technical support.

The appraisal of the situation and trends in growth, employment and various livelihood sectors indicates that investment in human capital will provide firmer foundations for sustained and inclusive development in Rajasthan. The challenges posed by drought and poverty, insecurity of livelihoods to the poorest of the poor can be tackled more effectively if public action is focused towards the building of human capabilities in education and health.

Women's Livelihood

On the positive side, the number of women farmers increased, registering an overall growth rate of 86 percent between 1981 and 1991. During the same time period, their percentage share among cultivators rose from 16 percent to 23 percent. Much of the increase in the aggregate employment share of women is the result of distress in agriculture forcing women to migrate to construction sites, mining and quarrying. Moreover, women do not appear to have gained much from diversification of employment that has taken place in the last decade in Rajasthan. In fact, in 1991 only 7.4 percent of workers in Rural Non Farm Sector (RNFS) were women. All these indicate a gender bias in current trends of employment diversification and increased "feminisation of poverty".

Investment in Human Capabilities

Rajasthan has witnessed several successful experiments in literacy leading to palpable improvements in literacy levels although there is much ground still to be covered. The analysis of the status of primary education in Rajasthan brings to light serious deficiencies, such as high drop out rates (especially for girl children and children from SC/ST households), low levels of learning, and problems of poor motivation and teacher training, and inadequate curriculum development. Innovative programmes, *Shiksha Karmi*, Non Formal Education (NFE), *Lok Jumbish* and District Primary Education Programme (DPEP), also point to the need for more focus on the quality of education, and reform in the organisational structure, and not only on expansion of infrastructure and personnel. There is a compelling case for ensuring greater community participation and ownership of schools, a challenge taken up in the state government's decentralisation strategies.

The analysis of health and survival issues in Rajasthan shows that, despite the creation of extensive health-care infrastructure, health outcomes lag behind global norms and national commitments. The progress made since Independence in terms of infant mortality, case fatality rates of various diseases, especially those related to reproductive and child health, is less favourable compared to other states. Rajasthan's problems of malnutrition and lack of sanitation are also severe. The growing incidence of HIV/AIDS requires urgent attention. The Report identifies key areas of action to enable greater and easier access to health services by the poor and marginalised groups, especially women and girl children. Given the persistence of ill-health, and increasing costs of medicine and health care, institutional reforms in the health sector become a major imperative. In addition, greater attention has to be paid to the role of indigenous medicine, regulation of private sector participation as well as decentralisation of health care delivery.

Human development measures and definitions

As a possible basis for identifying critical parameters and to help further improve resource allocation decisions, indices such as the Human Development Index (HDI) and the Gender Development Index (GDI) have been calculated. These indices, which inevitably involve some simplification, aim to capture more holistically multiple dimensions of human development. Being pure numbers they have the advantage of being easily comparable, and therefore provide district-level criteria for outlays as well as benchmarks to be improved upon. Information derived from the calculations of HDI and GDI is the basis for moving from analysis to action. [2]

[2] District level HDI calculations are provided for all 32 districts, although for the districts created after 1991, much of the data used is extrapolated. The maxima for the HDI variables are: 100 percent

Most of the districts in Rajasthan have low HDI values. [3] Ganganagar has the highest HDI (0.656), followed by Hanumangarh (0.644), Kota (0.613), and Jaipur (0.607). Less developed districts, with HDI values less than or equal to 0.5, are Dungarpur (0.456), Barmer (0.461), Banswara (0.472), and Jalore (0.500). Unlike other states, where the range of variation between districts is quite significant, the districts of Rajasthan do not show wide divergences. This characteristic emerges also from the district level analysis of the poverty and income estimates. Thus, not only the most backward districts, but also the state as a whole require a renewed commitment of human and financial resources to improve the status of human development. Rajasthan presents a formidable challenge, as well as opportunities to innovate, for national and international partners in development.

Similar challenges and opportunities are posed by the gender-equity-sensitive-index, namely, the GDI. This composite indicator is an adjusted version of the HDI to reflect gender inequalities, in each of the three dimensions of human development considered. Ganganagar (0.596) and Hanumangarh (0.590) display high GDI values, while Dholpur presents a shocking contrast with a GDI value of 0.269.

Looking more closely at the components of the HDI in a disaggregated manner, it is observed that:

- in respect of education Kota stands first (0.449) while Barmer figures at the bottom of the list (0.208);
- in respect of longevity the leading and the lagging districts are Ganganagar and Hanumangarh (0.818) and Sikar (0.540) respectively; and
- in respect of income the highest performer is Ganganagar (0.842) while the lowest is Dungarpur (0.530).

These composite measures and their disaggregated components serve as alternative benchmarks of the status of human well being in the districts, and help in inter-sectoral and inter-district prioritisation for action.

Human Development through People's Participation

People are not just passive targets of development assistance but active agents of change. Rajasthan is among the states of the country that has witnessed several important initiatives involving voluntary groups, issue based citizens' action, and democratic decentralisation.

The voluntary or the NGO sector in Rajasthan has emerged as an effective "third sector" after the government and the private sector. This has been a result of some local and professional initiatives taken by institutions and individuals in the mid-seventies and early eighties. The Vidya Bhawan Society and Seva Mandir in Udaipur, the Social Work Research Centre in Ajmer and Urmul in Bikaner emerged as three main centres around which the NGO movement in Rajasthan developed.

In the light of the growing positive impact of the NGO grassroots projects and in response to the international and academic opinion in favour of their greater involvement in government programmes, in the 1980s the State Government opened up new frontiers. As a result erstwhile small experimental initiatives were substantially scaled up. The NGO is seen as the way towards greater community participation to foster sustainability of development programmes.

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literacy, 100 percent child enrolment in schools, life expectancy of birth of 85 years, and average annual per capita incomes of Rs. 9,484.

[3] A HDI value of 0.600 has been taken as the cut off figure to indicate low state of human development.

There have been efforts by citizens to organise themselves to fight perceived injustice and specific causes. These issue-based actions have generated awareness as well as led to positive action by people and the Government of Rajasthan. Some notable examples of this kind of public action include *Mahila Atyachar Virodhi Jan Andolan* and the movement for right to information or *Soochna ka Adhikar* with signal contribution by the *Mazdoor Kisan Shakti Sangathan*. These two initiatives focus respectively on issues relating to crime and violence against women and the importance of right to information of people in government-run development programmes to make implementation transparent. The State has passed a bill on the Right to Information, which was drafted in collaboration with *Mazdoor Kisan Shakti Sangathan* (MKSS), amongst others.

In continuation of the State's legacy of community based initiatives, Rajasthan has recently taken some major strides in extending democracy through decentralisation. The Panchayati Raj institutions (PRIs) are being strengthened in the State introducing significant changes in the legal framework governing the PRI regime (Box 1.1). The commitment of the State Government towards Panchayati Raj can be ascertained from the just concluded second round of elections to the PRIs in February 2000. Undeterred by a general strike by government employees, the State Government went ahead with the panchayats elections, completing the process successfully.

Box 1.1 - Panchayati Raj in Rajasthan : Recent Advances

The Government of Rajasthan has taken the following measures for the empowerment of PRIs :-

1. Zila Pramukhs made chairpersons of DRDA (as the first step towards transferring the management of DRDAs to Zila Parishads). The Additional Collector (Development) has been made Ex-Officio Chief Executive Officer of Zila Parishad.
2. The subjects of Elementary Education, Non-Formal Education and Literacy have been transferred to PRIs.
3. The responsibility for implementation of nine schemes has been transferred from DRDAs to Zila Parishads.
4. District Planning Committees (DPC) have been strengthened.
5. The Rajasthan Panchayati Raj (Modification of provision in their application to the Scheduled Areas) Act 1999 has been enacted in order to provide wide ranging powers to the village committees in the predominantly tribal areas.
6. Elected representatives and village society have been given control over grassroot functionaries of various departments posted in rural areas.
7. A scheme for the restoration of traditional drinking water sources has been introduced.
8. The Rajiv Gandhi Elementary Education and Literacy Mission has been set up for the universalisation of Elementary Education and achievement of Total Literacy by the year 2003.
9. The Rajiv Gandhi Swarna Jayanti Pathshalas programme has been launched, leading to the establishment of 11,847 schools opened through the Gram Panchayats.
10. A legislation has been passed whereby all sarpanchas have been made members of respective panchayat samitis and similarly all pradhans have been made members of Zila Parishads. This has restored the much needed organic link between Panchayat, Panchayat Samitis and Zila Parishads.
11. A large number of powers, functions and authorities have been devolved upon PRIs in relation to subjects stated in the eleventh Schedule of the Constitution.

Chapter II - Profile of Livelihoods

1. Introduction

Generation of livelihood opportunities for the poor is an essential ingredient of any strategy for sustainable human development. Recognising this, the Plan directives and budget priorities of the Government of Rajasthan have emphasised the need for employment security, increased productivity and income, and universal provision of basic services and amenities.

Livelihood security depends crucially on the type and quality of employment. Employment, in addition to being the basic source of income for individuals or households, is also a pivot of national, state and district domestic product. Analysis of trends in employment and state domestic product constitutes a major theme of this section. However, neither employment nor crude and imperfect macro measurements of income address the question of equity among various sections of the society, for an understanding of which it is useful to assess the state of poverty in Rajasthan. Income and human poverty have many dimensions critical to people's livelihoods.

This section focuses on income poverty and briefly on aspects of human poverty pertaining to *distributional* patterns of deprivation vis-à-vis basic amenities, while issues relating to education and health are discussed in more detail in the chapters pertaining directly to these two components of human development.

2. Overview of Employment in Rajasthan

Agriculture and animal husbandry are the principal source of livelihood in Rajasthan, as reflected in the pattern of employment in the State. Although the contribution of other sectors to the State's economy has increased, the primary sector, which includes agriculture and allied activities as well as mining and quarrying, has continued to be the main source of employment.

Employment data for the decade 1981-1991 indicates that the employment scenario has changed in terms of growth in non-farm and service sectors, although the sectoral portfolio in terms of sources of employment has not diversified significantly (Box 2.1). This is an issue of concern for the State's future livelihood strategies, especially as Rajasthan faces precarious conditions of drought.

Box 2.1 – Key features of employment in Rajasthan

The main features of the employment scenario in Rajasthan are:

- The agricultural sector is the predominant source of employment.
- The share of agricultural labour has increased from 7.3 percent in 1981 to 10 percent in 1991.
- Employment in overall agriculture is declining, although growth in non-agricultural employment is not fast enough to compensate for this decline.
- Under-employment is widespread especially in the rural agriculture sector and very significantly in the urban informal sector.
- The industrial base of the labour force is quite thin. The share of labour force in industries (both household and non-household) is just 7.5 percent, which indicates industrial backwardness.
- The proportion of casual labour has increased, especially in rural areas.
- The massive increase in the construction sector is largely a result of the spill over of unskilled workers from relatively less remunerative work in agriculture.
- The level of employment varies in the state. While it is relatively high in Ganganagar, Udaipur, Dungarpur, Dholpur and Chittorgarh have the largest incidence of under-employment.

The districts where the primary sector continues to be predominant are Barmer, Jalore, Chittorgarh, Dungarpur, Banswara, Dholpur and Jhalawar. Further, in Churu, Banswara, Jhalawar, Chittorgarh, Barmer, Dholpur, and Bikaner the dependence of rural workers on the agriculture sector is very high (above 75 percent). It is a matter of concern that most of these districts are not agriculturally prosperous. Also, while some of them may be around the state average in overall parameters of income and poverty, their agriculture-dependent population works in a low productivity, low technology equilibrium.

In 1991, as the census data indicates, about 39 percent of the state's population (1.71 crores of people) were employed in one form or another, with 1.39 crores of people employed as main workers and 31.9 lakhs as marginal workers.[4] The workforce participation rate (WPR) was 49 percent and 27 percent respectively amongst men and women, 42 percent in rural areas and 28 percent in urban areas.

Among the various regions, south and south-eastern Rajasthan had the highest workforce participation rates (above 40 percent). The male WPR was much above 50 percent in many districts, namely, Chittorgarh, Bhilwara, Udaipur, Dungarpur and Banswara, but equally high in Jhalawar, Bundi, and towards the south west in Barmer, Sirohi and Jalore.

Female WPR had mixed trends across the State. In the northern belt, the female workforce participation rates, as well as sex ratios, were very low. Some examples are: Dholpur (female WPR of 7 percent and sex ratio of 795), Jaisalmer (21 percent and 807), Jaipur (20 percent and 891), Bharatpur (22 percent and 832). At the opposite end of the spectrum were some districts in the south and south-east region, viz. Udaipur (female WPR of 33 percent and sex ratio of 965), Bhilwara (37 percent and 945), Dungarpur (38 percent and 995), Banswara (41 percent and 969), and Chittorgarh (42 percent and 950). In the same region, Kota and Bundi, however, registered low female WPRs (21 percent and 27 percent respectively) and sex ratios (887 and 889 respectively).

[4] According to the Census definitions, *main worker* is a person who has worked for a major part of the year preceding the date of the enumeration, and a *marginal worker* is a person who has done some work in the year preceding the date of the enumeration but does not qualify to be called a main worker.

In order to develop a better understanding of the people's world of work in the State, a closer look at the composition of employment is desirable.

3. Composition of Employment in Rajasthan: status and trends

In the ten-year period of 1981-91, the population of Rajasthan increased by 28.4 percent, while the number of main workers registered a growth of 33.3 percent. The district with the maximum rate of increase in main workers was Banswara (51 percent), followed by Alwar (47 percent), Bikaner (46 percent), Dungarpur (43 percent) and Jaipur (41 percent). The slowest growth in employment took place in Pali (15 percent), with Ajmer (20 percent), Bharatpur (27 percent) and Jhunjhunu (27 percent) coming in the wake.[5]

An important feature of this decadal employment trend in the state is the remarkable increase in women's employment. The number of female main workers increased by 79 percent, three times than that of men in the same category, and that of female main and marginal workers was very high especially in rural areas of Rajasthan (Table 2.1).

Table 2.1 : Share of Women in the Total Workforce

Type of Worker	All Workers	Rural Workers	Urban Workers
Main workers (1981)	14.6	16.1	7.8
Main workers (1991)	19.16	22.2	9.2
Main and Marginal workers (1981)	27.6	30.8	10.0
Main and Marginal workers (1991)	33.6	37.9	12.0

Source: Registral General of India, Primary Census Abstract, 1991 and 1981, Rajasthan series, Government of India, New Delhi.

This data, even without accounting for women's "unpaid work", shows that women played a key role in the state's economy. Clearly, an employment strategy for Rajasthan should place gender concerns at the forefront, and women's work has to be better reflected in the national and state accounting schemes. During the decade of 1981-1991, the highest employment growth was in the service sector (51 percent in overall, 49 percent for men and 69 percent for women), followed by the secondary sector, which grew by 21 percent, and the primary sector, which grew by 20 percent (85 percent for women). Differences in growth rates can, however, be deceptive, as the base of female participation in the emerging non-farm sectors (secondary and tertiary sectors) was very low at the beginning. In 1991 female participation in non-farm activities was 7.4 percent (less than a third of women's share in employment in the farm sector), and only 6.9 percent in rural areas.

Activities in the non-farm sectors are most prominent in the north and west regions. In 1991 in Bikaner, Jaisalmer and Jodhpur these sectors employed more than 35 percent of all main workers. Similar levels of non-farm employment were also found in Jaipur, Sikar, Jhunjhunu, Ajmer, Kota and Sirohi.

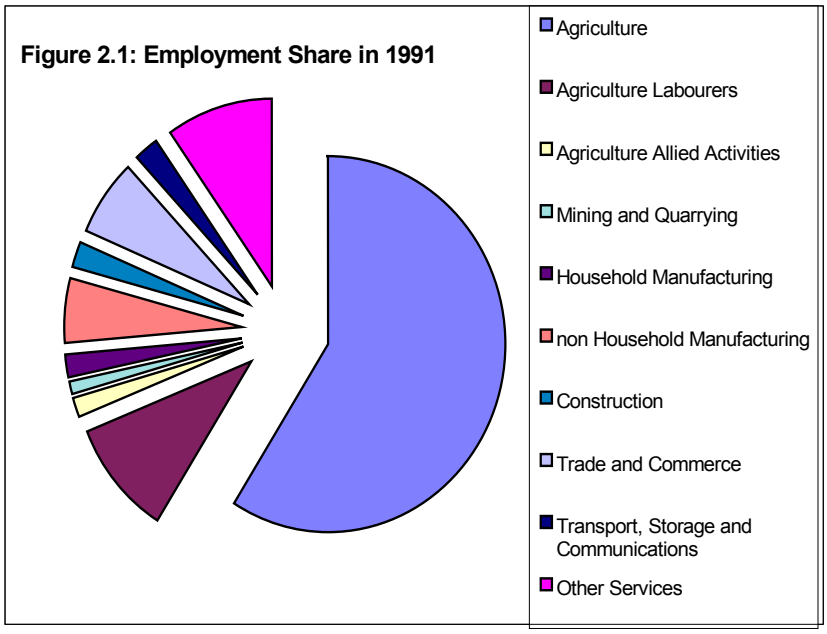
Table 2.2 gives data on the shares in employment of different sectors and their contribution to the overall increase in the number of main worker according to the 1981 and 1991 Census.

[5] For further details see Statistical Annex, table II - *Main workers in Rajasthan 1981-1991*.

Table 2.2 : Share of Sectors in Employment of Main Workers in 1981 and 1991				
Sector	**Employment Share (1991)**	**Employment Share (1981)**	**Ratio of main Workers in 1991 to Main Workers in 1981**	**Contribution of Sector in the overall increase in Main Workers from 1981 to 1991**
Agriculture /Cultivator	58.8	61.6	1.27	50.4
Agriculture Labourers	10.0	7.3	1.82	18.1
Agriculture Allied Activities	1.8	2.9	0.83	-1.5
Mining and Quarrying	1.0	0.9	1.50	1.4
Household Manufacturing	2.0	3.3	0.82	-1.8
Non Household Manufacturing	5.4	5.6	1.29	4.9
Construction	2.4	2.0	1.61	3.7
Trade and Commerce	6.4	5.3	1.60	9.7
Transport, Storage and Communications	2.4	2.5	1.29	2.2
Other Services	9.7	8.6	1.51	13.1
All Sectors	100.0	100.0	1.33	100.0

Source : Government of India, Primary Census Abstract 1981, and Primary Census Abstract 1991, Registrar General of India, New Delhi

Between 1981 and 1991 the number of main workers increased by nearly 33 percent, while the share of workers engaged in agriculture as cultivators decreased. The number of persons employed as agricultural labourers, which in 1991 included 18 percent of the *new* workers, went up by 82 percent, increasing their proportion in the employed population from 7 percent to 10 percent.



This indicates a rather unfortunate trend of increasing proletarisation in the agricultural society of Rajasthan. Agricultural cultivation, which had 59 percent share in employment of main workers in 1991, absorbed in fact only 50 percent of the *new* workers of the decade 1981-1991. This problem is further compounded by the fact that 40 percent of the State's geographical area comprises arid and semi-arid zones where agricultural labour is quite unstable as a form of livelihood. The number of main workers engaged in

activities allied to agriculture and household based manufacturing also witnessed a decline. Activities allied to agriculture and non-household manufacturing are perhaps no longer able to afford full time employment to people, pushing some of them to precarious forms of employment (Figure 2.1).

An alternate indicator of employment opportunities across districts is the ratio of growth in main workers to growth in population. Districts where employment growth was less than 90 percent of population growth were Jaisalmer, Pali and Jhunjhunu. On the other side, the fastest growth in employment to population was witnessed in the cluster comprising Udaipur, Chittorgarh, Dungarpur and Banswara and Alwar.

Employment growth in these districts has been driven by an increase in employment in agriculture and allied sectors, as well as the impetus provided by the growth in the services sector, especially in the south-eastern belt of the State. In contrast to such positive growth, in some districts employment has either dropped or registered marginal growth within certain sectors.

Employment in the secondary sector has decreased in the districts of Banswara (by 18.4 percent), Bundi (by 5.4 percent), Jhalawar (by 2.5 percent) and in Chittorgarh (by 1.1 percent). The decline in employment in the secondary sector, in spite of an increase in agriculture and allied sector employment, as in the case of Banswara, shows that the development of the primary sector does not necessarily translate into agriculture-led growth in other sectors. On the other hand, the ‘’districts of Jhunjhunu, Bharatpur, Sawai Madhopur, Pali, and even Kota witnessed poor growth performance in the secondary sector.[6]

Table 2.3 provides a district-wise overview of trends in employment status and prospects in Rajasthan.

Table 2.3: Employment Sectors in Rajasthan from 1981 to 1991 : Some Pointers

Sectors	Issues	Remarks
Agriculture/ Cultivators	There is a small increase in the number of cultivators, a modest 27 percent in the decade of 1980s. Only Banswara, Bikaner and Alwar had more than 40 percent growth.	Increase in cultivators with decreasing average size of holdings is a cause for concern. What is encouraging is the large increase of 86 percent in women cultivators, and thereby in their share of total cultivators (from 16 percent to 23 percent).
Agriculture/ Labourers	There is large increase in agricultural labourers in Jaisalmer and Bikaner where their number tripled in ten years, and in Dungarpur, Banswara, Udaipur, Jhunjhunu, Alwar, Sawai Madhopur, Jaipur, Sikar and Tonk where it doubled. Overall labour in agriculture went up substantially, by 82 percent.	Women agriculture labourers have grown substantially, more than doubling in ten years in 18 of the 27 districts. The increase was specially notable in Bikaner, Ganganagar, and Alwar.

[6] For further details see Statistical Annex, table 2.1 *Main workers in Rajasthan 1981-1991*.

Table 2.3: Employment Sectors in Rajasthan from 1981 to 1991 : Some Pointers		
Sectors	**Issues**	**Remarks**
Agriculture Allied Activities (livestock, forestry, fishing etc.)	Employment in this sector declined in 15 districts, led by Dungarpur and Barmer, in line with the overall decline in main workers during the decade. However, Banswara, Ganaganagar and Sawai Madhopur witnessed a substantial increase in this category of main workers.	The desert districts and districts with primarily rain fed agriculture, where dependence on animals is high, saw a decline in workers in this sector.
Mining and Quarrying	More than 50 percent increase in workers is witnessed in this sector. Significant increase was in Udaipur, Chittorgarh, Jodhpur, and Sawai Madhopur.	Census-enumerated main workers do not truly reflect the extent of employment here, as most workers are migrants and work for small periods.
Household Manufacturing	Except for Jaisalmer, main workers in household based manufacturing declined everywhere. The number of female workers, however, has increased by nearly ten percent. Major decline has been in the districts of Kota, Bundi, Jhalawar, Sawai Madhopur, and Pali .	With a workforce of over 2.78 lakh workers in 1991, the declining trend is a cause for concern. However, this decline is a nation wide phenomenon.
Non Household Manufacturing	The sector registered a modest increase of 28.6 percent during the 1980s. High levels of growth in employment were witnessed in Bhilwara and Alwar, the two significant industrial belts in Rajasthan. Other districts with noticeable growth in employment were Barmer and Udaipur. This appears to be a sunset sector in the districts of Jhunjhunu, Chittorgarh, Jalore, Kota, Ganganagar, Sawai Madhopur, Bundi, Jhalawar, and Bharatpur.	Except for some industrial belts, with historical advantages or with proximity to large markets, there is little sign of promise in this sector. Women are a small percentage of workers and their employment growth in the decade was only 16.5 percent.
Construction	By all estimates, construction is one of the most significant sectors in terms of growth. During the decade, the number of main workers in construction went up by 61 percent although the share of women in the sectoral main worker category has decreased from 7.7 percent in 1981 to 4.9 percent in 1991. Barmer, Jaisalmer, Dungarpur, Bikaner and Jaipur registered growth of more than 100 percent. The construction sector has only been second to agricultural labour, in terms of the growth in wage employment. This shows a trend towards increased labour intensity.	Most districts, except for Banswara, Chittorgarh and Bundi have recorded high growth in employment. However, it is to be noted that the migrant nature of a large majority of the population inflates the figures for total employment actually absorbed by this sector.
Trade and Commerce	With an overall growth of 60.2 percent, employment in trade and commerce has grown in every district. The female employment growth was also impressive at 51 percent.	With these positive trends, this could become a growth sector in the era of globalisation.

Table 2.3: Employment Sectors in Rajasthan from 1981 to 1991 : Some Pointers		
Sectors	**Issues**	**Remarks**
Transport, Storage and Communications	In the service sector, the lowest growth in employment was in activities related with transport, storage and communications. There were wide fluctuations within districts of the state: while on the one hand Jaisalmer, Bhilwara, Udaipur, and Alwar have recorded over 70 percent increase, on the other hand we have a decline in Ajmer, and near stagnation in Sawai Madhopur, Sirohi and Jodhpur.	Transport based activities in the state have witnessed rapid increase in towns, and there is a large proportion of shifting employment.
Other Services	Registered 51 percent growth. High growth in most of the arid districts (Jaisalmer, Nagaur, and Barmer) makes it a critical area of employment. A fairly wide variety of services have witnessed growth in the state. They have grown without much institutional or promotional interventions, and hence lend a great deal of stability and strength to jobs in this sector.	Among all the sectors in the services category, female employment has been the most encouraging in other services (74 percent growth). In 1991, women workers formed 11 percent of all main workers in this category.
Source: Based on data from Primary Census Abstract, 1981 and 1991, Census of India		

An appraisal of the findings of the National Sample Survey between 1977-78 and 1993-94 confirms that the dynamics of employment growth in Rajasthan are driven by push factors of agricultural distress as well as pull factors of demand for new services.

4. Findings from the National Sample Survey

As corroborative evidence, it is useful to have a quick look at the changing trends in employment, as highlighted by the National Sample Survey (NSS) estimates of employment in different sectors. Table 2.4 indicates the share of different sectors in the total employment figures, as estimated by the NSS.[7]

The overall decline in share of agriculture and allied activities has been absorbed primarily by construction, especially in the drought years of 1987/88. There is also a steady increase in services, especially in trade related activities and in other services (e.g. community services) in the unorganised sector. The manufacturing sector shows fluctuations, but on the whole maintains a slow growth.

The NSS estimates also shed light on the status of employment, that is to say, whether it is regular, casual or self-employment in nature (Table 2.5).

[7] The data has been derived from the employment and unemployment Surveys under the 32nd Round in 1977/78, 38th Round in 1983, 43rd Round in 1987/88 and the 50th round in 1993/94.

Table 2.4 – Employment Share of Sectors in Rajasthan in the Principal and the Subsidiary Status : National Sample Surveys, 1977/78 to 1993/94				
Sector	**1977/78**	**1983**	**1987/88**	**1993/94**
Agriculture and Allied	81.15	76.28	63.94	68.83
Mining and Quarrying	0.72	0.49	1.31	1.67
Manufacturing	5.90	7.02	8.41	6.30
Electricity gas and Water	0.21	0.51	0.38	0.41
Construction	2.53	4.08	11.59	7.22
Trade	3.39	4.04	5.28	5.04
Transport	1.24	1.74	2.22	2.31
Services	4.86	5.56	6.75	7.44
Others	0.00	0.27	0.12	0.74
Total	100.00	100.00	100.00	100.00
Source: Government of India, Sarvekshana NSS 32nd Round, 38th Round, 43rd Round and 50th Round, Department of Statistics, National Sample Survey Organisation, New Delh				

Table 2.5: Percentage Distribution of Usually Employed Persons by Status of Employment								
Year	**State**	**Rural**			**Urban**			**Total**
		Male	Female	Total	Male	Female	Total	
Self Employment								
1977/78	Rajasthan	83.52	91.10	87.04	52.57	80.68	60.62	84.02
1983	Rajasthan	80.71	89.35	84.52	53.84	78.53	60.53	80.35
1987/88	Rajasthan	67.80	82.20	74.30	48.00	69.60	53.70	70.60
1993/94	Rajasthan	71.80	88.40	79.00	47.2	63.8	51.0	n.a.
Regular Employment								
1977/78	Rajasthan	5.59	0.63	3.29	39.03	12.31	31.38	6.5
1983	Rajasthan	6.4	0.86	3.95	33.98	7.05	26.68	7.91
1987/88	Rajasthan	7.2	1.8	4.8	38.2	17.8	32.8	9.8
1993/94	Rajasthan	7.4	0.90	4.60	43.2	20.2	37.9	n.a.
Casual Wage Employment								
1977/78	Rajasthan	10.86	8.27	9.66	8.31	7.01	7.93	9.46
1983	Rajasthan	12.77	9.79	11.45	12.12	14.28	12.71	11.66
1987/88	Rajasthan	25.00	16.00	20.90	13.80	12.60	13.50	19.60
1993/94	Rajasthan	20.8	10.7	16.4	9.6	16.0	11.1	n.a.
Note: n.a. : not available. Source : National Sample Surveys on Employment and Unemployment, 32nd Round, Sarvekshana No. 18 Jan-Apr 1983, 38th Round, Sarvekshana No. 35, April 1988, 43rd Round, Sarvekshana Special Number, September 1990, 50th Round, Report No 409, March 1997, National Sample Survey Organisation								

The 1993/94 NSS survey indicates that self-employment is the major form of employment in Rajasthan. The proportion of self-employed people in that year was 79 percent in rural areas and 51 percent in urban areas, which is much higher than the national averages of 58 percent and 42 percent

respectively. Even the percentage of regular employees in Rajasthan is far more than the national average. Although Rajasthan's record is somewhat better than that of the nation in terms of casualisation of labour, there has been an increase in the proportion of casual labourers in the state between 1977/78 and 1993/94. The large increase in casual labour during the drought years of 1987/88 exhibits the impact of the drought and it indicates that many people are forced to shift out of regular employment in such times. This is especially true for female workers. Agricultural distress, casualisation of labour and the imperative to seek other sources of income are primary determinants of employment diversification for poor rural households.

Rajasthan's low unemployment figures show that the people of the State, while poor, are quite hardworking. The NSS round on unemployment, conducted in 1993-94, estimated that chronic unemployment in Rajasthan was 0.4 percent in rural areas and 1.8 percent in urban areas. Compared to the national unemployment rates of 1.8 percent for rural areas and 5.2 percent for urban areas, Rajasthan had the lowest rate of unemployment in the country. The State registered the lowest unemployment rates, as compared to other Indian states, also under the category of current weekly status, which was 0.7 percent in rural areas and 2.1 percent in urban areas.[8] Focusing on people in the age group 15-29 years, the level of unemployment appears to be far more than that for the entire population (0.9 percent in rural and 4.6 percent in urban areas). Clearly this cohort requires special attention from manpower planners.

Basic unemployment does not represent inherent under-employment. In order to estimate under employment, NSS surveys give indirect measures (Table 2.6). An estimate of under employment is provided calculating the number of unemployed people among those who, according to the Census, are usually working, and the percentage of people who, according to the NSS, are not in the labour force in the reference week.

Table 2.6 : Per 1000 distribution of Usually employed (principal and subsidiary status) by their broad current weekly status

Region	Male			Female		
	Employed	Unemployed	Not in labour force	Employed	Unemployed	Not in labour force
Rajasthan (Rural)	969	6	25	842	1	158
Rajasthan (Urban)	980	6	14	861	2	137
India (Rural)	957	15	28	807	14	179
India (Urban)	976	11	12	884	9	107

Source : National Sample Survey Organisation (1997), "Employment and Unemployment in India, 1993/94, 50th Round", Report No. 409, March, New Delhi.

While under employment for males is only marginal (3 percent in rural and 2 percent in urban), it is much more for females (16 percent in rural and 14 percent for urban areas). Most women usually withdraw from labour force when employment opportunities are scarce. Clearly, when it is difficult to find paid work, especially during the summer months, when cash is scarce, the burden of unemployment (or lack of paid work) falls upon women.

[8] For definition of current weekly status please look at Explanatory Notes

5. Trends in Net State Domestic Product

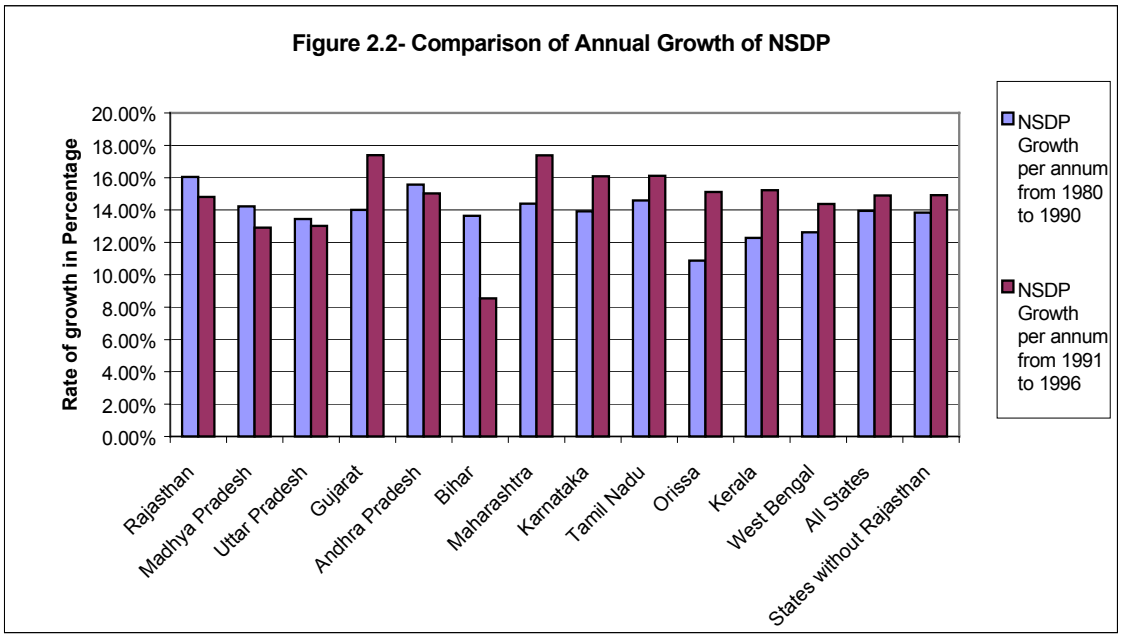
The livelihood status of the people depends not only on employment but also on incomes in the state as measured by the State Domestic Product.

The Net State Domestic Product (NSDP) of Rajasthan multiplied (nearly eleven-fold) from Rs 4,125.71 crores in 1980-81 to Rs. 46,376.2 crores in 1997-98, with an annual growth rate of 14.1 percent at current prices. The increment in NSDP would be lower (nearly three-fold) if calculated on the basis of constant prices (base year 1980-81), according to which the growth would be from Rs 4,125.71 crores to Rs 11,137.7 crores, with an annual growth of 4.2 percent.

In Rajasthan NSDP growth rates have fluctuated (Figure 2.2), registering negative figures in the years following drought.

In 1982/83, when 26 districts and 22,000 villages were declared drought-affected, the NSDP rate of growth over the previous year was 14 percent, while it increased to 27 percent in the following year.

Figure 2.2- Comparison of Annual Growth of NSDP



However, in 1984/85 it declined to a single digit level, due to a drought that affected over 30,000 villages, and remained at this level till 1987/88. As the state recovered from this long drought in 1988/89, NSDP rose by 37 percent. In the following year the growth rate was only 7 percent as a drought affected 25 districts and 14,000 villages. Evidently, the incidence of drought and deceleration of economic growth is an important issue to be addressed in Rajasthan, since agriculture and animal husbandry are heavily dependent on rainfall for ensuring adequate crop production and fodder availability.

The dependence of incomes in Rajasthan on agriculture and related activities becomes more evident in the correlation between growth rates in the primary sector and NSDP growth. The highly positive correlation between NSDP and the contribution of agriculture and allied activities (0.975) contrasts that of the secondary sector (0.523) and tertiary sector (0.506). Therefore, given the current trend, the primary sector is nearly twice as important as the other sectors for the prospects of sustained economic growth in the state.

Given the fact that Rajasthan has experienced very high rates of population growth (the highest among India's major states between 1981 and 1991), per capita incomes have shown low rates of gain. Over the last seventeen years the annual rate of growth has been 12.6 percent at current prices (3.6 percent at constant prices), while over the last five years it has been 11.9 percent at current prices (2.1 percent at constant prices).[9] Thus, the decade of the 1990's has shown a deceleration in both the NSDP and per capita rates of growth.

A comparison between the growth rates of both NSDP and per capita incomes in Rajasthan with those of other major states and India, shows that while Rajasthan's performance continues to be quite good, its rank has slipped from first in the 1980s to eighth in the 1990s. Analysis of the sectoral composition of growth in Rajasthan can provide a more disaggregated picture and help identify thrust areas for plan policy.

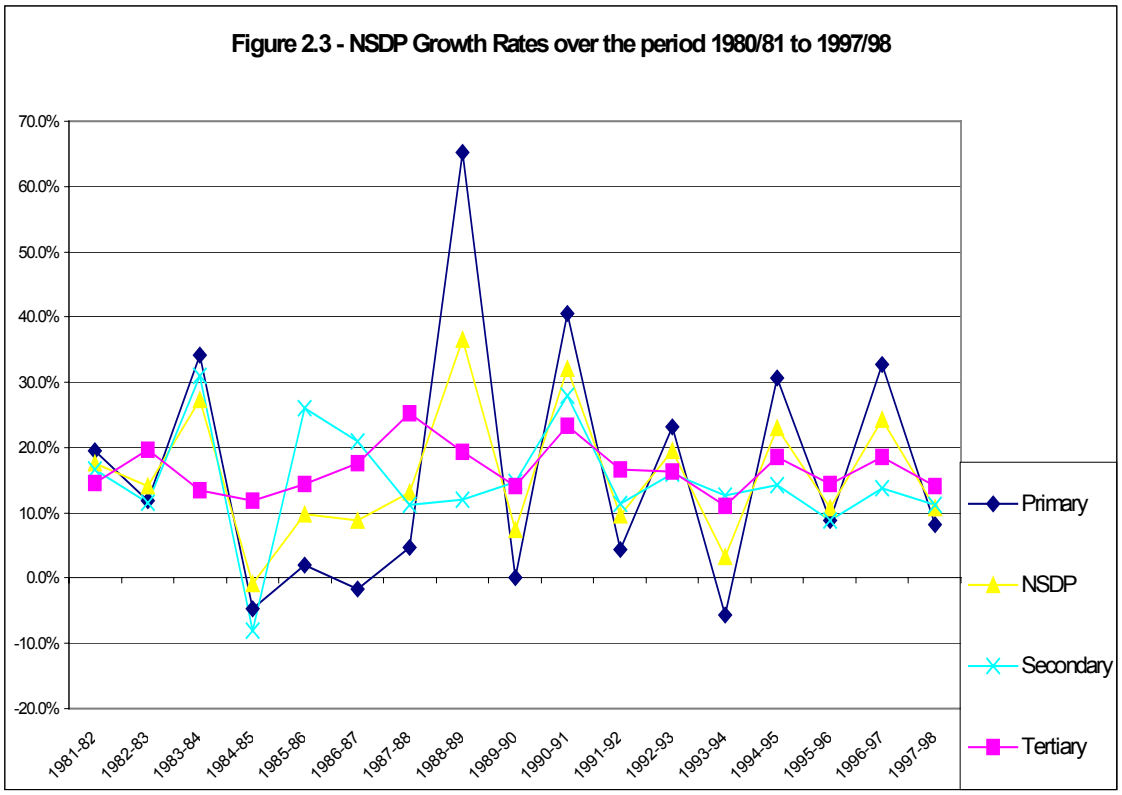
6. Trends in sectoral composition of Net State Domestic Product

The sectoral composition of the National State Domestic Product (NSDP) in Rajasthan is skewed towards the primary sector (Figure 2.3). The share of agriculture and allied activities in the NSDP was nearly 50 percent in the early 1980s, but it declined substantially in the drought years of 1986 and 1987/88. It rose subsequently, and varied from 40 to 47 percent in the 1990s.

In the 1980s the primary sector witnessed an average annual growth rate of over 15 percent at current prices, and 6.8 percent at constant prices. In the 1990s the growth rate dropped to 14.2 percent at current prices and 3.0 percent at constant prices. This deceleration of growth in this key sector is a major cause for concern.

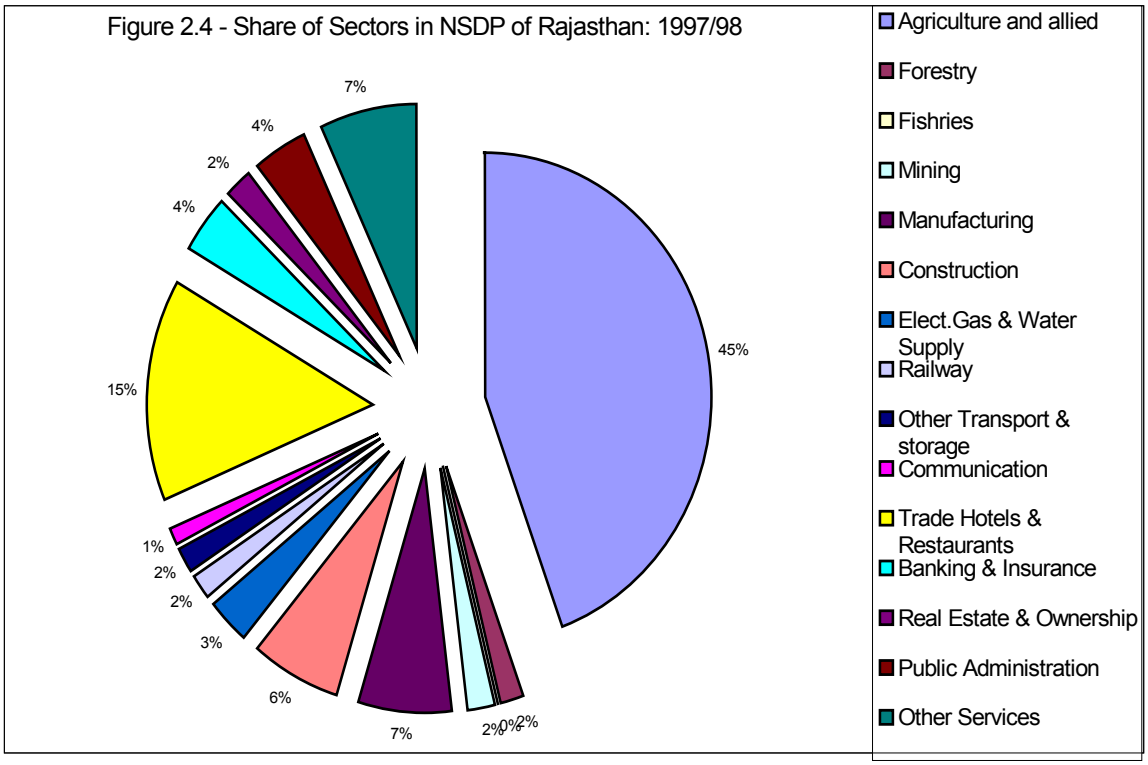
During periods of drought, when rural distress is high, mining and quarrying, construction and the manufacturing sector have been an essential source of employment. Trends in annual rates of change in registered manufacturing and agriculture are largely coincidental. The divergence registered in the late 1980s is an exception due to the impact of drought. While agriculture declined in the mid-1980s, registered manufacturing initially dipped, and rose again only to decline subsequently. In the 1990's registered manufacturing virtually stagnated, rising to 2.4 percent per annum only in the last five years. Registered manufacturing has also been gradually losing its share of the NSDP, from about 5-7 percent (all through 1980's and early 1990's) to about 3-4 percent.

[9] The rate of growth of population in the last five years is assumed to have been 2.0 percent, which may be an under-estimate. This has implications for prospects of growth in the state domestic product.



The services sector, not being significantly affected by climatic and natural factors, has maintained a constant growth rate of about 15 percent over the last several years. This sector accounted for nearly 30 percent of the state's income in the last decade (Figure 2.4). This has increased steadily to approximately 35 percent in recent years.

