PUNJAB - Human Development Report 2004

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Chief Minister, Punjab
ਚੰਡੀਗੜ੍ਹ
Chandigarh

Foreword

I am very pleased to introduce the first Human Development Report for Punjab. Human development is defined by the United Nations Development Programme as enlarging the range of people's choices. The most critical of these wide ranging choices are to live a long and healthy life, be educated and to have access to resources required for decent standard of living.

Punjab has the distinction of being one of the most prosperous state in the country. India's transition from a food importing country to a country not only self-sufficient in food grains but as a food exporter, is in large measure a success of the Green Revolution spearheaded by Punjab. The state also has high levels of achievement in education and health sectors. However, there is still a lot of scope for improvement.

The gains of development have not benefited all equally. The Punjab Human Development Report highlights the disparities in the levels of achievement among the various sections of the society. I am confident that this report would enable the formulation of future strategies for further improving the human development attainments in Punjab.

I would like to thank the Planning Commission, Government of India, and the United Nations Development Programme for all the assistance and support provided for the preparation of this report and look forward to future cooperation in following up the messages of this report. I also thank the 'Sanket' and Economic & Statistical Organisation, Punjab, Department of Planning, for preparing this report.

August 28, 2004

(Captain Amarinder Singh)

SURINDER SINGLA
Finance & Planning Minister, Punjab

Message

Punjab has a creditable record of development. It is the trendsetter state in the green revolution strategy adopted during mid-sixties. It is not only the country's largest granary but also plays a crucial role in defending India against military aggression. India's journey from a country, which had to import food-grains to one, which now produces a food surplus has been led by Punjab. The enterprise and hard work of the Punjabi farmer and the support provided by both Central & State Governments have contributed in crucial ways to Punjab's agricultural dynamism.

However, amidst prosperity, pockets of deprivations remain amongst sections and areas. In other words, the benefit of development has not reached equally to various sections of the population or to people living in different regions of the State. In particular progress has been uneven in the field of education, health & nutrition despite the remarkable growth of the economy. In this background under the dynamic leadership and guidance of the Hon'ble Chief Minister, the State Government had undertaken the preparation of the first Human Development Report as part of its commitment to "people-centred" development. This report is an important research-cum-policy document, which focuses on the current levels of the achievement, area of the concern and possible ways of progress with reference to crucial socio-economic indicators. The purpose of the report is to provide an independent and objective assessment of the status of human development within the state to help in deciding inter-sectoral as well as inter-regional financial allocations and enable us to identify areas that require particular policy attention. With this in mind I am extremely pleased to share the report with the people of Punjab and all who have stake in the future progress of this strategic state.

August 31, 2004

(Surinder Singla)

Planning Commission

Message

We congratulate the Government of Punjab for preparing its first Human Development Report.

The state of Punjab occupies an extremely important position in India. India's transition from a food Importing country to a country not only self-sufficient in food grains but as a food exporter has been spearheaded by Punjab.

Yet, as the report highlights, the remarkable achievements of the state have not been equitable. Development in Punjab has had a gender dimension, a class and caste dimension and even a geographical dimension to it. The Punjab Human Development Report analyses the challenges faced by agriculturists, the backward sections, the migrants and women in the state.

Punjab is at a more advanced stage of development than most other Indian states and is currently facing second generation development challenges, The state can once again lead the nation by demonstrating how to overcome these challenges, as it did during the Green Revolution.

We once again felicitate the Government of Punjab for preparing its Human Development Report and hope that the report will give an impetus to the Government's effort towards equitable development.

Rohini Nayyar
Adviser (RD), Planning Commission
Government of India

Maxine Olson
UNDP Resident Representative &
UN Resident Coordinator

Glory of Punjab

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The Preparation of the first Punjab Human Development Report (HDR) has been an initiative of the Government of Punjab supported by the United Nations Development Programme (UNDP) and the Planning Commission, Government of India. The dynamic leadership of Captain Amarinder Singh, Hon'ble Chief Minister of Punjab, and the constant support and encouragement of Shri Surinder Singla, Hon'ble Minister-in-Charge of Finance and Planning, was crucial in preparation of the report. Earlier, the then Minister-in-Charge of Finance and Planning, S. Lal Singh, played a vital role in this process.