The sectoral composition of NSDP in Rajasthan, which is shifting towards the services sector in terms of growth prospects, contrasts with the pattern of employment where agriculture still plays the dominant role. This indicates that economic growth in the state needs to be refocused towards creating greater employment opportunities and increase participation of women.



7. District Incomes

Spatial disaggregation of income data for Rajasthan can allow for a close scrutiny of the "engines of growth" as well as a better understanding of inter-regional and inter-district variations in terms of income opportunities.

The domestic product of Nagaur, Alwar, Bikaner, Banswara, Sirohi, Jalore, Bundi, Kota and Jaisalmer has exhibited rates of growth exceeding the state average in the period between 1980/81 and 1991/92.[10] On the other hand, Bharatpur, Churu, Barmer, Dungarpur, Jhalawar and even Udaipur fall below the state average.

Between 1989/1990 and 1991/92 there were some surprising rank reversals, which can perhaps be explained by differential rates of recovery from the drought in the preceding years. This would highlight the key role of rain-fed agriculture and pasturage.

Chittorgarh, Bhilwara and Udaipur, which had a very low ranking during the early 1980s, shot up to the top of the district rankings in the state. While Alwar, Sirohi and Jaipur continued to prosper, Jhalawar, Ajmer, Sikar, Bharatpur, and Nagaur experienced significant growth deceleration. Barmer, Jhunjhunu, Dholpur, Banswara, and Churu were at the bottom of the ranking. It may be noted that

[10] For further details on trends in district income (based on the three year moving averages for district domestic product estimates between 1980-81 and 1991-92), please refer to Table 3.1 in the *Statistical Annex.*

Churu district saw single digit growth (4.5 percent) in this period, while all other districts recorded double digit growth rates.

Between 1987-88 and 1991-92, the districts witnessing high growth (exceeding 20 percent per annum) were Alwar, Ganganagar, Banswara, Chittorgarh, Barmer and Sawai Madhopur. Districts where incomes did not grow at high rates in this period were Churu, Dholpur, Sikar, Jaisalmer, and Bundi. Clearly, although Rajasthan as a whole recorded the highest growth rates in the country, some districts have fallen behind, and regional disparities are accentuated. An inter-district comparison of the adjusted per capita income index shows that Sikar (0.540) and Churu (0.558) lag far behind Ganganagar and Hanumangarh (0.818), Baran (0.775) and Kota (0.750)

Economic disparities across districts and regions of the State come into sharper focus as we direct our attention to the incidence of poverty.

8. Poverty Profile

Poverty, a fundamental denial of human rights, is much more than income poverty. Human poverty can be defined as the deprivation from basic entitlements in terms of education, health, basic amenities and access to opportunities, all of which are required to build human capabilities. Aspects of human poverty in terms of illiteracy and ill health have been covered in the chapters on primary education and health, while in terms of shortfall in access to opportunities are covered in this section.

Estimates of income poverty in Rajasthan are based upon the National Sample Survey (NSS) quinquennial rounds on consumption and expenditure.

The Planning Commission Expert Group on poverty estimated that in Rajasthan the poverty head-count ratio (HCR), or the percentage of households living below the poverty line, was 20 percent in 1993/94, while it was 34 percent for India (Table 2.7). Not only have the overall poverty rates in Rajasthan been consistently lower than the national average since 1972/73, the rate of decline in the poverty HCR in the state has been faster than that for the country as a whole. The sustained high rate of poverty reduction indicates that Rajasthan is well placed to meet the global norm of reducing income poverty by fifty percent by 2015.

In contrast to the national trend, Rajasthan's urban poverty figures (above 30 percent for the latest NSS round in 1993-94) have been higher than those for rural poverty (20 percent). Also the rate of decline of urban poverty in the state is slower than that of rural poverty. Moreover, the decline in urban poverty in Rajasthan (2.7 percent) is lower than for the nation as a whole (2.9 percent). This again is a secular trend. With higher urban poverty rates, an expanding urban population may, in the coming years, lead to an urban crisis already compounded by lack of water and a stagnant manufacturing sector.

Table 2.7 : Poverty Rates in Rajasthan and India, 1973/74 to 1993/94								
Region	**1972/73**	**1977/78**	**1983/84**	**1987/88**	**1993/94**	**Trend in Poverty rates over**		
						20 years	**Last 10 years**	**Last 5 years**
India	**54.9 %**	**51.8 %**	**44.8 %**	**39.3 %**	**33.5 %**	-2.4 %	-2.9 %	-2.6 %
Rural	56.4 %	53.1 %	45.6 %	39.1 %	33.4 %	-2.6 %	-3.1 %	-2.6 %
Urban	49.2 %	47.4 %	42.2 %	40.1 %	33.7 %	-1.9 %	-2.2 %	-2.9 %
Rajasthan	**46.3 %**	**38.0 %**	**35.0 %**	**34.9 %**	**20.1 %**	-4.1 %	-5.4 %	-8.8 %
Rural	44.8 %	35.9 %	33.5 %	33.2 %	16.2 %	-5.0 %	-7.0 %	-11.3 %
Urban	53.2 %	46.4 %	40.4 %	39.0 %	33.1 %	-2.3 %	-2.0 %	-2.7 %

Source: *Columns 2 to 4*: Government of India (1993), "Report of the Expert Group on Estimation of Proportion and Number of Poor", Planning Commission, Perspective Planning Division, July, New Delhi; *Columns 5 and 6*: Ameresh Dubey, and Shubhashis Gangopadhyay (1998), "Counting the Poor – Where are the Poor in India?", Sarvekshana Analytical Report Number 1, Department of Statistics, Government of India, New Delhi; *Columns 7 to 9*: calculations based on the above specified sources.

Looking closely at the trends in poverty, the following issues emerge:

- Drought has a significant impact on poverty. While the severity of its impact would last for a short duration, there could be persistently adverse implications for poor people's livelihood and survival strategies, such as loss of land, cattle, and household goods and valuables. Debt and bondage are often the result of external shocks to the peasant economy.
- During periods of crisis, and under employment, migration to cities, both within the state and outside, is very widespread. The higher urban poverty rates could be attributable to some extent to this phenomenon. Migration to cities and towns is usually directed to employment in mining and quarrying, construction and small trading, as well as manufacturing. The wages and work conditions in the mining and quarrying, and construction (the major absorbers of rural surplus labour) are often unsatisfactory.
- The relatively low income poverty rates in the state indicate that:
  - ⇒ For the people involved in the primary sector and the very poor, there are avenues of alternative employment in the state during drought periods and even otherwise, although they may not provide for relatively reasonable standard of living.
  - ⇒ The poor have mechanisms of coping with poverty, which include: (1) migration for livelihood support; (2) relying on more than one source of livelihood even while dependent on agriculture in times of rural distress. In arid zones, this includes tapping livelihood sources that are not dependent only on agriculture; (3) great mobility in workers to move from regular employment or self-employment to wage employment or casual labour.

Table 2.8 gives estimates for income poverty for Rajasthan as a whole, and for the four zones in which the state had been divided for the survey undertaken by the NSSO.

Table 2.8 : Regional Poverty Levels					
Regions in Rajasthan with Districts	**Poverty in 1972/ 73**	**Poverty in 1987/ 88**		**Poverty in 93/ 94**	
		EPL	**APL**	**EPL**	**APL**
Rajasthan		34.43	32.39	20.08	17.88
Rural		33.30	33.14	16.21	16.05
Urban		38.76	29.53	33.1	24.02
Rajasthan Western 211 (Ganganagar, Hanumangarh, Bikaner, Churu, Jaisalmer, Jodhpur, Nagaur, Pali, Barmer, Jalore, Sirohi)		30.22	28.33	16.09	14.06
Rural	29.10	27.95	27.88	13.27	13.27
Urban		39.19	30.12	25.44	16.66
Rajasthan North Eastern 212 (Jhunjhunu, Alwar, Bharatpur, Dholpur, Sawai Madhopur, Jaipur, Sikar, Ajmer, Tonk, Bhilwara, Dausa)		32.13	29.44	17.33	18.87
Rural	30.10	28.81	28.59	10.71	10.58
Urban		42.36	32.07	35.84	26.84
Rajasthan Southern 213 (Udaipur, Dungarpur, Banswara, Rajsamand)		58.95	58.48	30.83	29.82
Rural	82.00	61.10	61.05	31.34	31.10
Urban		33.41	27.92	26.76	19.63
Rajasthan South Eastern 214 (Chittorgarh, Bundi, Kota, Jhalawar, Baran)		30.05	28.39	28.69	25.91
Rural	50.00	31.32	30.94	24.14	23.65
Urban		25.05	18.36	44.84	33.95
Note: EPL – Expert Group Poverty Line; APL –Alternative Norm Poverty Line Source : Ameresh Dubey, and Shubhashis Gangopadhyay (1998), "Counting the Poor – Where are the Poor in India?", Sarvekshana Analytical Report Number 1, Department of Statistics, Government of India.					

The southern NSS sub-region of Rajasthan, that includes the districts of Udaipur, Dungarpur, Banswara, Rajsamand, is the poorest. In contrast, the western zone, comprising all the desert districts and the agriculturally prosperous districts of Ganganagar and Hanumangarh, have the lowest overall poverty ratio. At a more disaggregated level, the southern region of the state has the highest rural poverty rates (31.34 percent), while the north-eastern sub-region has recorded on the one hand the lowest rural poverty rates (10.71 percent) and on the other hand the highest urban poverty rates (32.07 percent). This is surprising because the north-eastern sub-region includes Rajasthan's largest industrial and commercial centres, viz. Jaipur, Alwar and Bhilwara. This scenario goes against linear models of economic growth, which assume that increased urbanisation and subsequent transformation of the workforce lead to increased prosperity and lower poverty ratios.

It has been argued that income poverty estimates based on calorific norms and a uniform basket of consumption items do not accurately reflect all the dimensions of poverty in Rajasthan. The transient nature of poverty in Rajasthan due to natural disasters makes the condition of the poor particularly precarious. Frequent drought and the resulting large scale out migration, in search for employment,

pasture lands and water, have a severe impact on the poor which is not reflected in a quantitative assessment.

Furthermore, income poverty hides many other dimensions of human suffering, which are accentuated by ecological factors and inadequate provisioning of basic amenities. In this context the following facts are noteworthy:

- According to the 1991 census, 59 percent of households had access to safe drinking water in the state. Although by itself this is a low level of achievement, considering the overall availability of water in the state, it compares favourably with the national average (62 percent).
- In 1991 only 35 percent of households had access to electricity.
- In 1991 33 percent of the households did not have access to any of the three basic amenities, namely, safe drinking water, electricity and toilet facilities.
- In 1991, 21 percent households in the State were dwelling in *kutcha* houses, and 86 percent of the households used cow dung cake or wood as primary cooking fuels. Given this high level of biomass dependency for energy use, the fuel wood crisis becomes especially severe in times of draught.
- Road infrastructure is also poor in the state. There were 37,889 inhabited villages as per the 1991 census. Out of these, roads connected 14,148 villages at the end of March 1998. By March 2000 this number was expected to reach 17,198.

The foregoing analysis indicates that minimum needs provisioning in Rajasthan has a formidable task ahead. The eradication of human poverty in the state would require sustained policy attention and public investment before the challenges before the people and the government can be fully tackled. Given the fiscal constraints and resource crunch facing the State Government, clearly the challenge is to make existing investment more effective, and ensure that earmarking of resources for anti-poverty programmes and social sectors receive plan priority.

9. Conclusion

The livelihood profile of Rajasthan indicates that while its growth rates are high, unemployment as well as head-count ratios in poverty are low.

Given that the State has a high population growth rate, there are some disturbing trends that require priority attention. Rajasthan's rank in terms of NSDP growth rate has slipped in the 1990s. Urban poverty rates persist at high levels and the rate of urban poverty decline is stagnating. The employment portfolio has not diversified, with continued preponderance of agriculture and animal husbandry, which are heavily weather-dependent and exist in a low technology equilibrium trap.

A closer look at some of the major employment sectors in the next chapter will provide an overview of the livelihood status of people in the midst of these trends.

Chapter III - Sources of Livelihoods in Rajasthan

1 Introduction

An examination of the status and dynamics of key livelihood sectors in Rajasthan reinforces concerns regarding the sustainability of growth rates and prospects of the state reaching the "take-off" stage where high growth translates into a qualitatively higher level of economic and social development. These sectors include agriculture, animal husbandry, mining & quarrying, forest-based livelihoods, and non-farm activities.

This chapter examines these livelihood sectors in terms of current situation, resource endowment, environmental and social dimensions, constraints and future prospects. The analysis indicates that all of these sectors are in a low level equilibrium trap, where high levels of risk and low levels of technology and capital investment constrain the possibilities of further evolution.

The limitations of livelihood sources in Rajasthan need to be overcome through improved extension services, credit and technology support to small producers, as well as community-based management of pasturage, forests and water resources.

2 Agriculture

Rajasthan has a predominantly agrarian society, with nearly 70 percent of its population depending on agriculture and allied activities. However, there are sharp regional differences mainly on account of soil quality and terrain. In the region east and south of the Aravalli hills, where the land is more fertile, agriculture is relatively more prosperous. On the other hand, nearly 80 percent of all land in the western desert districts is unfit for farming.

Farmers operate at different levels of endowment, technology, inputs and market access. Thus, while in districts such as Ganganagar, Bharatpur, Dausa and Sawai Madhopur farmers may achieve bumper harvests year after year, in southern and parts of western Rajasthan, even with normal rainfall, the household production is barely enough for subsistence.

Rajasthan has only 1 percent of India's total water resources, and irrigation covers about 30 percent of the total cropped area. Out of the total area of 34.2 million hectares, in 1997-98 only 65 percent (Gross Cropped Area) was under cultivation (with average crop intensity of 130.74). According to the land use classification, 14.66 percent of the land was culturable waste, 10.46 percent fallow, 7.7 percent barren, 7.38 percent under forests, 5.03 percent under pastures and grazing land, and 4.96 percent non-agricultural use (Table 3.1).

Table 3.1 : Land Utilisation in Rajasthan - 1975/76 to 1995/96						
Land Utilisation	**1975-76**		**1985-86**		**1995-96**	
	Area	**Percentage of Total Geographic Area**	**Area**	**Percentage of Total Geographic Area**	**Area**	**Percentage of Total Geographic Area**
Total Geographical area	34227113	100.00%	34227113	100.00%	34227113	100.00%
Reporting area for land utilisation Purpose	34188354	99.89%	34236692	100.03%	34242613	100.05%
Forest	1874678	5.48%	2227703	6.51%	2458185	7.18%
Area under non-agricultural uses	1427592	4.17%	1521012	4.44%	1679839	4.91%
Barren and unculturable land	3132915	9.15%	2816489	8.23%	2656683	7.76%
Permanent Pasture and other grazing land	1803800	5.27%	1840275	5.38%	1745412	5.10%
Land under miscellaneous tree crops & groves	11234	0.03%	34208	0.10%	15613	0.05%
Culturable Waste Land	6647487	19.42%	5988033	17.49%	5103484	14.91%
Fallow Land other than Current Fallow	2251746	6.58%	2228430	6.51%	1972249	5.76%
Current Fallow	1933467	5.65%	2016922	5.89%	2035797	5.95%
Net Area Sown	15105435	44.13%	15563620	45.47%	16575351	48.43%
Total Cropped Area	17163918	50.15%	18137404	52.99%	19672913	57.48%
Area Sown more than once	2058483	6.01%	2573784	7.52%	3097562	9.05%
Note: Land area in hectares Source : Government of Rajasthan (1979, 1987, 1996), Statistical Abstract, Directorate of Economics and Statistics, Jaipur.						

It is noteworthy that between 1975-76 and 1997-98 the total cropped area increased by nearly 15 percentage points, while area under forest increased by 1.7 percentage points. However, the system limits of the expansion of the margin of cultivation appear to have been reached, with barren land and culturable wasteland declining by only 1.5 and 4.8 percentage points respectively. Moreover, the degradation in forest cover (in terms of average crown density) as well as the considerable expanse of wasteland (nearly 20 percent of all wasteland in India) are causes of serious concern. Clearly, the focus now has to be on improving the agricultural productivity per unit of land, and participatory development of wastelands, forests and pastures.

Given the fragile land conditions in the state, an examination of the ownership pattern and class size distribution of land holdings can help assess the differentials in the return from agriculture. The landholding pattern also indicates the degree of skewness in the ownership of land assets and the degree of rural inequality in Rajasthan, with the proviso that in arid and desert regions the difference in size of holdings is less relevant than in other parts of the state.

Large holdings account for nearly 9.1 percent of the total number of land holdings, while the cumulative share of small and marginal landholding is nearly 50.36 percent (Table 3.2). On the other hand, large landholders control a disproportionate share (nearly 42.8 percent) of total landholding area.

This is reflected in calculations of the gini coefficient of landholdings which, while remaining below the national average, increased from 0.564 in 1970/71 to 0.613 in 1991/92.[11] Thus, while disparities in class size distribution of land holdings are partially mitigated by poor land quality, inequities in land ownership persist, and the feudal character of land relations in Rajasthan is enduring.

Table 3.2: Land Holdings in Rajasthan by Size

Type of Land Holding	Number of holdings in lakhs	% of the total	Area (in lakh hectares)	% of the total
Marginal holding (up to 1 ha)	16.11	30.1	7.80	3.7
Small holding (1 – 2 ha)	10.85	20.2	15.66	7.4
Small-medium holding (2 - 4 ha)	11.17	22.8	31.85	15.0
Medium holding (4 – 10 ha)	10.64	19.8	66.17	31.1
Large holdings (more than 10 ha)	4.87	9.1	91.02	42.8

Source : Government of Rajasthan (1996), "Agriculture Census of Rajasthan 1995-96", Directorate of Agriculture, Jaipur.

While rural inequality in terms of differences in land assets in Rajasthan is less extreme than the all-India average, the systems of land tenure inherited from pre-Independence and princely era are highly non-egalitarian. Land reform legislation has been implemented throughout the state. However, the access of the poor to productive land assets is till not adequate and, many poor still depend on tenancy, especially in rain-fed areas.

Land reforms need to be implemented even more effectively in Rajasthan. It has been suggested that Panchayati Raj Institutions (PRIs) should be involved in the implementation of land reforms. In this respect, civil society movements regarding the Right to Information (including access to revenue records) and control over *Jal, Jangal, Jameen* (Water, Forest and Land) have been quite effective and visible in parts of Udaipur and Rajsamand districts. Gram Panchayats may be given right to information from the revenue department on aspects like land ceiling monitoring, distribution of surplus lands and on revenue administration. However, formal decentralisation must be reinforced by the mobilisation of the poor, to ensure that panchayats are inclusive, transparent and effective. Therefore, participation of the poor, especially women, in panchayat decision-making is essential to ensure greater equity in land holding and management of natural resources such as pasturage, forests and water bodies.

2.1 Water Resources: Critical Factor for Rural Livelihood

Availability of water has strongly conditioned the nature of agriculture and farming practices in various parts of the state. While Rajasthan has five percent of the country's population and ten percent of the total land, its share of the country's water resources is merely one percent. Rainfall in the state varies from a high of 900 mm in the south east to a low of 190 mm in the western districts. The

[11] National Sample Survey Organisation (1997), "Operational Land Holdings in India, 1991-92 - Salient Features", Report no. 407, Government of India, New Delhi.

rainfall is further characterised by frequent dry spells and uneven distribution, which seriously affect the crop and livestock production.

In the relatively high rainfall areas, such as eastern districts of Jhalawar, Banswara, Kota, Baran, and parts of Chittorgarh and also an area covered by Gang, Bhakra and IGNP canal system, Chittorgarhthe expansion of ground and surface water irrigation has helped farmers in making the transition to high input based commercially oriented farming. In contrast, change has been slow in the low rainfall, arid and semi-arid non-irrigated areas, where productivity has remained low on account of uncertain provision of water, poor levels of technology adoption and a steadily weakening natural resource base.

Despite the gains registered in terms of gross irrigated area (with an increase of 173 percentage between 1958/59 and 1996/97), and area under canal irrigation (with an increase of nearly two-fold between 1970/71 and 1996/97), in 1995/96 only 32.3 percent of the cultivated area was under irrigation. Further, nearly 70 percent of cropped area was still heavily dependent on rainfall (Table 3.3). The dominant source of irrigation, in fact, continues to be open dug wells that, together with tube wells, contribute nearly 56 percent of the irrigation potential in the state.

Table 3.3 : Irrigated Area and Source of Irrigation in Rajasthan

Year	Canals		Tanks		Wells and Tube wells		Other sources		Total (Net) Irrigated Area
	Area	% of Net Irrigated Area	Area	% of Net Irrigated Area	Area	% of Net Irrigated Area	Area	% of Net Irrigated Area	Area
1970-71	7.6	35.7%	2.7	12.7%	10.8	50.7%	0.2	0.9%	21.3
1980-81	9.4	31.5%	1.1	3.7%	18.7	62.8%	0.6	2.0%	29.8
1991-92	14.2	32.8%	1.6	3.7%	27.0	62.2%	0.5	1.3%	43.5
1995-96	15.0	28.6%	1.9	3.6%	35.0	66.9%	0.5	0.9%	52.3
1996-97	15.3	27.5%	2.1	3.7%	37.9	67.9%	0.5	1.0%	55.9

Source: Government of Rajasthan (1975, 1987, 1996), "Statistical Abstract", Directorate of Economics and Statistics, Jaipur.

The total utilisable groundwater for irrigation in Rajasthan is estimated to be 11,028 mcm, of which about 6,494 mcm (58.88 percent) is being exploited. In regions where agro-climatic conditions favour intensive commercial cultivation, private investments in development and extraction of ground resources have been high. Dug and tube wells have been sunk without reference to groundwater potential and recharge requirements, leading to rapid depletion and lowering of the water table. The State has been divided into 594 groundwater potential zones. Out of these, 322 zones fall in the 'White' category where ground water development is less than 65 percent, 71 zones fall in the 'Grey' category having 65 percent to 85 percent stage of development. The remaining 201 zones have been categorised as 'Dark', where the stage of ground water development is more than 85 percent. Out of these, 173 zones are over-exploitated, having a stage of development that is more than 100 percent. If the present trend of ground water extraction continues, a large part of the state may face an enduring crisis of ground water, jeopardising farming and animal husbandry.

There are significant differences and variations in the irrigation endowment of regions and districts. Nearly 21 percent of the State's irrigation potential is, in fact, concentrated in two districts, namely Ganganagar (where 73 percent of the cropped area is under irrigation) and Hanumangarh (where 37

percent of the gross cropped area is under irrigation). At the other end of the spectrum there are desert districts (viz. Barmer, Jaisalmer, Churu, and Jodhpur) where less than 10 percent of the cropped area is under irrigation. Bikaner is the only desert district which, thanks to the Indira Gandhi canal, has more than 10 percent of its cropped area (14 percent) under irrigation.

Differences in irrigation endowment have a strong impact on agriculture production and technology. Irrigated areas have intensive cropping systems involving two to three crop cycles. Farmers give preference to the production of high input based cash crops such as cotton, chillies, coriander, oilseeds, and cumin, and benefit from the agriculture services and markets that develop in the region (Ganganagar, Kota, Bharatpur and Jhalawar).

Agricultural development in rain-fed areas follows a very different trajectory. Single crop cycles are dominant and the prospect of a second crop is entirely dependent on sub-soil moisture or water yields in wells and tanks. Since food security is the primary goal of farmers in most of the districts in Rajasthan, cereal production for domestic consumption dominates the cropping pattern in rain-fed areas, where livestock rearing is an important source of livelihood. Farmers in these areas tend to be neglected in terms of provision of agricultural extension services.

Due to low and erratic rainfall, a large part of Rajasthan is often in a state of drought and water scarcity. This is a source of enormous hardship to the people, as it diminishes return from agriculture in terms of yield, surplus and wages. Greater part of the working population is forced to migrate in search of employment. This further hollows out the local economy.

In the period between 1981 and 1995, there were nine years of drought, which was particularly severe in 1985-87 and 1992. Large-scale loss of livestock and deprivation occurred in rural areas during this period, especially in the southern and western regions. Following monsoon failure in 1999, a massive drought has now gripped the state, with 26 districts declared as drought-affected, a large-scale out-migration and loss of cattle wealth.

Rajasthan has been historically prone to acute water scarcity and drought. The traditional livelihood systems of crop and livestock production have helped cope with drought and endemic water stress. However, *hardship* due to drought has increased in recent years because of socio-economic and environmental factors. These include:

- Loss of communal lands, pasturelands and grasslands by reckless deforestation, encroachment and privatisation resulting in deprivation of livestock and fuel wood deficits.
- Lack of employment and entrepreneurial opportunities in the rural non-farm sector, particularly for the small and marginal peasants.
- Unproductive and ineffective public investments through drought relief works, not resulting in long term stabilisation of land and water regimes in vulnerable areas.
- Unregulated expansion of private investments in ground water extraction resulting in sharp decline in water tables.
- Inadequate coverage of irrigation potential, particularly protective irrigation in rain-fed areas.

Given the topography of the State, particularly in its eastern and southern parts, there is a considerable potential for watershed based development work. In the 1990s Rajasthan became one of the first states to recognise watershed development as an approach to natural resource management of ecologically fragile areas and as a tool for all round agriculture development. In the 1998 Rajasthan Economic Review, it was stated that "… attention should be paid to dry-land agriculture for equity and even distribution of gains of development and for minimising the fluctuations in the yearly production of food-grains as well as for stepping up the availability of food and fodder. The watershed area

development approach for rain-fed areas has gained widespread support as watershed is a natural unit of land draining at a common point that has evolved through the interaction of rainwater and landmass".

Till the year 1997/98, the Government of Rajasthan had treated 16.38 lakh hectare areas of land. Work on watersheds is also being done under the National Watershed Development Programme for Rain-fed Areas or NWDPRA (203 watersheds in the Eighth Plan and 199 under the Ninth Plan), Wasteland Development Board (9 watersheds), Integrated Watershed Development Project, and the PAWDI project. The progress of watershed management in Rajasthan was constrained by the limited devolution of powers to panchayats and user groups. It is expected that the state government's emphasis on decentralisation since 1998 will catalyse greater community participation in watershed initiatives.

Action strategies for further drought proofing and risk reduction in the agricultural economy of Rajasthan could include:

- Increased public investment and incentives in rainwater harvesting and water conservation measures. This is intended to increase ground water recharge and in turn, ensures protective (rather than assured) irrigation facilities.
- Initiate a network of farmers participatory extension services through a cadre of para-extension workers. Farmer to farmer extension approaches (participatory selection of varieties, cross visits, farmer's testing of technology and farmer's workshops for dissemination of technology etc.) need to be substantially upgraded. Since government structures are unlikely to increase in these areas and these are also expensive to maintain, it is desirable to invite NGOs and private sector for provision of these services in remote, under served and primarily rain-fed areas.
- Orientation of research on rain-fed crops towards development of short duration and drought-resistant seed varieties and in-plant protection measures, the lack of which cause huge losses in water stress conditions. Significant expansion of input delivery system for seeds is needed in remote rain-fed areas because of continuing decline in quality of indigenous planting material and non availability of quality certified seeds.
- Enhanced provision of incentives/ information to low investment sustainable agriculture (LISA) practices with particular emphasis on in-site moisture conservation technologies, critical fertiliser application, vermiculture and very importantly, integrated pest management.
- Incentives for expansion of arid horticulture, through local entrepreneur establishment of progeny orchards for ensuring regular supply.
- Increase in infrastructural investment for steady expansion in facilities for post harvest management. These will include facilities for handling storage and marketing of pulses and horticulture crop and value addition and agro - processing.
- Ensure increase in institutional credit through improved linkages of farmer's groups with banks. The flow of credit to rain-fed farming sector needs to be monitored at the state level.
- Substantially investment in and upgradation of livestock extension services particularly through private and co-operative providers, with a focus on augmenting natural feed base and maintaining indigenous stock.

Clearly, water strategies for Rajasthan are giving due importance to the watershed development approach along with irrigation to focus on people's livelihood, local ecology and community participation. In this context, it would be useful the status and prospects of animal husbandry and non-farm activities in the State.

3 Animal Husbandry in Rajasthan

After agriculture, cattle and other livestock are the most important source of livelihood in Rajasthan, especially for the poor. In the western regions of the State, where the potential for farming is limited, livestock has provided livelihood security to the farmers and nomadic groups. The economy is livestock based in the arid and semi-arid areas of Rajasthan, which include the districts of Ganganagar, Hanumangarh, Bikaner, Jaisalmer, Churu, Jodhpur and Barmer (where the average annual rainfall ranges between 20 to 35 cm.) as well as Jhunjhunu, Sikar, Nagaur, Pali and Jalore (where the rainfall ranges between 35 to 50 cm.). In Jalore, Churu, Bikaner and Jaisalmer the number of livestock exceeds the human population by a factor of 3 to 4.

Animal husbandry contributes over 15 percent to the Net State Domestic Product. Rajasthan has, in fact, the highest livestock population in India, contributing nearly 40 percent of wool production and 10 percent of all milk production in the country.

The quality of cattle stock in Rajasthan has improved in the 1990s. Between 1992 and 1997 there was a sharp increase in cross-bred cows (82 percent) and a very small increase in the less productive indigenous cows (Table 3.4). Further, buffaloes have increased in large numbers, especially female buffaloes, indicating both greater milk output and regenerative capacity. Sheep and goats, which provide a source of livelihood for people in the arid and semi-arid districts, had a more modest growth (18 and 12 percent respectively), while poultry increased significantly (by 46 percent).

Table 3.4: Livestock Census Estimates for Rajasthan

Category	**Numbers in 1992**	**Numbers in 1997**	**Actual Increase or Decrease**	**Percentage Change between 1992 and 1997**
Cattle	11595865	12158522	562657	4.9%
(a) Cross-Breed	116355	212237	95882	82.4%
(b) Indigenous	11479510	11946285	466775	4.1%
Buffaloes	7746617	9756386	2009769	25.9%
(a) Male	993347	1180588	187241	18.8%
(b) Female	6753270	8575798	1822528	27.0%
Cattle and Buffaloes	38684964	43829816	5144852	13.3%
Sheep	12168174	14312493	2144319	17.6%
Goats	15062589	16936956	1874367	12.4%
Horses and Ponies	24630	23314	-1316	-5.3%
Mules	3843	3128	-715	-18.6%
Donkeys	192715	186747	-5968	-3.1%
Camels	730742	668237	-62505	-8.6%
Pigs	248033	303118	55085	22.2%
Total Livestock	47773208	54348901	6575693	13.8%
Poultry	3000604	4380554	1379950	46.0%

Source : Government of Rajasthan (1996), "Statistical Abstract of Rajasthan", Directorate of Economics and Statistics, Jaipur.

Goats and sheep are important in the livelihood strategies of small and marginal landowners as well as of the landless. Goat rearing is widespread across the state. Western Rajasthan, particularly the desert areas, has a high concentration of sheep rearing activities, including concentration of wool markets.

Although 40 percent of all wool produced in India comes from Rajasthan, the quality of wool is not considered good, and therefore it is used to make carpets and blankets, rather than for garment production. In addition to wool, an estimated 2.5 to 3 million sheep are sold in the mutton market. This region is the primary supplier of mutton to urban markets of northern and western India, and often across the border. Yet, the returns to sheep owners are extremely low. This is largely because the sheep breeders are scattered and organised market yards for sale of wool and mutton do not exist in most parts. For example trading in wool is carried out through middlemen who pay as low as Rs 2 per shearing of sheep.

Milk productivity of cows and buffaloes in Rajasthan is the lowest in the country because of poor breeding and nutritional practices. As a result, while self-consumption of milk if high (and consequently the consumption-based income poverty figures are low), there is little marketable surplus at household level. Commercial dairying in the state is becoming well developed in urban pockets but largely the milk trade is dominated by private milk vendors. Co-operative dairying on the Amul pattern was introduced to the state in the 1980s, with initiatives such as URMUL, based upon primary co-operative societies of milk producers.

Among several peasant communities of the state, cattle wealth has been a symbol of family status and wealth. The cattle rearing communities include the Gurjars, Dangis, Dhakars and Jats. Rajasthan has highly evolved forms of pastoralism where whole clans and hamlets migrate with their livestock (camels, sheep or goats) to the more green areas of south and eastern Rajasthan and Madhya Pradesh (Box 3.1).

Animal husbandry is a more stable source of livelihood than farming, since the gamble with the monsoon does not affect cattle to the extent it affects crops. Cattle wealth, apart from intrinsic cultural importance and a marker of social identity and status, also serves as collateral against destitution. However, this sector caters primarily to local, subsistence requirements.

In north and western Rajasthan, dairy co-operatives have been successful in enhancing household incomes. However, non-milch, free-ranging livestock, such as sheep, are owned primarily by pastoral groups whose economic status is uncertain. This is due to depressed demand for wool (unable to compete against imported Merino varieties) and reduced access to grazing areas after the conversion of range-land to cultivation since the construction of the Indira Gandhi Canal.

The contrast between increasingly prosperous dairying and impoverished sheep-herding is a cause for concern since the imbalance in the composition of livestock would change the nature of the demand for fodder. The relatively low-pressure nomadic pastoralism entails a lesser consumption of grass from any single place of grazing, and in fact adds to the fertility of the fields through which the herds range. On the other hand stall-fed milch cattle require greater amounts of fodder, leaving no scope for grass regeneration. Ecological stress would accompany household impoverishment, unless measures to improve value addition for wool and mutton products are not taken.

Thus, livelihood promotion strategies in the animal husbandry sector need to go beyond breed improvement, and address issues of market and technology support, especially for sheep and camel herders, so that greater value addition can translate into increased household incomes.

Box 3.1 : Migrant Pastoralism in Rajasthan

The migration of men and livestock between complementary ecological zones is a frequent feature of arid and semi-arid regions. The precariousness of agricultural practice and low agriculture yield characteristic of the desert region has entailed the distribution of production risk between two subsistence techniques - agriculture and pastoralism. The process of migration is in fact an integral and more reliable part of the region's agrarian economy.

The compulsions leading to the emergence and persistence of transhumance in Western Rajasthan derives essentially from its arid environment. While agriculture and pastoralism combine to support the region's rural economy, the utilisation of large tracts of non-arable and marginal land, along with the use of seasonally fallow rain fed crop tracts as pastures forms the primary basis of the success of the transhumance system. Migration is in fact, a necessary factor for the large-scale sheep husbandry in the region. Both pastoral transhumance and nomadism have a long history in these parts and as such specialised castes have formed around these practices.

The districts from which migration mainly takes place are Barmer, Bikaner, Churu, Jaisalmer, Jalore, Nagaur, Pali, Sirohi and to some extent, Ajmer. The direction of migration is towards areas bordering Uttar Pradesh, Madhya Pradesh and Gujarat. In a normal year, migration begins sometime in October and the monsoons herald the return of the flock to their home tracts. Estimates are that about 45 % of the total sheep flocks in the state migrate. Over 2 lakh families are considered to be dependent on migratory sheep husbandry for their livelihood though some argue that this figure might well be a conservative estimate. The practice of migration is also of significance to those who may not be migrating in person.

A significant point to note is that transhumance migration is of importance to the landless and marginal land holding population of the desert village since sheep husbandry is a critical element in the livelihood of these groups. Indeed, the land holding groups also keep sheep and migrate with them. Though, the criticality of sheep husbandry to their survival is considerably less. Marginal groups dependent on migratory sheep husbandry also extend beyond those keeping flocks to those that provide support services, such as roving bands of sheep shearers, buyers of sick and tired animals and mobile wool merchants.

At the UN Conference on Desertification in Nairobi in 1977 experts unanimously agreed that nomadism and transhumant pastoralism is the best possible productive system from the ecological point of view for the use of fragile arid and semi arid regions. In sharp contrast the Government of India's official attitude is exemplified in this quotation from the Ministry of Environment's State of India's Environment Report: " The nomads of the present day society prove a menace for the whole of society and their sedenterisation is inescapable". In addition nomadic populations have historically been seen as those creating law and order problems or as threats to geo political integrity!!

In Rajasthan there have been a number of conflicts between migratory sheep herdsmen and local farmers on the migratory routes. The forest department has been particularly wary of the phenomenon. There is a complete failure to understand the legitimate problems of the migratory pastoralists' struggle for livelihoods.

Source: “Transhumance and Pastoralism”, Purnendu Kavoori

4 Forests livelihoods in Rajasthan: Non-Timber Forest Produce

Forests are an important source of livelihood for the poor in Rajasthan, and approximately 5 million tribal people derive seasonal incomes through the collection, processing, transportation and marketing of Non-Timber Forest Produce (NTFP). Amongst all categories of NTFP, *tendu patta* or *tendu* leaf (used for rolling *beedis*) is the largest source of revenue for the State (Rs. 60 million per annum).[12] Moreover, nearly Rs 100 million accrues annually as wages paid to labourers during the collection season. Tendu *patta* trade operates on generous margins but the returns to the leaf collectors have remained extremely low. In order to ensure higher returns to the tribal collectors, a few Non Government Organisations in South Rajasthan have promoted co-operative groups of tribal forest produce collectors. These co-operatives have been engaged in *tendu patta* trade for nearly a decade now and have been able to press the demands for higher purchase rates for *tendu patta*. The territorial circle wise rates for tendu patta collection each year are fixed by the Government of Rajasthan on the basis of the recommendations of an Advisory Committee constituted for the purpose for that particular year by the State Government. The committee inter alia comprises of the local MLA and one trader of the area besides the field officers from the Forest Department. The committee recommends the collection rate on the basis of deliberations held in the meeting convened for this purpose. The collection rates prevalent in the neighbouring States, particularly Madhya Pradesh and Gujarat, are also taken into consideration for arriving at suitable recommendation of the collection rate. The collection rates for the collection year 2000 was fixed at Rs. 320/- per standard bag (comprising of 50,000 leaves) as compared to Rs. 70/- per standard bag paid in 1989. The increase in collection rates is compares favourably with that in minimum wage rates over above period. This present rate also compares favourably with rates as prevailing in neighbouring state of Madhya Pradesh and Gujarat.

As part of the legacy of colonial forest policy, forests have traditionally been considered in isolation from communities that depend on them both for subsistence and income.

Nearly a third of Rajasthan's forests are classified as sanctuaries, national parks and closed areas to which access by people is highly regulated and restricted in order to protect bio diversity and wildlife. These areas are venues of conflict between the local people and the forest department as these forests are often the only source of fuelwood, fodder and timber for the people. Moreover, there is a high incidence of crop raiding by wild animals in the fringe villages. Forest conservation in many cases appears antagonistic to people's livelihood security, although there are increasing signs of co-operation and community participation.

[12] The tendu patta grows on the Timru tree (Dispyros melanoxylon) and is used to roll beedis

In recognition of the people's rights and community role in conserving forests, the Joint Forest Management (JFM) programme has been instituted in the early 1980s. The mandate of JFM is to move from centralised forest management to decentralised, participatory and local need based eco-management. In 1991 the Government of Rajasthan, on the basis of a 1990 Government of India notification on the involvement of village communities for the regeneration of degraded forests, initiated JFM on degraded and barren forest lands, as well as plantations raised on community lands. Subsequently, the State Government has further strengthened the participatory nature of JFM, devolving more powers to village forest protection and management committees (VFPMCs).

The VFPMC manage the forest plantations. The institutional link between the forest and the people is the VFPMC, which derives its revenue from users' fees. This money is partly used in protection and management of plantation/ forest areas and partly for village development works as agreed in VFPMC meetings. This practice has had a positive impact, as several VFPMCs have also taken up activities such as literacy, and development of fisheries in water bodies. Moreover, forestry extension is now based upon local idiom and indigenous technical knowledge.

People's participation in forest management has also helped improve forest cover in Rajasthan. Between 1989 and 1997 the forest area in the state has increased (464 sq. kms.), and it further incremented in the period 1997-99 (518 sq. kms.). Clearly un-fencing the forest has been beneficial both from a livelihood and a conservation perspective. The challenge ahead for the state's forestry strategy lies in further deepening the links between local democracy and user groups such as VFPMCs and forest defence committees.

5 Non-farm livelihoods

The "non-farm" (or "off-farm") sectors are sources of alternative livelihoods for the poor. The rural economy of Rajasthan, being frequently subject to agricultural distress (owing to drought, market failure, depressed wages, etc.), has witnessed some diversification in terms of employment in the non-farm sectors, especially in mining & quarrying, traditional production of leather and leather goods, and repairs.

This section examines the dynamics of the mining, leather and repairs, which are important "shock absorbers" for the rural economy of Rajasthan. These sectors can potentially provide employment to people when agriculture and the industry are constrained.[13] Therefore, there is a need to develop strategies for ensuring that the growth benefits from these sectors accrue to the poor as well, in terms of better wages (not just distress wages) and opportunities for self-employment.

5.1 Mining and Quarrying

Rajasthan is rich in mines and minerals, which for regulatory purposes are classified as major and minor minerals. Under the principal of eminent domain the state has the exclusive right over all mining products occurring at a certain depth irrespective of the ownership of land. Minor minerals mining are predominately in the hands of the private sector, based upon mineral concessions granted

[13] Growth in this sector is not counterfactual to that in agriculture and industry. In fact, given the strong lateral linkage between farm and non-farm activities in Rajasthan, sustained growth in agriculture and industry would have a multiplier effect on the rural non-farm sector, by creating more demand for goods and services (increased consumption resulting from increase in purchasing power).

by the State Government. In Rajasthan, the mining of major minerals in is also very largely in private hands. Limestone is mostly used by private cement plants for manufacturing of cement. Further, wollestonite, soap stone, silica sand, zinc, calcite, including iron ore etc. are being exclusively exploited by the private sector. Some major minerals like zinc, copper, rock phosphate, SMS grade limestone and gypsum have been given to public sector undertakings. At the macro level over 95 percent minerals mined in Rajasthan are in the hands of the private sector.

Rajasthan's major minerals, meant for industrial use, include copper ore, lead, zinc (for which Rajasthan is the major producer in the country), silver, asbestos, limestone, rock phosphate, soapstone, and wollestonite. Minor minerals, mainly used for construction and domestic use, include sandstone, marble, masonry stone, limestone dimensional, *kankar bajri* (gravel and pebbles), serpentine, slate stone, murram, limestone burning, brick earth, chips powder and *patti katla* (strips). Among minor minerals, sandstone, masonry stone, limestone, and marble account for three-fourth of the labour employed in mining.

Estimates of the workforce employed in mines vary. The 1991 census estimated that the number of main workers employed in mining and quarrying was 1 percent of the total number of main workers, which translates into a workforce of 143,000. This seems to be an under-estimation, since mining provides livelihood to a large number of migrant labourers, and quarrying constitutes a secondary source of income.

The National Sample Survey round on Employment and Unemployment in 1993/94 estimated the total workers engaged in mining and quarrying at 1.7 percent of the total workforce (nearly 360,000 workers), with female workers constituting nearly 19 percent. The State Directorate of Mines and Geology, on the basis of the figures reported by the lease holders, estimated that in 1995-96 the number of workers employed per day in mining and quarrying was 3,79,912, of which 328,570 workers (86 percent of the total) were in quarrying.

Independent estimates by Mine Labour Protection Campaign (MLPC), a voluntary network of NGOs, put the number of workers at 18 lakhs in 1996.[14] The majority of these belong to the Scheduled Castes and Scheduled Tribes (little over 50 percent of the workforce employed in mining in 1991 Census belonged to SC and ST). Women, contribute about ten percent of the total number of workers in mining & quarrying, and perform "unskilled" but difficult tasks like separation of rubble and its disposal. The wages paid to them are generally lower than their male counter parts.

Thus, a large portion of the more than half of the workforce is recruited from the vulnerable sections of society, which are neither organised nor skilled. Workers' benefits (such as insurance, pension, bonus, etc.) are not available to these groups, who often do not even get minimum wages, compensation for overtime, etc. (Box 3.3).

[14] Samajik Sudhaar evam Maanvadhikar Suraksha Samiti (Campaign for Social Reform and Protection of Human Rights), 1997, Rajasthan Mein Khan Majdooron ke Dayniya Haalat (The Pitiable Condition Mine Workers in Rajasthan), Udaipur.

Box 3.3: Working Conditions in Mines: an NGO evaluation

In 1998 Astha, an Udaipur based NGO, commissioned a baseline study on the working conditions in mines located in the Amet block of Rajsamand District.

The study, which covered 8 villages with 557 mineworkers, revealed that women and children constituted 25 percent of the workforce. While men received wages between Rs. 35 and Rs. 50 per day, women and children got between Rs. 20 to Rs. 30 per day. An interesting finding was that sometimes wage rates also differ according to the caste or the community of the worker.

Out of 50 respondents, not a single worker reported facilities like a resting-place, separate toilets, recreation area, and uniform. Only one-third of the sample reported availability of drinking water.

Clearly, the benefits of growth have not yet percolated down to the mineworkers of Amet.

The poor working conditions are also reflected by the number of accidents in mines, and in the incidence of lung related diseases. An NGO in Udaipur tracked the accident rate in mines through content analysis of newspaper columns (Table 3.5), to show the incidence of accidents is some districts

Table 3.5: Accidents in Mines during 1.1.90 - 31.12.95

Mining Area	Number of accidents	Number of deaths	Number of injured
Udaipur	268	114	186
Rajsamand	291	133	241
Dungarpur	132	57	224
Banswara	104	26	109
Chittorgarh and Bhilwara	157	72	166
Makrana	579	416	288
Jodhpur	107	62	171
Ajmer	29	17	54
Jaipur	92	41	92
Alwar and Sawai Madhopur	117	76	146
TOTAL	1876	1014	1677

Source: Newspaper reports as tracked by Samajik Sudhar and Manavadhikar Suraksha Samiti (SASUMASU), an NGO based at Udaipur.

The vulnerability of mineworkers, reflected in accident rate, is compounded by the fact that there is little compliance with the Workmen's Compensation Act in most mines and especially in quarries. Apart from dangers to life and limb (and livelihood), high levels of air pollution in mines lead to incidence of lung related diseases, especially silicosis and tuberculosis (Box 3.4).

The poor working conditions have persisted because of a complete absence of collective bargaining by the workers. Sporadic attempts at union formation, which have been made in nearly all major mining areas, have so far not been successful due to the unorganised nature of production, low awareness levels amongst the workforce and the feudal relations still existing in some pockets.

At the other end of the spectrum the growth in mining and quarrying in Rajasthan has brought substantial benefits to mine owners, who belong mainly to two sections of society - the urban business class and the rural rich.

The necessity of capital investment and associated technical and marketing support ensures that members of traditional business and land-owning castes operate licenses for most minerals and processing units. The scramble for marble quarry licenses in the 1980s was much similar to the Gold Rush. Marble leases commanded a premium running into millions of rupees, and a thousand millionaires are said to have emerged in the city of Udaipur.

The contrast between the increase in mining revenue in Rajasthan and the continued ill-health and poor wage conditions of mine workers is a cause for concern. This picture also prevails in other sectors where profits are high, wages are low, and consequently the livelihood prospects for the poor are gloomy despite aggregate growth. State strategies for these sectors, therefore, need to focus on building safety nets, maximising productivity, and providing incentives for investment and technology transfer.

5.2 Leather

Rajasthan is famous internationally for its traditional craftsmanship in leather goods. Along with textile products, gems & jewellery, leather products (such as *jutis*, *mojris* and bags) are important earners of revenue for the State and income for its artisans. However, the growth prospects of the leather sub-sector, which employs over 200,000 people, are constrained due to poor technology, lack of infrastructure and appropriate linkages with markets. An appraisal of the dynamics of this important source of livelihood is illustrative.

Three sets of activities define leather-work: flaying (which consists in removing the dead animal's hide), tanning (treatment of the hide, traditionally vegetable tanning) and manufacturing of leather articles, among which footwear and bags. Each of these categories has distinct skills and techno-economic constraints.

In Rajasthan the main communities engaged in leather work, which are among the poorest, are Regar or Raigar, Khatik, Meghwal, Berwa, Raidas and, in some areas, the Jatavs. Though these communities are spread all over the state, the districts of Jaipur, Sawai Madhopur, Nagaur and Jodhpur have the highest concentration of these communities, which have comparatively a low presence in South Rajasthan.

Leather workers work in three different ways:

- Self employed, who produce for individual customers. They are located in villages and small towns.
- Self employed working on a piece rate basis for traders, producing for direct customers whenever they have the time. They are generally located in towns and trading centres.
- Employed by other leather workers or manufacturers in cities and towns.

According to the 1991 Census, the number of workers employed in the leather sector was 65,000, registering a considerable drop (from about 82,000 workers) since 1981. The estimated figure for 1987/88, according to the National Sample Survey, was of 80,000 persons.

In leather work, the tools and equipment are not very expensive, the critical element being the availability of leather and the holding capacity for leather as a buffer for process fluctuations. Therefore availability of credit is the defining constrain in the leather sub-sector, which comes under the purview of the Khadi & Village Industries Board (KVIB). Consequently, there is little incentive for other sources of institutional credit to finance small leather enterprises.

Between 1980 and 2000 Rajasthan's leather industry has grown in urban areas, where there is an ever-growing demand for westernised footwear, garments and up market designer leather products. On the other hand leather artisans, who continue to be concentrated in villages, continue to cater to rural demand which is stagnant because of limited purchasing power.

Poor institutional economics is also compounded by social factors. Communities that are traditionally connected with leather work have been subject to social discrimination, due to the stigma of ritual pollution that the caste system attaches to these castes. The unfavourable economics of leather-work together with a quest for a new social identity have compelled many to seek other livelihood options.

An improvement in the economic benefits to small producers in the leather sub-sector is therefore necessary to sustain interest and skill transfer over generations. The high degree of segmentation in the leather sub-sector leads to higher transaction costs and, consequently, to lower value addition.

The further evolution of the leather sub-sector in Rajasthan requires increased emphasis on technology & design upgradation, standardisation, improved access to credit and marketing support. The success of "Operation *Mojari*", an initiative undertaken under the National Leather Development Programme, needs to be replicated on a larger scale, if the state is to capitalise on the national and international demand for traditional leather goods.

5.3 Repairs

The repairs sub-sector, traditionally considered as a residual category between manufacturing and services, has witnessed exponential growth due to the derived demand from other sectors such as agriculture, manufacturing and transport. Increased farm mechanisation (including use of tractors and pumpsets), rural electrification, booming transportation services (related to the expansion of the road network) and demand for consumer durables have translated into a burgeoning market for repair services.

The growth in the repair sub-sectors is due to relatively low barriers to entry into this profession, since it does not require high level of capital investment and formal education. The economic space for the repairs sub-sector also comes from its ability to conserve capital, by prolonging the life of machinery and equipment, as well as to increase capital and labour productivity, by ensuring more up-time for machinery and reducing work interruptions.

According to the 1991 Census estimates nearly 110,000 persons were employed in the repairs sub-sector in Rajasthan. Given the massive expansion in levels of mechanisation in the 1990s, repairs generated greater employment opportunities. The sharp increase in the number of tractors (of over 175 percent) and in the use of electricity for agriculture (192 percent) shows that there is an expansion of farm mechanisation (Table 3.6). The increase in electricity consumption in other segments indicates a

greater use of mechanical and electrical goods in the economy as a whole. The repairs sub-sector, therefore, plays a key role in the modernisation of production and consumption patterns in Rajasthan.

Table 3. 6: Estimated Increase in Items Requiring Support Services in Repairs

Items Requiring Support Services in Repairs	Actual for 1991	Estimated Increase per Annum	Projection for 1999	Increase
Tractors (for 1992)	146677	8.3%	256714	175.0%
Electricity Consumption				
Domestic	1075.394	12.8%	2811	261.4%
Non-Domestic (commercial)	429.892	9.8%	907	210.9%
Industrial : Small	446.791	5.4%	679	152.1%
Medium	472.857	8.6%	913	193.1%
Large	3073.853	3.7%	4121	134.1%
Agriculture	2849.306	8.5%	5470	192.0%
Vehicles				
Private cars and Jeep	100222	7.5%	179367	179.0%
Motor Cycles, Tricycles & Scooters	778966	8.6%	1509481	193.8%
Contract and Taxi Carriages	28717	6.5%	47680	166.0%
State Carriages	25134	6.2%	40578	161.4%
Public & Private Carriers	77241	6.2%	124597	161.3%
Tractors & Trailers	191640	6.8%	324593	169.4%
Others	2543	2.0%	2980	117.2%
Total	1204463	8.0%	2227277	184.9%
Manufacturing				
Registered Factories	9931	6.6%	16549	166.6%

Source: Government of Rajasthan (1998), "Statistical Abstract Rajasthan", Directorate of Economics and Statistics, Jaipur; Government of Rajasthan (1999), "Economic Survey 1998-99", Directorate of Economics and Statistics, Jaipur.

The main components of variable costs in the repairs sub-sector are machine tools, consumables and spare parts. While machine tools are easily available, consumables and spare parts are problematic, both in terms of quality and ready availability. Many repair units often use cheaper consumables and spares, thereby causing long term damage to machinery and vehicles that come for repair. The competition amongst units, as well as availability of cheaper but of doubtful quality materials, has also had long term consequences for this sector, one of which is that no service quality standards have been established so far. This means that upgradation of repair units to higher economy of scale is hampered by the absence of any yardsticks of performance and process efficiency.

Technical education is critical for improving the quality of human capital in the repairs sub-sector. The State Government has established Industrial Training Institutes (ITIs) to develop technical manpower for various trades over a period ranging between 1 to 3 years. Training is also available under schemes and programmes such as Training Rural Youth for Self Employment (TRYSEM) and Self Employment for Educated Unemployed Youth (SEEUY). Under these programmes training is imparted in mechanical and electrical work (including repairs), providing beneficiaries with essential toolkits and a small loan for meeting working capital requirements. However, given the mushrooming of repair units in Rajasthan, especially in urban peripheries, there is a need for a more comprehensive

system of training and accreditation in the repairs sub-sector, which includes bringing privately-run training institutes under enhanced standards of quality control.

Repair services in Rajasthan are driven by demand-pull factors in transport, mechanisation, and durable consumer goods. From a policy perspective the repairs sub-sector is ideally placed for further growth as it has its own system of attracting unskilled labour and providing them with apprenticeship. The relatively open conditions of entry (without restrictions of caste, tradition, skills and capital) bolsters its potential for employment generation. However, this sector can be upscaled in terms of providing employment and income generation opportunities for the poor, especially women and other disadvantaged groups, through better training facilities, credit support and entrepreneurship development.

6 Conclusion

The economy of Rajasthan is characterised by diversity in terms of livelihood sources and consequently low level of income poverty and unemployment. However, the deceleration of growth rates in the 1990s, combined with susceptibility to drought, is a cause for concern. Various sectors of the economy share common constraints of low levels of technology, high levels of risk, and poor credit and market infrastructure. Given the deceleration of growth rates, industrial under-development and increased threat to traditional industries and crafts, state strategies for livelihood promotion must focus upon improving skill levels of the working population and direct investment towards the upgradation of human capital and social infrastructure.

Chapter IV - Primary Education in Rajasthan

1 Introduction

Rajasthan is characterised by sharp differences in terms of terrain, livelihood, dispersed patterns of settlement and social identity. Within the state, agriculture and animal husbandry are the major sources of livelihood, with no significant manufacturing industries or sectors. Distribution of income and assets is also highly uneven. Therefore, the task of ensuring that education is universalised and relevant for all sections of society is indeed formidable.

The main challenge confronting education strategies in Rajasthan is the education of the girl child, especially among Scheduled Tribes and Scheduled Castes.

Our analysis of primary education in Rajasthan attempts to identify key issues to strengthen initiatives for universalising literacy and ensuring quality education that could sustain a pro-poor pattern of growth. The main points raised in this chapter are:

- The system of education in Rajasthan needs considerable reform in order to improve the access of marginalised groups (women especially girl children, *dalit*s, migrants and nomadic people, etc.) to the educational infrastructure that has been put in place. Education reforms must make the system more relevant to the livelihood needs of people, and should enable them to exercise greater control over their lives.
- Decentralisation and people's participation is a must for the success of education interventions in Rajasthan, given the persistence of low achievements in education in spite of considerable investment in the expansion of education infrastructure. Participation should imply involvement of people and the government together in deciding the direction of and control over programmes.
- Rajasthan is at the crossroads as far as design and implementation of education interventions are concerned, with substantial resources flowing to the sector, both from the state's budget and internationally assisted programmes such as DPEP. However, situational analysis indicates that the literacy situation in Rajasthan is quite grim, with many districts being among the most backward in the country in terms of literacy rates, and even more so in terms of female literacy.
- Learning from success stories and examples of best practice is a necessary component of a successful education strategy. Rajasthan has long been the crucible of experimentation with regard to school education. The lessons from programmes such as Non Formal Education, Shiksha Karmi, Lok Jumbish, etc., must be incorporated into the future education strategy of the state.

2 Historical Background

It may be instructive to consider the historical context of the development of modern education in Rajasthan in order to understand the persistence of gender and other forms of social bias, as well as conditions for change (increased participation by civil society, a spirit of social service, voluntarism and philanthropy).

2.1 Education in pre independence Era

Modern education, as defined in Lord Macaulay's Minute on Education, appears to have started in Rajasthan in the middle of the 19th century, although the tradition of public education dates back to the medieval period (Box 4.1). English medium and "modern" schools were first introduced in Alwar and Bharatpur in 1842, in 1844 in Jaipur and in 1863 in Udaipur. Efforts to introduce modern education in Ajmer-Merwara area began in 1819.[15]

Box 4.1: Medieval Times

Rajasthan has a tradition of public education dating back at least to the medieval period. Educational institutions were founded either by kings in their respective principalities, or by the communities (*Hindu Pathashalas* and *Muslim Maktabs*). The provision of education sponsored by kings and princes, depending on their personal commitment, widely varied between principalities. The Hindu Pathashalas and Muslim Maktabs, mainly sponsored by parents, were informal arrangements in comparison to the 'royal' schools, and either existed as a source of income for the teachers, or out of the teachers' sense of moral obligation.

The ruling elite believed that education, being too dangerous to be extended to "low" castes, had to be imparted only to Brahmins and, at the most, trading communities. Moreover, many of them did not regard education as a priority. This attitude often transcended personal preference and was reflected in their states' policies.

Education in medieval Rajasthan was, therefore, based on patronage, either by the royalty or by influential members of the local community. While it did affirm the key role of public provisioning of education, its sphere was limited both in terms of the area covered and the skills taught as the students (and teachers) were mainly either from the royal or noble households or were "beneficiaries" of occasional munificence.

The provision of education varied among princely states depending upon the orientation of the rulers and the availability of financial resources. Jaipur State was at the forefront of modern education in Rajasthan where in 1844 the Department of Public Instruction had been established. Under the auspices of the Maharaja Sawai Ram Singh Bahadur, a Sanskrit college and schools for boys and girls were opened. The education scenario in smaller states, e.g. Bundi, Dholpur, Shahpura, Banswara, Pratapgarh and Dungarpur, was very different. In Bundi and Bikaner, for example, schools were limited to Sanskrit/Persian schools and Chatshala/ Pathshalas respectively.[16]

Common to all states was a dearth of girls' schools. The limited number of girls' schools that opened under the auspices of the Maharaja in Jaipur by 1867 (for example Jaipur Central Girls school) were an exception. In general, girls' education was considered unimportant and suffered from conservative social attitudes and practices, as well as from a lack of female teachers. Even by the 1930s, the situation was not much better, with girls schools accounting for approximately only 10 percent of the total number of schools in Jaipur state.

Schools could be classified into three categories according to the source of establishment: those established by the State rulers under pressure from British Residents, those founded by Christian

[15] G.S. Verma (1986), "History of Education in Rajasthan", pp. 37, Sabd Mahima, Jaipur.
[16] G.S. Verma (1986), p.53.

missionaries who focused on marginalised groups, and those run by wealthy individuals and charitable trusts. In mid-19th century, there were 647 educational institutions, of which 510 were maintained by the princely states, 103 by private individuals and 34 by missionaries. Of these, 545 were primary schools.

The curriculum varied between schools. In state schools, where the curriculum was influenced by the British school system, teaching activities were focused on languages (English, Persian and Sanskrit). In addition boys were involved in sports activities and girls in domestic activities such as sewing, cooking and drawing. The Jaipur Album, Education Chapter states that "the object is not only to turn out educated ladies but also good house wives, by adapting the work in the school to the house life of the girls. Dharma Shiksha also forms a part of the curriculum".[17] This was undoubtedly a gender-stereotyped approach to education that reinforced the patriarchal division of labour.

In the early twentieth century primary education started to be extended to districts, smaller towns, and villages.[18] This resulted from a combination of three factors: philanthropy, nationalism and social reform. The increased number of charitable trusts, mainly sponsored by members of the trading communities, such as the Marwaris and Jain Oswals, and pioneered by philanthropists, such as Raja Baldeodas Birla, resulted in the opening of private schools for rural children. The national movement contributed further towards highlighting the importance of universal education, which was seen as a means of spreading awareness about people's rights, including the right to political independence. Social movements, such as the *Arya Samaj*, also contributed to widespread education by placing it at the forefront of their agenda. In Shekhawati, where several movements occurred between 1917 and 1940, many private schools were established by the business community and caste panchayats. This was the result of the resolutions passed during their meetings to send all children (boys and girls) to school.

This chain of expansion of the primary education system through civic action thus contradicted the official argument at the time that there was no need for universalising education as the general public was not interested in sending their children to school. Due to the close link between the civic concern and the aspirations of nationalism, the earlier official extant approach to education was to undergo a change after Independence.

2.2 Development of Primary Education in Rajasthan after Independence

The momentum for the expansion of education in Rajasthan was reinforced by the constitutional commitment to universalisation of education, as spelt out in the Directive Principles of State Policy in the Constitution of India.[19]

The approach to education in the post-Independence era addressed the infrastructure lacuna of the earlier period, which was endemic especially in rural areas. While in 1949, at the time of the formation of the state, the total number of primary schools was 3,195 (2,864 for boys and 331 for girls), by 1981

[17] Government of Jaipur (1933), "Jaipur Album", p. 11, Jaipur.

[18] In 1932 there were 156 government primary schools, of which only 11 were for girls and 7 were night schools, and 254 private primary schools, of which only 30 were for girls and 2 were night schools. There were also 175 *Chatshalas* and *Maktabs* (Government of Jaipur, 1933)

[19] Article 45 of the Constitution enshrines, "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 expression "The State" that occurs in the article is defined in Article 12 to include the Government and Parliament of India, the government and the legislature of each of the states and all local or other authorities within the territory of India or under the control of Government of India.

it was 23,125[20], and this grew to 39,335 by 1991. During the Eighth Plan period (1991 to 1996), the number of primary schools increased by 13 percent and upper primary schools by 32 percent, resulting in a total increase of 17 percent (Table 4.1).

Table 4.1: Primary Education Infrastructure in Rajasthan			
Year	No. of Primary Schools	No. of Upper Schools	Total
1991-92	30005	9330	39335
1992-93	31866	9802	41668
1993-94	33482	10028	43510
1994-95	32986	11235	44221
1995-96	33758	12276	46034
Source: NCTE (1998), "Teacher Education in Rajasthan", p. 6, New Delhi.			

The number of teachers employed increased from 6,666 to 20,252 between 1949 and 1959, and from 27,000[21] to 50,400[22] between the end of the 2nd Plan period and 1981. For quite a long period after Independence, teachers continued to be mostly males from upper castes. In 1970 the proportion of teachers belonging to scheduled castes was, in fact, minuscule (3 per cent) and concentrated only among men.[23] This gender bias reduced during the Eighth Plan period (Table 4.2). The increment in the number of female primary teachers (42.5 percent) was almost three times that of male primary teachers (14.9 percent). In this period the overall growth in the number of teachers was 21.7 percent in primary classes, and 27.3 percent in upper primary. However, there was a male bias as the increment in the number of male teachers in upper primary schools was of 29.3 percent, which compared to 21.5 percent of female teachers.

[20] The number of primary schools was 3,935 in 1951, and 14,472 in 1961.
[21] NCERT (1961), "A review of Education in India (1947-61)", Ministry of Education India, New Delhi
[22] G.S. Verma (1986), p. 378.
[23] Gore, Desai, Chitnis (1970), "Field Studies in the Sociology of Education", pp. 185, NCERT, New Delhi.

Table 4.2: Number of Teachers in Rajasthan During the Eight Plan Period (1991-1996)

Year	Male/ Female	Primary			Upper Primary			Total
		Trained	Untrained	Total	Trained	Untrained	Total	
1991-2	Male	54,626	4,356	58,982	50,044	3,048	53,092	112,074
	Female	15,571	3,574	19,145	15,487	3,424	18,911	38,056
	Total	70,197	7,930	78,127	65,531	6,472	72,003	150,130
1992-3	Male	57,414	5,449	62,863	53,302	4,386	57,688	120,551
	Female	17,959	4,973	22,932	16,260	4,576	20,836	43,768
	Total	75,373	10,422	85,795	69,562	8,962	78,524	164,319
1993-4	Male	60,866	6,174	67,040	57,692	4,625	62,317	129,357
	Female	19,039	5,016	24,055	17,118	5,091	22,209	46,264
	Total	79,905	11,190	91,095	74,810	9,716	84,526	175,621
1994-5	Male	61,262	6,108	67,370	59,395	5,564	64,959	132,329
	Female	20,386	5,182	25,568	17,483	5,529	23,012	48,580
	Total	81,648	11,290	92,938	76,878	11,093	87,971	180,909
1995-6	Male	61,658	6,104	67,762	62,625	6,036	68,661	136,423
	Female	22,036	5,246	27,282	17,786	5,196	22,982	50,264
	Total	83,694	11,350	95,044	80,411	11,232	91,643	186,687
Source: NCTE (1998), "Teacher in Education in Rajasthan", p. 35-37, New Delhi.								

Between 1949 and 1961, enrolment increased by more than 400 percent.[24] By 1981, the total number of children enrolled was approximately 31.26 lakh, of which 69.11 percent belonged to the school going age cohort.[25] The increase in enrolment during the Eighth Plan period was 35.71 percent both in primary and upper primary schools (Table 4.3).

Table 4.3 : Enrolment (in thousand) in Elementary Education in the decade 1985-86/1995-96						
Year	Pre-Primary & Primary (classes I to V)			Upper Primary (classes VI to VIII)		
	Boys	Girls	Total	Boys	Girls	Total
1985-86	1984901	732766	2717667	1421939	493131	1915070
1986-87	3023265	1231066	4254331	930959	227703	1158662
1887-88	2111613	826014	2937627	1520446	528409	2048855
1988-89	2154222	885850	3040072	1550513	554789	2105302
1989-90	2159666	943263	3102929	1530426	560318	2090744
1990-91	2140183	944966	3085149	1549071	606318	2155389
1991-92	2182744	991976	3174720	1575151	631736	2206887
1992-93	2246982	1122063	3369045	1657590	725423	2383013
1993-94	2286026	1134054	3420080	1681072	743259	2424331
1994-95	2290640	1220199	3510839	1858457	859502	2717959
1995-96	2284362	1329375	3613737	2007238	1003932	3011170
Source : Government of Rajasthan (1996), "Statistical Abstract of Rajasthan 1996", Directorate of Economics and Statistics, page 65, Jaipur.						

[24] NCERT (1961), "A review of Education in India (1947-61)", Ministry of Education, Government of India, New Delhi. It may be added, however, that the often repeated change of inflation of official enrolment statistics has to be kept in mind.
[25] G.S. Verma (1986), p. 378.

The increase in girls' enrolment has been steeper than that for boys in the ten years between 1985/86 and 1995/96, especially for classes VI to VIII (103 percent compared to 41 percent). However, enrolment of girls continues to be half that of boys in schools, for the primary and the upper primary classes (Table 4.4).

Table 4.4: Share of Girls in Total Enrolment (in percent)

	Pre-Primary & Primary	Upper Primary (middle)
1985-86	27.0	25.8
1986-87	28.9	19.7
1887-88	28.1	25.8
1988-89	29.1	26.4
1989-90	30.4	26.8
1990-91	30.6	28.1
1991-92	31.2	28.6
1992-93	33.3	30.4
1993-94	33.2	30.7
1994-95	34.8	31.6
1995-96	36.8	33.3

Source : Government of Rajasthan (1996), "Statistical Abstract of Rajasthan 1996", Directorate of Economics and Statistics, p. 65, Jaipur.

A broad delineation of the education delivery mechanism and an examination of its pathologies may be useful for identifying areas that require special attention. A quick survey of the state's literacy profile may serve as a backdrop to this exercise.

3 Status of Education in Rajasthan

The improvement in literacy rate recorded by Rajasthan between 1991 and 2001 is the highest in India. Literacy levels in the state rose from 38.6 percent to 61.03 percent, with literacy rate for males moving from 54.99 percent to 76.46 percent and for females from 20.44 to 44.34 percent. Despite the high decadal growth rate, the challenge of Education for All is still substantial especially for rural areas, women, Scheduled Castes and Scheduled Tribes. Thus the education scenario is doubly constrained: not only is the achievement level relatively low in absolute terms, but also its distribution across social groups is highly uneven. Therefore, some people suffer more than others in educational terms. That is why large-scale inequalities are observed in the literacy achievements of groups located at the polar extremes of the socio-economic prosperity scale. For example, in 1991 the literacy rate of 79 percent for men in urban areas and only about 5 percent for Scheduled Caste women in rural areas represents two practically incompatible realities and raises serious doubts about the equity effects of the state's education system (Table 4.5).

Table 4.5: Literacy Rates (in percent) in Rajasthan in 1991 by area and community			
Category	**All**	**Scheduled Castes**	**Scheduled Tribes**
Total	38.6	26.3	19.2
Male	55.0	42.4	32.9
Female	20.4	8.3	4.4
Rural	30.4	22.1	18.2
Rural Male	47.6	37.6	31.7
Rural Female	11.6	4.7	3.6
Urban	66.1	43.4	44.5
Urban Male	79.1	61.4	62.2
Urban Female	51.2	22.9	21.9
Source: Registrar General of India, "Primary Census Abstract Rajasthan and Special Tables for Scheduled Castes and Scheduled Tribes", Rajasthan, Census of India 1991, available on Computer Disk.			

There are still large inter-district variations in literacy, although remarkable improvements have been recorded in the last decade. In 2001 most districts can claim to have more than half of their population literate, while in 1991 only Kota (excluding Baran), Ajmer and Jaipur (excluding Dausa) districts could make such a claim. In 2001, the lowest literacy rate was 44.22 percent (Banswara), while in 1991 was 23 percent (Barmer).

Educational deprivation of Rajasthani women, especially those in rural areas, continues to be high in almost all the districts of the state, despite the substantial improvements recorded in the last decade. Moving from a situation where twenty-one out of thirty districts (excluding Karauli) had female literacy below 20 percent, and two of them had female literacy even lower than ten percent (Barmer with 7.7 percent, and Jalore with 7.8 percent), in 2001 seven districts out of thirty-two recorded female literacy rates above fifty percent. In 2001 Kota continues to record the highest female literacy rate (61.25 percent), while at the other end of the spectrum is Jalor (27.53 percent).

Gender disparities are vividly captured in the education component of the district level GDI estimates, which range from a high of 0.416 in Kota to a low of 0.130 in Jalore. Barmer, Baswara and Jaisalmer also had educational GDI values below 0.200.

The comparison between literacy rates of Rajasthan and India and changes therein between 1981 and 1991 seemed to indicate that the state was caught in a "low-level, low-growth" trap, from which it seems to be emerging as indicated by data from the 2001 Census. Although its literacy rate was 12.9 percentage points behind the national average in 1981, its decadal progress in this respect was slower than that of the nation as a whole (Table 4.6). However, between 1991 and 2001 Rajasthan has recorded higher improvements in literacy, both among women and men, than the country. Further, the proportion of male literates in Rajasthan is as high as that in the country, while that of women lags behind that of India.

Table 4.6: Literacy (in percent) in India and Rajasthan in 1981, 1991 and 2001

Area	Total	Male	Female
India : 1981	43.6	56.4	29.8
India : 1991	52.2	64.1	39.3
Difference	8.6	7.7	9.5
Rajasthan : 1981	30.7	45.5	14.5
Rajasthan : 1991	38.6	55.0	20.4
Difference	7.9	9.5	5.9
India: 1991	52.20	64.1	39.3
India: 2001	65.49	76.0	54.0
Difference	13.29	12.0	15.0
Rajasthan: 1991	38.6	55.0	20.4
Rajasthan: 2001	61.03	76.0	44.0
Difference	22.43	21.0	23.6
Rajasthan Literacy to India Literacy in 1981	70.4	80.7	48.7
Rajasthan Literacy to India Literacy in 1991	73.9	85.8	51.9
Rajasthan Literacy to India Literacy in 2001	93.2	1	81.5
Source: Literacy rates derived from Census of India 1981, 1991, 2001			

While literacy figures in a way bear the results of past action (or inaction), enrolment statistics provide an idea about how the education scene is likely to evolve. According to estimates of the 1991 Census of India the number of school going children in the age group six to fourteen years was 38.9 percent for the state as a whole, 26.3 percent for girls, and just 19 percent for rural girls[26]

The overall enrolment rate in schools for the age group of five to fourteen years in Rajasthan was estimated in 1998/99 at 67.6 percent. The enrolment for boys is estimated at 85 percent , while girls still lag far behind at 48 percent (refer to gender related development index). Enrolment rates must be read with some caution as they do not necessarily reflect the actual number of children attending schools with regularity. The number of children enrolled in class I in all schools, especially in rural areas, usually accounts for all eligible children in an attempt to have full coverage. This number drops sharply after initial enrolment and by class II and beyond, it drops even further.

The scenario of education in Rajasthan seems to be characterised by the persistence of illiteracy, especially among women. Many children, especially girls, either do not attend school at all or leave it soon after joining. Probing somewhat deeper, we will analyse the education system in three parts: the first relates to access and provisioning, the second to quality of teaching and the third to social and environmental factors.

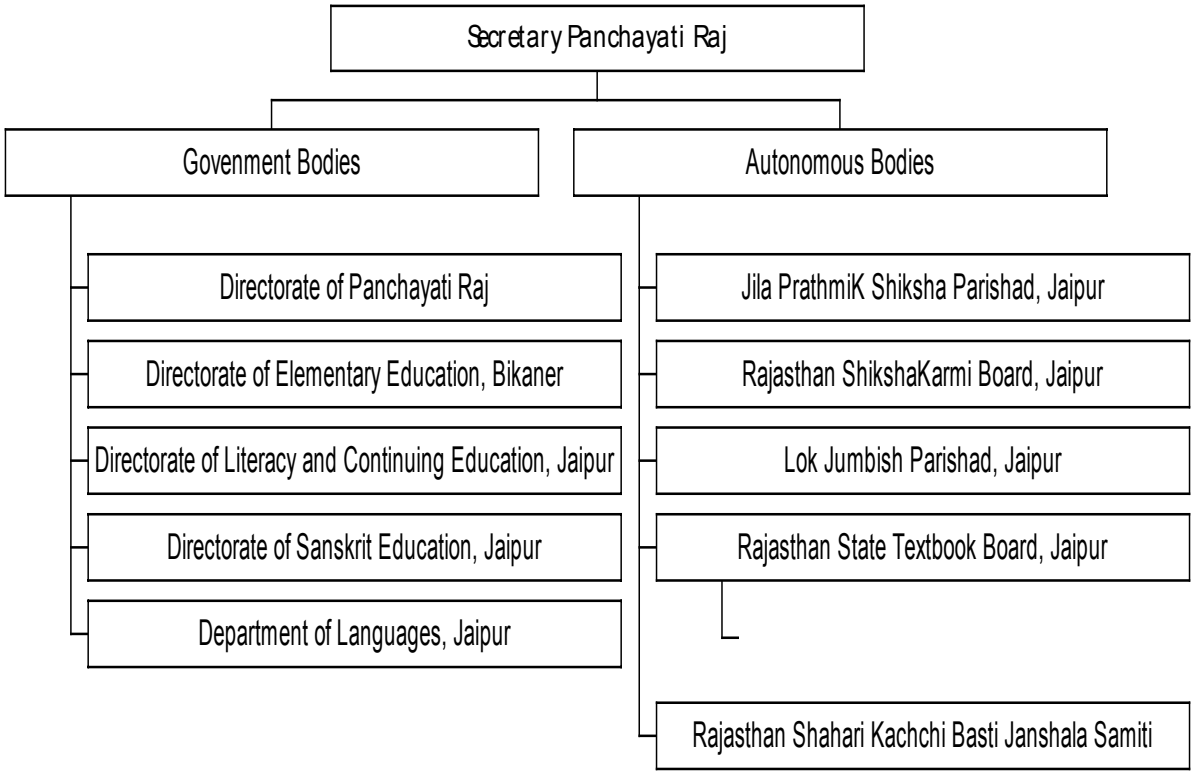
4 Institutional Mechanism of Primary Education in Rajasthan

[26] Enrolment levels in schools are derived from the reported figures for children enrolled in various classes and the estimation of children eligible by age, and by estimates from the Census.

After half a century since its creation, Rajasthan has a large primary education infrastructure. About half a dozen special schemes and programmes to improve the quality of education and to reach the un-reached and marginalised children are running in the state. In addition, private schools are fast making inroads even in rural areas, where hitherto they were restricted to urban and semi-urban belts of Rajasthan. The growth of private schools in rural areas can be attributed to a demand for education that government schools and other state sponsored educational institutions are not able to meet because of the irregularity of their set-up, the low level of teacher attendance and quality of teaching. There is still a gap between the need and demand for 'functional' schools and what is actually available to most children. The endeavour can be built upon experiences of rights-based educational interventions in other states. One of them is the Education Guarantee Scheme (EGS) of Madhya Pradesh which, according to the Union Budget for 1999-2000, is being extended to other states. However, such interventions often tend to trade off quality for quantity and therefore educational planning should be sensitive to this issue.

Figure 4.1 provides an institutional map of the administrative structure for Primary Education in Rajasthan that is responsible, apart from other echelons of school education, for the formulation and implementation of the educational state policies on education, as well as the finance, administration and management of the primary school system.

Fig. 4.1 - **Administrative Structure of Primary Education**



In line with the 73rd Constitutional Amendment, Elementary Education in Rajasthan is now with the three tier Panchayati Raj Institutions, i.e. Zila Parishads at District level, Panchayat Samitis at the Block level, and Gram panchayats at the village level. The State has also constituted the Rajiv Gandhi Elementary Education and Literacy Mission to undertake progress in education in a mission mode. This Mission has been constituted with its Governing Council under the Chairperson ship of the Chief Minister of Rajasthan. The Secretary Panchayati Raj is the Mission Director to ensure co-ordination and achievement of the targets and goals of the Mission.

The system of accountability and planning is mostly a top down one, centralised in terms of programme management, design and implementation. The existing decentralised approach to planning is limited to sub-programmes for which the options opened to communities are limited by the criteria set by state planners.

The top-down approach, inherent in such administrative arrangements contrasts with the fact that as far back as 1959 Rajasthan had pioneered a decentralised approach in the management of schools by accepting the recommendations of the Balwantrai Mehta Committee and providing for management of primary school by *Panchayat Samitis.*

To assess the actual achievements of this administrative structure as well as its potentials vis-à-vis the goal of 'education for all' data pertaining to provision and performance of schools may be analysed. There were 48,912 primary schools in Rajasthan (34,364 primary and 14,548 upper primary schools

having a primary section) in the year 1998-99[13]. The drop-out rate in the ten districts earmarked for coverage under the District Primary Education project (DPEP) was 56.8 percent in 1993[27], while for all of Rajasthan (according to the Lok Jumbish Phase-III Project Document) it is 53.7 percent.[28] This means that less than 50 percent of the children who enter primary schools complete their primary education. This certainly exposes the glaring need for more schools and teachers as well as better schools and better teachers.

The achievement levels of students who do complete primary education, which concentrates on the three "*R*s" (reading, writing and arithmetic), paint an equally disturbing picture. The achievement levels in 10 DPEP districts, according to the Baseline Assessment Study conducted by the State Institute of Education Research and Training (SIERT), are generally low. The mean achievement score of class IV students in Mathematics was found to be ranging between 10.66 (22.56 percent) and 17.67 (34.15 percent), while for language, the range was between 29.00 (40.58 percent) and 38.83 (49.09 percent)[29]. It is reasonable to assume that achievement levels of children in other districts are not likely to be very different from what was found in the DPEP districts.

Low enrolment, retention and achievement status is not surprising given the inadequacies in teachers' education and academic support available to them. Rajasthan has 45 institutions for teachers' education for primary level, 27 District Institutes of Educational Training (DIETs) and 18 State Teacher's Colleges (STCs) including private and government ones. [30] In the year 1995-96, all these institutions produced 3028 trained teachers for primary schools, and 7707 for secondary education (persons who had passed Bachelor of Education degrees - B.Ed.). [31] The duration of the pre-service training is two years, and DIETs are the mainstay for in-service training. According to the district-wise estimates given by NCTE, the DIETs will take from 7 years in Jaisalmer to 86 years in Jaipur to complete the cycle of in-service training for all teachers, if they train at the rate of 300 teachers per year.[32] The capabilities of existing institutions also fall much shorter of the need for pre-service training of teachers, both in terms of quantity and quality. Further, there is little evidence to show that teachers utilise the training received, partly because much of the training curriculum and techniques taught are not effective and teaching pedagogy requires overhauling and a more modern orientation.

Training provided under Bachelor of Education courses and STC courses by DIETs (pre-service training) are designed on outdated theories and understanding of education, drawing on the assumption of an ideal school with material, teaching aids, building etc. This is often not the actual condition faced by teachers when they start working. Most of the schools have no teaching material other than textbooks. Moreover, these textbooks are compendia of information written in an uninspiring style, using a language that is mostly incomprehensible for children. Since there is little training and exposure to theoretical frameworks and pedagogy in teachers training, teachers are unable to generate ideas and be innovative, imaginative and creative in teaching aids and teaching methodology.

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[13] Govt. of Rajasthan (1999), "Pragati Prativedan (Progress Report) – 1998-99", p. 97, Department of Elementary and Secondary Education, Jaipur.

[27] The ten districts where the World Bank is sponsoring the District Primary Education Project (DPEP) are: Alwar, Bhilwara, Sriganganagar, Jhalawar, Kota, Nagaur, Sikar, Sirohi, Tonk, and Jhunjhunu. This project commenced end July 1999. Rajasthan Council of Primary Education (1999), "Project Implementation Plan (Rajasthan DPEP - I)", p. 19, Jaipur.

[28] Lok Jumbish (1998), "Lok Jumbish Phase III- 1998-2003 Project Document", p. 20, Jaipur.

[29] Rajasthan Council of Primary Education, Project Implementation Plan (Rajasthan DPEP - I), p. 13, Jaipur.

[30] NCTE (1998), "Teacher Education in Rajasthan", p. 19, New Delhi.

[31] NCTE (1998), p. 31 (Table 3.6) and 32 (Table 3.7) and p. 29 (Table 3.4)

[32] NCTE (1998), Table 8.6, p. 94.

The overall environment in schools is also not favourable. In 1993 nearly 60 percent primary schools (19034 out of 33349) had two or less rooms used for instructional purposes. Only 54.2 percent schools had drinking water available and only 29 percent had urinals.[33]

Teachers also have additional demands on their time, viz. election duty, data collection during various surveys (e.g. livestock census and population census), and participation in campaigns such as pulse polio eradication.

The preceding analysis leads us to conclude that:

- While provisioning may be near uniform, educational access is quite uneven. Children from SC/ST households are more vulnerable to attrition or drop out between primary and upper primary stages than their "upper" caste peers.
- Even with current levels of net enrolment, there is a pressing need for an increase in the number of teachers, if a satisfactory teacher-pupil ratio is to be maintained.
- Apart from quantitative expansion of education infrastructure, there is an urgent requirement to improve the quality of education, given the abysmally poor levels of learning indicated by analyses of educational attainment and learning in Rajasthan primary schools.

The administrative and institutional structure of school education was modified in 1999, with education being placed directly under the purview of Panchayati Raj, in line with the imperative to place rural development and social sectors under the control and management of the Panchayati Raj Institutions (PRIs).

5 Initiatives aimed to Augment/ Supplement the formal Education System

The modern schooling system in India, developed at the expense of the indigenous systems, was neither designed to empower people, nor to aid them in shaping and fulfilling their aspirations. It was designed to mould some of the masses to suit the interests of the rulers of the day - an approach clearly laid out in Lord Macaulay's Minute on Education. Over time these aims became secondary but the structure had already acquired its own sanctity.

This system, termed as the formal schooling system, has not been able to tackle the issues of numbers, universal enrolment and retention, imparting quality education, and actualising acceptable achievement levels. This led the government to look for alternatives, which emerged from evaluation of the formal education system and were planned to counter the problems faced through lack of finances, incidence of non-attendance of children, irregularity of teachers, etc.

In Rajasthan several major programmes have been introduced over the years to improve the formal education system, and/ or to facilitate access to education. These are:

- Non-Formal Education Programme
- Shiksha Karmi Project
- Lok Jumbish Pariyojana
- Rajiv Gandhi Swarna Jayanti Pathshalas
- District Primary Education Programme

[33] NCERT (1998), "Sixth All India Educational Survey", New Delhi.

5.1 The Non-Formal Education Programme

The Non-Formal Education Programme (NFE) was introduced as a flexible, low cost and manageable alternative to the formal education structure, which could not provide enough schools and teachers. People perceived **N**FE as a potent alternative. A rationale as well as a concept of non-formal education was developed. According to this concept, NFE was supposed to be free from the ills of the formal system, being flexible and sensitive to the children and their needs.

The Non Formal Education programme aimed to reach children who either did not attend schools due to pre-occupation with other necessary activities or could not attend due to inconvenient school timings or totally unfamiliar pedagogic practices (Box 4.2).

Box 4.2 - The Non-Formal Education Programme

Though the formal system is continuously growing and schools are available in thousands of villages, still lakhs of school age children remain out of primary education. NFE programme was started in 1975 to reach these children. In 1998-99 there were 17,600 NFE centres run directly by the Government of Rajasthan and 2,686 centres by NGOs sanctioned by the Government of India.

The NFE programme aims at providing free primary education at a time convenient to children who remain out of schools or are drop-outs for a variety of reasons. NFE centres run for two hours a day and children are expected to complete the prescribed course in two and a half years. The children use the same textbooks as the children in formal schools. The curriculum and textbooks are prepared by the State Institute of Education on Research and Training (SIERT), which is also responsible for developing training packages for NFE instructors and supervisors etc.

The minimum educational qualification for NFE instructor is fifth grade completion and s/he gets Rs.200/- per month for teaching for two hours a day. S/he is given a pre-service training of 15 days duration. In addition to that s/he receives one more training of the same duration in the first year and 20 days training in the second year. Children who successfully complete class five from NFE centres are eligible for admission to class six in formal schools.

In 1998-99 a total of 4.80 lakh children were enrolled in the programme - 2.07 lakh boys and 2.73 lakh girls. Districts with the highest enrolment of children in Non Formal Education centres in 1998/99 were Ganganagar (including Hanumangarh), Chittorgarh, Udaipur and Bhilwara.

Source: Government of Rajasthan (1999), "Pragati Prativedan (Progress Report) 1998-99", Department of Elementary and Secondary Education, Jaipur.

Initially conceived as a means of achieving universal access to education through a flexible and informal programme, NFE centres eventually became victims of their own objectives. Provision of good quality primary education through NFE centres was no longer a primary objective. It ended up providing the underprivileged children with a bare 'something' in place of nothing and, in the process, exposed itself to the charge of institutionalising a two-track segmented education system – one for those who got adequate education, and the other for those who did not. Then, NFE changed track and looked also towards education of comparable quality. The criticism of the system as a second rate alternative for those who are powerless still continued and some variations of NFE promised 'education of equivalent quality'. Today, most of the NFE centres are non-functional, the achievement levels of children are abysmally low, and the instructors themselves stand in need of more academic support and training.