A unique feature of the Human Development Report for Punjab, is that it has been prepared by a well-known non-government agency, namely Sanket, having rich experience and expertise in preparing State Human Development Reports. The aim of assigning this report to a non-government agency was to have an objective view of the reality of the Punjab state. We wish to thank the Sanket team that prepared the report – Mr. Sandeep Dikshit, Mrs. Romila Dhawan, Ms. Monika Banerjee, Ms. Deeksha Vasundhara, Mr. Rajkumar, Ms. Sutiksha Mishra and Mr. Devkant Tripathi.

A large number of experts offered valuable support in preparing this report. The chapter *Background to Punjab* has benefited from a number of background papers. Dr. Indu Banga's paper served as the basis for the section on History of Punjab, the section on Green Revolution draws from the background papers by Prof. Sucha Singh Gill and Prof. Gopal Iyer. Prof. Gopal Iyer also contributed to the sections on Peasant Movement in Punjab, Naxalite Movement in Punjab and Militancy in Punjab. The section on Militancy in Punjab benefited from discussions with several other resource persons and the literature available.

The chapter *Economy and Livelihoods* is based on background papers written by Prof. Sucha Singh Gill, Dr. Sukhvinder Singh and Dr. Jasvinder Singh Brar. The papers written by Prof. Pam Rajput and Dr. Manvinder Barar contributed to the chapter *Women and Children – Facets of Human Development*. Mr. Rakesh Kaushik wrote the section on women and children. The chapter *The Agriculturalist in Punjab* draws on papers written by Prof. S.S. Gill and Prof. Gopal Iyer. Prof. Gopal Iyer also wrote background papers for the chapters *Dalits – On the Margins of Development* and *Migrant Labour – Problems of the Invisible*. For the chapter *Education – Building People*, discussions and a note by Prof. Harkishen Singh Mehta served to highlight the issues.

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Extensive discussions were held with the officers of the departments concerned of Govt. of Punjab during the process of preparation of this report. We thank the officers of all these departments.

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A.R.Talwar, IAS
Secretary to Govt. of Punjab
Department of Planning

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1. Introduction

The state of Punjab occupies an extremely important place in India. It is the country's largest grain producer, and plays a crucial role in defending India against military aggression. In the last century, the state's geographical boundaries have shifted twice—the violent partition of India in 1947 and the administrative division of Punjab state in 1966 into present day Punjab and the states of Haryana and Himachal Pradesh. In recent years, the state has also faced two periods of internal crisis. There was the Naxalite inspired Left movement of the 1960s and 1970s. The 1980s and early 1990s saw the state plunge into a militant movement. Yet, in spite of these disturbances, today human development indicators in Punjab rival the best in the nation.

Economic development in Punjab has been led by agriculture. In addition, thousands of small manufacturing units across the state have led to fairly high income levels. Investments in roads, rural electrification, safe drinking water, as well as schools and health centres, have provided the people of Punjab with the basic amenities of life still unavailable in large parts of the country.

In India, the Green Revolution was launched with special focus on Punjab. From being an importer of foodgrain, India now produces surplus food. This achievement has been possible largely because of the contribution of Punjab. The enterprise and hard work of the Punjabi farmers and the state and central government have played a major role in the state's agricultural achievement. In addition, Punjab's law and order agencies have, after prolonged struggle, been able to curb militancy.

However, amidst prosperity, pockets of deprivation remain. In southern and south-western Punjab, poverty rates are high. In Hoshiarpur district, the literacy level crossed 80 percent in 2001, but in Mansa district, literacy rates are only slightly higher than that of Bihar. While in India, between 1991 and 2001 the gender ratio rose from 927 to 933, in Punjab, it fell from an abysmal 882 in 1991 to an even lower 874 in 2001.

Certain communities are inevitably more deprived than others. Among all India's states, Punjab has the highest population of Scheduled Castes. Scheduled Caste communities constituted 28 percent of Punjab's population in 1991. The literacy rate of Scheduled Caste communities was only 41 percent in 1991, compared to a 58 percent literacy rate for the whole of Punjab in the same year. Only 31 percent of Scheduled Caste women were literate. Also land owned by Scheduled Castes is a mere tenth of their share of the total population.[1]

[1] Data from the All India Agriculture Census for 1985-86 shows that just 4.5 percent of all agriculture operational holdings were with Scheduled Castes, and they operated just 2.02 percent of all area cultivated in the then Punjab. This situation improved somewhat by 1990-91, when Scheduled Castes operated 4.8 percent of all holdings and 2.4 percent of the land under agricultural operational holdings. (Statistical Abstract of Punjab 1997, ESO, Govt. of Punjab, 1997, pages 204-07, Statistical Abstract of Punjab 1999, ESO, Govt. of Punjab, 1999, pages 202-07)

Thus, development in Punjab has been uneven. The idea of human development calls for a concerted effort to identify, recognise and then remove with affirmative action, disparities between regions and communities. Addressing relative deprivations amongst regions and people in education, in health, in standard of living, in security, in dignity and in basic human rights, is a serious concern of human development.