NFE served the purpose of visibly attempting to provide primary education to children at a very low cost. However, a major negative impact of NFE is that it has lowered expectations from primary education and increased the dangers of a "mentality of mediocrity" in the delivery of education to the poor.

5.2 The Shiksha Karmi Project

In remotely located schools of Rajasthan teacher absenteeism, especially among those not belonging to the area, was a serious problem which, according to the state government, was arising out of a difficult terrain/ location.[34] To address this issue, the Rajasthan government, based on the experience of schools run by the Social Work and Research Centre (SWRC) at Tilonia, designed the Shiksha Karmi scheme under which a local teacher would be appointed for schools in such villages Box 4.3).[35]

Since Shiksha Karmis are individuals with modest educational qualifications and no professional training at the time of recruitment, the project seeks to generate capacity through its well defined support structure to continuously support, encourage and upgrade their competence. Further, it aims to foster greater interaction with and acceptance by parents, and provide regular and need based assistance to Shiksha Karmis. For every 15 to 17 schools there is a Shiksha Karmi Sahayogi (SKS) who provides on the spot support to the Shiksha Karmis in resolving problems of academic and non-academic nature. Review and planning meetings are held regularly as support interventions to the Shiksha Karmis at the block level, while at the village level support is provided by the Village Education Committee (VEC) with respect to enrolment, attendance, school mapping, micro planning etc.

An elaborate monitoring structure is built into this programme: on a monthly basis by Shiksha Karmis themselves, and on quarterly basis by the VECs. In addition, monitoring activities are carried out at the regional level by the resource unit and the members of the Shiksha Karmi Board (SKB), and at the state level by the executive committee of the SKB. However, the structure of this programme is relatively de-bureaucratised, as Shiksha Karmis are not permanent government employees, and participation of community and people working in education out side the government system are encouraged.

[34] Bodh Shiksha Samiti (1999), "A Study of Shiksha Karmi Project Rajasthan", p. 1, Jaipur.

[35] As Thakur and Methi spell out: "Where a willing and fully qualified teacher is not available or where a fully-fledged school is not an economically viable proposition looking at the size of cohort, arrangement for primary education through young persons of some education belonging to the village and willing to serve the community is a better alternative than no primary education at all". For futher details: Priyadarshi Thakur and S.N. Methi (1999), "Shiksha Karmi Project - Rajasthan (India)", p. 3, The World Bank - Washington DC.

Box 4.3 - Shiksha Karmi Project

The Shiksha Karmi Project (SKP) was started in 1987-88 after a realisation that UPE would not be possible in 10-15% of the villages in Rajasthan due to teacher absenteeism alone. The aim of the programme is to provide primary education to children living in remote, hilly and inaccessible areas. In these areas, the project aims to revitalise and expand primary education through resolving the problems of:

- Teacher absenteeism (which is as high as 50-60%); and
- Poor enrolment (25%) and high drop out rates, particularly of girls.

This will be achieved by actively involving the community through Village Education Committees and employing local people, with motivation and commitment, as para teachers also known as Shiksha Karmis. In order to facilitate women's participation, fourteen residential centres for women (*Mahila Prashikshan Kendra*) have been provided.

Two para teachers (one male and one female), identified by the community, are in charge of the primary school of the village after having received training at the initial stage (for 41-50 days) as well as training on regular basis. The training provided by NGOs and District Institutes of Educational Training (DIET) is to ensure that people with limited educational backgrounds (the minimum qualification for men is 8th grade and for women 5th grade) can teach up to 5th class. In addition, a Sahayogi is responsible for guidance and on going training at the block level.

Every Shiksha Karmi is required to run evening schools (*Prehar Pathshalas*) in addition to the day schools to cater to children who are unable to attend schools during normal hours. Currently the project operates in 146 Panchayat Samitis of the State, running 2600 day schools, 4829 Prehar Shalas and 97 Angan Shalas. In these schools there are 6213 teachers and 2,16,084 students.

This Project, run by an autonomous body (Shikska Karmi Board) at the state level, was initially funded by the Swedish International Development Agency (SIDA) who contributed 90 percent of the costs. Since the Pokhran blast in 1998, SIDA has withdrawn funding. At present, the expenditure on the Project is being shared by both DFID and the State Government on 50:50 basis.

Source: Government of Rajasthan (1999), "Pragati Prativedan (Progress Report) 1998-99", Department of Elementary and Secondary Education, Jaipur; and Priyadarshi Thakur and S.N.Methi (1999).

The Shiksha Karmi Project has had a definite impact on the government-run system of elementary education. Commendable progress in enrolment of the children has been made: about 83 percent of them are enrolled in Day Schools and *Prehar Pathshalas*, with this rate being 100 percent in 576

villages. The retention rate has also considerably increased from an average of about 19 percent to 65 percent thanks to the community ownership of schools and regularity of the teachers. [36]

This project is arguably the best alternative system created by the government in Rajasthan, both in concept and implementation. Had there been no compromise in teacher qualifications, and had there been adequate attention paid to vision of education, pedagogy, and to motivate qualified graduates, it could have become an ideal project.

5.3 Lok Jumbish Pariyojana

The Lok Jumbish Pariyojana, underway since 1992, is functioning in 13 districts of Rajasthan. This programme, literally meaning 'people's movement', is built around the core ideas of de-bureaucratisation and thoughtful decentralisation of decision-making processes in primary education. It has created structures, forums and processes to involve people from the village level community on one hand, to educationists and social workers at the state, cluster and block levels on the other. An atmosphere of debate and continuous reflection on decisions and processes was created, allowing room for sharing and evolution of ideas.

The philosophy behind Lok Jumbish sees education both as an end in itself and as a means towards contributing to socio-economic change and transformation, especially gender equality. Its fundamental aim is Universal Elementary Education that, in this view, can be achieved through mobilisation and participation of people. To this effect, this programme's medium term goal is education of girls and marginalised communities, while its long term goal is empowerment of people (Box 4.4).

[36] Priyadarshi Thakur and S.N. Methi, 1999, Shiksha Karmi Project - Rajasthan (India), pp. 12, The World Bank - Washington DC

Box 4.4 - Lok Jumbish Pariyojana

Lok Jumbish aims to provide elementary education for all through mass mobilisation and participation of people. This in turn, it is hoped, will act as a stimulus for human development and socio-economic development. It places special emphasis on the education of girls and disadvantaged sections of society and sees education as a tool for empowerment. The main components of the programme are qualitative improvement in formal schools, in social environment, Sahaj Shiksha Karyakram and women's empowerment. However, it also strives for the reduction in construction cost of school buildings through utilisation of local materials and technologies.

This programme's goals are:

1. Providing access to primary education to all children between 5 and 14 years of age;
2. Striving to enrol children in regular schools, as far as possible, and in Sahaj Shiksha centres, wherever necessary;
3. Ensuring that all enrolled children regularly attend school/ Sahaj Shiksha centres and complete primary education;
4. Improving quality of education by emphasising active learning, child-centred processes and achievement of at least minimum levels of learning by all children;
5. Creating necessary structures and processes to empower women, making education an instrument of women's equality;
6. Ensuring equity in education to all members of the society;
7. Modifying, if necessary, the content and processes of education to better relate it to the environment, people's culture as well as their living and working conditions;
8. Effectively involving people in the planning and management of education.

Lok Jumbish is innovative not only in its overarching aims of empowerment and participation, but also in its attention to diverse components within the programme. Apart from school mapping and micro planning, at the community level there are women's groups, adolescent girls' forums, residential camps - both for girls and boys, a school health programme and a commitment to integrating children with disabilities into mainstream education. This is very important in the light of the fact that, as Lok Jumbish acknowledges, it is difficult to involve communities in micro planning on a sustained basis as, while core teams and women's groups get involved in school mapping, the information produced is not shared with the wider community.

Source: Lok Jumbish (1998).

An important aspect of the Lok Jumbish programme has been the recognition that quality in education is inextricably linked to teachers' abilities, attitudes and understanding. Furthermore, teachers need to be valued and involved in all aspects of the programme. Thus, apart from regular in-service training, they are supposed to participate in many key Lok Jumbish activities, from school mapping to planning. Also, although a combination of partner NGOs and three DIETs provides the training for teachers, Lok Jumbish is trying to give teachers more ownership and control of their training, and include aspects of personality development and self reflection.

However, there are some conceptual and practical weaknesses. Teachers seem to have not fully understood the importance of pupil evaluation, and paid limited attention to theoretical aspects and pedagogy under the influence of the vision of Minimum Levels of Learning (MLL). Furthermore, while Lok Jumbish has avoided using pressure tactic to mandate participation of teachers, it has at times failed to evoke their voluntary cooperation and involvement in school improvement projects.

During its second phase (August 1995/September 1997), Lok Jumbish adopted Minimum Levels of Learning as its curriculum framework. While MLL have been adapted over the years and some success has been reported, there are contradictory statements regarding its effectiveness. On one hand parents and teachers are said to be particularly appreciative of the more "realistic" competency levels that are set to be realised under the new scheme.[37] On the other hand there has been a feeling, amongst some partner agencies and educationists all over the nation, that MLL does not take into account pupil diversity or promote child centred learning due to its undue emphasis on narrowly defined achievements in terms of the "3 Rs" only. Acknowledging the problematic nature of MLLs, which have scant respect for creativity and critical thinking, Lok Jumbish has been attempting to move from this framework to a new activity based curriculum that draws on different sources of knowledge and children's local environments.

Under the Lok Jumbish programme, substantial and sustained efforts have been undertaken to improve physical facilities and environment of schools through building renovations, new constructions, and provision of basic amenities. With an emphasis on transparency, using local craftsmen where possible and relying on community drawn plans for improvement, the work has been popular and successful (albeit slow).

Along with the improvement in formal primary schools, under the Lok Jumbish umbrella the *Sahaj Shiksha Pariyojana* was introduced to provide educational opportunities to children who still remain out of the formal system. Sahaj Shiksha centres run for three hours a day and a minimum of 250 days in a year. In December 1997 there were 2326 such centres with 45,839 children enrolled, majority of whom were girls (31148).[38] The Sahaj Shiksha Programme is meant for out-of-school children in the 9-14 age group, but a significant number of children from the 6-9 age group also attend these centres.

Sahaj Shiksha shares many of the conceptual problems of NFE. These are: short duration of the learning time, lack of independent place for the centre, low qualifications (class V pass for women and class VIII pass for men) for teachers who are called instructors, minimal honorarium (Rs. 400 per month), inadequate pre-service training. This contradicts the Lok Jumbish claim of equity in education for all. Lok Jumbish claims, on the basis of evaluations for classes I and II done by Operations Research Group, that children's achievement in Sahaj Shiksha is better than that in the non-Lok Jumbish formal schools and comparable to Lok Jumbish formal schools. This claim requires careful examination as it does not take into account that Sahaj Shiksha children are older than those in formal schools. The age factor is important as many of the competencies in which students were tested in this evaluation can be learned outside the school at that level. The weakness of the programme would be more visible in higher classes, as the Sahaj Shiksha teachers are not well equipped to handle the curriculum at that level. People working in this programme are already aware of this inadequacy on the teachers' part, a reflection of which is the small number of children who have passed class V through this programme.

[37] Lok Jumbish (1998), p. 68.
[38] Lok Jumbish Parishad (1998), "Lok Jumbish – The Seventh Report", p. 59, Jaipur.

5.4 Rajiv Gandhi Swarna Jayanti Pathshalas

The Rajiv Gandhi Swarna Jayanti Pathshala (RGSJP) scheme envisages academic support to teachers as one of its major components. Academic support to teachers has in fact emerged as a key input to successful primary education programmes. The main objective of this scheme is to universalise access to education with the active involvement of the community. Further, communities residing in remote and inaccessible locations, in rough terrain and in sparsely populated areas, SC/ST girls are the priority groups for this scheme (Box 4.5).

Box 4.5 - Rajiv Gandhi Swarna Jayanti Pathshalas (RGSJP)

The Rajiv Gandhi Swarn Jayanti Pathshalas scheme has been operating in areas/habitations where there were still no primary schools. The state government has decided to open 16000 RGSJPs in the whole state, on demand from the gram sabha or the ward sabhas.

The criteria of selection of habitations where to open these schools are:

- population of at least 200 people;
- 40 or more children in the age group of 6-11 years;
- no school in a radius of one kilometre.

However, in desert and tribal areas, as well as in Mewat, Magara and Dang regions, Rajsamand and Jhunjhunu districts, these schools can be opened also in habitations where the population is of only 150 people, and there are only 25 children in the said age group.

The village committee, which demands for the RGSJP centre, is responsible for the selection of teachers, called *Shiksha Sahayogis*, who should preferably belong to the local community. The minimum academic qualification required is Senior/Higher Secondary pass, but could be relaxed to 8th class pass in difficult areas. For their training the Shiksha Karmi training modules and infrastructure are used. The teachers' honorarium is Rs.1200 per month.

Source: Government of Rajasthan (n.d.), Rajiv Gandhi Swarn Jayanti Pathshalayen - Adhar Patra (Base Paper)"

By August 1999, 12000 schools had been started and for 8,000 of them buildings were constructed. The number of students enrolled is said to be four lakhs. This scheme is an adaptation of the Shiksha Karmi Scheme with greater involvement of panchayati raj institutions and local communities. It also draws some inspiration from the Education Guarantee Scheme of Madhya Pradesh.

5.5 District Primary Education Programme

The District Primary Education Programme (DPEP), launched in 1994, seeks to operationalise the objective of the World Bank Programme of Action of 1992, which envisaged district-specific projects tailored to the districts' specific needs and possibilities. Aiming to be an effective instrument in the universalisation of elementary education, it targets districts with very low female literacy rates.

The DPEP is a centrally sponsored scheme whereby districts develop proposals for implementation in primary education. Once these proposals are appraised and approved, the Government of India provides 85 percent of the financial requirements, while the concerned State Government provides the

remaining 15 percent. The eighty-five percent of the central government's share is either a loan from the World Bank, or is provided by a bilateral donor agency.

In August 1999 this programme was introduced in Rajasthan, aiming to initially concentrate on lower primary schools and, only after achieving full coverage, expand to the upper primary level (Box 4.6). The financial support is provided under the International Development Agency (IDA), the soft loan window of the World Bank, and the state government, apart from meeting 15 percent of the financial requirement, has also agreed to sustain the costs of innovations started by the DPEP, after this programme is phased out.

Box 4.6 - District Primary Education Programme

DPEP in Rajasthan is designed to run for five years, operating initially in ten districts and later in other additional nine. Its goals in the state are to:

- ensure access to primary schools (either formal or non-formal) to all children;
- reduce to less than 5 percent the existing differences in enrolment and dropout rates, as well as in learning achievements, between men and women and social classes; and
- reduce overall dropout rates to less than 10 percent and raise achievement levels by at least 25 percent.

Although the programme will finance 909 new schools and the appointment of 4795 new para-teachers, its main focus is on quality of primary education in formal schools. Therefore, it finances in-service teacher training, development and introduction of improved teaching and learning materials, as well as improvements in the existing school facilities. In addition, the programme supports state education programmes, such as textbook development and publication, planning and management, research and evaluation.

The Rajasthan DPEP claims to differ from other centrally sponsored schemes in five principal ways:

1. Participating Districts have the autonomy and flexibility to develop their own proposals for sub-projects.
2. The State Component Plan and its strategies reflect the ideas generated in a participatory process at the district level.
3. DPEP grants are fully additional to the participating states' normal educational expenditure.
4. Funds are made available annually on the basis of performance reviews and proposals for the next year. Poorly performing sub-projects can be dropped from the programme and replaced.
5. Support for implementation and technical assistance is provided by research and development agencies such as local NGOs.

Source: Rajasthan Council of Primary Education (1999), "Project Implementation Plan" Rajasthan DPEP- I, Jaipur.

The district specificity of DPEP, which is a prominent feature of this programme, is recognised in a publication by the Ministry of Human Resource Development, Government of India. Referring to the need to have planning from below (from the village upwards) it affirms that "a beginning has been made, in DPEP, with the focus on the district, as a unit of planning and implementation.".[39]

Planning activities, decentralised to the district level to encourage people's participation and ownership, are managed by the Village Education Committees, which are composed of the *Sarpanch* of the Gram Panchayat and representatives of the local community, including disadvantaged groups. In order to strengthen community and school organisations' involvement, it is envisaged to entrust them with the responsibility of material procurement.

Community participation, an important premise of DPEP, should translate in empowerment of communities to choose what and how they want to do with respect to various issues. This requires considerable preparation and capacity building. In fact, the community is neither a monolith with a uniform vision of education nor does it have the institutional capability to develop and implement an education programme by itself. Therefore, there is a need for a continuous dialogue between the community and the project staff, on the basis of mutual equality and respect. This will take time, efforts, a social vision and commitment on the part of state government, NGO partners and all other stakeholders.

6 Problems and Issues

At this point it is useful to look at both the potential possibilities and problems that beset the education system in Rajasthan.

The proliferation of schemes, often a result of political necessity to display action and commitment, disrupts consolidation of the existing education system and improvements within it. Further, preference for uniformity and administrative control, and political interest in transfers and appointments of school teachers, are examples of undue interference in functioning of the education system. Decisions that should be made on sound information base and educational considerations are often made on conditions and logic extraneous to education, such as political needs and administrative conveniences. The system requires greater political will and commitment towards universalisation of primary education and that includes a more rational approach to educational administration.

In the attempt of identifying areas that need greater attention, a particular focus will be on school functioning, school curriculum and instructional resources, teachers' training, organisational and administrative issues, and the parallel programmes in education - their integration and equity efforts.

[39] Government of India, "DPEP moves On ….", Ministry of Human Resource Development, p. 1, New Delhi.

These issues would need to be considered also in the context of the role of PRIs in education.

- Has the power and authority devolved to PRIs reached the people or has it become another layer of bureaucracy?
- Do local institutions have the capacity to manage education and if not what is being done to strengthen their capacity? With transfers and postings already a bane of the system, can there be mechanisms that ensure that block panchayats do not let this continue?
- What measures can be taken to ensure that caste and patriarchy do not prejudice effective management at the local level?

The wide range and ramifications of the issues outlined require a comprehensive and integrated approach to find solutions that are intersectoral, and pave the way for root and branch reform of the education system in Rajasthan.

6.1 The Functional School

The foremost pre-requisite for education provisioning is the availability of a functional school. This can be defined as a school with a proper and safe building, where the posted teacher (or teachers) attends (attend) school regularly, and where children are taught, in a manner that is attractive, an interesting curriculum. Each of these components is equally essential.

Unfortunately, the quality of school buildings often leaves much to be desired. Some of the obvious marks of their poor health are inadequate space for holding different classes, lack of proper sanitation and drinking water facilities, damages to walls or leaking roofs, etc. In addition, especially in the districts of the western arid areas of Rajasthan, schools often are not easily reachable (Table 4.7). This problem assumes greater dimension because of the difficult terrain, lack of proper approach roads and pathways to schools, of which many become unusable during monsoons.

Table 4.7: Habitations (in percent) with a Primary School within one kilometre in the districts of Rajasthan (1993)

Over 90 percent		80-90 percent		70-80 percent		60-70 percent		Below 60 percent	
Churu	95.71	Sikar	88.61	Baran	79.73	Jalore	66.59	Jaisalmer	51.96
Bharatpur	94.09	Karauli	87.94	Bundi	79.08	Jodhpur	63.79	Barmer	45.91
Bikaner	91.35	S. Madhopur	87.94	Jaipur	77.91	Ganganagar	61.86		
		Jhunjhunu	86.48	Sirohi	77.60	Hanumangarh	61.86		
		Kota	86.27	Dungarpur	77.49				
		Alwar	86.19	Rajsamand	77.28				
		Dholpur	85.69	Bhilwara	77.14				
		Nagaur	84.71	Jhalawar	77.11				
		Ajmer	82.27	Tonk	76.96				
		Dausa	82.21	Chittorgarh	76.26				
		Banswara	81.74	Udaipur	73.51				
		Pali	81.14	Rajasthan	74.58				

Source : National Council for Educational Research and Training (1996), "Sixth All India Education Survey, 1993", New Delhi

In the period between 1993-94 and 1998-99, the number of pre-primary and primary schools in the state increased from 33482 to 34389. Unfortunately, amongst the districts with less than 80 percent habitations with a primary school within one kilometre, only Barmer, Jodhpur, Dungarpur, Rajsamand, Bhilwara and Tonk registered a growth in the number of schools by only 5 percent. Barmer had an impressive increase of nearly a quarter of schools, and Jodhpur of 14 percent. A further improvement may be expected in this respect due to the recent provision through the Rajiv Gandhi Pathshala which aims to provide a school in every habitation.

However, even when physical facilities exist, instructional resources (such as teacher-pupil ratios) remain deficient. While macro level statistics tend to show that the teacher-pupil ratio in each district satisfy the official norm in this respect, the micro level picture often tells a different story. This is mainly due to the fact that teachers routinely prefer posting in urban and semi-urban areas, consider posting in rural schools in remote areas as a punishment, and use whatever pressure they have at their disposal to get transfer. This results in the perpetual dearth of adequate number of teachers in rural schools. This problem is further compounded by irregular attendance of teachers who accept posting in remote areas and often chose to stay only for a shorter period of time than the actual working hours of the school or engage in any active teaching even if physically present.

To tackle the problem of absenteeism and lack of motivation of teachers is a responsibility of the state government. This issue is also linked to the larger issue of work ethics and work culture, which pervades all bureaucratic layers within the government. Thus it is perhaps not fair to target the primary school teachers alone. However, the urge to entrust teachers with a sense of commitment and responsibility needs to be seen not as an "anti-teacher" activity. Rather, it is an assertion of the collective responsibility of the government as well as of the citizenry to at once acknowledge and make teachers realise their critical role in any educational reform.

School curriculum and teaching methodology also leave much to be desired as the curriculum designs are not very attractive to children, and the method of teaching encourages only learning by rote. The lack of teaching materials and teaching aids in schools further compounds this problem for which a solution could be developed looking at the experience of Lok Jumbish schools. The non-standardised textbook used by them, helped attracting children's interest and enable easier learning.

The extent of functional and non-functional schools cannot be fully and accurately ascertained, but it can be said with some degree of confidence that the present set up of schools would need substantial inputs before education turns attractive for children. Inputs are required in school buildings renovation, regularity of teachers, and changes in curriculum and teaching materials.

6.2 Teachers' Training, Tenure and Posting

As mentioned earlier, the DIETs, which are responsible for training teachers, are unable to meet adequately the requirements of the state. Teachers in regular grade schools are drawn from two pools: from those who have attained a degree of Bachelor of Education, and those who have passed the STC course from DIETs after completing class twelve. Both these qualifications are considered to provide adequate pre-service training and make these persons eligible for recruitment as primary-school teachers.

The training provided under Bachelor of Education and STC courses, designed on outdated theories and understanding of education, draw on the assumption of an ideal school with material, teaching aids, building etc. Unfortunately, this is often not the actual condition faced by teachers when they start working. In particular, the pre-service training courses lack a strong component of philosophy of

education, and pedagogical issues. While these theoretical concepts and inputs have often appeared unnecessary to designers and administrators of teachers' training, they are in fact the fulcrums around which a good teacher should be built. A study on what makes teachers effective says that: "Effective teachers have strong and coherent personal philosophies about teaching of literacy, which guide their selection of teaching materials and approaches".[40] Similarly, research on effective teachers of numeracy indicates that "The teachers' beliefs and understanding of the mathematical and pedagogical purposes behind classroom practices seemed to be more important than the forms of practice themselves".

Another aspect to be considered is the lack of motivation of teachers of graded schools. The reasons that may be ascertained for this could be a combination of the following factors:

- There is not much of in-service training. Once a teacher joins service, there are hardly any refresher courses, or exposure to new techniques.
- The security of tenure enjoyed by graded teachers tends to make many complacent, and leads to loss of pressure to do well. The contractual basis on which Shiksha Karmi and Lok Jumbish teachers are appointed has been a feature in their remaining more motivated and pro-active towards their jobs than graded permanent teachers, although they are far less qualified and trained than the latter.
- Most teachers are posted to districts far from their homes, which translates in a sense of "not belonging". As this is not a desirable situation from their viewpoint, they often exercise the option to be transferred, which does not help developing commitment or responsibility towards the schools where they were originally posted. This issue could be addressed if teachers would interact regularly with the community and build close relationships.

6.3 Convergence in Education Programmes

In the educational field, there are several categories of interventions under way in Rajasthan. On one hand, there is the conventional education system, spread across the villages and towns of the state, with its regular grade teachers who are qualified through courses in universities or the state run DIETs. On the other hand, there are programmes that have less qualified people from the local community as teachers (para-teachers) who have successfully completed their tenth grade studies, been given some pre-service and largely in-service training, in addition to a more regular support during work. All these systems and programmes have their own sets of supervisors and senior grade personnel. Even their textbooks, curricula and teaching methodologies differ.

[40] David Wray et al. (1998) "Effective Teachers of Literacy, Summary of findings" p. 2, A research project by the University of Exeter, Sponsored by the Teachers Training Agency, School of Education, Portland House, London

The major differences between the parallel programmes and the regular schools are related to the following aspects:

- *Qualification* - teachers' have a higher education qualification than that of para-teachers.
- *Remuneration* - teachers' salaries are higher than the remuneration paid to para-teachers. Three or four para-teachers cost about the same as one regular grade teacher.
- *Type of training* – while regular grade teachers are trained primarily before they join service and receive few in-service training as well as refresher courses, para-teachers receive only regular in-service courses.
- *Programme supervision* – this differs according to the scheme considered.

Many of the parallel programmes owe their origin to problems in the regular school system and have specific characteristics and components that attempt to ameliorate these problems. Although parallel programmes gain some of their strength from being separate from the regular schools, at some level convergence is necessary. The education being provided to children should in fact draw from the best experiences available in order to ensure quality.

Convergence would primarily have three components. First, in curriculum, textbooks and teaching pedagogy; second in qualifications and training of teachers; and third in the administrative systems governing and supervising the schools and their programmes.

For convergence in curriculum, textbooks and teaching methodology, it is desirable to have a common minimum standard of quality and best points from every programme, but we must be careful of the tendency to have a uniform system of everything, everywhere. Some flexibility and options must be maintained. The new textbooks used in Lok Jumbish have proved to be better than the textbooks in the regular schools. Thus, a change in this direction seems to be a desirable option.

There is also a need for parity in the qualifications and training of teachers under different programmes. Since a sub-standard schooling system cannot achieve universalisation of education, the demand for financial austerity has to be balanced with an equally strong need for teaching skills and competencies.

Administrative convergence is a complex issue, especially difficult to implement and practice. Currently each programme has its own supervisors, administrative controllers, and a structure often leading people to duplicate tasks. Convergence in such tasks would ensure fixed responsibilities and greater co-ordination between programmes, but has the inherent danger of programmes losing their strengths. The relative success of some programmes is rooted very much in their separation from regular schools: both the promises as well as perils of bringing programmes together have to be carefully assessed in order to identify the optimum level of convergence.

However, the need to strike a balance between the objectives of "quantity" and "quality" has to be kept in mind also to retain the achievements of the low cost schemes, which aim to provide some education to most children in disadvantaged situations and backward areas. Thus, convergence is an urgent need to be addressed to translate the results obtained through emergency or quick healing measures in long-term sustainable results.

6.4 Education for Disadvantaged Sections

In Rajasthan the regular schooling system has been unable to provide primary education to the disadvantaged groups of the society, namely the Scheduled Tribes, Scheduled Castes, women and communities in remote areas. Thus, alternative systems have been devised to fill the gap. These have been successful in providing some education and some functional schools where none were there. However, in terms of the quality of education provided, they are, at best, second with respect to regular schools.

It is important to take due cognisance of the financial constraints facing the state of Rajasthan, and the problem of ensuring functional schools in backward and remote areas. However, it is discouraging that most alternate schemes targeted towards the most disadvantaged are also low cost solutions. This is quite the opposite of what should be done, to reach disadvantaged groups – a task that requires more and not less resources.

The existing curriculum, text material and school organisation, being geared towards the urban middle class, is not really suitable for the disadvantaged groups. The school does not reflect the appropriate cultural ethos. In fact, negative stereotypes of all these groups have been a major problem in text material as well as teachers' attitude. It is encouraging to note that lately there have been attempts to free the text material from this bias, although more time and efforts will be required to modify teachers' attitude.

An additional constraint in remote areas, especially for female teachers, who are unable to travel long distance, is the lack of teachers' residence. This element adds to the problem of teacher absenteeism, which could be addressed to some extent by providing adequate residential facilities.

7 Conclusion

Education for democracy has to aim to empower citizens with critical abilities, interest and courage to make their voices loud and reasonable enough to the extent that they can not be ignored. Of course, productive skills have to be necessary part of the package but they alone can not hold the centre stage. It is a fundamental duty of a democratic state to educate all its citizens suitably for the above mentioned purposes.

Often, the vision of education is abandoned at the planning level, where education is seen purely in terms of economic investment. Availability of resources and economic returns become the most important considerations. Returns from education should be seen not only in economic terms but enhanced abilities of the people to participate in democratic processes. This perspective is certainly more appropriate to a democratic state, and presumes a commitment from those who are in power. This should be the basis for evaluating educational schemes and programmes. The idea of quality of education can be conceived only with respect to a clearly articulated vision and aims of education.

Decentralisation, and interventions which strengthen the ability of the poor and marginal groups to participate in local governance, can provide a way forward in the direction of such a vision. Efforts in this direction has been made by the State Government by taking decentralisation further down to the ward sabha level. But a more community-based interventions in education is needed, which will see the school as their own asset. The challenge confronting the education system in Rajasthan is that of bringing children into school, ensuring that schools are functional - handling the large number of children and providing them with meaningful and gainful education. This requires a vision of "quality education for all".

Chapter V - State of Health in Rajasthan

1 Introduction

The global mandate for "Health for All" in the Alma Ata Declaration provided an impetus to the health system in India and in Rajasthan.[41] Soon after the Alma Ata Declaration, 17 indicators dealing with mortality, vital rates, and health programmes were selected for monitoring, and targets to be achieved by the year 2000 were set for all nations.[42]

The status of health in Rajasthan, despite progress made since 1949, is quite poor both in absolute and relative terms. The health targets set at Alma Ata have not been realised fully in the year 2000. Primary health care has not reached a large number of poor people, especially women, *dalits*, and communities living in remote areas. [43] On the other hand, progress has been made with respect to control of communicable diseases such as small pox, malaria, leprosy, Guinea worm and pulse polio. Under the Minimum Needs Programme and affiliated schemes, rural health infrastructure has also been built up. However, the health scenario in Rajasthan is still characterised by gender imbalance, low vital rates (lower than the ones for the nation) and an uneven health care coverage. Global prescriptions for health sector "reform" have focussed on privatisation of curative health services as well as on a public-private mix in primary and secondary care.[44] However, the challenge of ensuring universality and affordability has not been addressed thus far.

An appraisal of the current health situation and the disease profile of Rajasthan vis-à-vis goals of universal health care shows that there are substantial shortfalls in the efficacy of the public health system in the state. In the early 1950s, the health profile of Rajasthan compared favourably with that of other Indian states, and with the national average. Today, Rajasthan's health indicators are among the poorest in the country, indicating that the state's performance in terms of improvement in vital statistics and case fatality from various diseases has been comparatively lacklustre.

The persistence of ill-health in Rajasthan is strongly correlated to social variables, in a context of patriarchy where expectant mothers and girl children are neglected, and women as a cohort are more vulnerable to diseases that afflict the population in general. This is borne out by an examination of indicators such as life expectancy, infant and child mortality, fertility and other vital rates, as well as of the state's disease profile.

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[41] The Alma Ata Declaration of "Health for All by the Year 2000" was the outcome of Global Conference on Health, held in 1978 at Alma Ata, sponsored by the World Health Organisation (WHO) and United Nations Children's Fund (UNICEF).

[42] For more details see Table 5.1 in the Statistical Annex.

[43] Primary health care was defined in the Alma Ata Declaration as "…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 the community and the country can afford to maintain at every stage of their development..". (World Health Organisation, 1978. Alma Ata – Primary Health Care, Geneva)

[44] The World Development Report 1993 ("Investing in Health") advocated health sector reform based on private sector leadership in curative health care, especially at the tertiary level, and advocated incentives for increased private investment in the sector, to be provided by the state as a facilitator. The Report sparked much debate which is still ongoing.

2 Status of Health

Vital statistics or indicators that measure aspects of life, such as total duration of life, number of births, deaths and fertility, as well as measures of death in infancy and childhood, are derived from the Census and the Sample Registration System. These indicators help in defining the health scenario in Rajasthan from a quantitative point of view, while they cannot by themselves provide a "complete" picture of the status of health in the state. However, it is useful to have outcome data to map the effectiveness of public investment in health. Further, when data pertaining to vital rates are analysed in conjunction with demographic measures, such as sex ratio and mean age at marriage, they throw valuable light on the gender dimension.

2.1 Life Expectancy

During the past five decades, Rajasthan has witnessed some improvement in life expectancy and related measures. According to the Census of India's estimates, life expectancy in Rajasthan increased from 46.8 years for the period 1951-61 to 53 years for the period 1971-81 (Table 5.1).

Table 5.1: Life Expectancy in Indian States over the Years

State	**1951-61**	**1961-71**	**Life Expectancy in 1980s (period specified**		**1988-92**	**1991-95**	**Increase by 1991-95 from the years :**	
			e^0	Period			1961	1980s
India	41.2	47.7	54.4	1980 only	58.7	60.3	46.4%	10.8%
Andhra Pradesh	36.9	44.4	55.7	1979-80	60.2	61.8	67.5%	11.0%
Assam	36.8	46.0	48.8	1976-78	54.1	55.7	51.4%	14.1%
Bihar	37.6	41.0	52.3	1981only	57.5	59.3	57.7%	13.4%
Gujarat	40.0	53.7	54.5	1979-80	59.5	61.0	52.5%	11.9%
Haryana	n.a.	50.6	58.6	1979-80	62.5	63.4	n.a.	8.2%
Himachal Pradesh	n.a.				63.3	64.5	n.a.	n.a.
Karnataka	40.2	44.6	62.5	1979-80	62.2	62.5	55.5%	6.8%
Kerala	48.3	48.8	72.9	1979-80	71.3	72.9	50.9%	9.6%
Madhya Pradesh	40.6	54.4	54.7	1979-80	53.4	54.7	34.7%	9.0%
Maharashtra	45.2	54.4	64.8	1979-80	63.4	64.8	43.4%	11.5%
Orissa	40.9	44.7	56.5	1979-80	55.4	56.5	38.1%	11.2%
Punjab	47.5	43.8	67.2	1979-80	66.6	67.2	41.5%	7.0%
Rajasthan	46.8	49.4	52.5	1978-80	56.3	59.1	26.3%	12.6%
Tamil Nadu	39.8	49.6	55.9	1979-80	61.5	63.3	59.0%	13.2%
Uttar Pradesh	38.9	43.0	46.8	1978-80	55.4	56.8	46.0%	21.4%
West Bengal	44.3	44.9	55.1	1981 only	61.4	62.1	40.2%	12.7%

Notes: n.a. : not available

Source : *columns 2, 3, 4:* Government of India (1994), "Health Information of India", Ministry of Health and Family Welfare, New Delhi; *column 6*: Registrar General of India (1995), "SRS Abridged Life Tables 1988-92", Occasional paper no. 4, New Delhi; *column 7*: Registrar General of India (1998), "SRS Abridged Life Tables, 1990-94 and 1991-95", SRS Analytical Studies, Report No 1, New Delhi.

According to Sample Registration System (SRS) in the period 1991-95 life expectancy in Rajasthan was 59.1 years (58.3 for men and 59.4 years for women), 57 and 64.2 years in rural and urban areas respectively. During the same period of time, all India life expectancy figures (60.3 years - 59.7 years for men and 60.9 years for women; 58.9 in rural areas and 65.9 in urban areas) were higher. A major cause for short life expectancy in Rajasthan is the high incidence of infant mortality. High infant mortality rates translate into low expectancy of life because life expectancy increases once the child crosses age 1. In Rajasthan, in fact, expectation of life at birth for 1991-95 was 64.3 years at age 1 and 62.7 years at age 5.

Expectation of life in Rajasthan is amongst the lowest in the country. Between 1988-92, only Orissa, Assam, Uttar Pradesh and Madhya Pradesh were worse off. States with similar socio-economic conditions and terrain and, if not greater, potential for morbidity and mortality, did considerably better than Rajasthan. Andhra Pradesh, for example, had life expectancy much lower than Rajasthan in 1951-61, but achieved an increase of 68 percent in the last 35 years, while Rajasthan recorded a growth of only 26 percent. Other states, which experienced greater improvement in longevity, are Gujarat (53 percent), Uttar Pradesh (46 percent) and Madhya Pradesh (35 percent).

District-wise estimates for life expectancy are available only for 1981 and 1991.[45] According to the Census, in 1981 expectation of life was 53.85 years in India, and 52.98 years in Rajasthan. The districts in the western arid zone of Rajasthan witnessed the longer life expectancy in the state. In order of ranking these are: Bikaner (65.09 years), Churu (60.92 years), Ganganagar (60.26 years), Jaisalmer (60.25 years), Barmer (59.87 years) and Nagaur (59.63 years). On the lower side, in *ascending* order, there were the districts of Tonk (45.43 years), Bharatpur (45.96 years), Sawai Madhopur (47.32 years), Bhilwara (48.14 years), Chittorgarh (49.11 years), Alwar (49.96 years), and Pali (50.24 years). However, the belt of Alwar, Bharatpur and Sawai Madhopur (including Dholpur) had the lowest longevity.

In 1991 the districts with greater longevity were Ganganagar (70.1 years), Jhunjhunu (68.9 years), Bikaner (68.8 years), Sikar (68.4 years), Churu (66.8 years), and Jaipur (66.2 years). Districts in the east and north-east sub-region of the state (e.g. Jaipur, Bharatpur, Sawai Madhopur, and Alwar) recorded a high rate of increase in life expectancy. The districts of Jaisalmer and Barmer, which were amongst the first five in 1981, dropped to being tenth and seventeenth respectively. The districts with the lowest longevity were Chittorgarh (57.5 years), Banswara (57.9 years), and Dungarpur, Dholpur and Pali (all with 58.8 years).

Between 1981 and 1991, Sawai Madhopur and Bharatpur recorded the greatest improvement in longevity (over 30 percentage points), followed by the adjoining districts of Alwar and Jaipur, which witnessed an improvement in life expectancy of 26.5 and 23.3 percentage points respectively.

With the exception of Ganganagar, the districts with the highest life expectancy in 1981 did not subsequently record a significant improvement in longevity. The arid districts west of Aravali witness an increase lower than 10 percent, while Barmer improved by just 1.4 percentage points, followed by Bikaner (5.7 percentage points), Jaisalmer (6.2 percentage points) and Churu (9.7 percentage points).

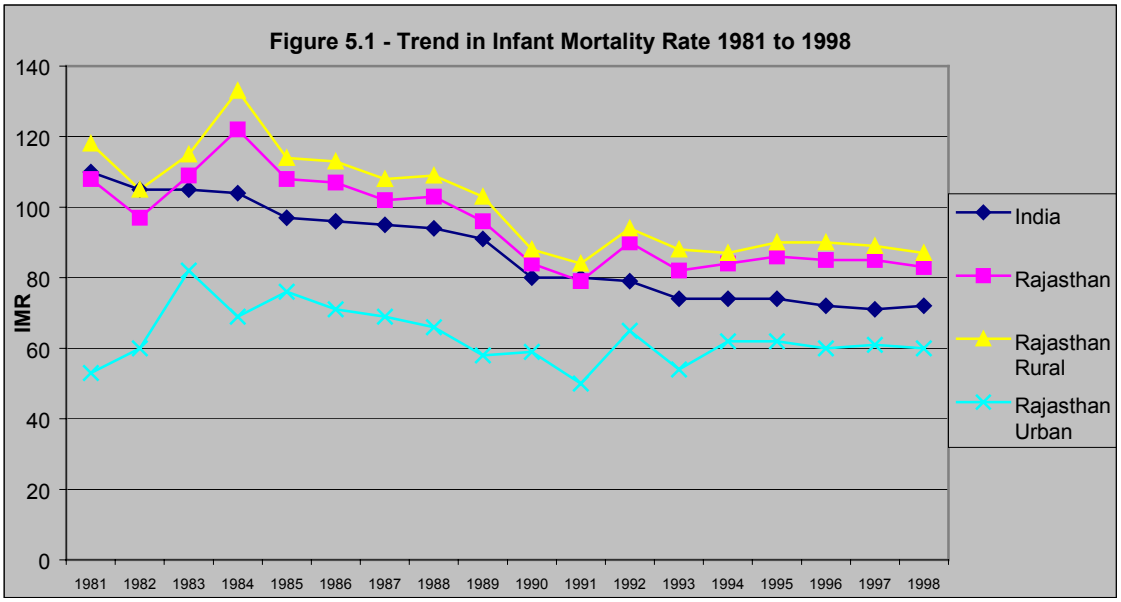
[45] Estimates for 1981 are provided by the Registrar General of India (1994), "Indirect Estimates of Fertility and Mortality at the District Level 1981", Occasional Paper No. 4. Estimates for Life Expectancy in 1991 are derived from the data on fertility provided by the Census of India, 1991. Office of the Registrar general of India has not yet published the official estimated for Life Expectancy for 1991. For further details see *Table 5.2* in the *Statistical Annex*.

The secular trend for life expectancy in Rajasthan is characterised by a gradual deceleration of the rate of improvement, in contrast with states that have maintained, and often increased, their tempo of improvement. Between 1951-61, Rajasthan was clustered with Kerala and Punjab at the top of the inter-state rankings in terms of life expectancy. Subsequently, by the 1990s, Rajasthan finds itself clustered with states like Bihar, Madhya Pradesh and Uttar Pradesh, at the bottom of the inter-state comparison. This slowing down of trends in longevity in Rajasthan (and in many of its districts) can be corroborated with an examination of similar trends in other vital rates such as mortality figures and fertility ratios.

2.2 Infant and Child Mortality

Infant and child mortality are among the most graphic indicators of health status, as they capture the denial of life chances to new-born babies and children, the most vulnerable demographic cohort.

The Sample Registration System (SRS) has estimated that in 1998 infant mortality rate (IMR) was 83 per thousand live births in Rajasthan (87 in rural areas and 60 in urban areas), while it was 72 at the national level (77 and 45 in rural and urban areas respectively). Although Rajasthan continued to have a higher IMR than India as a whole, it registered a significant improvement in comparison to 1981 (when the IMR was 108). This was primarily due to a decline in rural IMR that (in contrast to the increase from 53 to 60 recorded in urban areas) dropped from 118 to 87. Further, this resulted from a continuous decline between 1981 and 1989/90, followed by a static situation in the 1990s due to a marginal decline in rural areas and a slight increase or at best a status quo in urban rates (Figure 5.1).



Neonatal death rates are quite high in Rajasthan. SRS estimates for neonatal mortality (infant death within the first month) show that neonatal deaths account for nearly two-third of infant deaths (Table 5.2). Between 1991 and 1996 the neonatal mortality rate increased in Rajathan from 48 to 56, while in India and Kerala this rate had decreased. Given the fact that neonatal deaths form the bulk of Rajasthan's IMR and that their level has increased, health sector strategies in the state need to focus more strongly on preventing infant deaths through better post-partum care and improving awareness.

Table 5.2: Child, Infant and Neo Natal Mortality Rates, 1991 and 1996									
Indicators	**Rajasthan**			**Kerala**			**India**		
	Total	**Rural**	**Urban**	**Total**	**Rural**	**Urban**	**Total**	**Rural**	**Urban**
Infant Mortality Rate, 1991	79	84	50	16	17	16	80	87	53
Neo natal Mortality Rate, 1991	48	52	29	11	12	10	51	55	32
NND as % of IMR, 1991	61%	62%	58%	69%	71%	63%	64%	63%	60%
Infant Mortality Rate, 1996	85	90	60	14	13	16	72	77	46
Neo natal Mortality Rate, 1996	56	59	37	10	10	10	47	50	28
NND as % of IMR, 1996	66%	66%	62%	71%	77%	63%	65%	65%	61%
Early neo-natal mortality rate, 1996	44	46	30	8	8	8	35	37	23
Late neo-natal mortality rate, 1996	13	14	7	3	3	2	12	13	5
Post neo-natal mortality rate, 1996	29	30	23	3	2	6	25	27	17
Peri natal mortality rate, 1996	49	52	35	17	17	19	44	46	32
Child (from age 1 to 5 years) Mortality Rate, 1996	31	34	20	4	4	4	24	26	14
Still Birth rate, 1996	6	6	5	10	9	11	9	9	9
Note: NND : Neo natal Deaths Source: "Sample Registration System, Fertility and Mortality indicators, 1991", and "Sample Registration System, Statistical Report, 1996", Registrar General of India, New Delhi.									

In 1996 child mortality (age one to five) was higher in Rajasthan (31 for the entire state, 34 and 20 for rural and urban areas respectively) than across the nation (24; 26 for rural India and 14 for urban India). The highest percentage difference between the state and the nation in respect to infant and child mortality rates was recorded by child mortality rates (29 percent; 31 percent in rural areas and 43 percent in urban areas).[46]

According to the Census estimates, between 1981 and 1991 Rajasthan recorded a decrease in IMR of 38 percent (from 141 to 87), which was higher than that the national average (33 percent). Rajasthan's performance in terms of decline in female IMR was again better (41.5 percent) than that for India as a whole (26.9 percent). On the other hand, while the rate of decline in IMR in Rajasthan was higher than that for India, the absolute levels of IMR in the state were unacceptably high.

The districts that register comparatively higher progress in decline in infant mortality between 1981 and 1991 had relatively lower differentials in the rate of decline between male and female IMR. The gender gap in the decline in IMR was 81 percent in Ganganagar, 83 percent in Jhunjhunu, 63 percent in Sawai Madhopur, 125 percent in Dholpur (part of Bharatpurin 1981), 85 percent in Jaipur, and 122 percent in Sikar. The same female to male differential in decline in IMR for the districts west of Aravali and in the arid areas was 47 percent for Jaisalmer, 38 percent for Churu, 64 percent for Bikaner, and 33 percent for Barmer. The differential for Rajasthan as a whole was 116 percent. The infant mortality of the girl child has been critical to overall progress in the decade 1981-91, and wherever the gender gap in the rates of IMR decline was high, the overall IMR was also poor.

[46] Neo natal infant mortality rate and infant mortality rate were respectively 19 and 18 percent higher than the national figure.

In 1991 district wise child mortality (from birth to age 5 years) was lowest in Ganganagar (73), Sikar (78), Jhunjhunu (80), Bikaner (82) and Churu (83). As in the case of infant mortality, districts in the western desert sub-region had lower child mortality rates than other districts of the state. At the other end of the spectrum there were districts of the southern and eastern sub-regions. These were Pali (156), Dholpur (150), Tonk (149), Chittorgarh (149), Banswara (148), Bhilwara (143), Dungarpur (140), Kota (140) and Sirohi (139).

Male-female differentials in child mortality are high in many parts of Rajasthan. In 1991 female child mortality was 142 percent of that of male child in Sawai Madhopur, 132 percent in Bharatpur, 129 percent in Dholpur, 124 percent in Pali and 121 percent in Jhunjhunu. In most of the districts, with the exception of Banswara, Bhilwara, Dungarpur, Chittorgarh and Ajmer, female child mortality was higher than male child mortality. These five districts also had a favourable female to male sex ratio than the state as a whole, and a significant tribal population (Table 5.3), with the exception of Ajmer district.

Table 5.3: Gender wise Child Mortality Differentials

	District	Female q5/ Male q5	Gender Ratio	ST Population to Population
1	Banswara	98.7%	969	73.5%
2	Bhilwara	98.6%	945	9.0%
3	Dungarpur	98.6%	995	65.8%
4	Chittorgarh	96.0%	950	20.3%
5	Ajmer	92.5%	918	2.3%
	Rajasthan	113.6%	910	12.4%

Source : Registrar General of India (1997), "District Level Estimates of Fertility and Child Mortality for 1991", Occasional paper 1, Government of India, New Delhi

Child mortality estimates provide a confirmation of the dismal picture presented by infant mortality rates in the state, even as there was some improvement between the 1980s and 1990s, in part due to the successful investment in programmes of child survival and safe motherhood (CSSM) or reproductive and child health (RCH).

The sharp inter-district and regional variations in vital rates indicate that the health system has performed with varying degrees of efficacy within the state, and that overall it has performed poorly as compared to other states and India. In order to understand the reasons for this lag in Rajasthan, it is necessary to appraise the institutional mechanism of public health in the state.

3 Evolution of the Health System

Since Independence state governments have the responsibility for implementation of health programmes, as health is a state subject. Initially the emphasis was on the creation of health infrastructure, including medical education and training, while thereafter it has been on the expansion of this system, based on periodically revised norms of coverage.

The history of health care in modern Rajasthan is marked by a curious paradox. The more scientific indigenous systems of medicine (Aurvedic, Unani, Siddha and naturopathic) were marginalised by the government's stress on institutional and hospital-centred service delivery, which by its very nature was distant from the community. "Access" itself became problematic, especially for women, *dalits* and those residing in remote regions. The inability of the "modern" system to reach the unreached meant that the less scientific and often grossly unhygienic and unsafe local quacks continued to be the sole source of health care for the poor in Rajasthan.

An appraisal of the genesis and development of health planning in Rajasthan shows that the spotlight has remained on allopathy, administered by curative facilities ranging from the Primary Health Centre (PHC) to the General Hospital, with a more recent focus on preventive and social medicine (PSM). The end result is a departmental system where health delivery is the responsibility of a massive health bureaucracy, which is difficult to manage and support financially in the context of the resource crunch facing the state government.

During the last few decades, the medical and health infrastructure has expanded considerably in Rajasthan, particularly in the rural areas (Table 5.4).

Table 5.4 : Growth in Medical Institutions

Year	**No. of Institutions**				
	Hospitals/ Dispensaries	PHC	CHC	Sub Centre	Mother and Child Welfare
1950	390				28
1960	479	117			61
1979	901	232	18	2148	104
1984	989	441	76	3790	111
1989	685	1048	185	8000	117
1994	487	1228	242	8000	118
1995	487	1596		8000	118
1998	487	1662	263	9851	118

Source: Government of Rajasthan (1996), "Paper on Economic Development in Rajasthan, 1996", Planning Department, Jaipur; Government of Rajasthan (1996) "Statistical Abstract Rajasthan 1996", p. 74, Directorate of Economics and Statistics, Jaipur; Government of Rajasthan (1999), "Economic Review of Rajasthan 1998", Directorate of Economics and Statistics, Jaipur (also available on www.rajasthan.net)

This expansion created its own imperatives for focussing on policy and designing issues in health, in the light of persistently poor outcomes in health and family welfare. During the 1970s it was felt that the country's health strategy needed to be defined through a policy statement. This led to the formulation of the National Health Policy by the Government of India in 1982. The aim was to achieve "Health for All" by 2000, in accordance with the Alma Ata Declaration of 1978.

The National Health Policy reached out to the marginalised communities and groups who were not benefiting from the formal system of health care, improved living conditions that affected health, and transferred control of health services to the communities. Rajasthan adopted the National Health Policy in 1983 and undertook the task of operationalising primary health care in the entire state. The current priorities and focus of the state can be ascertained from the following excerpts from the "Approach to the Ninth Five Year Plan 1997-2002", of the State Government.

"In the Ninth Plan, the thrust will be on preventive and promotional services, along with health education to the people. The emphasis has to be on:

- Correcting the imbalance
- Improving delivery of services by upgradation of physical facilities, manpower, equipment, etc.
- Decentralised approach for planning and implementation of the family welfare programme should be continued with greater vigour.
- With the thrust on basic health services or primary health care and on rural areas, the secondary level institutions have not received due attention. All district and sub-divisional level hospitals should be developed so as to provide proper referral and clinical care.
- Human resource development has been a neglected area, especially for field staff and para-workers. Manpower development and management policy should be concretised to lay down the roles and responsibilities, accountability, upgradation of skills, better management and supervision.
- A holistic view of reproductive health should be taken, incorporating the perspective of women's health. There is need to reorganise and restructure family welfare services to help women to raise their health and social status.
- The cost of health care is very high due to advances in medical sciences and technology and rising cost structure. Possibility of involvement of private sector should be explored and encouraged for providing speciality and diagnostic services.
- A sense of commitment and performance has to be generated among the medical and health personnel, so as to improve the delivery of services."[47]

The vision of health for all in Rajasthan, as laid out in the Ninth Plan Approach paper, is based upon an appreciation of the need for reforming health services in the state, consistent with the Health Policy Statement of 1982. The provisioning of health services has to be evaluated in the light of this policy commitment.

4 Trends in Health Infrastructure

The 1980s saw considerable expansion of governmental health infrastructure in rural areas, as a result of which a four-tiered rural health system was established in Rajasthan (Table 5.5).

Table 5.5 – Tiered Structure of the Rural Health System of Rajasthan

TIER	PERSONNEL	FUNCTIONS
TIER 1 – Health Sub Centre	A pair of male and female Multipurpose Workers	Each caters to approximately 4-5 villages. They provide basic health care, maternal and child health services including family planning. Also undertake simple sanitation and health education tasks
TIER 2 – Primary Health Centre (PHC)	Two-three doctors and around ten paramedical staff.	Supervise six sub-health Centres. Supervise community health outreach work. Offer general medical and simple surgical services.
TIER 3 – Community Health Centre (CHC), introduced in 1985	Four medical officers supported by paramedical staff, 30 beds and complete diagnostic laboratory	Serve 1,00,000 people. Provide specialist medical, paediatric, obstetric and surgical services.

[47] Government of Rajasthan (undated) , "Approach to Ninth Five Year Plan 1997 – 2002", Planning Department, p. 45, Jaipur.

	and pharmacy facilities.	
TIER 4 – Block/ tehsil and District Hospitals	Fully qualified and skilled Medical Officers and health personnel.	Provide specialist medical, paediatric, obstetric and surgical services on a large scale. Other specialities are also included as required from time to time.

In Rajasthan, between 1988-99 and 1991-92, there was a substantial increase in the number of primary health centres (from 611 to 1662) and hospitals - including centres for heath care (from 189 to 214), while the number of dispensaries declined (from 710 to 268). The number of people to be covered by each primary health centre (PHC) decreased over the years, but the depth in coverage increased sharply (Table 5.6). This was the result of adopting a primary health care approach for the achievement of "Health for All".

Table 5.6 : Growth in modern medical institutions in Rajasthan

Year	Hospital	CHC	Dispensary	Mother and Child Welfare Centre	Primary Health Centres		Aid Post	Sub Centre		Total Institutions
					Nos	Per Rural Population		Nos	Per Rural Population	
1988-89	189	86	710	116	611	51335	280	4792	6545	6698
1989-90	208	193	477	117	1059	30199	279	8000	3998	10143
1990-91	207	200	271	118	1323	24647	13	8000	4076	9932
1991-92	214	216	275	118	1373	24719	13	8000	4242	9993
1992-93	218	231	283	118	1413	24518	13	8000	4330	10045
1993-94	218	n.a.	283	118	1453	24360	13	8000	4424	10085
1994-95	218	n.a.	273	118	1507	23993	13	8000	4520	10129
1995-96	219	n.a.	278	118	1596	23140	13	8700	4245	10924
1998	219	263	268	118	1662	23656	13	9851	3991	12394

Note: n.a. : not available
Source: Government of Rajasthan, "Statistical Abstract Rajasthan" 1994 and 1996, and Government of Rajasthan (1999), "Economic Review 1998-99", Directorate of Economics and Statistics, Jaipur

In this period sub-health centres were introduced, and their coverage improved from over 6000 in 1988-89 to four and a half thousand in 1990s. However, the norm of six sub-health centres for every primary health centre has not yet been achieved in Rajasthan. Moreover, the number of Community Health Centre (CHCs) is still not adequate, and existing facilities cover populations much larger than the norm.

In effect, with the rate of population growth of Rajasthan, the system has been running simply to keep pace with existing levels of coverage. The quality of services provided by government medical institutions is poor, especially in rural areas. Workers are often not competent or willing to perform necessary tasks, and the state of equipment, as well as availability of supplies, are usually poor. The health centres are consequently inefficient and inspire little confidence. The National Sample Survey on Medical Services in 1986/87 found that only 6.2 percent of rural population seeking medical care service went to the primary health centre, while 38 percent of people went to public hospitals, and 27 percent went to private doctors.

In the rural health centres, especially in the primary health centres, there are two major problems concerning the doctors and the supporting medical staff posted there. Firstly, the number of doctors

and supporting medical staff is less than what the norms suggest, problem that is further compounded by delays in filling up vacancies in health centres. Secondly, there is a very high absenteeism. In 1996-97 the shortfall in medical officers (doctors) was 20 percent, in male nurse grade II (26.4 percent), in lab technicians (16 percent), nurses and midwives (36 percent).[48]

Community health centres are critical for providing referral services in rural areas. As per the norms of population of 1991, there should have been 340 CHCs in the state, but even till date there are only 263 centres. Within the primary health centres and community health centres, the condition of facilities and machines leaves much to be desired. The budget constraints of the health system pose a great challenge to the maintenance of facilities. For the financial years 1993-94, 1994-95, and 1995-96, there was no provision in the state budget for expenditure on maintenance of rural health centres. [49]

The 1994-95 NSS data on morbidity indicate that, as far as ailments receiving non-hospitalised treatment are concerned, people prefer private providers (54 percent in rural areas and 50 percent in urban areas) or other non-government sources. Government health providers are preferred for 36 percent of ailments in rural areas and 41 percent in urban areas.[50] Since 1986-87 there has also been a decline in preference for government health providers, when the rural preference was 46 percent and urban was 52 percent. However, in case of hospitalisation government/ public hospitals are preferred over private hospitals. Of the people hospitalised in rural Rajasthan, 65 percent were treated in a government hospital, while for urban Rajasthan this figure was 73 percent.

There is considerable urban bias in health facilities and health expenditure as confirmed by the expenditure on urban and rural health services in the state budgets for the years 1993/94, 1994/95 and 1995/96 (Table 5.7). This bias is reinforced as expenditure in urban medical institutions helps also residents of rural areas, who also visit and access urban medical institutions. This is due to the fact that rural health facilities are not of the same capability and facility as urban, on which there is a very high pressure. Thus, there is a need for directing greater investments towards this critical area.

Table 5.7: Expenditure by State Government on Medical and Health Services in Urban and Rural Area

Expenditure Head	1993/94	1994/95	1995/96
Urban Health Services	43.27 %	43.38 %	42.27 %
Rural Health Services	33.52 %	34.49 %	34.11 %
Medical Research and Education	10.13 %	9.67 %	9.38 %
Public Health	13.08 %	12.46 %	14.24 %
Actual Expenditure (in lakh rupees)	30,793.35	35865.62	40,766.10

Source : RK Jain, KB Garg and Vandana Mishra (1997), "Medical and Health Programmes in Rajasthan (1993-96) A Budget Analysis of the Plans and Performance", p. 13, Bal Rashmi Society Publication, Jaipur.

[48] RK Jain, KB Garg and Vandana Mishra (1997), "Medical and health Programmes in Rajasthan (1993-96) A Budget Analysis of the Plans and Performance", p. 61, Bal Rashmi Society Publication, Jaipur.
[49] RK Jain, KB Garg and Vandana Mishra (1997), p. 28.
[50] National Sample Survey Organisation (1998), "Morbidity and Treatment of Ailments", 52nd Round, 1995-96, Government of India, November.

Moreover, the overall outlay on health remains static, in terms of share in total budgetary allocation. The analysis of stagnating public investment in health needs to be supplemented with an appraisal of the fast-growing private health sector.

In Rajasthan the private health sector, which is profit oriented, caters to more than half of the curative health care needs in the state, leaving the state government to carry out almost exclusively preventive health care, maternal and child health (MCH) and promotional services. In the 1980s, with the decline in the quality of public health system and the surge in population, there was a steep increase in the number of private health practitioners in rural and urban areas.

While the better-off patronise private services almost exclusively, the poor are also now accessing private health services in many instances. Across rural Rajasthan, not just fully qualified medical doctors, but even the registered medical practitioners provide substantial medical care to people. Villagers find it easier to avail of their advice. Most such practitioners also provide basic technical services such as injections, drips, minor operations and so on.

Private medical facilities and private medical service providers (for example private nursing homes, wayside hospitals, quacks) are in the "twilight zone" of health regulation. Untrammelled by any specific regulation or policy directive, the growth and operations of private health providers are outside the purview of any quality benchmark, patients' rights, standards control mechanisms etc. This is a gap that directly bears upon basic consumer and human rights of the people availing of these services. The argument is not that private medical institutions do not give quality care, but that there is a need for a regulatory and promotional environment, which is required for any public service.

There is generally a gap between public and private goals, which must be aligned with the needs of the society if the goal 'Health for All' has to be achieved through the combined efforts of the public and private sectors. This would also require investment in interventions directly addressing the vector-borne "killer" diseases afflicting Rajasthan. Respiratory ailments as well as diseases such as diarrhoea, fluorosis, guineaworm, and silicosis result, among other factors, from poor sanitation, water contamination and air pollution. These are important thrust areas for disease control interventions in Rajasthan where health problems of women and children, especially expectant mothers and girl children, need to be tackled on a war footing.

The analysis of the current situation with regard to some of these diseases can provide a benchmark for future health interventions.

5 Respiratory Diseases

Respiratory illness is the largest cause of death in Rajasthan. In 1993, according to the National Family Health Survey, Rajasthan contributed 3 percent of all cases and 7 percent of deaths due to acute respiratory diseases (ARI) amongst children under the age of five years in the country. This figure excludes cases and deaths by pneumonia. According to the National Family Health Survey, majority of children suffering from ARI symptoms are taken to health facilities or receive some kind of treatment. However, there remains a significant percentage, approximately 19 percent, who do not receive any treatment and 16 percent are given home remedies.

In Rajasthan malaria, tuberculosis and diseases of the respiratory tract cause the highest number of deaths. Asphyxiation from indoor air pollution accounts for a significant proportion of respiratory illness. The fuel used for cooking is one factor to consider among the possible causes of such a high

incidence of respiratory tract diseases. In fact most of the households (86 percent in urban areas and 97 percent in rural areas) use cow dung cakes or wood as primary fuel for cooking.

Rural areas show a higher prevalence of the respiratory diseases than urban areas. Conditions of dust, lack of proper sanitation and widespread activities in mining and quarrying and related industries (viz. stone polishing, stone cutting etc.) contribute to the prevalence of acute respiratory tract infections (ARI) related ailments. In rural areas of Rajasthan in 1995 the major causes of death were bronchitis and asthma (14.7 percent), pneumonia (10.6 percent; 32 percent for children in the age group 1-4 and 28.2 for infants), and TB of lungs (9.6 percent). The incidence of these diseases in the state is higher than at the national level (Table 5.8).

Table 5.8: Percentage of Deaths to Reported Total Deaths (excluding senility) in 1995 – Rural

Disease	**Rajasthan**	**India**	**Disease**	**Rajasthan**	**India**
Population			**Females in reproductive age**		
Bronchitis and Asthma	14.7	11.6	Suicide	7.6	8.5
Heart Attack	5.7	8.2	TB of Lungs	11.0	8.5
TB of Lungs	9.6	6.2	Burns	4.7	7.2
Pneumonia	10.6	5.7	Cancer	4.2	5.3
Cancer	4.0	4.9	Heart Attack	2.5	4.8
Paralysis	2.4	3.8	Bronchitis and Asthma	6.4	4.3
Anaemia	3.5	3.5	Acute Abdomen	3.4	3.8
Vehicular Accidents	4.5	2.8	Jaundice	1.7	3.3
Suicide	1.3	2.5	Malaria	7.2	3.2
			Vehicular Accidents	5.1	3.1
Children (1-4 years) 1994-95			**Children (5-14 years) 1994-95**		
Disease	Rajasthan	India	Disease	Rajasthan	India
Pneumonia	32.0	23.5	Pneumonia	11.9	8.0
Anaemia	8.2	8.5	Drowning	8.4	6.4
Typhoid	20.4	6.2	Vehicular accidents	7.0	5.0
Influenza	2.7	3.1	Jaundice	2.8	5.0
Dysentery	0.7	5.8	Typhoid	11.9	5.0
Gastro-enteritis	6.1	3.7	Acute Abdomen	6.3	4.8
Malaria	0.0	3.1	Malaria	3.5	4.7
Measles	4.8	2.2	Anaemia	7.0	4.5
Jaundice	0.7	3.4	Gastro-enteritis	6.3	4.4
Acute Abdomen	4.8	3.0	Influenza	0.7	4.3
Causes peculiar to Infancy 1995			**Infants**		
Disease	Rajasthan	India	Disease	Rajasthan	India
Pre-maturity	54.4	53.5	Pre-maturity	30.9	35.1
Respiratory Infection of New Born	16.3	17.0	Pneumonia	28.2	17.2
Diarrhoea of New Born	13.9	7.4	Respiratory Infection of New Born	9.2	11.1
Cord Infection	3.3	3.1	Diarrhoea of New Born	7.9	7.4

(including Tetanus)					
Congenital malformation	4.7	3.0	Anaemia	7.4	2.6
Birth Injuries	0	2.0	Cord Infection	1.8	2.0
Not Classifiable	7.4	14.0	Congenital malformation	2.6	1.9
			Measles	2.9	1.8
			Jaundice	0.0	1.6
			Tetanus	2.1	1.4
Source : Registrar General of India, "Survey of Causes of Death (Rural) India Annual Report 1995", New Delhi.					

Tuberculosis continues to be a major health problem in Rajasthan despite the fact that attempts to limit its incidence and spread have been continuing for over four decades. The average annual rate of increment of tuberculosis cases from 1985-86 to 1992-93 was 9.97 percent.[51]

The slow progress in achieving control over the tuberculosis is primarily because of:

- Delay in recognising symptoms and seeking medical help;
- Poor compliance to complete course of drugs;
- Emergence of multi-drug resistant strains of the disease – due in a large measure to discontinuation and repeated resumption of treatment for short periods;
- Malnutrition;
- Socio economic factors like unawareness, poverty, overcrowding, poor housing etc.

Tuberculosis and silicosis are respiratory diseases that affect many people in Rajasthan where nearly two million people are currently working in mines and quarries. In fact, cutting, polishing and carving on stones such as granite, marble soft stone etc, has led to a high incidence of TB amongst workers.

Workers in mines and quarries are high-risk groups, inhaling a large number of minute dust particles (varying in sizes from 0.1micron to 150 microns). The average life of a mineworker is in fact estimated to be between 40 and 50 years.[52] Inhalation and deposition of silica particles in the lungs results in silicosis, which leads to pulmonary fibrosis and premature death. Mine owners are mostly insensitive to the situation and are not very keen on providing safety arrangements to the workers. Lack of awareness and poor nutritional status worsens the situation.

Prevention is the only effective measure to fight against silicosis, as it is not curable. However, as of today no substantial measures of prevention have yet been adopted by mine owners. If not cured in time, the disease is very likely to attain unmanageable proportions.

6 Water borne diseases

Just as indoor air pollution and hazardous air ambience outdoors are responsible for a significant proportion of respiratory diseases, water contamination is the reason for a high case fatality rate and persistent ill-health, especially in the rural areas as well as among children and women. Water borne diseases regularly show up as endemic, causing much suffering and loss of human life especially among children. Examples of such diseases are diarrhoea (bacillary, amoebic and viral), enteric fever,

[51] Rajasthan Voluntary Health Association (1993), "Status of Health in Rajasthan 1993", p. 21, Jaipur
[52] Health for the Millions, Volume 25, No.4.

viral hepatitis etc. Rajasthan contributed 4 percent of the total cases of enteric fever in the country in 1993. In the same year there were 3067 cases of viral hepatitis, of which 105 died. In many parts of the state, high fluoride levels in sources of drinking water cause flurosis, resulting in severe stunting and congenital defects. Awareness regarding the prevention of these diseases in the state is very low, and health services need to rise to the challenge.

Children less than 2 years old are most susceptible to diarrhoea, especially in rural areas. Deaths from diarrhoea are due to acute dehydration, which can be prevented by prompt administration of rehydration solutions. Although the state government launched the Diarrhoea Disease Control Programmeas one of its priority activities for child survival, the use of oral rehydration salt (ORS) is still low in Rajasthan. According to provisional estimates from the second National Family Health Survey (1998/99), only 34 percent of the diarrhoea-effected children in the age group up to 3 years took some form of ORT.

The National Sample Survey 52nd Round found that less than one third (31 percent) rural households in Rajasthan were aware of ORT for severe diarrhoea. Even in the towns and cities of Rajasthan, 29 percent households were not aware of ORT.

Deficiencies in environmental sanitation are the cause of water-borne diseases, a major contributor to high levels of morbidity and mortality. Thus, the control of these diseases needs to be addressed chiefly through improving sanitation and supply of safe drinking water. Here again, the situation in Rajasthan is quite grim – in 1991 thirty three percent of households (41 percent in the rural areas) did not have access to safe drinking water, toilet facilities and electricity.[53]

According to the National Sample Survey for 1995-96, 28 percent rural households had access to tap water, and another 35 percent of rural households obtained drinking water from hand pumps or tube wells (Table 5.9). Thus 63 percent rural households had access to relatively safe sources of drinking water in Rajasthan by the year 1996, when the NSS survey was undertaken. The percentage of rural households with no toilet facilities in 1996 in the same survey was 85 percent, and 57 percent households had no drainage while another 32 percent had only kuccha drainage. This showed that the the level of cleanliness and sanitation in rural Rajasthan still needs further facilities to reach satisfactory levels.

Table 5.9: Drinking water, latrine and drainage by residence in Rajasthan

Source of Drinking Water	Rural	Urban	All
Tap	28.4	83.8	41.4
Tube well/ hand pump	34.6	10.4	29.0
Tanker	0.3	0.6	0.4
Pucca Well	26.1	2.5	20.5
Tank/ Pond reserved for drinking	5.3	0.3	4.1
River/ Canal	3.1	0.0	2.4
Other	1.7	2.3	1.8
Type of Latrine			
No latrine	85.2	25.3	71.2
Service latrine	2.0	6.3	3.0
Septic Tank	5.8	42.5	14.4

[53] Census of India 1991, HH (Household Tables), Rajasthan Series, Registrar General of India

Flush System	0.2	18.7	4.5
Others	6.8	7.1	6.8
Drainage			
No Drainage	57.1	15.1	47.2
Open Kuccha	31.9	13.2	27.5
Open Pucca	7.6	48.6	17.2
Covered Pucca	2.5	17.4	6.0
Underground	0.8	5.7	2.0
Source: NSSO (1998), "Report No 445, Maternal and Child Health Care in India", NSS 52nd Round, July 1995- June 1996, December, New Delhi.			

The places of defecation or toilet locations are also unsanitary and lead to water borne diseases. Most of the households (85 percent) in rural Rajasthan use no latrine. In urban areas 25 percent of people do not have access to latrines, while 43 percent do have a septic tank for toilet, which however leaves much to be desired in terms of general quality and cleanliness.

Lack of good drainage is another possible source contributing to water borne diseases. In 1995-96 the majority of households (57 percent) in rural areas of Rajasthan and 15 percent of households in urban areas had no drainage facility. Further, 32 percent and 13 percent of the households, in rural and urban areas respectively, had only open *kutcha* drainage, a rather inefficient medium that is responsible for widespread clogged, overflowing and broken drains.

In the light of the close linkage between people's health and the status of sanitation, it is imperative to co-ordinate investment and reform in health and the water and sanitation sector, with a strong emphasis on community participation and decentralised management.

7 Women and Health

According to the 2001 Census, Rajasthan has a sex ratio of 922, with the district of Dungarpur recording the highest value (1027) and Jaisalmer the lowest value (821). Since the 1901 Census Rajasthan has recorded a lower sex ratio than that of India although the gap between the two has reduced over the years, with its lowest level being 11 in 2001.

Over the last few decades, women's health in Rajasthan has shown a definite improvement. Life expectancies in women have risen and maternal mortality rates have declined. There has been an emphasis on provision of maternal health services leading to increase in accessibility of such services, especially to women in urban areas. Attempts to introduce safe motherhood initiatives have also been gaining ground in the country and the state. Female literacy, which is an important determinant of women's health, has seen innumerable initiatives towards improvement.

While such positive developments indicate progress over the last few years, there is a growing need to ensure that the benefits are spread more widely. Male-female differentials in most health indicators are high, showing that women's lives are more at risk in terms of persistent ill-health and death. A change in perspective needs to be worked out, so that specific strategies and interventions can be developed as an answer to the problems faced by women not just in their reproductive years but throughout their lives. Therefore a life span approach has been adopted in order to identify the specifics and the general problems related to her health or the lack of it. Health problems and discrimination that begins in

childhood and adolescence affect the health status of women during their reproductive years (thus determining the health of their children) and continues thereafter.

In the state young girls enter the reproductive phase of their lives as victims of under-nourishment, anaemia and fatigue. Their health risks increase with early marriages, frequent pregnancies, unsafe abortions and sexually transmitted diseases. Choices regarding marriage, childbearing and contraception are denied to women. Lack of access to functional reproductive health services contributes to high maternal mortality. Most deliveries are still carried out by untrained birth attendants especially in the rural areas where there is no effective system of referral or management in case complications arise. Though there has been widespread increase of infrastructure services in the state during the past decades, access to these facilities is still varied resulting in very slow change in the mortality rates.

7.1 Reproductive Health

"Reproductive health is a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity, in all matters relating to the reproductive system and its functions and processes."[54] The level of awareness of women regarding reproductive health and problems related to it continues to be abysmally low in Rajasthan.

In spite of the 'high priority' immunisation programme, which includes awareness building, according to estimates from the NSS 52nd Round, in 1996 only half of rural women were aware of the need for immunisation during pregnancy (tetanus vaccination). In terms of actually receiving anti-tetanus vaccination, nearly two thirds of pregnant rural women and 60 percent of all pregnant women were not vaccinated.

Pre natal medical care is critical for health of the mother and the infant. The number of pregnant women registered for pre-natal care was just 27 percent in Rajasthan (Table 5.10). Amongst them, a little more than half went for pre-natal care as a routine care. This signals that only 11 percent of all pregnant women aged 15-49 years in rural and 35 percent in urban areas actually sought pre-natal care as a "routine" care. Despite substantial investment in their training and employment, Auxiliary Nurse Midwives (ANMs) were able to influence only 10 percent of all rural pregnant women to seek ante-natal care. Even if we take the pregnant women who did not go as a routine care, ANMs were able to influence 12 percent women in rural and 5 percent in urban areas.

Table 5.10: Pregnant women registered for pre-natal care (15-49 years), times attended and reason for attendance

Rajasthan	**Pregnant women registered for pre-natal care (15-49 years), times attended and reason for attendance**					
	Pregnant Women Registered for Pre-natal care	Average Times Attended	Reason for Seeking pre-natal care			
			Routine pre-natal care	Felt ill	ANM/ LHV advised	Other
Rural	23.7	4.2	45.4	7.0	43.6	1.8
Urban	44.3	3.9	80.2	1.1	7.6	9.5
All	27.0	4.1	54.5	5.4	34.1	3.9

[54] Regional Health Report 1998, Focus on Women, World Health Organisation, South East Asia Region

India	45.5	4.4	66.6	6.8	20.9	4.1
Source: NSSO (1998), "Report No 445, Maternal and Child Health Care in India", NSS 52nd Round, July 1995- June 1996, December, New Delhi.						

Data from the National Sample Survey and the Sample Registration System paint a worrying picture of lack of proper medical attendance during childbirth in Rajasthan, especially in rural areas. The NSS 52nd Round found that 51 percent rural mothers received no attention in childbirth. SRS gives a comparative picture of live births by type of medical attention for 1991 and 1996.

Between 1991 and 1996, there has been only a small increase both in institutional deliveries (from 5 to 7.8 percent), and in deliveries attended by trained professionals (from 19 to 26 percent). Further, two thirds of all births took place without the benefit of modern medical practices and safe delivery techniques (Table 5.11).

Table 5.11: Percentage Distribution of Live Births by Type of Medical Attention Received by Mother at Delivery, 1991 and 1996

Live Births	Institutional			Attended by Trained Professionals (Doctor, Nurse or Trained Midwife)			Attended by Untrained Professional and others (Traditional Birth Attendants, Relatives or others)		
	Total	Rural	Urban	Total	Rural	Urban	Total	Rural	Urban
Rajasthan 1991	5.0%	2.6%	16.8%	19.4%	16.7%	33.0%	75.7%	80.6%	50.2%
Rajasthan 1996	7.8%	4.3%	28.7%	25.9%	23.6%	40.3%	66.3%	72.1%	31.0%
India 1991	24.3%	17.6%	53.8%	21.9%	20.8%	26.9%	53.7%	61.5%	19.2%
India 1996	25.2%	17.7%	59.5%	28.5%	27.9%	31.1%	46.3%	54.5%	9.4%
Source: NSSO (1998), "Report No 445, Maternal and Child Health Care in India", NSS 52nd Round, July 1995- June 1996, December, New Delhi.									

The second National Family Health Survey estimates, for the year 1998/99 indicate that non institutional deliveries still constitute 77 percent of all deliveries, and that 64 percent deliveries had no trained medical or para medical person in attendance. The preliminary report further states that "delivery in institutions is more common among urban women, more educated women, younger women and women having lower-order births".[55] Clearly access to functional reproductive health services is biased in favour of those groups who already have a comparatively higher level of human development. If access by the poor, especially in rural areas is to be feasible, it would be necessary to provide more training to the health para-workers (who are mostly women), as well as traditional midwives. This must be reinforced by increased investment in capacity building of rural health institutions, at the cutting edge of population and fertility control.

7.2 Fertility, Family Planning and Contraception

In the 1980s Rajasthan has the distinction of recording the highest growth in population, while in the 1990s the Total Fertility Rate (TFR) and the General Fertility Rate (GFR) were among the highest in the country (Table 5.12).

[55] Centre for Operations Research and Training Vadodara, and International Institute of Population Science (1999), "Rajasthan : Preliminary Report, National Family Health Survey 1998-99", p. 25, August, Mumbai.

Table 5.12: Fertility Indicators for Rajasthan					
Indicator	Year	Rajasthan			India
		All	Rural	Urban	
Crude Birth Rate	1997	32.1	33.7	25.1	27.2
General Fertility Rate	1996	139.5	148.9	100.8	112.5
Mean Age of Fertility	1996	27.7	Na	Na	27.1
Total Fertility Rate	1996	4.2	4.5	3.0	3.4
Total Fertility Rate	1998/99	3.73	4.01	2.96	na
Source : Registrar General of India (1999), "SRS Bulletin, April 1999" (data in last row), Government of India and Registrar General of "SRS Statistical Report 1996", New Delhi					

In 1998/99 the second National Family Health Survey estimated that in Rajasthan the Total Fertility Rate was 3.73 (4.01 in rural areas and 2.96 in urban areas). TFR had a very slow rate of decline, a mere 4.8 percentage points in 5 years from 4.6 in 1989-91 to 4.4 in 1994-96, whereas nationally it declined by 7.6 percentage points.

Within the state there are wide variations in total fertility rates and the pace of decline in these rates. In 1991 the highest fertility rates were observed in three belts. The first was in the east and north east of the state, comprising the districts of Alwar, Bharatpur, Dholpur and Sawai Madhopur. The second area was in southern and south eastern Rajasthan, comprising the districts of Kota, Baran, Bundi, Dungarpur and Banswara. The third zone was in west of Aravalis, Jaisalmer, Jodhpur, Barmer and Jalore. It is only in the central part of the state that there were fertility rates below 4.00 and, except for Bhilwara, decline rates above 10 percent.

A district level household survey undertaken in Rajasthan in 1998 , confirms on one hand the census estimates for districts with high TFR, namely Sawai Madhopur, Dholpur, Bharatpur, Jaisalmer and Nagaur, and on the other provide higher estimates for some of the districts. [56]

In the 1950s, family planning became a national programme to curb population growth. Despite several interventions had been put in place, till 1991 Rajasthan had the highest decadal growth rate in population amongst all Indian states, and till the end of the 1990s TFR and GFR estimates continued to be very high. The high level of fertility is a major cause of the poor health status of women and a symptom of persistent patriarchy in the state, where women do not have control over their bodies (Box 5.1). Therefore successful adoption of family planning is crucial for improving women's health and their social status in Rajasthan. Moreover, given that population stabilisation requires attainment of replacement level fertility rate (2.1 per couple), the success of health and family welfare initiatives will have a multiplier effect on the growth of per capita income (which is measured against a population denominator) and growth rates for the economy as a whole.

The most recent estimates on awareness about family planning and practices are provided in the preliminary report of the second National Family Health Survey (NFHS-2). The knowledge of family planning is high in Rajasthan, especially in the urban areas where in 1998/99 99 percent of married women were aware of at least one family planning method. In the rural areas also, the awareness levels

[56] This survey was undertaken under the Reproductive and Child Health Project of the Indian Institute of Health Management Research, Jaipur.

were high (98.5 percent). However, only 47 percent of married women had used family planning methods at least once, and 40 percent were continuing to use some method of contraception. There is a marked difference between contraceptive use in urban and rural areas, and a positive correlation between levels of literacy and contraceptive use. The proportion of illiterate women using contraception is lower (35 percent) than those who have received education (above 45 percent). While 50 percent urban married women were using contraception, only 37 percent were doing so in rural areas.

Female sterilisation, a terminal methods of birth control, continue to be the most common method of family planning and in 1998/99 was used by 31 percent of married women. With regard to semi-permanent methods, the public sector is the largest provider of contraceptives, both due to large institutional network and high subsidies. Seven percent of current users purchase contraceptives from private sector medical institutions, and four percent from a shop, as against the 86 percent that source it from the Government and Municipal hospitals.

The National Family Health Survey for Rajasthan also indicates that despite increasing contraceptive prevalence rates, there is still a considerable female population (20 percent) with unmet needs of family planning. As there is also a growing need for spacing of births, there is a high potential for increased contraceptive use as women indicated that they would like to have fewer children, on an average one child less than they already have.

The Directorate of Medical Health and Family Welfare, Government of Rajasthan estimated that in 1995 the couple protection rate in the state was nearly 30 percent of eligible couples, registering an increase of nearly 7 percentage points over ten years. [57] This translates into an extremely slow annual improvement in family welfare practices in Rajasthan. Increased attention to raising awareness and encouraging semi-permanent methods such as condom use will not only improve the fertility parameters but also facilitate better sexual health and prepare the ground for fighting the menace of HIV/AIDS.

8 HIV/ AIDS: A Latent Threat

While data on sexual health, especially with diseases marked by social opprobrium and threat of physical exclusion and isolation is poor and incomplete, sentinel surveillance data on percentage of HIV positive cases in STD and Antenatal clinics indicates that the onslaught of HIV/ AIDS is a serious challenge for Rajasthan. Till 1997, 1835 cases of HIV positive have been found in the state. With national highways passing through the state and a large tourist population visiting the state, there are danger signals in the AIDS spectrum, as these are also the major nodes for prostitution, including children and male sex workers. In major tourist destinations such as Jaisalmer and Ajmer, the number of AIDS reported cases has increased over the years.

It is imperative to develop a more accurate reporting mechanism for HIV/AIDS, generate greater awareness of HIV/AIDS and the need for better sexual health, as well as monitor high-risk groups such as truckers, commercial sex workers and transient groups. Under the leadership of the National AIDS Control Organisation (NACO), government programmes for AIDS now focus on AIDS prevention through education, advocacy and capacity building of state level initiatives and partner NGOs. The health strategy of the state should now mainstream HIV/AIDS into its health IEC initiatives, especially for high-risk groups and zones.

[57] Government of Rajasthan (1996), "Statistical Abstract Rajasthan 1996", p. 63, Directorate of Economics and Statistics, Jaipur.

9 Issues in Health Care

The availability and access of medical services across Rajasthan and the array of health centres is fairly impressive. There are also various schemes addressing basic health, care of the child and the mother, as well as associated programmes of sanitation.

Attempts have been made to provide coverage to all parts of the state as per norms established from time to time through national policies and state level guidelines. Apart from the public health infrastructure in the state, there is the burgeoning private sector. Hospitals, dispensaries and nursing homes providing general and specialised medical care have mushroomed, mostly in urban centres.

Despite the growth in infrastructure and increase private sector participation, the health scenario in Rajasthan continues to be quite grim. A World Bank Report[58] points out the paradox between the spread of health infrastructure in India, in accordance with established norms, and the persistence of poor health outcomes. The issues before the health care system in Rajasthan require a careful and sensitive examination, which can help identify option for more effective public action.

9.1 Health and Local Self Government

In the health sector people's control is virtually non-existent, except at the level of the political executive of the State Government. The role of local bodies in the public health sector is largely confined to agency functions in mobilisation campaigns such as the pulse polio campaign, or during disasters and epidemics. Health, especially preventive health, is not yet a priority for panchayats. Further, there is still a large dominance of the traditional elite in panchayats and they do not consider primary health care, drinking water and sanitation as "public goods".

The Government of Rajasthan has embarked on an ambitious programme of strengthening panchayats and on granting them a greater role in governance and public affairs. The linkage between decentralisation strategies and health care has become an important thrust area. However, there are some inherent problems in the interface between panchayats and the health system. These relate to the disjunction in jurisdiction between panchayats and the tiers of the health system, and the locational concentration characteristics of curative health facilities versus the imperative of extending the geographical coverage of preventive health. The contrast between the imperatives of curative and preventive health poses an important challenge for Panchayati Raj in Rajasthan. Further, the technical character of delivery of curative health services does not confirm to the current cultural and capacity mode of panchayats. Therefore, investment in building capacity of local bodies for better health planning and management is essential.

The advantages of increased involvement of Panchayati Raj Institutions in health are:

- A more sustained and mutually beneficial and responsive mechanism of dialogue between people, their representatives and the health providers.
- Demystification of health, building more effective systems of translating and spreading the message of health care (especially preventive) amongst communities.
- Strengthening a representative system that could provide checks and balances for health services.

[58] World Bank (1998), "Reducing Poverty in India; Options for more Effective Public Services", June 29, Washington D.C.

- Ensuring accountability from health personnel through regular attendance and reporting of inventories.

Simultaneously with greater involvement of panchayats in the management of public health, the priorities of the health care system would also need to be placed at the forefront of decentralised planning and implementation. This would enable the panchayats to make informed choices in favour of primary, preventive health care over curative and 'high technology' medicine.

Related closely with the role of panchayats is community involvement in health. In the present scenario, people are passive recipients of health care. The system does not give space for people's involvement and there are no opportunities for people acting as participants and partners in health delivery. The avenues for community role in health are not limited to just quality control. Community institutions (such as panchayats), user groups (e.g. village health committees) and informal associations (*mahila mandal*s) can become effective outreach agents of change in health care.

10 Facing the Challenge

Rajasthan faces a formidable task ahead if it is to meet the goal of "Health for All". Despite improvement in key indicators and the evolution of a large health infrastructure, the state compares poorly with many states in India. The high fatality averages from diseases, for which remedies are readily available, is a matter of serious concern, since it shows that the failure lies with the health delivery mechanism.

Communicable diseases affect the poor far more than they affect the wealthy and better off. The environmental sanitation dimension of health, such as hygiene and access to safe drinking water, affects the prevalence and spread of these diseases. Human poverty is the other major variable. Tuberculosis, pneumonia, malaria, respiratory tract infections are few out of the long list of diseases afflicting the poor. Their spread is helped by unsanitary living conditions, inadequate waste disposal, overflowing drains, polluted water sources, poor ventilation and high levels of indoor air pollution. Respiratory ailments and water-borne diseases lead to loss of working days and therefore depletion of livelihoods. In Rajasthan, once a child crosses the age of five, it is perhaps communicable diseases that remain the toughest challenge. Current efforts against communicable disease do not seem to be either very effective or technologically and managerially inadequate.

Health cannot be looked in isolation from other dimensions of human development. Women's literacy, cleaner environment, better living conditions, safer society, more sustainable livelihoods and better income standards are all required for ensuring good health. As Kerala has shown, the battle against disease can be won not just by medicine, but also through public action on related fronts of gender equity and decentralisation of development responsibility.

In the light of the analysis thus far, some critical areas of intervention in the coming years are:

- Immunisation of children, along with better ante-natal care.
- Health of the mother, including immunisation, nutrition and post delivery care.
- Control of communicable diseases.
- Increased focus of investments in health on primary rural health care, levying of user charges for urban health services and a system of health insurance for the poor.
- Greater rationality in resource allocations, based upon disaggregated outcome data, at the district level and below, with greater priority to mainstreaming of gender in the health databases.

The current health challenges for Rajasthan can be summarised as healthcare for infants and children; reproductive health and antenatal and postnatal care of the mother; diseases associated with poverty; and poor sanitation. The burden of disease imposed upon women by patriarchal culture (including adolescent girls subjected to child marriage), must be removed at the earliest, both through programmes of community sensitisation as well as enforcement of women's rights and the writ of law. The stark regional and social disparities, increasing signs of discrimination against women, and the poor condition of health services must be addressed on a priority basis, if the goal of Health for All can be realised.

Annexure-I

STATE HIGHLIGHTS

1. Rajasthan – the largest State in Area (342,239 sq. kms) after formation of Chhatisgarh State from Madhya Pradesh.
2. Its proportion to the total area of the country is 10.41 per cent
3. Its contribution to the total population of the country is 5.50 per cent
4. Ranks 8th in population size amongst States/ UTs of India
5. Marginal change in percentage decadal growth from 28.44 in 1981-91 to 28.33 in 1991-2001 i.e. 0.11 per cent decrease.
6. Ranks 24th in population density amongst States of India.
7. Significant increase in literacy rate from 38.55 percent in 1991 to 61.03 in 2001
8. Ranks 29th in literacy amongst States/ UTs of India
9. Significant increase in sex ratio from 910 in 1991 to 922 in 2001.
10. Highest and lowest population, percentage decadal growth, literacy and sex ratio among the districts of the State are given below :

	Highest	**Lowest**
Population	Jaipur(5,252,388)	Jaisalmer (507,999)
Percentage population decadal growth	Jaisalmer (47.45)	Rajsamand (19.88)
Literacy	Kota (74.45)	Banswara (44.22)
Sex – ratio	Dungarpur (1,027)	Jaisalmer (821)

11. No. of UAs/ Cities Towns by size class in the State:

Class I	(100,000 & above)	- 20
Class II	(50,000 –99,999)	- 26
Class III	(20,000-49,999) - 90	
Class IV	(10,000-19,999) - 59	
Class V	(5,000-9,999)	- 17
Class VI	(Less than 5,000)	- 4

12. City with million plus - Jaipur (2,324,319)

Annexure-II

CENSUS OF INDIA : 2001

FIGURES AT A GLANCE RAJASTHAN

		INDIA		RAJASTHAN
Area in Sq. Km. (Provisional)		3,287,263		3,42,239
Population		1,027,015,247		56,473,122
		741,660,293		43,267,678
		285,354,954		13,205,444
Density of Population		324		165
Sex –Ratio		933		922
		946		932
		901		890
Population in age – group 0 – 6				
		157,863,145		10,451,103
		81,911,041		5,474,965
		75,952,104		4,976,138
(2) Percentage of Total Population				
		15.42		18.51
		15.47		18.63
		15.36		18.37
Number of Districts				32
Number of Towns				222
Number of Urban Agglomerations/ Towns				216
Number of Tehsils				241
Number of Panchayat Samities (C.D. Blocks)				237
Number of Revenue Villages				41,353
Literacy Rate		Persons	Males	Females
	Total	61.03	76.46	44.34
	Rural	55.92	72.96	37.74
	Urban	76.89	87.10	65.42

Annexure-III

LITERACY DATA FROM 2001 CENSUS

Rajasthan has marched ahead in literacy by achieving literacy rate of 61.03 percent in 2001 as against 38.55 in 1991. Rajasthan has got a distinction in achieving the highest decadal difference of literacy rate of 22.48 among the other states of India. Chhatisgarh is near to it with a difference of 22.27. In Paper I of the provisional population totals of 2001, the data related to literacy has been presented at the State and district level by sex.

If we consider the literacy rates by rural-urban composition of the State, we find that literacy rate of urban areas is much higher i.e. 76.89 percent as against 55.92 percent for rural areas of the State.

Literacy at District Level (Rural-Urban)

At the district level for rural areas, following are five districts, each the best and worst performers in literacy:

Best Performers (Rural)			Worst Performers (Rural)		
		Literacy rate			Literacy rate
1.	Jhunjhunu	73.24	1.	Banswara	40.78
2.	Sikar	70.39	2.	Bhilwara	44.59
3.	Kota	67.34	3.	Jalor	44.81
4.	Churu	65.29	4.	Dungarpur	45.69
5.	Hanumangarh	63.65	5.	Bikaner	46.33

Likewise following are the five districts, each for the best and worst performers on literacy in urban areas:-

Best Performers (Urban)			Worst Performers (Urban)		
		Literacy rate			Literacy rate
1.	Udaipur	86.19	1.	Jalor	66.33
2.	Banswara	84.80	2.	Dhaulpur	67.48
3.	Alwar	82.27	3.	Nagaur	69.37
4.	Ajmer	81.69	4.	Tonk	69.57
5.	Chittaurgarh	81.01	5.	Karauli	70.22

Literacy at Tehsil Level

(a) For total areas

At tehsil level, the literacy rate varies from 78.76 percent (highest in the state) in Ladpura tehsil of Kota district to 24.52 percent (the lowest in the state) in Kotra tehsil of Udaipur district. The other tehsils which have achieved higher literacy rates after Ladpura are Beawar (Ajmer district), Jaipur, Buhana and Udaipurwati (Jhunjhunu District) with 78.27, 78.23, 77.41 and 76.77 percent respectively.

The tehsils which have registered lower literacy rates after Kotra tehsil in 2001 are Ghatol (Banswara), Poogal (Bikaner), Kushalgarh (Banswara) and Dhariawad (Udaipur) with 35.92, 36.82, 37.53 and 37.61 percent respectively.

If we look at these tehsils we find that the tehsils which have registered higher literacy rates are not confined to particular region i.e. Ladpura tehsil lies in south –east, Beawar in central, Jaipur in east, Buhana and Udaipurwati in northern part of the State. Contrary to it, the tehsils, which have registered lower literacy rates are confined to southern Rajasthan except Poogal tehsil of Bikaner district.

(b) For rural areas of tehsils

If we analyse the literacy rates at tehsil level restricting to rural areas only, the north-south divide is clearly visible. Among the first five tehsils, the first four viz; Udaipurwati, Buhana, Jhunjhunun (all from Jhunjhunun district) and Lachhmangarh (Sikar) belong to Shekhawati region of Northern Rajasthan. These tehsils have recorded higher literacy rates of 77.65, 77.41, 75.46 and 74.77 percent respectively. While among the worst performing five tehsils, the last four viz; Kotra (Udaipur) Dhariawad (Udaipur), Kushalgarh and Ghatol (Banswara) belong to Southern Rajasthan, which have registered lower literacy rates of 24.52, 35.22, 35.54 and 35.92 respectively.

(c) For urban areas of tehsils

An entirely different picture emerges when literacy rates for urban areas at tehsil level is analysed. All the five tehsils with higher literacy rates belong to the districts of Southern Rajasthan whereas the five tehsils with lower literacy rates do not belong to any particular region of the state as can be seen from the following statement.

Tehsils with higher literacy rates (in percent)			Tehsils with lower literacy rates (in percent)		
1.	Railmagra (Rajsamand)	91.75	1. Sarwar (Ajmer)		57.80
2.	Girwa (Udaipur)	87.90	2. Mandalgarh (Bhilwara)		58.64
3.	Dungarpur (Dungarpur)	87.66	3. Sanchore (Jalor)		59.74
4.	Salumbar (Udaipur)	87.58	4. Desuri (Pali)		61.11
5.	Sarada (Udaipur)	86.97	5. Sardarshahar (Churu)		61.38

Literacy by sex

The male literacy rates have always been higher than the female literacy rates at all the levels i.e. district / tehsils for rural and urban areas.

Table 1

Literacy Rates by Sex at State Level for Rural and Urban Areas in 1991 and 2001

Year	Total			Rural			Urban		
	P	M	F	P	M	F	P	M	F
1991	38.55	54.99	20.44	30.37	47.64	11.59	65.33	78.50	50.24
2001	61.03	76.46	44.34	55.92	72.96	37.74	76.89	87.10	65.42

Rajasthan has made a fourfold progress in the field of literacy during the last decade specially among females. As stated earlier the over all literacy rate increased from 38.55 percent in

1991 to 61.03 percent in 2001. Among males, the literacy rate has increased from 54.99 percent in 1991 to 76.46 percent in 2001, which is higher than that of all India average i.e. 75.85 percent. In case of females, it has more than double from 20.44 to 44.34 percent from 1991 to 2001 respectively, which is still lower than all India average of 54.16 percent.

It is a matter of great significance for Rajasthan that the female literacy rate of 11.59 percent in rural areas which was the lowest at the national level in 1991, has increased more than threefold i.e. 37.74 percent in 2001. The male literacy rate has also progressed well, rising from 47.64 percent to 72.96 percent during last decade. Similar trend has been observed for rural areas as can be seen from above table 1.

Literacy by sex at tehsil level (Rural areas)

Males

Male literacy rate in the rural areas at tehsil level has crossed 90 percent mark in Rajasthan. Beawar tehsil of Ajmer district has recorded the highest male literacy rate of 90.89 percent followed by Buhana of Jhunjhunun district with 89.92 percent. On the other hand, Kotra tehsil of Udaipur district has recorded the lowest of 37.55 percent. Following are the five tehsils each with higher and lower male literacy in rural areas of the state

Tehsils with higher male literacy rates			Tehsils with lower male literacy rates		
1.	Beawer (Ajmer)	90.89	1. Kotra (Udaipur)		37.55
2.	Buhana (Jhunjhunun)	89.92	2. Poogal (Bikaner)		50.81
3.	Behror (Alwar)	88.96	3. Kushalgarh (Banswara)		51.07
4.	Jhunjhunun (Jhunjhunun)	88.57	4. Dhariawad (Udaipur)		52.30
5.	Lachhmangarh (Sikar)	87.60	5. Chhatargarh (Bikaner)		52.43

Females

Rural areas of Shekhawati region of the state appears to be much ahead in female literacy as 5 tehsils registering highest female literacy rates are from this region. Udaipurwati tehsil of Jhunjhunu district has the distinction of attaining highest female literacy rate of 67.95 percent followed by Buhana and Jhunjhunu tehsils of the same district.

Though much has been said about the pehnomenal progress made by the state in female literacy over the decade, still there are some tehsils (rural) where the picture is gloomy. Kotra tehsil of Udaipur district has recorded the lowest female literacy of barely 11.14 percent. Following are the five tehsils each for higher and lower female literacy rates in the state in 2001.

Tehsils with higher female literacy rates (Rural)			Tehsils with lower female literacy rates (Rural)		
1.	Udaipurwati (Jhunjhunu)	67.95	1. Kotra (Udaipur)		11.14
2.	Buhana (Jhunjhunu)	64.48	2. Dhariawad (Udaipur)		18.21
3.	Jhunjhunu (Jhunjhunu)	62.46	3. Ghatol (Banswara)		18.98
4.	Fatehpur (Sikar)	61.98	4. Kushalgarh (Banswara)		19.59
5.	Lachhmangarh (Sikar)	61.84	5. Shergarh (Jodhpur)		19.65

Literacy in cities of Rajasthan

Udaipur City has recorded the highest literacy of 87.90 percent in 2001 surpassing Ajmer UA which was at top in 1991. Ajmer UA has not been relegated to second spot with literacy rate of 84.05 percent. It is followed by Alwar UA (83.80 percent), Beawar (82.72 percent) and Kota UA (81.33 percent). Jaipur, which is the largest city of the state has recorded the literacy rate of 78.65 percent attaining 7th spot. On the other hand, Tonk is at the bottom among all the 20 cities of the state with literacy rate of 64.47 percent.

Among males, again Udaipur city has registered the highest literacy rate of 94.10 percent in the state. It is followed by Alwar UA (92.34 percent), Beawar UA (92.27 percent), Ajmer UA (90.40 percent), and Kota UA (89.60 percent) Tonk is again at the bottom with 76.12 percent.

As far as female literacy rate is concerned, Udaipur city has remained at top with 81.02 percent followed by Ajmer UA (77.10 percent) Alwar UA (73.86 percent), Ganganagar UA (72.74 percent) and Beawar UA(72.39 percent). But here also Tonk has registered the lowest female literacy rate of 52.02 percent.

Thus, among the cities of the state, Udaipur has achieved the distinction by attaining the highest literacy rates in all the segments i.e. for persons, males and females, whereas Tonk has recorded the lowest literacy rates in all the segments as can be seen from the following table 2.

Table 2

Literacy Rates in Cities of Rajasthan Having Population of 1 lakh and Above

S. No.	Name of cities	Literacy Rates 2001		
		Persons	Males	Females
	1	**2**	**3**	**4**
1.	Jaipur	78.65	86.96	69.14
2.	Jodhpur UA	77.56	86.41	67.43
3.	Kota UA	81.33	89.60	71.92
4.	Bikaner	76.97	85.87	66.70
5.	Ajmer UA	84.05	90.40	77.10
6.	Udaipur	87.90	94.10	81.02
7.	Bhilwara	77.14	87.50	65.36
8.	Alwar UA	83.80	92.34	73.86
9.	Ganganagar UA	81.02	87.90	72.74
10.	Bharatpur UA	77.93	88.15	66.08
11.	Pali	73.43	86.75	58.37
12.	Sikar UA	75.97	87.43	63.59
13.	tonk	64.47	76.12	52.05
14.	Hanumangarh	75.62	83.97	66.00
15.	Beawar UA	82.72	92.27	72.39
16.	Kishangarh	73.81	85.38	61.04
17.	Gangapur City UA	73.04	86.52	57.66
18.	Sawai Madhopur UA	75.68	88.66	61.08
19.	Churu UA	74.54	87.08	60.88
20.	Jhunjhunun	72.75	84.68	59.86

Table 1 : HUMAN DEVELOPMENT INDEX FOR RAJASTHAN

DISTRICT	EDUCATION					HEALTH		INCOME				INDEX
	Literacy Rate (percent)	Literacy DI	Children's Enrollment in Schools (percent)	Children's Enrollment in Schools DI	Education HDI	Life Expectancy e0 IOD	Health HDI	Adjusted per capita Income DI	Poverty Rate (percent)	Poverty DI	Income HDI	Human Development Index
	A	B	C	D	E	F	G	H	I	J	K	L
GANGANAGAR	41.8	0.418	61.7	0.291	0.376	70.1	0.752	0.818	8.8	0.912	0.842	0.656
HANUMANGARH	41.8	0.418	51.5	0.239	0.358	70.1	0.752	0.818	16.5	0.835	0.822	0.644
KOTA	55.2	0.552	90.0	0.242	0.449	64.1	0.652	0.750	29.6	0.704	0.739	0.613
JAIPUR	50.4	0.504	66.8	0.243	0.417	66.2	0.687	0.685	18.7	0.813	0.717	0.607
ALWAR	43.1	0.431	74.0	0.303	0.388	63.2	0.637	0.714	13.7	0.863	0.751	0.592
BIKANER	41.7	0.417	56.1	0.180	0.338	68.8	0.730	0.659	14.4	0.856	0.708	0.592
JHUNJHUNU	47.6	0.476	77.6	0.272	0.408	68.9	0.732	0.585	24.8	0.752	0.627	0.589
KARAULI	36.3	0.363	67.2	0.494	0.407	62.6	0.627	0.661	10.3	0.897	0.720	0.584
SAWAI MADHOPUR	36.3	0.363	71.3	0.494	0.407	62.6	0.627	0.661	11.8	0.882	0.716	0.583
AJMER	52.3	0.523	86.8	0.222	0.423	62.6	0.627	0.659	19.7	0.803	0.695	0.581
BARAN	36.8	0.368	74.3	0.236	0.324	64.1	0.652	0.775	29.0	0.710	0.758	0.578
DAUSA	36.9	0.369	100.0	0.288	0.342	66.2	0.687	0.638	14.4	0.856	0.692	0.574
JODHPUR	40.7	0.407	73.0	0.228	0.347	65.8	0.680	0.628	18.8	0.812	0.674	0.567
SIKAR	42.5	0.425	70.8	0.232	0.361	68.4	0.723	0.540	22.1	0.779	0.600	0.561
BHARATPUR	43.0	0.430	68.6	0.253	0.371	63.0	0.633	0.627	16.9	0.831	0.678	0.561
BUNDI	32.7	0.327	64.4	0.235	0.297	62.1	0.618	0.728	28.0	0.720	0.726	0.547
NAGAUR	31.8	0.318	58.7	0.204	0.280	64.9	0.665	0.639	16.5	0.835	0.688	0.544
CHURU	34.8	0.348	67.0	0.208	0.301	66.8	0.697	0.558	22.0	0.780	0.614	0.537
PALI	36.0	0.360	67.3	0.256	0.325	58.8	0.563	0.665	17.4	0.826	0.706	0.531
TONK	33.7	0.337	74.2	0.233	0.302	59.2	0.570	0.680	15.6	0.844	0.721	0.531
CHITTORGARH	34.3	0.343	63.6	0.213	0.299	57.5	0.542	0.744	27.0	0.730	0.741	0.527
RAJSAMAND	33.1	0.331	74.7	0.231	0.298	59.1	0.568	0.706	27.0	0.730	0.712	0.526
SIROHI	31.9	0.319	74.5	0.198	0.279	59.2	0.570	0.670	16.5	0.835	0.711	0.520
JAISALMER	30.1	0.301	66.1	0.182	0.261	64.0	0.650	0.595	21.9	0.781	0.641	0.517
BHILWARA	31.7	0.317	58.3	0.219	0.284	59.1	0.568	0.658	18.1	0.819	0.698	0.517
JHALAWAR	32.9	0.329	64.1	0.200	0.286	61.2	0.603	0.643	35.0	0.650	0.645	0.511
UDAIPUR	34.9	0.349	62.1	0.171	0.290	59.1	0.568	0.632	29.1	0.709	0.652	0.503
DHOLPUR	35.1	0.351	66.1	0.215	0.306	58.8	0.563	0.580	18.4	0.816	0.639	0.503
JALAUR	23.8	0.238	45.2	0.182	0.219	61.3	0.605	0.616	14.2	0.858	0.676	0.500
BANSWARA	26.0	0.260	63.3	0.172	0.231	57.9	0.548	0.609	27.5	0.725	0.638	0.472
BARMER	23.0	0.230	46.8	0.165	0.208	60.7	0.595	0.522	24.2	0.758	0.581	0.461
DUNGARPUR	30.6	0.306	70.2	0.211	0.274	58.8	0.563	0.513	41.9	0.581	0.530	0.456

Table 2 : GENDER RELATED DEVELOPMENT INDEX FOR RAJASTHAN

DISTRICT	EDUCATION					HEALTH			INCOME			GENDER RELATED DEVELOPMENT INDEX
	Literacy Rate (percent)		Child Enrolment (percent)		Education Index	Expectancy of Life		Health Index	Adjusted Per Capita income		Income Index	
	Male	Female	Male	Female		Male	Female		Male	Female		
GANGANAGAR	55.3	26.4	34.2	23.5	0.340	70.6	69.5	0.751	11529	2918	0.697	0.596
HANUMANGARH	55.3	26.4	28.5	18.8	0.322	70.6	69.5	0.751	11529	2918	0.697	0.590
BIKANER	54.6	27.0	23.1	12.4	0.301	69.0	68.6	0.730	6738	1910	0.543	0.525
CHURU	51.3	17.3	27.1	13.8	0.239	67.8	65.3	0.689	4501	1865	0.500	0.476
JHUNJHUNU	68.3	25.5	31.1	22.9	0.347	69.6	68.3	0.731	5077	1854	0.509	0.529
ALWAR	61.0	22.5	36.3	23.4	0.327	62.8	63.8	0.639	7229	3226	0.673	0.546
BHARATPUR	62.1	19.6	30.3	19.0	0.294	65.1	60.8	0.630	5867	1842	0.528	0.484
DHOLPUR	50.5	15.2	28.2	12.7	0.229	61.4	55.9	0.557	5790	533	0.020	0.269
SAWAI MADHOPUR	54.6	14.6	65.8	29.2	0.304	64.3	60.7	0.622	5862	2335	0.583	0.503
KARAULI	54.6	14.6	65.8	29.2	0.304	64.3	60.7	0.622	5862	2335	0.583	0.503
JAIPUR	66.8	31.8	29.4	18.6	0.372	66.4	66.0	0.686	7589	2160	0.584	0.547
DAUSA	56.8	14.2	39.0	17.3	0.242	66.4	66.0	0.686	6546	1864	0.534	0.487
SIKAR	64.1	19.9	27.4	18.4	0.286	69.7	67.2	0.721	4593	1408	0.427	0.478
AJMER	68.7	34.5	26.7	17.2	0.382	63.0	62.3	0.626	6408	2362	0.589	0.532
TONK	50.6	15.2	31.8	14.0	0.227	58.5	59.7	0.568	6608	2817	0.631	0.475
JAISALMER	45.0	11.3	24.3	10.9	0.183	67.4	60.4	0.644	5381	1465	0.462	0.430
JODHPUR	56.7	22.6	29.4	15.2	0.290	66.8	64.4	0.675	5918	1945	0.537	0.500
NAGAUR	49.3	13.3	27.1	12.9	0.203	66.0	63.4	0.657	5824	2476	0.589	0.483
PALI	54.4	17.0	32.4	17.9	0.255	59.6	57.8	0.557	6551	2492	0.601	0.471
BARMER	36.6	7.7	23.2	8.9	0.134	59.6	61.6	0.594	3821	1799	0.479	0.402
JALAUR	39.0	7.8	27.3	7.8	0.130	62.7	59.9	0.600	5417	2263	0.562	0.430
SIROHI	46.2	17.0	26.9	12.0	0.224	59.1	59.3	0.568	6819	2330	0.589	0.460
BHILWARA	45.9	16.5	28.3	15.0	0.231	58.6	59.8	0.569	6143	2684	0.612	0.471
UDAIPUR	48.7	20.4	21.4	12.7	0.248	57.7	60.6	0.569	5746	2386	0.578	0.465
RAJSAMAND	50.7	15.5	29.9	15.9	0.233	57.7	60.6	0.569	7338	3048	0.656	0.486
CHITTORGARH	50.5	17.2	27.2	14.9	0.240	56.3	58.2	0.537	7813	3883	0.715	0.497
DUNGARPUR	45.7	15.4	25.2	16.7	0.225	58.7	58.8	0.560	3721	1835	0.475	0.420
BANSWARA	38.2	13.4	22.9	11.3	0.185	57.0	59.2	0.551	4962	2597	0.581	0.439
BUNDI	47.4	16.1	29.6	16.3	0.239	62.4	61.8	0.618	8065	2825	0.655	0.504
KOTA	70.7	37.6	26.4	21.8	0.416	64.5	63.3	0.647	9034	2611	0.647	0.570

BARAN	53.8	17.2	29.8	16.5	0.255	64.5	63.3	0.647	9797	2832	0.674	0.525
JHALAWAR	48.2	16.2	26.4	12.8	0.224	61.0	61.5	0.603	5965	2374	0.583	0.470

Table-3 : Estimated Poverty from NSSO Data (percent)

District	NSS Region	Estimated Poverty from NSSO Data			Households below Poverty Line : Estimates		
		Head Count Ratio (HCR)			of Household Surveys by State Government		
		Rural	Urban	Total	Rural	Urban	Total
Ganganagar	Western	5.2	19.2	8.8	21.3	9.1	18.2
Hanumangarh	Western	12.5	31.0	16.5	21.9	25.5	22.6
Bikaner	Western	11.3	18.8	14.4	36.8	7.7	27.7
Churu	Western	18.4	30.1	22.0	28.6	20.7	26.4
Jhunjhunu	N Eastern	19.4	43.6	24.8	10.6	17.6	11.8
Alwar	N Eastern	9.8	34.1	13.7	22.0	7.9	20.3
Bharatpur	N Eastern	9.7	43.5	16.9	18.4	11.9	17.1
Dholpur	N Eastern	11.5	47.4	18.4	34.9	21.3	32.0
Sawai Madhopur	N Eastern	3.6	46.0	11.8	37.5	22.2	35.3
Karauli	N Eastern	3.6	46.0	10.3	40.8	29.0	39.1
Jaipur	N Eastern	9.4	29.2	18.7	15.5	3.4	9.6
Dausa	N Eastern	12.2	29.2	14.4	23.4	19.3	23.1
Sikar	N Eastern	16.8	39.5	22.1	11.4	11.2	11.4
Ajmer	N Eastern	12.3	29.8	19.7	26.5	5.1	19.8
Tonk	N Eastern	7.5	45.2	15.6	32.9	26.3	31.9
Jaisalmer	Western	20.0	30.8	21.9	26.1	16.8	25.1
Jodhpur	Western	17.5	21.0	18.8	13.6	5.9	11.2
Nagaur	Western	13.6	29.7	16.5	16.5	13.3	16.1
Pali	Western	11.8	35.1	17.4	24.0	7.7	21.3
Barmer	Western	23.2	31.7	24.2	28.7	21.2	28.2
Jalaur	Western	11.9	35.8	14.2	37.5	9.5	35.2
Sirohi	Western	12.5	31.0	16.5	31.0	11.1	27.8
Bhilwara	N Eastern	9.8	48.3	18.1	34.7	12.8	31.8
Udaipur	Southern	29.6	27.0	29.1	58.0	7.5	51.6
Rajsamand	Southern	27.0	27.0	27.0	35.8	8.8	33.1
Chittaurgarh	S Eastern	22.7	46.8	27.0	49.1	13.6	43.9
Dungarpur	Southern	43.3	28.8	41.9	71.3	14.7	68.1
Banswara	Southern	27.9	24.0	27.5	73.0	11.3	69.3
Bundi	S Eastern	21.8	53.5	28.0	36.0	19.6	33.1
Kota	S Eastern	17.5	40.7	29.6	32.1	12.0	23.4
Baran	S Eastern	26.5	40.7	29.0	32.6	21.1	31.2
Jhalawar	S Eastern	31.1	52.9	35.0	33.2	16.4	31.0

Table 4 : Percent Change in Main Workers in Rajasthan : Census 1981 to 1991

District	Population : 1981 to 1991			Main Workers : 1981 to 1991			Primary Sector Main Workers : 1981 to 1991			Secondary Sector Main Workers : 1981 to 1991			Tretiary Sector Main Workers : 1981 to 1991		
	All	Males	Females	All	Males	Females	All	Males	Females	All	Males	Females	All	Males	Females
Ganganagar	29.2	29.0	29.4	32.1	27.0	140.6	29.5	22.8	167.7	11.4	10.8	22.8	54.9	53.6	88.6
Bikaner	42.7	43.2	42.1	45.5	37.8	118.9	51.9	38.9	159.2	44.3	49.5	4.5	32.4	30.4	64.6
Churu	30.8	32.0	29.7	33.1	26.2	68.7	31.9	22.5	71.1	23.7	25.3	-2.1	44.4	43.5	64.3
Jhunjhunu	30.6	32.3	28.8	27.3	30.2	10.2	22.5	25.1	10.8	2.0	4.6	-31.4	65.3	65.9	51.4
Alwar	29.7	30.5	28.7	47.4	29.9	258.9	45.4	21.7	300.4	42.1	41.1	60.6	59.6	59.1	68.3
Bharatpur	27.4	28.2	26.5	27.0	23.8	94.6	24.6	20.2	125.5	7.7	8.8	-11.3	50.0	50.5	40.7
Dholpur															
Sawai Madhopur	27.8	28.7	26.9	33.6	23.1	129.3	34.2	20.6	141.9	7.2	4.6	45.2	46.4	46.9	36.5
Jaipur	38.1	38.2	37.9	41.4	34.4	83.7	36.2	23.1	88.0	32.1	31.3	43.8	59.0	57.3	82.8
Sikar	33.8	35.0	32.6	36.3	30.2	93.4	31.6	21.9	102.3	29.4	29.0	35.3	59.1	59.4	51.8
Ajmer	20.1	20.3	19.8	19.9	16.3	30.6	16.2	8.5	30.7	15.7	18.6	-1.8	32.3	29.3	72.3
Tonk	24.4	24.7	24.1	31.8	18.7	83.5	31.0	13.8	88.5	13.0	8.3	38.9	52.9	52.0	66.2
Jaisalmer	41.7	42.1	41.3	30.2	24.8	127.8	11.7	4.8	145.7	72.8	73.6	67.4	92.4	91.2	125.0
Jodhpur	29.1	30.3	27.8	29.5	24.4	57.7	22.3	13.3	58.7	31.9	32.2	27.4	50.4	49.6	62.6
Nagaur	31.7	32.8	30.6	33.0	26.3	55.1	29.3	19.1	56.5	18.5	20.1	-0.9	74.4	74.7	69.5
Pali	16.6	16.0	17.2	14.7	10.1	33.7	12.8	5.3	36.2	2.9	4.0	-8.7	36.5	36.5	36.8
Barmer	28.3	29.2	27.3	35.2	22.5	122.4	33.0	17.8	128.0	32.8	34.3	19.2	58.6	56.9	96.2
Jalaur	26.5	26.5	26.5	37.6	22.2	163.6	39.4	21.2	174.5	15.3	10.9	90.9	37.6	38.4	25.6
Sirohi	20.7	21.5	19.8	28.0	21.1	69.3	27.5	16.0	83.9	22.2	24.6	-2.0	32.8	33.9	21.4
Bhilwara	21.6	21.4	21.8	27.5	18.2	57.3	22.3	9.3	57.0	47.3	51.1	12.4	53.5	48.6	130.8
Udaipur	22.6	23.3	21.8	34.3	24.0	103.3	31.3	17.6	112.2	32.3	33.8	17.3	50.0	46.9	86.4
Chittorgarh	20.4	20.5	20.3	32.0	19.0	72.8	34.8	17.9	79.5	-1.1	5.5	-35.9	36.9	34.7	66.7
Dungarpur	28.1	31.3	25.0	42.5	36.2	83.4	39.0	31.7	83.5	38.9	40.7	22.5	71.9	67.9	122.5
Banswara	30.3	31.3	29.3	51.4	35.2	177.3	58.2	38.8	206.7	-18.4	-16.5	-33.3	49.7	45.5	86.5
Bundi	31.2	31.1	31.3	32.3	25.0	69.6	35.6	26.1	78.3	-5.4	-6.1	0.0	42.2	43.7	27.8
Kota	30.2	30.2	30.2	34.5	27.2	84.0	37.2	25.4	104.4	7.4	7.8	4.1	46.5	45.1	60.9
Jhalawar	21.9	22.4	21.3	29.7	22.9	52.4	30.8	22.4	55.4	-2.5	-0.8	-15.3	43.2	43.3	41.5
Rajasthan	28.4	29.1	27.8	33.3	25.5	78.7	31.3	20.0	84.5	20.6	21.5	11.0	50.6	49.4	68.5

Source : Primary Census Abstract of Rajasthan Census of 1981 and 1991, Registrar General of India.

Table 5 : NSDP of Rajasthan at Current Prices (in Rupees)

SECTORS	1990-91	Percent		1991-92	Percent		1992-93	Percent		1993-94	Percent	
	Rs. in lacs	Share	ROG	Rs. in lacs	Share	ROG	Rs. in lacs	Share	ROG	Rs. in lacs	Share	ROG
A. Agriculture & Allied Activ.	857943	46.9	40.6	891716	44.5	3.9	1104077	46.1	23.8	1037485	42.0	-6.0
I.Agriculture (Including A.H.)	823926	45.1	40.8	851510	42.5	3.3	1060764	44.3	24.6	988537	40.0	-6.8
II.Forestry	33173	1.8	38.8	38837	1.9	17.1	40827	1.7	5.1	45786	1.9	12.1
III.Fishries	844	0.0	-13.3	1369	0.1	62.2	2486	0.1	81.6	3162	0.1	27.2
B.Mining & Manufacturing	366466	20.0	29.2	408450	20.4	11.5	471639	19.7	15.5	526035	21.3	11.5
I. Mining	41165	2.3	40.2	46225	2.3	12.3	51265	2.1	10.9	52187	2.1	1.8
II. Manufacturing	205350	11.2	36.6	216751	10.8	5.6	239071	10.0	10.3	245939	9.9	2.9
a. Manufacturing (Regd.)	131787	7.2	44.5	133063	6.6	1.0	154422	6.4	16.1	152346	6.2	-1.3
b. Manufacturing (Unregd.)	73563	4.0	24.5	83688	4.2	13.8	84649	3.5	1.1	93593	3.8	10.6
III.Construction	103357	5.7	24.6	119253	5.9	15.4	143445	6.0	20.3	161989	6.6	12.9
IV. Elect.Gas & Water Supply	16594	0.9	-20.9	26221	1.3	58.0	37858	1.6	44.4	65920	2.7	74.1
C.Transport & Communication	337646	18.5	28.5	385278	19.2	14.1	450141	18.8	16.8	473175	19.1	5.1
I.Railway	29245	1.6	25.8	33420	1.7	14.3	37736	1.6	12.9	41363	1.7	9.6
II. Other Transport & storage	21281	1.2	4.0	27961	1.4	31.4	33303	1.4	19.1	38502	1.6	15.6
III. Communication	11256	0.6	23.5	13481	0.7	19.8	16695	0.7	23.8	21585	0.9	29.3
IV.Trade Hotels & Restaurants	275864	15.1	31.4	310416	15.5	12.5	362407	15.1	16.7	371725	15.0	2.6
D.Other Services	266086	14.6	17.2	318957	15.9	19.9	368575	15.4	15.6	436010	17.6	18.3
I. Banking & Insurance	50501	2.8	15.7	72859	3.6	44.3	75698	3.2	3.9	97115	3.9	28.3
II. Real Estate & Ownership	38705	2.1	13.6	45512	2.3	17.6	51995	2.2	14.2	59352	2.4	14.1
III. Public Admn.	64721	3.5	21.0	70814	3.5	9.4	85634	3.6	20.9	98665	4.0	15.2
IV.Other Services	112159	6.1	16.9	129772	6.5	15.7	155248	6.5	19.6	180878	7.3	16.5
Net State Domestic Product	1828141	100.0	32.1	2004401	100.0	9.6	2394432	100.0	19.5	2472705	100.0	3.3
Population (Lakh No.)	436.21	0.0	2.2	445.73	0.0	2.2	455.5	0.0	2.2	465	0.0	2.1
Per Capita Income (Rs)	4191	0.2	29.3	4497	0.2	7.3	5257	0.2	16.9	5315	0.2	1.1
Primary Sector	899108	49.2	40.6	937941	46.8	4.3	1155342	48.3	23.2	1089672	44.1	-5.7
Secondary Sector	325301	17.8	28.0	362225	18.1	11.4	420374	17.6	16.1	473848	19.2	12.7
Tertiary Sector	603732	33.0	23.3	704235	35.1	16.6	818716	34.2	16.3	909185	36.8	11.1

Table 5 : NSDP of Rajasthan at Current Prices *(Contd.)*

SECTORS	1994-95	Percent		1995-96	Percent		1996-97	Percent		1997-98	Percent	
	Rs. in lacs	Share	ROG	Rs. in lacs	Share	ROG	Rs. in lacs	Share	ROG	Rs. in lacs	Share	ROG
A. Agriculture & Allied Activ.	1365458	44.9	31.6	1477931	43.8	8.2	1983261	47.4	34.2	2141565	46.2	8.0
I.Agriculture (Including A.H.)	1313696	43.2	32.9	1420312	42.1	8.1	1913833	45.7	34.7	2064891	44.6	7.9
II.Forestry	47723	1.6	4.2	53694	1.6	12.5	64126	1.5	19.4	70640	1.5	10.2
III.Fishries	4039	0.1	27.7	3925	0.1	-2.8	5302	0.1	35.1	6034	0.1	13.8
B.Mining & Manufacturing	599163	19.7	13.9	660633	19.6	10.3	742580	17.7	12.4	826718	17.8	11.3
I. Mining	57608	1.9	10.4	71539	2.1	24.2	72754	1.7	1.7	82168	1.8	12.9
II. Manufacturing	257001	8.4	4.5	279353	8.3	8.7	305257	7.3	9.3	316194	6.8	3.6
a. Manufacturing (Regd.)	154002	5.1	1.1	163920	4.9	6.4	170938	4.1	4.3	173639	3.7	1.6
b. Manufacturing (Unregd.)	102999	3.4	10.0	115433	3.4	12.1	134319	3.2	16.4	142555	3.1	6.1
III.Construction	213429	7.0	31.8	229666	6.8	7.6	261234	6.2	13.7	295984	6.4	13.3
IV. Elect.Gas & Water Supply	71125	2.3	7.9	80075	2.4	12.6	103335	2.5	29.0	132372	2.9	28.1
C.Transport & Communication	574106	18.9	21.3	644164	19.1	12.2	780755	18.6	21.2	891594	19.2	14.2
I.Railway	54379	1.8	31.5	59697	1.8	9.8	72132	1.7	20.8	87157	1.9	20.8
II. Other Transport & storage	47158	1.6	22.5	54527	1.6	15.6	66080	1.6	21.2	79053	1.7	19.6
III. Communication	28170	0.9	30.5	32528	1.0	15.5	39304	0.9	20.8	47491	1.0	20.8
IV.Trade Hotels & Restaurants	444399	14.6	19.6	497412	14.8	11.9	603239	14.4	21.3	677893	14.6	12.4
D.Other Services	503251	16.5	15.4	588031	17.4	16.8	680600	16.3	15.7	774743	16.7	13.8
I. Banking & Insurance	112583	3.7	15.9	131936	3.9	17.2	154616	3.7	17.2	181195	3.9	17.2
II. Real Estate & Ownership	68462	2.3	15.3	76782	2.3	12.2	86471	2.1	12.6	97243	2.1	12.5
III. Public Admn.	112649	3.7	14.2	137561	4.1	22.1	154318	3.7	12.2	176718	3.8	14.5
IV.Other Services	209557	6.9	15.9	241752	7.2	15.4	285195	6.8	18.0	319587	6.9	12.1
Net State Domestic Product	3041978	100.0	23.0	3370759	100.0	10.8	4187196	100.0	24.2	4634620	100.0	10.7
Population (Lakh No.)	475	0.0	2.1	484	0.0	2.0	494	0.0	1.9	503	0.0	1.9
Per Capita Income (Rs)	6406	0.2	20.5	6959	0.2	8.6	8481	0.2	21.9	9215	0.2	8.7
Primary Sector	1423066	46.8	30.6	1549470	46.0	8.9	2056015	49.1	32.7	2223733	48.0	8.2
Secondary Sector	541555	17.8	14.3	589094	17.5	8.8	669826	16.0	13.7	744550	16.1	11.2
Tertiary Sector	1077357	35.4	18.5	1232195	36.6	14.4	1461355	34.9	18.6	1666337	36.0	14.0

Source : Various Economic Surveys of Rajasthan from 1980/81 to 1999/2000, Directorate of Economics & Statistics, Govt. of Rajasthan, Jaipur

Table 5 A : Growth Rates of NSDP of Rajasthan at Current Prices

SECTORS	Rates of Growth (Percent)			
	1980/81 to 1990/91	1990's	Last 5 Years	Period
A. Agriculture & Allied Activ.	15.2	14.0	14.2	14.7
I.Agriculture (Including A.H.)	15.0	14.0	14.2	14.6
II.Forestry	23.9	11.4	11.6	18.6
III.Fishries	-1.5	32.4	19.4	11.3
B.Mining & Manufacturing	16.1	12.3	11.9	14.5
I. Mining	17.9	10.4	9.9	14.7
II. Manufacturing	16.2	6.4	5.8	12.0
a. Manufacturing (Regd.)	20.8	4.0	2.4	13.6
b. Manufacturing (Unregd.)	11.1	9.9	11.0	10.6
III.Construction	16.0	16.2	15.6	16.1
IV. Elect.Gas & Water Supply	12.2	34.5	28.4	20.9
C.Transport & Communication	18.9	14.9	14.6	17.2
I.Railway	23.7	16.9	18.2	20.8
II. Other Transport & storage	15.6	20.6	**18.9**	17.6
III. Communication	19.4	22.8	23.3	20.8
IV.Trade Hotels & Restaurants	18.8	13.7	**13.3**	16.7
D.Other Services	15.5	16.5	16.0	15.9
I. Banking & Insurance	17.8	20.0	19.1	18.7
II. Real Estate & Ownership	7.3	14.1	**13.3**	10.0
III. Public Admn.	17.8	15.4	15.6	16.8
IV.Other Services	18.1	16.1	**15.5**	17.3
Net State Domestic Product	**16.1**	14.2	14.1	15.3
Population (Lakh No.)	2.6	2.1	2.0	2.4
Per Capita Income (Rs)	13.1	11.9	11.9	12.6
Primary Sector	15.3	13.8	14.0	14.7
Secondary Sector	15.9	12.6	12.1	14.5
Tertiary Sector	17.3	15.6	15.3	16.6

Source : Various Economic Surveys of Rajasthan from 1980/81 to 1999/2000, Directorate of Economics & Statistics, Govt. of Rajasthan, Jaipur

Table 6 : NSDP of Rajasthan at Constant Prices (in Rupees)

SECTORS	1990-91	Percent		1991-92	Percent		1992-93	Percent		1993-94	Percent	
	Rs. in lacs	Share	ROG	Rs. in lacs	Share	ROG	Rs. in lacs	Share	ROG	Rs. in lacs	Share	ROG
A. Agriculture & Allied Activ.	400428	47.3	22.1	336107	42.8	-16.1	418260	46.1	24.4	326979	39.6	-21.8
I.Agriculture (Including A.H.)	385419	45.5	23.0	320863	40.9	-16.7	402710	44.4	25.5	310850	37.6	-22.8
II.Forestry	14705	1.7	3.3	14773	1.9	0.5	14896	1.6	0.8	15391	1.9	3.3
III.Fishries	304	0.0	-16.3	471	0.1	54.9	654	0.1	38.9	738	0.1	12.8
B.Mining & Manufacturing	168154	19.8	16.0	167329	21.3	-0.5	185568	20.4	10.9	193612	23.4	4.3
I. Mining	11747	1.4	3.5	15739	2.0	34.0	17171	1.9	9.1	20299	2.5	18.2
II. Manufacturing	95098	11.2	10.6	87246	11.1	-8.3	94550	10.4	8.4	89106	10.8	-5.8
a. Manufacturing (Regd.)	58862	6.9	21.5	48110	6.1	-18.3	53399	5.9	11.0	47830	5.8	-10.4
b. Manufacturing (Unregd.)	36236	4.3	-3.4	39136	5.0	8.0	41151	4.5	5.1	41276	5.0	0.3
III.Construction	53837	6.4	43.1	54165	6.9	0.6	59598	6.6	10.0	64121	7.8	7.6
IV. Elect.Gas & Water Supply	7472	0.9	-25.6	10179	1.3	36.2	14249	1.6	40.0	20086	2.4	41.0
C.Transport & Communication	144840	17.1	10.4	142186	18.1	-1.8	157031	17.3	10.4	148162	17.9	-5.6
I.Railway	5507	0.6	15.1	5975	0.8	8.5	3755	0.4	-37.2	4213	0.5	12.2
II. Other Transport & storage	8868	1.0	-8.0	9061	1.2	2.2	9988	1.1	10.2	9776	1.2	-2.1
III. Communication	2891	0.3	3.0	3155	0.4	9.1	3837	0.4	21.6	4608	0.6	20.1
IV.Trade Hotels & Restaurants	127574	15.1	12.0	123995	15.8	-2.8	139451	15.4	12.5	129565	15.7	-7.1
D.Other Services	133838	15.8	4.3	139332	17.8	4.1	146964	16.2	5.5	157504	19.1	7.2
I. Banking & Insurance	30792	3.6	2.4	36619	4.7	18.9	36576	4.0	-0.1	40059	4.8	9.5
II. Real Estate & Ownership	27137	3.2	2.6	28240	3.6	4.1	28239	3.1	0.0	29275	3.5	3.7
III. Public Admn.	27832	3.3	7.8	26150	3.3	-6.0	29200	3.2	11.7	30865	3.7	5.7
IV.Other Services	48077	5.7	4.7	48323	6.2	0.5	52949	5.8	9.6	57305	6.9	8.2
Net State Domestic Product	847260	100.0	15.7	784954	100.0	-7.4	907823	100.0	15.7	826257	100.0	-9.0
Population (Lakh No.)	436.21	0.1	2.2	445.73	0.1	2.2	455.5	0.1	2.2	465.2	0.1	2.1
Per Capita Income (Rs)	1942	0.2	13.2	1761	0.2	-9.3	1993	0.2	13.2	1776	0.2	-10.9
Primary Sector	412175	48.6	21.5	351846	44.8	-14.6	435431	48.0	23.8	347278	42.0	-20.2
Secondary Sector	156407	18.5	17.1	151590	19.3	-3.1	168397	18.5	11.1	173313	21.0	2.9
Tertiary Sector	278678	32.9	7.4	281518	35.9	1.0	303995	33.5	8.0	305666	37.0	0.5

Table 6 : NSDP of Rajasthan at Constant Prices *(Contd.)*

SECTORS	1994-95	Percent		1995-96	Percent		1996-97	Percent		1997-98	Percent	
	Rs. in lacs	Share	ROG	Rs. in lacs	Share	ROG	Rs. in lacs	Share	ROG	Rs. in lacs	Share	ROG
A. Agriculture & Allied Activ.	434005	44.5	32.7	405594	42.0	-6.5	511167	46.1	26.0	493473	44.3	-3.5
I.Agriculture (Including A.H.)	417473	42.8	34.3	388814	40.2	-6.9	493978	44.5	27.0	475939	42.7	-3.7
II.Forestry	15667	1.6	1.8	16014	1.7	2.2	16306	1.5	1.8	16625	1.5	2.0
III.Fishries	865	0.1	17.2	766	0.1	-11.4	883	0.1	15.3	909	0.1	2.9
B.Mining & Manufacturing	204934	21.0	5.8	209820	21.7	2.4	215623	19.4	2.8	221378	19.9	2.7
I. Mining	18425	1.9	-9.2	22051	2.3	19.7	21446	1.9	-2.7	21684	1.9	1.1
II. Manufacturing	93175	9.6	4.6	94069	9.7	1.0	96516	8.7	2.6	97566	8.8	1.1
a. Manufacturing (Regd.)	48981	5.0	2.4	49553	5.1	1.2	49178	4.4	-0.8	49957	4.5	1.6
b. Manufacturing (Unregd.)	44194	4.5	7.1	44516	4.6	0.7	47338	4.3	6.3	47609	4.3	0.6
III.Construction	74813	7.7	16.7	75150	7.8	0.5	76089	6.9	1.2	77126	6.9	1.4
IV. Elect.Gas & Water Supply	18521	1.9	-7.8	18550	1.9	0.2	21572	1.9	16.3	25002	2.2	15.9
C.Transport & Communication	170654	17.5	15.2	175362	18.1	2.8	197485	17.8	12.6	206531	18.5	4.6
I.Railway	4423	0.5	5.0	4967	0.5	12.3	5085	0.5	2.4	5206	0.5	2.4
II. Other Transport & storage	10976	1.1	12.3	11685	1.2	6.5	13060	1.2	11.8	14126	1.3	8.2
III. Communication	5462	0.6	18.5	6516	0.7	19.3	7072	0.6	8.5	7676	0.7	8.5
IV.Trade Hotels & Restaurants	149793	15.4	15.6	152194	15.7	1.6	172268	15.5	13.2	179523	16.1	4.2
D.Other Services	165538	17.0	5.1	175962	18.2	6.3	185289	16.7	5.3	192390	17.3	3.8
I. Banking & Insurance	43436	4.5	8.4	44807	4.6	3.2	46221	4.2	3.2	47680	4.3	3.2
II. Real Estate & Ownership	30412	3.1	3.9	31597	3.3	3.9	32830	3.0	3.9	34115	3.1	3.9
III. Public Admn.	31871	3.3	3.3	35899	3.7	12.6	37099	3.3	3.3	39192	3.5	5.6
IV.Other Services	59819	6.1	4.4	63659	6.6	6.4	69139	6.2	8.6	71403	6.4	3.3
Net State Domestic Product	975131	100.0	18.0	966738	100.0	-0.9	1109564	100.0	14.8	1113772	100.0	0.4
Population (Lakh No.)	475.0	0.0	2.1	484.3	0.1	2.0	493.8	0.0	2.0	502.8	0.0	1.8
Per Capita Income (Rs)	2053	0.2	15.6	1996	0.2	-2.8	2247	0.2	12.6	2215	0.2	-1.4
Primary Sector	452430	46.4	30.3	427645	44.2	-5.5	532613	48.0	24.5	515157	46.3	-3.3
Secondary Sector	186509	19.1	7.6	187769	19.4	0.7	194177	17.5	3.4	199694	17.9	2.8
Tertiary Sector	336192	34.5	10.0	351324	36.3	4.5	382774	34.5	9.0	398921	35.8	4.2

Source : Various Economic Surveys of Rajasthan from 1980/81 to 1999/2000, Directorate of Economics & Statistics, Govt. of Rajasthan, Jaipur

Table 6 A : Growth Rates of NSDP of Rajasthan at Constant Prices

SECTORS	Rates of Growth (percent)			
	1980/81 to 1990/91	1990's	Last 5 Years	Period
A. Agriculture & Allied Activ.	6.8	3.0	3.4	5.2
I.Agriculture (Including A.H.)	6.6	3.1	3.4	5.1
II.Forestry	14.2	1.8	2.2	8.9
III.Fishries	-11.0	16.9	6.8	-0.4
B.Mining & Manufacturing	7.4	4.0	3.6	6.0
I. Mining	4.0	9.2	4.8	6.1
II. Manufacturing	7.6	0.4	0.6	4.6
a. Manufacturing (Regd.)	11.4	-2.3	-1.3	5.6
b. Manufacturing (Unregd.)	3.5	4.0	3.0	3.7
III.Construction	8.7	5.3	5.3	7.3
IV. Elect.Gas & Water Supply	3.6	18.8	11.9	9.6
C.Transport & Communication	9.3	5.2	5.6	7.6
I.Railway	4.7	-0.8	6.8	2.4
II. Other Transport & storage	5.9	6.9	7.2	6.3
III. Communication	4.3	15.0	14.9	8.5
IV.Trade Hotels & Restaurants	10.0	5.0	5.2	7.9
D.Other Services	7.9	5.3	5.5	6.8
I. Banking & Insurance	12.1	6.4	5.4	9.7
II. Real Estate & Ownership	3.6	3.3	3.9	3.5
III. Public Admn.	8.3	5.0	6.1	6.9
IV.Other Services	8.5	5.8	6.2	7.4
Net State Domestic Product	7.5	4.0	4.2	6.0
Population (Lakh No.)	2.6	2.1	2.0	2.4
Per Capita Income (Rs)	4.7	1.9	2.1	3.6
Primary Sector	6.7	3.2	3.4	5.3
Secondary Sector	7.7	3.6	3.5	6.0
Tertiary Sector	8.6	5.3	5.6	7.2

Source : Various Economic Surveys of Rajasthan from 1980/81 to 1999/2000, Directorate of Economics & Statistics, Govt. of Rajasthan, Jaipur

Table 7 : District-wise Incomes in Rajasthan

District	Growth Rate *(percent)*						Per Capita Income (Rs.)		Growth Rate (percent)			Population 1981		Share of Incomes (percent)		Population 1991		Share of Income (percent)	
	80-81 to	80-81 to	88-89 to	86-87 to	80-81 to	80-81 to	1980-81	1991-92	1980-81 to	1986-87 to	1980-81 to	Total	Share of	1981	1982	Total	Share of	1991	1992
	86-87	83/84	91-92	91-92	90-91	91-92			1986-87	1990-91	1990-91		Raj.				Raj.		
Ganganagar	8.77	20.56	16.02	23.91	15.3	15.41	2039	7386	5.17	21.76	12.41	2029968	5.925	9.86	9.61	2622777	5.960	9.259	9.820
Bikaner	15.29	34.00	16.33	19.66	17.7	17.26	1126	4399	11.69	15.02	13.19	848749	2.477	2.28	2.53	1211140	2.752	2.621	2.702
Churu	11.69	16.25	4.80	15.99	15.4	13.63	1051	3175	8.55	13.05	10.57	1179466	3.443	2.96	3.17	1543211	3.507	2.797	2.484
Jhunjhunu	11.72	20.79	11.79	19.21	16.2	15.07	996	3467	8.74	16.05	12.00	1211583	3.536	2.89	2.82	1582421	3.596	2.918	2.781
Alwar	11.26	20.30	22.39	25.21	17.0	17.40	1205	5269	8.48	21.81	14.35	1771173	5.170	5.11	5.34	2296580	5.219	5.534	6.136
Bharatpur	4.86	6.99	13.20	18.41	12.1	10.81	1682	3976	2.25	15.65	8.14	1299073	3.792	5.23	4.96	1651584	3.753	3.698	3.328
Dholpur			11.54	16.19			0	3404		13.27		585059	1.708	0.00	0.16	749479	1.703	1.321	1.294
Sawai Madhopur	11.10	21.47	16.62	20.61	15.6	15.33	1144	4538	8.32	19.69	13.34	1535870	4.483	4.20	3.93	1963246	4.461	4.023	4.150
Jaipur	15.70	17.03	10.02	11.65	15.7	13.84	1352	4794	12.30	12.07	12.20	3420574	9.984	11.03	10.05	4722551	10.732	10.724	11.522
Sikar	14.52	15.96	13.24	14.97	14.2	14.73	912	2996	11.48	11.35	11.42	1377245	4.020	3.00	2.93	1842914	4.188	2.549	2.800
Ajmer	11.42	15.61	14.00	19.16	15.7	14.88	1182	4400	9.00	17.30	12.69	1440366	4.204	4.08	4.07	1729207	3.929	3.957	3.857
Tonk	12.29	18.38	16.73	19.08	15.9	15.33	1257	4711	9.60	16.68	12.76	783645	2.287	2.36	2.45	975006	2.216	2.335	2.329
Jaisalmer	16.36	21.39	16.51	14.46	16.2	15.49	1074	3576	12.74	10.16	11.56	243082	0.709	0.62	0.67	344517	0.783	0.632	0.624
Jodhpur	11.23	20.75	16.19	19.92	16.4	15.10	1131	3982	7.75	17.60	12.12	1667791	4.868	4.50	4.25	2153483	4.894	4.634	4.346
Nagaur	15.58	23.47	12.97	19.96	18.3	17.55	947	4134	12.62	16.44	14.34	1628669	4.754	3.69	3.80	2144810	4.874	4.457	4.495
Pali	11.50	19.32	15.16	19.48	15.4	15.06	1155	4496	8.55	18.92	13.15	1274504	3.720	3.52	3.47	1486432	3.378	3.337	3.387
Barmer	8.81	21.63	12.50	20.75	16.8	14.08	877	2824	5.50	18.48	11.22	1118892	3.266	2.34	2.75	1435222	3.261	2.487	2.054
Jalor	12.77	24.63	15.74	19.83	17.2	15.92	982	3825	9.63	17.53	13.15	903073	2.636	2.12	2.40	1142563	2.596	2.340	2.216
Sirohi	13.18	23.54	18.83	19.74	20.0	16.11	1095	4556	10.55	17.92	13.84	542049	1.582	1.42	1.46	654029	1.486	1.982	1.512
Bhilwara	12.01	12.91	20.52	19.45	16.7	15.33	1144	4391	9.57	17.28	13.01	1310379	3.825	3.59	3.44	1593128	3.620	3.794	3.547
Udaipur	11.43	20.25	1.92	9.09	15.4	10.36	1233	4038	8.63	14.79	11.39	2356959	6.879	6.95	7.24	2889301	6.566	6.546	6.368
Chittaurgarh	10.36	15.90	20.83	21.22	15.0	15.17	1523	5806	7.46	19.88	12.94	1232494	3.597	4.49	4.18	1484190	3.373	4.106	4.368
Dungarpur	12.23	16.73	15.41	17.10	15.6	14.42	821	2735	9.37	14.24	11.56	682845	1.993	1.34	1.41	874549	1.987	1.283	1.213
Banswara	11.81	15.57	11.46	23.56	18.7	17.01	892	3739	8.63	20.59	13.91	886600	2.588	1.89	1.89	1155600	2.626	2.367	2.190
Bundi	17.36	15.90	15.16	13.86	16.3	15.76	1492	5508	14.28	10.62	12.60	586982	1.713	2.09	2.24	770248	1.750	2.131	2.152
Kota	14.77	23.07	-2.95	4.56	15.9	10.01	1674	5925	11.45	13.05	12.18	1559784	4.553	6.23	6.64	2030831	4.615	6.172	6.299
Jhalawar	12.22	12.38	14.01	17.18	14.8	14.45	1188	4181	9.50	15.34	12.12	784998	2.291	2.23	2.14	956971	2.175	1.996	2.027
Dausa (Jaipur)								4113											2.073
Baran (Kota)								6415											2.634
Rajsamand (Udaipur)								5125											2.137
State	12.45	19.51	15.85	19.17	16.1	15.45	1222	4497	9.41	16.50	12.58	34261872	100	100	100.00	44005990	100	100	100

Source : Directorate of Economics & Statistics (Unpublished Report) Government of Rajasthan, Jaipur

Table 8 : District-wise Domestic Product in Rajasthan : Three Year Averages of Shares of Sectors (percent) : 1980-81 to 1982-83

DISTRICT	Agriculture & Allied	Agriculture	Live Stock	Forestry	Fishing	Mining & Manufacturing	Mining	Manufacturing (Registered)	Manufacturing (Unregistered)	Construction	Electricity Gas & Water Supply
	First 3 year averages		From 1980/ 81 to 1982/ 83				From 1980/ 81 to 1982/ 83				
Ganganagar	73.3	68.0	4.8	0.2	0.3	7.6	0.3	1.8	2.1	3.0	0.3
Bikaner	41.3	30.0	10.7	0.7	0.0	16.7	0.8	3.2	5.0	7.2	0.6
Churu	56.5	44.7	11.8	0.1	0.0	9.9	0.0	0.0	4.1	5.4	0.3
Jhunjhunu	41.5	31.7	9.4	0.4	0.0	25.3	3.5	6.3	6.7	7.2	1.6
Alwar	58.0	50.5	6.9	0.5	0.1	15.0	0.4	4.5	5.1	4.3	0.6
Bharatpur	60.8	54.4	6.0	0.4	0.0	12.5	0.5	3.2	3.7	4.8	0.3
Dholpur	48.1	12.9	34.8	0.4	0.0	12.2	3.1	0.0	8.9	0.2	0.1
Sawai Madhopur	60.6	50.4	8.0	1.8	0.4	12.2	1.2	-1.3	7.1	4.7	0.5
Jaipur	34.5	28.7	5.5	0.3	0.1	31.4	2.8	12.0	9.2	6.2	1.2
Sikar	42.5	31.1	10.8	0.4	0.1	19.5	0.3	0.2	9.3	8.7	1.1
Ajmer	31.5	23.6	7.5	0.4	0.0	27.2	0.3	8.7	9.4	7.8	1.0
Tonk	59.9	49.6	9.5	0.4	0.3	14.2	0.4	0.6	7.5	5.5	0.3
Jaisalmer	46.6	19.6	26.4	0.6	0.0	18.7	0.9	0.3	6.6	10.5	0.3
Jodhpur	40.8	31.7	9.0	0.0	0.0	20.0	2.9	3.4	6.0	6.7	1.0
Nagaur	52.4	34.9	10.2	0.1	0.0	17.4	3.1	0.5	7.4	5.6	0.7
Pali	41.2	31.9	8.4	0.7	0.1	24.9	0.3	5.6	11.1	7.1	0.9
Barmer	59.1	44.2	14.5	0.4	0.0	12.3	0.4	0.5	5.0	6.1	0.3
Jalore	61.6	53.2	8.0	0.3	0.0	11.8	0.1	-0.1	6.2	4.9	0.7
Sirohi	41.9	29.7	9.0	3.2	0.1	18.9	0.5	0.2	8.9	8.4	0.8
Bhilwara	43.5	33.5	9.3	0.5	0.2	28.5	2.8	10.6	7.4	7.1	0.6
Udaipur	41.0	28.4	8.9	2.1	1.6	28.2	10.3	4.4	5.3	7.1	1.1
Chittorgarh	56.2	47.7	6.8	1.5	0.1	21.2	1.9	5.8	4.6	7.9	1.0
Dungarpur	54.0	42.2	10.3	1.4	0.0	14.7	1.4	0.5	5.8	6.7	0.3
Banswara	56.8	45.6	9.2	1.8	0.2	15.2	0.3	2.7	4.2	7.6	0.3
Bundi	64.9	55.8	7.2	1.8	0.1	14.6	3.7	0.9	4.4	5.3	0.3
Kota	44.9	39.3	3.8	1.5	0.3	29.9	2.2	15.8	5.4	5.3	1.2
Jhalawar	60.2	49.6	8.8	1.7	0.1	14.5	0.5	2.6	6.3	4.6	0.5
Rajasthan	50.5	41.6	7.9	0.8	0.2	19.8	2.0	4.9	6.2	5.9	0.8

Table 8 : District-wise Domestic Products in Rajasthan : Three Year Averages of Share of Sector (percent*) (Contd.)*

DISTRICT	Transport & Communication	Railways	Other Transport & Storage	Communication	Trade Hotels & Restaurant	Other Services	Banking & Insurance	Real Estate	Public Administration	Other services
	From 1980/ 81 to 1982/ 83									
Ganganagar	11.1	0.7	0.9	0.2	9.2	8.1	1.6	2.4	1.3	2.8
Bikaner	21.6	1.8	3.1	0.3	16.3	20.3	3.2	3.6	6.6	6.8
Churu	19.0	2.3	0.8	0.5	15.4	14.6	3.2	4.0	2.7	4.7
Jhunjhunu	15.6	0.9	1.2	0.7	12.7	17.7	3.4	4.5	3.1	6.6
Alwar	12.4	0.5	0.9	0.4	10.6	14.6	2.8	3.8	2.7	5.3
Bharatpur	11.8	0.9	1.0	0.4	9.4	14.9	2.1	4.2	3.2	5.3
Dholpur	32.9	8.5	2.4	2.3	19.7	6.8	5.7	0.0	1.2	0.0
Sawai Madhopur	13.4	0.9	0.7	0.6	11.2	13.8	2.2	4.5	2.6	4.5
Jaipur	16.3	1.1	2.1	0.3	12.8	17.9	3.2	3.7	4.2	6.7
Sikar	19.9	1.4	1.1	0.8	16.6	18.1	3.5	4.8	3.6	6.1
Ajmer	20.6	0.3	1.4	0.5	18.5	20.7	3.4	4.6	4.7	8.1
Tonk	12.6	0.9	0.9	0.4	10.4	13.4	2.0	3.9	2.7	4.9
Jaisalmer	14.7	2.7	1.5	1.0	9.6	19.9	2.7	5.1	6.1	6.0
Jodhpur	19.9	1.7	2.3	0.4	15.4	19.3	3.5	4.5	4.1	7.1
Nagaur	15.2	2.0	0.6	0.6	11.9	15.0	3.2	4.7	2.9	4.2
Pali	17.8	1.8	0.8	0.5	14.6	16.1	4.1	4.9	2.7	4.4
Barmer	15.0	2.6	0.7	0.8	10.9	13.7	2.0	5.7	2.4	3.4
Jalore	13.4	1.4	0.4	0.5	11.1	14.8	3.1	5.0	1.9	3.2
Sirohi	19.9	1.3	1.1	0.6	17.0	19.3	4.4	5.2	3.4	6.2
Bhilwara	12.4	0.6	0.7	0.5	10.5	15.6	2.5	5.2	3.3	4.5
Udaipur	14.4	0.9	1.1	0.5	11.9	16.4	2.5	4.8	3.5	5.5
Chittorgarh	10.7	0.6	0.5	0.4	9.2	11.9	1.9	4.1	2.6	3.3
Dungarpur	11.4	0.8	0.4	0.9	9.3	19.9	3.5	6.6	4.3	5.5
Banswara	9.7	0.0	0.7	0.6	8.5	18.2	3.0	6.0	4.3	5.0
Bundi	9.1	0.6	0.7	0.3	7.5	11.4	1.9	3.3	2.6	3.6
Kota	12.5	0.9	1.6	0.3	9.7	12.8	2.2	3.1	3.0	4.5
Jhalawar	11.2	0.4	0.5	0.5	9.8	14.1	2.3	4.6	3.2	4.1
Rajasthan	14.6	1.1	1.2	0.4	11.9	15.1	2.7	4.1	3.2	5.1

Table 8 : District-wise Domestic Products in Rajasthan :
Three Year Averages of Share of Sector (percent) *(Concld.)*

DISTRICT	NSDP	Farm Sector	Non farm Sector	Primary Sector	Secondary Sector	Tertiary Sector
					From 1980/ 81 to 1982/ 83	
Ganganagar	100.0	73.3	26.7	73.6	7.2	19.1
Bikaner	100.0	41.3	58.7	42.1	16.0	41.9
Churu	100.0	56.5	43.4	56.5	9.9	33.5
Jhunjhunu	100.0	41.5	58.5	45.0	21.8	33.2
Alwar	100.0	58.0	42.0	58.4	14.6	27.0
Bharatpur	100.0	60.8	39.2	61.3	12.1	26.7
Dholpur	100.0	48.1	51.9	51.1	9.2	39.7
Sawai Madhopur	100.0	60.6	39.4	61.8	11.0	27.1
Jaipur	100.0	34.5	65.5	37.2	28.6	34.1
Sikar	100.0	42.5	57.5	42.7	19.3	38.0
Ajmer	100.0	31.5	68.5	31.7	26.9	41.4
Tonk	100.0	59.9	40.1	60.2	13.8	26.0
Jaisalmer	100.0	46.6	53.4	47.6	17.8	34.7
Jodhpur	100.0	40.8	59.2	43.7	17.1	39.2
Nagaur	100.0	52.4	47.6	55.5	14.3	30.2
Pali	100.0	41.2	58.8	41.5	24.6	33.9
Barmer	100.0	59.1	40.9	59.4	11.9	28.6
Jalore	100.0	61.6	39.9	61.7	11.7	28.2
Sirohi	100.0	41.9	58.1	42.4	18.3	39.2
Bhilwara	100.0	43.5	56.5	46.3	25.7	28.0
Udaipur	100.0	41.0	59.0	51.3	17.9	30.8
Chittorgarh	100.0	56.2	43.8	58.1	19.3	22.6
Dungarpur	100.0	54.0	46.0	55.4	13.3	31.4
Banswara	100.0	56.8	43.2	57.1	14.9	28.0
Bundi	100.0	64.9	35.1	68.6	10.9	20.6
Kota	100.0	44.9	55.1	47.0	27.7	25.3
Jhalawar	100.0	60.2	39.8	60.7	14.0	25.3
Rajasthan	100.0	50.5	49.5	52.5	17.8	29.7

Source : District Domestic Products Estimates by Directorate of Economics & Statitics (Unpublished), Govt. of Rajasthan, Jaipur

Table 8 A : District-wise Domestic Product in Rajasthan : Three Year Averages of Shares of Sectors (percent) : 1987-88 to 1991-92

DISTRICT	Agriculture & Allied	Agriculture	Live Stock	Forestry	Fishing	Mining & Manufacturing	Mining	Manufacturing (Registered)	Manufacturing (Unregistered)	Construction	Electricity Gas & Water Supply
	First 5 year averages		From 1987/ 88 to 1991/ 92								
Ganganagar	63.2	57.8	4.8	0.4	0.1	7.3	1.1	0.7	2.7	2.9	0.6
Bikaner	36.9	25.5	9.5	1.9	0.0	16.5	0.7	3.0	4.6	6.2	1.5
Churu	41.4	31.7	9.4	0.4	0.0	13.1	0.5	0.7	2.5	7.4	1.0
Jhunjhunu	31.0	22.5	7.6	0.9	0.0	28.0	7.7	4.7	5.1	8.0	2.6
Alwar	46.7	38.3	7.7	0.7	0.0	22.3	0.4	12.1	3.2	4.8	1.9
Bharatpur	51.5	41.9	8.7	0.5	0.0	15.2	0.5	5.5	3.4	5.0	0.8
Dholpur	55.5	44.1	10.1	1.2	0.2	10.7	0.7	0.6	3.9	5.0	0.5
Sawai Madhopur	56.6	40.2	12.2	4.1	0.0	11.1	1.4	0.4	2.3	5.5	0.9
Jaipur	28.3	20.5	7.3	0.4	0.0	34.1	0.8	17.9	6.6	6.5	2.3
Sikar	42.4	26.8	9.3	1.3	0.0	16.8	0.2	1.2	4.9	8.4	2.1
Ajmer	25.0	17.2	7.0	0.8	0.0	29.4	0.6	12.4	8.2	6.2	2.1
Tonk	53.8	42.3	10.6	0.8	0.1	12.5	0.2	0.9	6.2	4.5	0.7
Jaisalmer	34.6	15.9	16.6	2.1	0.0	16.7	3.0	0.2	3.1	9.4	1.0
Jodhpur	29.7	23.8	5.7	0.1	0.0	22.2	1.5	5.3	5.5	7.6	2.2
Nagaur	42.7	33.6	8.9	0.2	0.0	26.0	13.3	1.4	4.3	5.6	1.3
Pali	37.4	29.0	6.8	1.6	0.1	25.0	0.3	9.9	5.9	7.6	1.3
Barmer	45.7	34.8	10.0	0.9	0.0	15.4	0.5	1.0	5.4	7.7	0.9
Jalore	59.8	50.1	9.1	0.6	0.0	10.6	0.2	0.0	3.1	5.8	1.4
Sirohi	38.2	25.4	5.8	7.0	0.1	18.2	2.3	2.6	4.7	6.4	2.2
Bhilwara	48.2	34.4	12.4	1.2	0.2	19.9	4.2	4.0	3.9	6.6	1.3
Udaipur	34.5	18.9	10.9	4.6	0.2	30.2	8.1	9.9	3.4	6.9	2.0
Chittorgarh	56.4	45.7	7.9	2.8	0.0	17.8	1.9	4.9	2.9	6.6	1.5
Dungarpur	47.0	30.5	13.2	3.2	0.1	15.5	2.6	1.5	3.3	7.3	0.8
Banswara	52.0	37.1	11.6	3.0	0.2	20.1	0.8	0.1	2.5	16.1	0.6
Bundi	58.5	44.7	9.8	4.5	0.1	12.8	1.9	2.3	3.3	4.3	1.0
Kota	44.1	33.8	7.1	3.1	0.1	24.8	1.0	11.3	4.8	5.2	2.5
Jhalawar	59.4	42.0	13.6	3.7	0.0	11.5	0.2	2.0	3.8	4.5	0.9
Rajasthan	43.8	33.6	8.6	1.5	0.1	20.8	2.2	6.3	4.5	6.2	1.6

Table 8 A : District-wise Domestic Product in Rajasthan : Three Year Averages of Shares of Sectors (percent) : 1987-88 to 1991-92*) (Contd.)*

DISTRICT	Transport & Communication	Railways	Other Transport & Storage	Communication	Trade Hotels & Restaurant	Other Services	Banking & Insurance	Real Estate	Public Administration	Other services
					From 1987/88 to 1991/92					
Ganganagar	18.3	1.7	1.1	0.3	15.1	10.4	2.2	1.6	1.7	5.0
Bikaner	25.6	2.1	2.4	0.6	20.6	21.0	4.5	2.4	6.5	7.5
Churu	27.8	3.2	1.1	0.9	22.7	17.7	4.3	2.9	3.7	6.8
Jhunjhunu	21.9	1.3	1.3	0.9	18.4	19.1	3.4	2.9	3.6	9.3
Alwar	16.3	0.8	1.0	0.6	14.0	14.6	2.9	2.1	3.1	6.5
Bharatpur	16.8	1.7	1.9	0.6	12.7	16.5	3.1	2.5	4.4	6.6
Dholpur	19.4	3.0	0.9	0.9	14.5	14.4	2.6	2.1	3.5	6.2
Sawai Madhopur	17.6	1.3	0.7	0.8	14.9	14.6	3.0	2.7	3.1	5.8
Jaipur	19.1	1.5	2.9	0.4	14.3	18.5	3.0	2.2	4.9	8.2
Sikar	27.5	2.1	1.2	1.1	23.0	18.4	3.7	3.0	4.0	7.7
Ajmer	25.1	1.4	1.6	0.6	21.5	20.5	3.7	2.6	5.3	8.9
Tonk	17.0	1.2	0.7	0.6	14.5	16.8	3.2	2.4	3.6	7.5
Jaisalmer	20.1	3.6	1.2	1.7	13.6	28.6	5.6	3.2	7.3	12.5
Jodhpur	26.6	2.4	3.4	0.6	20.3	21.5	3.4	2.8	4.6	10.6
Nagaur	18.7	2.3	0.8	0.8	14.7	12.6	3.1	2.3	2.8	4.3
Pali	22.7	2.6	1.0	0.8	18.4	14.9	3.5	3.0	3.3	5.1
Barmer	22.0	3.7	1.4	1.4	15.5	16.3	3.5	4.1	3.1	5.6
Jalore	17.3	1.9	0.6	0.8	14.0	12.2	3.1	3.2	2.5	3.5
Sirohi	24.6	1.7	0.9	0.8	21.0	19.0	4.1	3.0	4.1	7.9
Bhilwara	15.7	1.3	0.9	0.8	12.8	16.2	3.5	2.9	4.0	5.7
Udaipur	17.6	1.3	1.6	0.7	13.9	17.6	3.3	2.8	4.3	7.2
Chittorgarh	13.1	1.0	0.7	0.5	10.9	12.6	2.6	2.3	3.0	4.7
Dungarpur	13.9	1.1	0.8	1.3	10.7	23.6	5.3	4.0	5.6	8.8
Banswara	10.3	0.0	1.0	0.7	8.6	17.6	3.9	3.0	4.5	6.2
Bundi	14.2	1.3	0.8	0.5	11.6	14.6	3.4	2.0	3.9	5.3
Kota	16.4	1.2	2.1	0.4	12.7	14.7	3.0	2.0	3.7	6.1
Jhalawar	13.2	0.5	0.6	0.7	11.4	15.9	4.2	2.7	3.9	5.2
Rajasthan	19.0	1.6	1.5	0.6	15.2	16.3	3.1	2.6	3.8	6.8

Table 8 A : District-wise Domestic Product in Rajasthan : Three Year Averages of Shares of Sectors (percent) : 1987-88 to 1991-92 *(Concld.)*

DISTRICT	NSDP	Farm Sector	Non farm Sector	Primary Sector	Secondary Sector	Tertiary Sector
				From 1987/ 88 to 1991/ 92		
Ganganagar	100.0	63.2	36.1	64.3	6.9	28.7
Bikaner	100.0	36.9	63.1	37.6	15.2	46.6
Churu	100.0	41.4	58.6	41.9	11.6	45.5
Jhunjhunu	100.0	31.0	69.0	38.7	20.3	41.0
Alwar	100.0	46.7	53.3	47.1	21.9	31.0
Bharatpur	100.0	51.5	48.5	52.0	14.7	33.4
Dholpur	100.0	55.5	44.5	56.3	10.0	33.7
Sawai Madhopur	100.0	56.6	43.4	58.0	9.0	32.2
Jaipur	100.0	28.3	71.7	29.1	33.3	37.5
Sikar	100.0	42.4	62.7	42.6	16.6	45.9
Ajmer	100.0	25.0	75.0	25.6	28.8	45.6
Tonk	100.0	53.8	46.2	54.0	12.3	33.8
Jaisalmer	100.0	34.6	65.4	37.7	13.6	48.7
Jodhpur	100.0	29.7	70.3	31.2	20.7	48.1
Nagaur	100.0	42.7	57.3	56.1	12.6	31.3
Pali	100.0	37.4	62.6	37.7	24.7	37.6
Barmer	100.0	45.7	53.7	46.2	15.0	38.3
Jalore	100.0	59.8	40.1	60.0	10.4	29.5
Sirohi	100.0	38.2	61.8	40.5	15.9	43.6
Bhilwara	100.0	48.2	51.8	52.4	15.7	31.9
Udaipur	100.0	34.5	65.5	42.6	22.1	35.2
Chittorgarh	100.0	56.4	43.6	58.3	16.0	25.7
Dungarpur	100.0	47.0	53.0	49.6	12.9	37.5
Banswara	100.0	52.0	48.0	52.9	19.3	27.9
Bundi	100.0	58.5	41.5	60.4	10.9	28.8
Kota	100.0	44.1	55.9	45.1	23.8	31.1
Jhalawar	100.0	59.4	40.6	59.6	11.2	29.1
Rajasthan	100.0	43.8	56.2	46.1	18.6	35.3

Source : District Domestic Products Estimates by Directorate of Economics & Statitics (Unpublished), Govt. of Rajasthan, Jaipur

Table 8 B : District-wise Domestic Product in Rajasthan : Three Year Averages of Shares of Sectors (percent) : 1989-90 to 1991-92

DISTRICT	Agriculture & Allied	Agriculture	Live Stock	Forestry	Fishing	Mining & Manufacturing	Mining	Manufacturing (Registered)	Manufacturing (Unregistered)	Construction	Electricity Gas & Water Supply
	Last 3 year averages		From 1989/ 90 to 1991/ 92								
Ganganagar	63.3	57.8	4.9	0.5	0.1	8.1	1.2	1.1	2.5	2.8	0.5
Bikaner	37.6	28.4	7.2	1.9	0.0	15.2	0.9	2.8	4.5	5.4	1.4
Churu	41.4	33.2	8.1	0.2	0.0	11.1	0.3	0.1	2.4	6.7	0.8
Jhunjhunu	29.1	20.9	7.1	1.1	0.0	30.6	7.7	8.8	4.8	7.4	2.0
Alwar	46.2	38.3	7.4	0.5	0.0	24.8	0.4	15.4	11.6	4.7	1.5
Bharatpur	53.2	42.9	9.7	0.6	0.0	13.9	0.4	5.0	3.3	4.6	0.7
Dholpur	53.4	41.5	11.0	0.9	0.1	10.4	0.7	0.4	3.9	5.0	0.4
Sawai Madhopur	59.5	41.8	12.9	4.7	0.1	9.5	1.2	-0.3	2.3	5.0	0.7
Jaipur	30.1	22.0	7.6	0.5	0.0	32.0	0.8	16.2	6.5	6.5	2.0
Sikar	41.3	26.7	9.5	1.6	0.0	14.9	0.2	0.5	4.8	7.6	1.7
Ajmer	26.9	20.0	6.0	0.9	0.0	28.5	0.6	12.6	7.8	5.7	1.7
Tonk	54.8	43.3	10.6	0.8	0.2	12.3	0.3	1.3	5.8	4.4	0.6
Jaisalmer	34.9	22.5	9.8	2.5	0.0	16.1	3.5	0.1	2.9	8.6	1.0
Jodhpur	31.8	27.4	4.2	0.1	0.0	22.2	2.5	5.8	5.1	7.0	1.8
Nagaur	46.8	38.5	8.1	0.2	0.0	22.0	9.5	1.9	4.2	5.4	1.1
Pali	42.0	34.1	6.0	1.8	0.1	21.8	0.2	8.3	5.4	6.9	1.0
Barmer	48.0	40.7	6.4	0.8	0.0	14.9	0.4	1.0	5.2	7.6	0.7
Jalore	62.3	53.4	8.3	0.6	0.0	9.8	0.2	0.0	2.8	5.8	1.1
Sirohi	39.4	27.8	4.4	7.1	0.1	24.1	2.1	11.3	3.8	5.5	1.4
Bhilwara	47.1	35.0	10.7	1.3	0.2	24.8	5.7	8.4	3.6	6.1	1.1
Udaipur	35.7	21.0	9.3	5.3	0.2	30.7	7.9	11.4	3.1	6.7	1.6
Chittorgarh	56.5	46.1	7.5	2.8	0.0	18.1	1.7	5.9	2.8	6.4	1.2
Dungarpur	47.3	31.4	12.0	3.8	0.1	16.1	2.9	1.7	3.1	7.7	0.7
Banswara	50.0	35.0	11.3	3.5	0.2	22.8	1.0	3.7	2.3	15.2	0.5
Bundi	61.8	46.5	10.1	5.5	0.1	12.4	3.0	1.8	2.8	4.0	0.7
Kota	45.0	33.9	7.2	3.7	0.1	24.2	1.9	10.7	4.6	5.0	2.1
Jhalawar	59.9	41.9	13.4	4.5	0.0	11.3	0.2	2.0	3.6	4.7	0.8
Rajasthan	45.7	36.0	7.8	1.8	0.1	20.3	2.2	7.0	4.9	5.8	1.2

Table 8 B : District-wise Domestic Product in Rajasthan : Three Year Averages of Shares of Sectors (percent) : 1989-90 to 1991-92
(Contd.)

DISTRICT	Transport & Communication	Railways	Other Transport & Storage	Communication	Trade Hotels & Restaurant	Other Services	Banking & Insurance	Real Estate	Public Administration	Other services
				From 1989/90 to 1991/92						
Ganganagar	18.5	2.0	0.9	0.3	15.2	10.1	2.1	1.4	1.6	4.9
Bikaner	26.8	2.2	2.4	0.5	21.7	20.4	4.6	2.0	6.5	7.3
Churu	30.2	3.8	1.0	0.9	24.6	17.2	4.4	2.5	3.5	6.7
Jhunjhunu	22.0	1.2	1.2	0.9	18.6	18.3	3.2	2.6	3.4	9.0
Alwar	15.6	0.8	0.8	0.6	13.4	13.4	2.7	1.8	2.8	6.0
Bharatpur	17.2	2.0	1.8	0.6	12.9	15.7	3.1	2.1	4.3	6.2
Dholpur	20.1	3.0	1.0	0.9	15.2	16.1	2.8	2.5	3.5	7.3
Sawai Madhopur	17.2	1.2	0.7	0.8	14.6	13.9	2.9	2.5	3.0	5.5
Jaipur	19.2	1.5	2.6	0.4	14.8	18.7	3.1	2.1	5.0	8.3
Sikar	28.9	2.2	1.2	1.2	24.2	18.5	3.8	2.9	4.0	7.8
Ajmer	25.0	1.5	1.4	0.6	21.4	19.7	3.7	2.4	5.1	8.5
Tonk	16.7	1.2	0.5	0.6	14.4	16.1	3.2	2.2	3.5	7.3
Jaisalmer	20.2	3.5	1.2	1.7	13.9	28.7	5.9	3.0	7.1	12.7
Jodhpur	25.6	2.3	3.0	0.6	19.8	20.4	3.3	2.5	4.4	10.3
Nagaur	19.1	2.3	0.8	0.8	15.2	12.2	3.1	2.1	2.7	4.2
Pali	22.2	2.4	0.9	0.8	18.1	14.0	3.4	2.7	3.2	4.8
Barmer	21.5	3.5	1.4	1.4	15.2	15.6	3.6	3.7	2.9	5.4
Jalore	16.5	1.8	0.5	0.8	13.4	11.3	3.0	2.9	2.3	3.2
Sirohi	20.9	1.4	0.8	0.7	18.0	15.6	3.4	2.3	3.4	6.5
Bhilwara	13.4	1.1	0.8	0.7	10.8	14.7	3.2	2.6	3.7	5.2
Udaipur	16.9	1.3	1.5	0.7	13.5	16.7	3.2	2.5	4.2	6.7
Chittorgarh	13.2	1.0	0.7	0.5	11.0	12.3	2.6	2.2	2.9	4.6
Dungarpur	13.6	1.1	0.8	1.3	10.5	23.0	5.1	3.6	5.4	8.9
Banswara	10.2	0.0	0.9	0.7	8.6	17.0	3.9	2.7	4.3	6.1
Bundi	12.3	1.0	0.4	0.6	10.3	13.5	3.3	1.8	3.3	5.0
Kota	16.3	1.2	1.8	0.4	12.9	14.5	3.0	1.8	3.7	6.0
Jhalawar	13.3	0.5	0.5	0.8	11.4	15.5	4.2	2.5	3.8	5.1
Rajasthan	18.7	1.6	1.3	0.6	15.1	15.3	2.9	2.3	3.7	6.5

Table 8 B : District-wise Domestic Product in Rajasthan : Three Year Averages of Shares of Sectors (percent) : 1989-90 to 1991-92 (Concld.)

DISTRICT	NSDP	Farm Sector	Non farm Sector	Primary Sector	Secondary Sector	Tertiary Sector
				From 1989/ 90 to 1991/ 92		
Ganganagar	100.0	63.3	36.7	64.5	6.9	28.6
Bikaner	100.0	37.6	62.4	38.5	13.9	47.2
Churu	100.0	41.4	58.6	41.7	10.1	47.5
Jhunjhunu	100.0	29.1	70.9	36.8	23.0	40.3
Alwar	100.0	46.2	53.8	46.5	33.2	29.0
Bharatpur	100.0	53.2	46.8	53.6	13.6	32.9
Dholpur	100.0	53.4	46.6	54.1	9.8	36.2
Sawai Madhopur	100.0	59.5	40.5	60.7	7.8	31.1
Jaipur	100.0	30.1	69.9	30.9	31.2	37.9
Sikar	100.0	41.3	62.2	41.5	14.6	47.4
Ajmer	100.0	26.9	73.1	27.5	27.8	44.6
Tonk	100.0	54.8	45.2	55.1	12.1	32.8
Jaisalmer	100.0	34.9	65.1	38.4	12.6	49.0
Jodhpur	100.0	31.8	68.2	34.2	19.7	46.0
Nagaur	100.0	46.8	53.2	56.2	12.5	31.2
Pali	100.0	42.0	58.0	42.2	21.5	36.2
Barmer	100.0	48.0	52.0	48.4	14.5	37.1
Jalore	100.0	62.3	37.7	62.5	9.7	27.9
Sirohi	100.0	39.4	60.6	41.5	22.0	36.6
Bhilwara	100.0	47.1	52.9	52.8	19.1	28.1
Udaipur	100.0	35.7	64.3	43.6	22.8	33.6
Chittorgarh	100.0	56.5	43.5	58.2	16.4	25.5
Dungarpur	100.0	47.3	52.7	50.2	13.2	36.6
Banswara	100.0	50.0	50.0	51.1	21.7	27.2
Bundi	100.0	61.8	38.2	64.8	9.4	25.8
Kota	100.0	45.0	55.0	46.9	22.3	30.8
Jhalawar	100.0	59.9	40.1	60.1	11.1	28.8
Rajasthan	100.0	45.7	54.3	47.9	18.9	34.0

Source : District Domestic Products Estimates by Directorate of Economics & Statitics (Unpublished), Govt. of Rajasthan, Jaipur

Table 9 : District-wise Population and Share of Incomes in Rajasthan

District	Growth Rate (percent)						Per Capita Income (Rs.)		Growth Rate (percent)			Population 1981		Share of Incomes	
	80-81 to 86-87	80-81 to to 83/84	88-89 to 91-92	86-87 to 91-92	80-81 to 90-91	80-81 to 91-92	1980-81	1991-92	1980-81 to 1986-87	1986-87 to 1990-91	1980-81 to 1990-91	Total	Share of Raj. (%)	1981	1982
Ganganagar	8.77	20.56	16.02	23.91	15.3	15.41	2039	7386	5.17	21.76	12.41	2029968	5.925	9.86	9.61
Bikaner	15.29	34.00	16.33	19.66	17.7	17.26	1126	4399	11.69	15.02	13.19	848749	2.477	2.28	2.53
Churu	11.69	16.25	4.80	15.99	15.4	13.63	1051	3175	8.55	13.05	10.57	1179466	3.443	2.96	3.17
Jhunjhunun	11.72	20.79	11.79	19.21	16.2	15.07	996	3467	8.74	16.05	12.00	1211583	3.536	2.89	2.82
Alwar	11.26	20.30	22.39	25.21	17.0	17.40	1205	5269	8.48	21.81	14.35	1771173	5.170	5.11	5.34
Bharatpur	4.86	6.99	13.20	18.41	12.1	10.81	1682	3976	2.25	15.65	8.14	1299073	3.792	5.23	4.96
Dholpur			11.54	16.19			0	3404		13.27		585059	1.708	0.00	0.16
Sawai Madhopur	11.10	21.47	16.62	20.61	15.6	15.33	1144	4538	8.32	19.69	13.34	1535870	4.483	4.20	3.93
Jaipur	15.70	17.03	10.02	11.65	15.7	13.84	1352	4794	12.30	12.07	12.20	3420574	9.984	11.03	10.05
Sikar	14.52	15.96	13.24	14.97	14.2	14.73	912	2996	11.48	11.35	11.42	1377245	4.020	3.00	2.93
Ajmer	11.42	15.61	14.00	19.16	15.7	14.88	1182	4400	9.00	17.30	12.69	1440366	4.204	4.08	4.07
Tonk	12.29	18.38	16.73	19.08	15.9	15.33	1257	4711	9.60	16.68	12.76	783645	2.287	2.36	2.45
Jaisalmer	16.36	21.39	16.51	14.46	16.2	15.49	1074	3576	12.74	10.16	11.56	243082	0.709	0.62	0.67
Jodhpur	11.23	20.75	16.19	19.92	16.4	15.10	1131	3982	7.75	17.60	12.12	1667791	4.868	4.50	4.25
Nagaur	15.58	23.47	12.97	19.96	18.3	17.55	947	4134	12.62	16.44	14.34	1628669	4.754	3.69	3.80
Pali	11.50	19.32	15.16	19.48	15.4	15.06	1155	4496	8.55	18.92	13.15	1274504	3.720	3.52	3.47
Barmer	8.81	21.63	12.50	20.75	16.8	14.08	877	2824	5.50	18.48	11.22	1118892	3.266	2.34	2.75
Jalor	12.77	24.63	15.74	19.83	17.2	15.92	982	3825	9.63	17.53	13.15	903073	2.636	2.12	2.40
Sirohi	13.18	23.54	18.83	19.74	20.0	16.11	1095	4556	10.55	17.92	13.84	542049	1.582	1.42	1.46
Bhilwara	12.01	12.91	20.52	19.45	16.7	15.33	1144	4391	9.57	17.28	13.01	1310379	3.825	3.59	3.44
Udaipur	11.43	20.25	1.92	9.09	15.4	10.36	1233	4038	8.63	14.79	11.39	2356959	6.879	6.95	7.24
Chittaurgarh	10.36	15.90	20.83	21.22	15.0	15.17	1523	5806	7.46	19.88	12.94	1232494	3.597	4.49	4.18
Dungarpur	12.23	16.73	15.41	17.10	15.6	14.42	821	2735	9.37	14.24	11.56	682845	1.993	1.34	1.41
Banswara	11.81	15.57	11.46	23.56	18.7	17.01	892	3739	8.63	20.59	13.91	886600	2.588	1.89	1.89
Bundi	17.36	15.90	15.16	13.86	16.3	15.76	1492	5508	14.28	10.62	12.60	586982	1.713	2.09	2.24
Kota	14.77	23.07	-2.95	4.56	15.9	10.01	1674	5925	11.45	13.05	12.18	1559784	4.553	6.23	6.64
Jhalawar	12.22	12.38	14.01	17.18	14.8	14.45	1188	4181	9.50	15.34	12.12	784998	2.291	2.23	2.14
Dausa (Jaipur)								4113							
Baran (Kota)								6415							
Rajsamand (Udaipur)								5125							
State	12.45	19.51	15.85	19.17	16.1	15.45	1222	4497	9.41	16.50	12.58	34261872	100	100	100.00

Table 9 : District-wise Population and Share of Incomes in Rajasthan *(Concld.)*

DISTRICT	Population, 1991		Share of Incomes		Share of Population	
	Total	Share of Raj.	1991	1992	Urban	Rural
Ganganagar	2622777	5.960	9.259	9.820	21.1	78.9
Bikaner	1211140	2.752	2.621	2.702	39.7	60.3
Churu	1543211	3.507	2.797	2.484	28.9	71.1
Jhunjhunun	1582421	3.596	2.918	2.781	20.5	79.5
Alwar	2296580	5.219	5.534	6.136	13.9	86.1
Bharatpur	1651584	3.753	3.698	3.328	19.4	80.6
Dholpur	749479	1.703	1.321	1.294	17.2	82.8
Sawai Madhopur	1963246	4.461	4.023	4.150	14.8	85.2
Jaipur	4722551	10.732	10.724	11.522	39.5	60.5
Sikar	1842914	4.188	2.549	2.800	21.0	79.0
Ajmer	1729207	3.929	3.957	3.857	40.7	59.3
Tonk	975006	2.216	2.335	2.329	19.5	80.5
Jaisalmer	344517	0.783	0.632	0.624	15.6	84.4
Jodhpur	2153483	4.894	4.634	4.346	35.5	64.5
Nagaur	2144810	4.874	4.457	4.495	16.0	84.0
Pali	1486432	3.378	3.337	3.387	21.8	78.2
Barmer	1435222	3.261	2.487	2.054	10.0	90.0
Jalor	1142563	2.596	2.340	2.216	7.3	92.7
Sirohi	654029	1.486	1.982	1.512	19.5	80.5
Bhilwara	1593128	3.620	3.794	3.547	19.5	80.5
Udaipur	2889301	6.566	6.546	6.368	17.1	82.9
Chittaurgarh	1484190	3.373	4.106	4.368	15.6	84.4
Dungarpur	874549	1.987	1.283	1.213	7.3	92.7
Banswara	1155600	2.626	2.367	2.190	7.7	92.3
Bundi	770248	1.750	2.131	2.152	17.4	82.6
Kota	2030831	4.615	6.172	6.299	36.4	63.6
Jhalawar	956971	2.175	1.996	2.027	15.8	84.2
Dausa (Jaipur)				2.073		
Baran (Kota)				2.634		
Rajsamand (Udaipur)				2.137		
State	44005990	100			22.9	77.1

Source : Directorate of Economics & Statitics (Unpublished Report), Govt. of Rajasthan, Jaipur

Table 10 : Literacy Rates in Rajasthan : 1991

Area/District	Literacy Rate (percent)								
	Total	Male	Female	Rural	Rural Male	Rural Female	Urban	Urban Male	Urban Female
Rajasthan Western	34.9	50.4	18.0	27.1	42.8	10.1	61.4	75.2	45.6
Rajasthan North eastern	43.0	60.8	23.0	34.9	54.3	13.4	65.8	79.0	50.7
Rajasthan Southern	31.8	46.1	17.1	25.0	39.5	10.3	74.8	85.8	62.4
Rajasthan South eastern	39.0	54.9	21.5	29.5	46.2	11.3	68.8	81.6	54.2
GANGANAGAR and HANUMANGARH	41.8	55.3	26.4	35.8	50.1	19.5	64.2	74.2	52.4
BIKANER	41.7	54.6	27.0	24.1	37.6	8.8	67.0	78.7	53.5
CHURU	34.8	51.3	17.3	26.9	43.6	9.3	53.9	69.8	36.9
JHUNJHUNU	47.6	68.3	25.5	44.7	66.2	22.0	58.8	76.0	39.4
ALWAR	43.1	61.0	22.5	38.0	56.8	16.7	72.7	84.9	57.9
BHARATPUR	43.0	62.1	19.6	37.8	58.4	12.5	63.4	77.1	47.3
DHOLPUR	35.1	50.5	15.2	31.0	47.1	9.9	54.3	66.6	39.4
SAWAI MADHOPUR and KARAULI	36.3	54.6	14.6	32.0	50.8	9.8	60.4	76.3	41.8
JAIPUR	50.4	66.8	31.8	35.1	55.5	12.3	67.7	79.2	54.4
DAUSA	36.9	56.8	14.2	34.0	54.2	10.9	60.9	78.1	41.0
SIKAR	42.5	64.1	19.9	39.0	61.8	15.4	55.4	72.7	36.8
AJMER	52.3	68.7	34.5	35.1	55.0	14.0	76.5	87.6	64.1
TONK	33.7	50.6	15.2	28.3	45.7	9.5	55.8	70.9	39.1
JAISALMER	30.1	45.0	11.3	23.1	37.9	4.7	66.5	80.9	47.2
JODHPUR	40.7	56.7	22.6	26.0	43.8	6.5	66.3	78.4	51.9
NAGAUR	31.8	49.3	13.3	28.1	45.8	9.8	51.0	67.6	32.5
PALI	36.0	54.4	17.0	30.1	48.6	11.5	56.9	74.3	37.7
BARMER	23.0	36.6	7.7	18.8	31.8	4.2	59.8	77.0	39.4
JALAUR	23.8	39.0	7.8	21.4	36.2	5.9	53.9	72.3	32.8
SIROHI	31.9	46.2	17.0	23.0	36.6	9.2	67.3	82.8	49.7
BHILWARA	31.7	45.9	16.5	24.3	38.4	9.6	61.9	76.1	45.9
UDAIPUR	34.9	48.7	20.4	24.7	39.0	10.1	76.0	86.2	64.4
RAJSAMAND	33.1	50.7	15.5	28.2	46.0	10.9	68.0	83.5	51.4
CHITTORGARH	34.3	50.5	17.2	27.8	44.4	10.5	68.9	82.3	53.8
DUNGARPUR	30.6	45.7	15.4	27.0	42.3	11.9	73.9	85.5	60.9
BANSWARA	26.0	38.2	13.4	21.5	33.7	8.9	77.5	87.1	66.9
BUNDI	32.7	47.4	16.1	26.0	40.7	9.4	63.9	78.8	47.1
KOTA	55.2	70.7	37.6	38.3	57.7	16.4	71.4	82.8	58.1
BARAN	36.8	53.8	17.2	31.9	50.0	12.3	62.1	77.3	44.8
JHALAWAR	32.9	48.2	16.2	26.3	41.9	9.3	67.7	81.2	52.7
RAJASTHAN	38.6	55.0	20.4	30.4	47.6	11.6	66.1	79.1	51.2

Source : Primary Census Abstract, Census of India, 1999, Office of the Registrar General of India, New Delhi.

Table 10A : District-Wise Literacy Rates in Rajasthan 2001

S. No.	State/ District	Literacy Rate								
		Total			Rural			Urban		
		Person	male	Female	Person	Male	Female	Person	Male	Female
1	2	3	4	5	6	7	8	9	10	11
	Rajasthan	61.03	76.46	44.34	55.92	72.96	37.74	76.89	87.10	65.42
1.	Ganganagar	64.84	75.49	52.69	60.39	72.00	47.27	77.60	85.34	68.54
2.	Hanumangarh	65.72	77.41	52.71	63.65	75.97	50.01	73.82	83.00	63.40
3.	Bikaner	57.54	70.78	42.55	46.33	61.92	28.83	76.17	85.38	65.62
4.	Churu	66.97	79.52	53.87	65.29	78.63	51.45	71.15	81.71	59.95
5.	Jhunjhunu	73.61	86.61	60.10	73.24	86.36	59.80	75.00	87.51	61.28
6.	Alwar	62.48	78.91	43.95	58.88	76.54	39.16	82.27	91.50	71.24
7.	Bharatpur	64.24	81.39	44.12	61.44	79.95	39.62	75.18	87.08	61.47
8.	Dhulpur	60.77	75.85	42.36	59.22	75.29	39.37	67.48	78.35	54.87
9.	Karauli	64.59	80.93	45.44	63.62	80.45	43.84	70.22	83.81	54.65
10.	Sawai Madhopur	57.34	76.75	35.44	53.24	74.13	29.69	74.23	87.54	59.17
11.	Dausa	62.75	80.37	43.15	61.02	79.19	40.83	77.13	90.12	62.54
12.	Jaipur	70.63	83.58	56.18	62.96	79.96	44.42	78.09	87.03	67.89
13.	Sikar	71.19	85.20	56.70	70.39	84.74	55.70	74.23	86.91	60.60
14.	Nagaur	58.26	75.33	40.45	55.92	73.66	37.58	69.37	83.06	54.48
15.	Jodhpur	57.38	73.86	39.18	46.88	66.94	25.10	76.37	86.12	65.28
16.	Jaisalmer	51.40	66.89	32.25	47.02	63.09	27.45	73.99	85.70	58.33
17.	Barmer	59.65	73.64	43.91	58.14	72.15	42.43	77.19	90.52	61.54
18.	Jalor	46.51	65.10	27.53	44.81	63.52	25.88	66.33	82.61	47.97
19.	Sirohi	54.39	70.58	37.37	48.97	65.94	31.47	77.96	89.76	64.44
20.	Pali	54.92	73.06	36.70	50.39	69.39	31.76	7101	85.40	55.27
21.	Ajmer	65.06	79.96	49.10	53.09	72.60	32.72	81.69	89.89	72.58
22.	Tonk	52.39	71.25	32.30	47.77	68.48	25.62	69.57	81.65	56.89
23.	Bundi	55.80	72.17	37.76	51.59	68.99	32.41	73.43	85.53	60.15
24.	Bhilwara	51.09	68.12	33.47	44.59	62.85	26.09	75.21	86.81	62.29
25.	Rajsamand	55.82	74.05	37.89	51.93	71.23	33.22	80.58	91.11	69.24
26.	Udaipur	59.26	74.47	43.71	52.52	69.52	35.46	86.19	93.35	78.29

27.	Dungarpur	48.32	66.19	31.22	45.69	64.12	28.19	79.43	89.25	69.03
28.	Banswara	44.22	60.24	27.86	40.78	57.49	23.78	84.80	92.13	77.03
29.	Chittaurgarh	54.37	71.82	36.45	49.11	67.91	29.98	81.01	91.06	70.19
30.	Kota	74.45	86.25	61.25	67.34	82.56	50.60	80.39	89.29	70.30
31.	Baran	60.37	76.86	42.18	57.43	74.81	38.21	74.50	86.77	61.11
32.	Jhalawar	57.98	74.29	40.39	54.13	71.46	35.51	80.34	90.58	69.09

Source : Provisional Census Abstract of Rajasthan Census 2001.

Table 11 : Estimates of Child Mortality and Life Expectancy at District level in Rajasthan : 1981/1991

District	Person : 1981				Life Expectancy : 1981	Person : 1991			
	q(1)	q(2)	q(3)	q(5)		q(1)	q(2)	q(3)	q(5)
Ganganagar and Hanumangarh	107	102	110	119	60.26	54	64	68	73
Bikaner	69	74	78	89	65.09	60	69	76	82
Churu	84	98	111	116	60.92	64	75	79	83
Jhunjhunu	108	113	128	138	59.45	56	66	67	80
Alwar	160	170	181	204	49.96	101	106	115	124
Bharatpur	186	199	215	236	45.96	78	101	111	126
Dholpur	186	199	215	236	45.96	107	127	133	150
Sawai Madhopur and Karauli	175	189	206	227	47.32	79	106	116	122
Jaipur and Dausa	137	144	148	162	53.72	67	78	84	94
Sikar	106	127	128	145	59.47	57	70	74	78
Ajmer	174	172	178	202	51.09	113	118	126	130
Tonk	164	203	217	233	45.43	123	127	136	149
Jaisalmer	112	118	114	134	60.25	87	97	111	124
Jodhpur	108	111	114	131	59.44	72	75	83	86
Nagaur	99	118	131	147	59.63	82	89	96	102
Pali	166	168	182	218	50.24	111	128	137	156
Barmer	115	129	140	157	59.87	99	121	138	143
Jalore	145	137	142	156	54.76	91	112	124	129
Sirohi	160	157	174	186	51.81	118	126	129	139
Bhilwara	191	196	206	225	48.14	120	125	129	143
Udaipur and Rajsamand	179	177	173	189	51.96	92	113	120	129
Chittorgarh	180	197	196	218	49.11	99	134	142	149
Dungarpur	171	160	160	169	54.02	98	129	134	140
Banswara	150	165	153	167	54.61	92	135	143	148
Bundi	151	165	161	196	50.66	82	105	108	120
Kota and Baran	141	142	155	178	54.02	84	95	99	140
Jhalawar	140	174	179	196	51.38	100	111	118	124
Rajasthan	141	149	157	176	52.98	87	97	100	110
India	115	123	132	152	53.85	77	85	86	94

Source :Occasional Paper No. 4 of 1994, Indirect Estimates of Fertility and Mortality at the District Level, 1981 and Occasional Paper No. 1 of 1997, District Level Estimates of Fertility and Child Mortality for 1991 RGI, New Delhi

Table 11 A : Estimates of Male Child Mortality and Life Expectancy at District level in Rajasthan : 1981/1991								
District	Male : 1981				Male : 1991			
	q(1)	q(2)	q(3)	q(5)	q(1)	q(2)	q(3)	q(5)
Ganganagar and Hanumangarh	125	108	110	115	57	60	69	71
Bikaner	72	75	74	87	60	69	75	81
Churu	88	95	104	112	59	72	76	79
Jhunjhunu	100	109	121	126	48	63	65	73
Alwar	165	172	173	188	99	103	112	119
Bharatpur	175	184	185	199	72	89	97	110
Dholpur	175	184	185	199	109	110	125	142
Sawai Madhopur and Karauli	185	182	191	203	74	95	97	101
Jaipur and Dausa	144	146	143	151	65	76	81	88
Sikar	106	127	116	129	61	62	69	74
Ajmer	178	176	176	195	115	122	129	134
Tonk	177	218	213	232	109	123	137	146
Jaisalmer	124	119	103	113	87	96	109	119
Jodhpur	108	111	107	120	74	77	79	82
Nagaur	101	116	122	137	91	92	96	99
Pali	161	167	175	208	97	123	124	140
Barmer	117	122	134	146	82	124	136	141
Jalore	142	135	141	146	90	104	117	125
Sirohi	136	159	170	175	119	130	128	132
Bhilwara	204	204	208	226	121	134	137	144
Udaipur and Rajsamand	200	191	176	194	71	103	114	122
Chittorgarh	192	210	204	217	103	141	148	151
Dungarpur	178	171	170	177	97	131	136	141
Banswara	170	184	167	172	97	140	144	149
Bundi	143	164	163	185	61	102	109	114
Kota and Baran	148	144	152	168	76	90	97	121
Jhalawar	142	173	180	190	122	113	119	122
Rajasthan	146	151	153	166	94	95	98	103
India	122	125	130	147	74	84	87	91

Source :Occasional Paper No. 4 of 1994, Indirect Estimates of Fertility and Mortality at the District Level, 1981 and Occasional Paper No. 1 of 1997, District Level Estimates of Fertility and Child Mortality for 1991 RGI, New Delhi

Table 11 B : Estimate of Female Child Mortality and Life Expectancy at District level in Rajasthan : 1981/1991								
District	Female : 1981				Female : 1991			
	q(1)	q(2)	q(3)	q(5)	q(1)	q(2)	q(3)	q(5)
Ganganagar and Hanumangarh	89	95	110	124	50	68	72	74
Bikaner	66	73	82	92	59	69	76	82
Churu	79	102	118	121	69	77	82	91
Jhunjhunu	116	117	135	152	66	69	71	88
Alwar	154	168	190	221	103	112	119	128
Bharatpur	199	216	249	278	95	114	128	145
Dholpur	199	216	249	278	105	147	166	183
Sawai Madhopur and Karauli	164	197	222	254	102	122	135	144
Jaipur and Dausa	129	142	154	174	69	81	87	102
Sikar	106	127	142	162	51	78	80	83
Ajmer	170	169	180	210	111	116	121	124
Tonk	152	188	222	233	129	134	136	157
Jaisalmer	100	117	128	158	86	99	113	134
Jodhpur	107	111	122	143	69	71	89	96
Nagaur	96	120	142	159	71	87	96	105
Pali	170	170	189	229	127	136	152	174
Barmer	113	136	147	170	102	118	142	147
Jalore	149	139	144	167	96	120	132	139
Sirohi	190	155	179	198	117	125	129	147
Bhilwara	176	188	203	224	119	123	127	142
Udaipur and Rajsamand	156	163	169	184	109	127	139	146
Chittorgarh	166	183	187	220	83	127	136	145
Dungarpur	163	150	150	161	99	127	131	139
Banswara	126	145	138	161	87	130	143	147
Bundi	160	166	159	208	96	106	108	127
Kota and Baran	133	141	159	188	91	96	101	124
Jhalawar	138	175	179	203	88	110	117	128
Rajasthan	135	148	163	186	79	99	106	117
India	108	120	134	157	79	89	91	101

Source :Occasional Paper No. 4 of 1994, Indirect Estimates of Fertility and Mortality at the District Level, 1981 and Occasional Paper No. 1 of 1997, District Level Estimates of Fertility and Child Mortality for 1991 RGI, New Delhi

Table 12 : Basic Amenities in Rajasthan : 1991 (percent of total households)

District	Access to Safe Drinking Water			Access to Electricity			Access to Toilet facilities			Access to Electricity and SDW			Access to Toilet and SDW		
	Total	Rural	Urban	Total	Rural	Urban	Total	Rural	Urban	Total	Rural	Urban	Total	Rural	Urban
Ganganagar and Hanumangarh	60.4	51.2	92.1	42.2	32.7	74.6	53.1	45.6	78.8	33.5	22.8	70.4	40.1	30.2	74.0
Bikaner	59.0	40.6	87.1	47.0	23.1	83.6	34.6	8.3	74.8	39.2	15.1	75.9	31.0	6.2	69.0
Churu	60.1	39.7	81.4	36.2	17.9	67.3	15.5	5.2	53.7	27.3	8.7	60.3	13.6	2.8	48.9
Jhunjhunun	60.1	53.8	85.6	36.2	27.5	71.1	15.5	6.7	51.0	27.3	18.4	63.4	13.6	5.4	47.0
Alwar	48.6	41.8	84.7	29.4	18.9	85.0	13.1	3.7	63.0	21.2	10.9	75.3	11.8	2.9	58.7
Bharatpur	26.0	13.1	74.7	29.5	17.4	75.0	12.8	2.3	52.2	16.3	4.0	62.6	11.1	1.4	47.6
Dholpur	38.3	28.9	82.0	19.3	11.0	58.2	10.8	2.8	48.1	14.3	5.8	53.8	9.8	2.2	45.2
Sawai Madhopur and Karauli	37.9	32.0	70.6	23.7	15.8	67.9	11.1	3.6	53.0	14.8	7.6	54.9	9.2	2.7	45.3
Jaipur and Dausa	66.4	49.8	87.8	50.2	26.9	80.2	34.0	4.5	71.9	41.1	17.1	72.0	30.8	3.4	65.9
Sikar	62.4	55.5	89.6	43.6	34.8	78.4	16.9	6.8	56.8	33.7	23.9	72.5	15.3	5.8	53.2
Ajmer	72.1	60.0	90.8	46.6	23.1	83.1	30.9	5.6	70.3	40.1	16.7	76.5	28.0	4.4	64.8
Tonk	58.5	52.8	83.4	27.1	17.3	70.1	12.7	3.8	51.6	20.2	10.6	62.0	11.2	3.0	47.0
Jaisalmer	63.5	58.4	89.5	16.7	7.0	66.2	12.2	4.3	52.1	14.0	4.7	61.4	9.8	2.5	46.9
Jodhpur	68.2	55.4	90.7	42.2	21.2	79.0	27.2	3.2	69.1	34.9	13.5	72.4	25.1	2.5	64.6
Nagaur	49.0	42.4	85.3	30.7	23.2	71.1	13.9	6.7	52.8	20.7	12.8	63.7	11.5	4.6	49.1
Pali	59.7	54.0	81.3	34.9	26.9	64.9	12.5	4.4	43.3	24.6	16.1	56.7	10.6	3.0	39.3
Barmer	37.0	31.8	81.1	14.0	8.0	65.0	7.3	2.1	50.8	10.3	4.7	56.8	6.2	1.5	45.5
Jalor	55.5	52.9	87.4	20.6	17.0	64.7	6.0	3.3	38.9	16.0	12.4	60.3	5.4	2.8	37.1
Sirohi	74.0	69.5	92.9	35.9	26.9	73.2	12.8	4.1	49.3	31.2	22.2	68.7	11.9	3.5	46.7
Bhilwara	60.3	55.6	80.3	32.5	23.7	70.2	12.6	4.1	48.9	23.8	15.6	58.8	10.5	3.2	41.9
Udaipur and Rajsamand	64.2	59.0	90.2	32.2	22.7	79.1	14.0	4.0	63.9	27.2	17.9	73.1	12.7	3.4	59.1
Chittaurgarh	72.3	68.7	90.9	33.4	24.8	78.4	11.1	2.9	54.0	27.3	18.7	72.5	10.1	2.4	50.6
Dungarpur	65.6	63.7	89.2	23.3	18.8	77.2	6.9	2.6	57.6	20.4	16.0	72.7	6.5	2.4	55.9
Banswara	59.5	56.9	88.9	21.6	15.9	84.7	8.6	3.1	70.2	19.2	14.0	77.0	7.8	2.8	63.6
Bundi	71.6	69.0	84.1	33.6	24.4	76.7	12.2	4.6	47.7	26.3	17.5	67.5	10.7	3.6	43.6
Kota and Baran	75.8	67.3	89.8	49.2	29.8	81.2	26.1	5.0	60.8	41.7	21.7	74.7	24.2	4.1	57.3
Jhalawar	51.9	48.5	69.3	28.1	19.4	72.6	11.7	3.4	54.2	17.2	9.6	55.7	9.3	2.3	44.8
Rajasthan	59.0	50.6	86.5	35.0	22.4	76.7	19.6	6.7	62.3	27.4	14.8	69.0	17.0	4.8	57.3
India	62.3	55.5	81.4	42.4	30.5	75.8	23.7	9.5	63.9	30.4	18.7	63.6	18.2	5.6	53.9

Source: Housing and Amenities (A Data base on Housing and Amenities for District Cities and Towns) Census of India 1991 Page No :163 to 170

Table 12 : Basic Amenities in Rajasthan : 1991 (percent of total households) *(Concld.)*

District	Access to Electricity and Toilet			Access to All 3 facilities			Access to None of the three facilities		
	Total	Rural	Urban	Total	Rural	Urban	Total	Rural	Urban
Ganganagar and Hanumangarh	34.8	24.6	69.6	29.0	18.3	65.9	23.6	29.7	2.6
Bikaner	32.3	6.5	71.7	29.7	5.5	66.7	32.1	50.3	4.4
Churu	14.5	3.6	50.5	13.0	2.3	46.5	30.9	50.0	10.7
Jhunjhunun	14.5	5.8	50.0	13.0	4.8	46.2	30.9	36.9	6.4
Alwar	12.4	3.0	62.2	11.3	2.5	58.0	42.9	49.9	5.6
Bharatpur	11.9	1.6	50.8	10.7	1.2	46.5	60.4	73.0	12.7
Dholpur	9.6	2.2	43.9	8.9	1.9	41.6	56.3	65.6	13.1
Sawai Madhopur and Karauli	10.1	2.9	50.2	8.5	2.3	43.3	52.9	59.6	15.6
Jaipur and Dausa	32.6	3.7	69.7	29.7	3.0	64.0	24.1	40.1	3.7
Sikar	15.7	6.0	54.5	14.4	5.2	51.3	27.4	33.3	4.1
Ajmer	29.6	4.5	68.5	27.0	3.7	63.3	21.2	33.4	2.3
Tonk	11.4	2.9	48.5	10.2	2.4	44.3	34.2	40.2	8.2
Jaisalmer	10.2	2.6	49.1	8.7	1.5	45.4	32.9	38.5	4.3
Jodhpur	26.0	2.6	67.0	24.1	2.1	62.7	24.3	36.8	2.4
Nagaur	12.7	5.8	50.6	10.8	4.1	47.3	40.6	46.8	6.9
Pali	11.3	3.4	41.4	9.8	2.4	37.8	29.5	34.7	10.2
Barmer	6.6	1.7	48.4	5.8	1.3	43.7	59.0	64.8	10.0
Jalor	5.7	3.0	38.2	5.1	2.6	36.4	39.9	42.5	8.2
Sirohi	12.1	3.6	47.5	11.2	3.2	44.9	21.2	25.7	2.5
Bhilwara	11.5	3.2	47.0	9.8	2.6	40.4	30.6	36.0	7.9
Udaipur and Rajsamand	13.3	3.4	62.9	12.3	3.0	58.3	30.5	36.0	3.6
Chittaurgarh	10.5	2.5	53.0	9.7	2.1	49.8	21.5	25.0	3.1
Dungarpur	6.7	2.4	57.2	6.4	2.3	55.6	31.4	33.5	6.2
Banswara	8.4	2.9	69.5	7.7	2.7	63.0	38.0	41.2	3.4
Bundi	10.9	3.4	46.3	9.8	2.7	42.6	20.7	23.8	6.3
Kota and Baran	25.2	4.2	59.6	23.4	3.4	56.3	16.5	24.4	3.6
Jhalawar	10.5	2.4	51.8	8.7	1.9	43.3	36.6	41.2	13.0
Rajasthan	17.5	4.7	59.9	15.7	3.7	55.4	32.7	40.9	5.5
India	20.4	6.5	59.4	16.1	3.9	50.5	24.5	31.3	5.4

Source: Housing and Amenities (A Data base on Housing and Amenities for District Cities and Towns) Census of India 1991 Page No :163 to 170

Technical Notes

1. Human Development Index

The Human Development Index is a composite index comprising of levels of human development in education, longevity or health, and in access to opportunities measured in per capita incomes, with the present status of districts in these parameters related with certain absolute achievement positions, or some desirable achievement positions. This index is a measure of how far a district has travelled, from a minimum level of achievement, and the path still to travel.

The index is calculated by the following formula:

$$HDI_{ij} \text{ (Index)} = \frac{Target_j - Value_{ij}}{Target_j - Min_j}$$

HDI_{ij} = Index of deprivation for the i^{th} district for the j^{th} criterion.

Target j = This is the maximum achievable target for the j^{th} criterion (for example, it is 100 per cent for literacy).
Value ij = This is the value of the i^{th} district for the j^{th} criterion.
Min j = This is the minimum value for the j^{th} criterion (it is 0% for literacy)

1.1 Education

UNDP uses literacy rate as one of the two parameters. Recently it has changed the second indicator from mean years of schooling to school enrolment. Both these are used as parameters for the education index.

Literacy denotes the most basic and essential criterion. Literacy levels are available for each district from the Census of India, 1991, and these figures were used for the index on literacy. Literacy rate for the population was calculated as percentage share of all literate in a district over the total population of people above 6 years of age in the district. No estimates of literacy for years later than 1991 at district level have been released or available from any credible source. In 1991 during the census there were 27 districts in Rajasthan, but today we have 32 districts. For all the new districts except Hanumangarh and Karauli we have been able to get literacy data, separately. Literacy for Hanumangarh has been taken to be same as for its parent district Ganganagar and Karauli same as for Sawai Madhopur.

For the target maximum figure for the purpose of calculating the Index of Development in literacy, we use 100 per cent. The minimum rate is taken as 0 percent.

The second component of education is the combined school level enrolment. The figures for children enrolled in schools in 1994/95 were provided by the Department of Education, Government of Rajasthan. The Directorate of Economics and Statistics has provided the estimated district wise populations for population for years beyond 1991. The share of population aged 6-14 years in the 1991 census, to total population then, was applied to the population estimates arrived for estimates for population in age group 6 – 14 for 1994/95. The enrolment numbers were divided by this figure to arrive at estimates for enrolment.

The target maximum for this figure is difficult to assess, since the age group 6 – 14 includes ages at which many children would have passed out of the school after fully completing it, and would therefore not be counted. However, as we have no estimates to arrive at an acceptable figure for a target maximum for calculating the Index of Deprivation in school enrolment, we use 100 per cent as the target maximum, and 0 percent as the minimum.

The two indices of literacy and school level enrolment were combined to get the Index of Deprivation for Education. The indices were combined in a weighted average, with 2/3 for literacy and 1/3 for all children in schools. A higher weight for literacy was taken to give importance to this most essential criterion and keeping in mind the problems of data in enrolment figures.

1.2 Health

Life Expectancy is the single criteria used by the UNDP to assess the health status. The Census of India has released the fertility tables, and the estimates for Infant Mortality rates for 1991. The Census Fertility tables for 1991 permit us to arrive at indirect estimates for Life Expectancy at birth for districts. The indirect estimates have been arrived using the methodology applied by Census for calculating mortality tables for 1981[59]. These estimates are subject to corrections, after final fertility tables are released, and Census publishes estimates for Life Expectancy based on this data. Census has released estimates for child mortality, but are yet to publish estimates for Expectancy of Life at the time of the publication of this report.

The life expectancy at birth has been calculated using census figures for fertility data on total number of children born and surviving of ever married women, given by the Census. Based on these data IMR is calculated using the methodology suggested by Census of India. Mortpak Lite, a United Nation's programme for demography, was used for calculations. While the estimates for infant mortality match well with the 1991 Sample Registration scheme (SRS) estimates, they are subject to modification, due to a need to smoothen the population tables. Thus the estimates may get modified, but for the purpose of comparative analysis, and a fairly accurate picture of the status of longevity, the figures are very useful and suffice well. The estimates are also provided for rural and urban and males and females. Estimates of male and female life expectancy were also calculated using the widow techniques.

For the maximum target, a figure of 85 years was taken, and for the minimum value, figure of 25 years was applied to calculate the Health Development Index.

1.3 Income

The UNDP HDI uses 'adjusted per capita income for countries' to calculate the Index of Income. For the Rajasthan Income Index, two criteria have been used. Since it is extremely difficult to assess district domestic products, and thereby come to an assessment of per capita income, we have used district incomes calculated by the Directorate of Economics and Statistics, Government of Rajasthan for 1991. It has also been argued that per capita incomes are not an adequate measure by themselves to measure ability to access opportunities and it needs to be adjusted by either indicator giving an idea of distribution of income amongst the population or levels of poverty. The incomes were adjusted by distribution and poverty levels, as will be explained later.

[59] The methodology has been taken from 'Indirect Estimates of Fertility and Mortality at the District Level, 1981, Occasional Paper No. 4 of 1994, Office of Registrar General of India.

1.3.1 Adjusted Incomes

By themselves, the estimates for per capita incomes does not give an idea of the distortions in distribution or the levels of poverty in the districts, and the depth of deprivation of the poor. UNDP for their income component of the Human Development Index, used the Aitkinson's formula to adjust incomes, based upon marginal utility of incomes. This adjustment reduces the impact of very high incomes in some districts, and makes district more comparable to each other to assess relative levels of achievement in incomes. However, one problem with this method was that it discounted incomes above a threshold level (minimum level) quite drastically. The UNDP HDI, now uses a different method of adjusting poverty. The same method has been used to discount incomes for our district human development indices.

Income is discounted by using the following formula :

$$\text{Income Index} = \frac{\log y - \log y_{min}}{\log y_{max} - \log y_{min}}$$

y : income of the district
y_{min} : Minimum income
y_{max} : Maximum target income

For a minimum income level and we calculated district wise poverty line by taking the poverty line developed by the Planning Commission based upon per capita monthly expenditure separately for rural and urban and adjusted to 1991–92 prices. To arrive at the district poverty line, we took a weighted average of rural and urban population with the adjusted rural and urban poverty line. The per capita incomes calculated for each district were divided by the resultant poverty line for each district, the product indicating the number of times district per capita was to the poverty line.

To use the above stated formula, one single comparable poverty line is required across districts. To enable this, the state poverty line based upon the Planning Commission's adjusted poverty line was used (weighed to rural and urban), and district per capita incomes were calculated on a comparative score by multiplying the factor arrived by state poverty line. One fourth of this common comparable poverty line has been used as the minimum income level. was used as the minimum per capita income, and the maximum target was the highest per capita income achieved by any state/ union territory in India in 1991/92. This was the per capita income achieved by Delhi.

1.3.2 Poverty Index

The scale of poverty is the most important indicator of the welfare of people in the district. Data from IRDP surveys on rural poverty from the Department of Rural Development, Government of Rajasthan, are available for 1992, and were used for estimating poverty levels in the income component of the Rajasthan HDI.

NSS has released recently regional estimates of poverty in 1993/94[60]. They shall be converted into district poverty estimates on the following pattern. The rural and urban poverty rates for each agro-climatic zone was assumed to represent the poverty rates for all the districts in that zone. To get

[60] These estimates have been taken from "Counting the Poor", Amaresh Dubey, Subhasis Gangopadhyay, Sarvekshana Analytical Report No 1. Department of Statistics, GOI.

estimates of rural and urban poverty in each of the districts within an agro-climatic zone, estimated rural and urban population in 1995/96 was calculated. The value of agriculture and forest output for the districts in each zone was divided by the total agriculture and forest output for the zone as a whole. The dividend was divided by share of the estimated rural population of the district to the estimated rural population for the zone as a whole. The poverty rate (head count ratio) for rural poverty for the entire zone was divided by the resultant dividend and the resultant figure was assumed to represent the rural poverty rate for each district within a zone.

For urban poverty, no single income measure was found significant enough, and we found that zonal urban poverty rates are sensitive to households which do not have access to safe drinking water, electricity and toilet. Similar to the calculation for rural poverty, we took the population in each district without access to all three facilities in the Census in 1991, and, the share of this population to the total such people in an entire zone. Similarly, the share of the estimated urban population in each district was divided by the total estimated urban population for each zone. The dividend from the first was divided by the dividend from the second, and the result was multiplied with the NSS urban poverty rate (head count ratio).

The total poverty ratio was calculated from the weights of rural and urban poverty in each district. An index of poverty was calculated from these figures, with 0% as the target and 100% as the worst scenario.

Finally, the indices of poverty and income were combined a simple composite index with a equal weightage, to arrive at an index of development for income.

The three indices of development for health, education and income are then combined in a simple average to get the Human Development Index.

2. Gender Development Index[61]

The Gender Related Development Index (GDI) uses the same variable as the HDI. The difference is that the GDI adjusts the average achievement of each district in life expectancy, education attainment and income in accordance with the degree of disparity in achievement between woman and man. It is based on the GDI developed by UNDP, used first in the Human Development Report in 1995.

For the gender sensitive adjustment, we use a weighting formula that express a moderate aversion to inequality, setting the weighting parameter $\in$ equal to 2. This is the harmonic mean of the male and the female values.

The harmonic mean is calculated by taking the reciprocal of the population weighted arithmetic mean of the female and male achievement levels (which are themselves expressed in reciprocal form). Although this may sound complicated, the basic principle is straight forward. The harmonic mean will be less than the arithmetic mean to the degree that there is disparity between male and female achievement.

[61] This note has been taken from the Technical Notes describing the methodology for Gender Development Index from the Human Development Report – 1995, Technical notes 1. Computing gender-equity-sensitive indicators, UNDP

2.1 Longevity

The first step in the calculation of the GDI is to index the variable for life expectancy and education attainment. The estimates for life expectancy were calculated using Census of India 1991 fertility tables, as explained earlier in this chapter. Although the range for life expectancy is same for the women and men (60 years), the maximum and the minimum values are different. The value (or "fixed goal post") for male life expectancy is 82.5 years and the minimum value is 22.5 years. For female life expectancy the maximum value is 87.5 years and the minimum 22.5 years. The values for women and men are indexed accordingly.

2.2 Educational Attainment

The variable for educational attainment is a composite index. It includes adult literacy, with a 2/3 weight, and gross combined primary, secondary and tertiary enrolment with a 1/3 weight. Each of these sub components is indexed separately. Both indices use a maximum value of 100 percent and a minimum value of 0 percent. The two indices are added together with the appropriate weights to form the composite index for educational attainment.

2.3 Incomes

The calculation of the index for the income is more involved. In calculating the female and male shares of earned income, we used two pieces of information: the ratio of the average female wage to the average male wage and the female and male percentage shares of the economically active population aged 15 and above.

The ratio of the average female wage to the average male wage is not available for the state or the districts. The ratio is assumed to be the average ratio for the agricultural sector as well. The ratio of the female to the males was assumed to average to 67% based upon some recently conducted poverty assessment surveys.

The ratio is crude proxy for gender income differentials in paid work. These approximations for wages need to be improved and assessed for each district, but due to lack of proper information for all districts, the same ratio was applied across the State. Apart from possible under estimating the male-female wage differential, the figure of 67 percent also does not account for the fact that women were more as casual labour and as marginal workers, working for less than 183 days a year. Men on the other hand work primarily as main workers (gainfully employed for 183 days or more per year). The ratio of 67 % also does not account for income disparities based on non-labour resources, such as land and physical capital. However, in the absence of better data we use this figure.

The next step in calculating gender disparity in income uses available information on the percentage share of men and women in economically active population aged 15 and above. Because of the lack of data on employment of gender, this procedure make simplifying assumption that female employment and male employment are proportional to female and male participation in labour force. We have two choices here : one is to take the workforce participation ratio (WPR), which includes main and marginal workers, and the second is to take only main workers, where the ratio of male to female main workers is very high. We choose to take main and marginal workers, for the sake of corresponding to the general WPR terms used to assess participation of people in the workforce. From the ratio of female to male wages we can derive two ratio: the ratio of the female wage to the overall average wage and the ratio of the male wage.

These total ratio are derived from the following definition of the total wage bill (WL):

$WL = W_f L_f + M_m L_m$

where W is the average wage and L is the total labour force, and the f subscript denote female, and m subscript denotes male.

Dividing the equation through by $W_m L$, we can solve for W/W_m

$W/W_m = (W_f/W_m)\ (L_f/L) + (W_m/W_m)\ (L_m/L)$

we take the reciprocal of this result to solve for W_m/W. We can now also solve for W_f/W

$W_f/W = (W_f/W_m) / (W/W_m)$

a rough estimate of the female share of income can then be derived by multiplying the ratio of the of the average female wage to the overall average wage of the female share of the economically active population. The male share of the income can be calculated in the same way or by subtracting female share from 1.

The third step in estimating disparities in the income is to calculate the female and the male share of the population. The adjusted per capita incomes are then discounted on the basis of the gender disparity in proportional income share. In using adjusted per capita incomes, we are already taking in account the diminishing marginal importance for human development of the additional income above the average world per capita income. Up to this point, the methodology is the same as that used for the human development index.

The discounting for the gender disparity is calculated as follows. We form two proportional income shares by dividing the female and the male shares of income by the female and male shares of the population if there were gender equality, each proportional share would be equal to 1. We have apply the gender-equity-sensitive indicators (GESI) methodology of $(1- \in)$ averaging - with equal to 2 in this case-to the two proportional income shares to derive the "equally distributed proportional income share". The more gender inequality there is, the lower this ratio will be related to 1. We then multiply the adjusted per capita incomes by the equally distributed proportional income share to derive a measure of per capita income that, in effect, is now discounted for gender inequality. If there were no gender inequality, the ratio would be equal to 1 and per capita incomes would remain the same. As in the HDI, adjusted per capita income is proxy for access to basic resource necessary for human development. Finally, we index the adjusted per capita incomes for men and women with respect to maximum and minimum similar to those used in the HDI.

$$\text{Income Index} = \frac{\log y - \log y_{min}}{\log y_{max} - \log y_{min}}$$

y : income of the district
y_{min} : Minimum income
y_{max} : Maximum target income

The equally adjusted income index is given by :

[female population share X (adjusted female per capita)$^{-1}$ + male population share X (adjusted male per capita)$^{-1}$] $^{-1}$

The last step in the calculating the GDI is to add index for the income that we have just derived to the indices for life expectancy and the educational attainment and divide by 3. That gives each index a one third weight.

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