A Human Development Report must identify, document and state these deprivations. To quote a speech during the presentation of the Budget of 2000–2001 to the state assembly. "Over the past fifty years or so... period has also given rise to serious socio-economic disparities.... There is an alarming chasm between the rich and the poor and the gap is increasing by each passing day".[2]

Human Development

From the second half of the last century, there has been a growing school of thought that material prosperity on its own does not necessarily amount to overall equitable growth. Economic improvement both in the developed nations and the developing nations did not on its own reduce poverty levels, improve health or end gender and social community-based discrimination.

In 1990, the United Nations Development Programme brought out the first global Human Development Report, a report produced under the leadership and inspiration of Mahbub-ul-Haq. These reports, apart from becoming a regular feature, attracted international and national attention towards the concept of "human development". They set in motion a debate on "people-centred" human development, which was a radical conceptual change from previous models. The reports talked of whom development was for and how it was affecting target groups. Only if the 'how' satisfied the criteria of human development, was it considered positive. The concept of "human development" derives its philosophical underpinnings from the works of Nobel laureate Prof. Amartya Sen, whose writings have given rise to a new vocabulary of development.

The Human Development Report of the United Nations states that "the process of human development must transmit itself, essentially by means of enlarging the choices of all persons concerned....". The most critical of these wide ranging choices are to live a long and healthy life, to be educated and to have access to resources required for a decent standard of living. Hence,

Box 1.1: UNDP Human Development Reports

Mahbub-ul-Haq writing on Human Development Reports said "The central thesis of these reports is that it is people who matter—beyond the confusing maze of GNP numbers, beyond the curling smoke of industrial chimneys, beyond the endless fascination with budget deficits and balance of payments crises—it is people who matter. People must be at the centre of our development debate—what really counts is how they participate in economic growth and how they benefit from it. Production processes are indispensable but they cannot be allowed to obscure human lives. The focus of our reports is on those human lives—how they change over time, how they contribute to national and global economic opportunities, how they share these opportunities, how the range of people's choices can be measured—whether economic or political, whether individual or national. The study of people, in national and global settings, is our central preoccupation and our overwhelming mandate."

(Occasional Paper 1 – Human Development in a Changing World, UNDP, 1993)

[2] Speech of Finance Minister to the Punjab Vidhan Sabha, 22nd March 2000, Government of Punjab, Chandigarh, page 1, 2

to measure development, the most crucial indicators that were considered were quality of health, extent of education, level of employment and real income levels.

The Punjab Human Development Report

The Government of Punjab has undertaken a Human Development Report for the state as part of its commitment to development, as the state shows silent indications of the beginning of a crisis.

The economic growth of Punjab and many of its social indicators put the state on a unique trajectory. Would it be safe to say that a lesser number of infants die in Punjab than in Gujarat or Uttar Pradesh? Should we be satisfied that all our villages have roads and electricity, or that our income levels are amongst the highest in India? The challenge for Punjab is to derive its growth targets from those achieved by the developed nations and in some cases, from India's own states. If Kerala has an infant mortality rate of 12, a literacy of over 90 percent, then it is towards these goals that Punjab must strive. If only one out of five Punjabis in Hoshiarpur is illiterate, then we have to strive to ensure that in Bathinda, Sangrur, Firozpur, Muktsar, and Mansa—all of which have female literacy between 45 and 53 percent—female literacy rate rises to match that of Hoshiarpur (76 percent female literacy).

Structure of the Report

Punjab has reduced the number of its poor (income poverty[3]) to a mere six percent. In health, it is still behind Kerala, whose human development achievements are praiseworthy. And in education, it is among the best performing states of India.

However, Punjab's health and education compare poorly with those of countries like Vietnam and Sri Lanka. Although in general, an individual living in Punjab may enjoy a far higher standard of living than in any other state with the exception of Kerala, there are regions in Punjab where literacy rates are as abysmally low as in some parts of Bihar. There are parts of the state where infants' lives are lost with greater regularity than in parts of Rajasthan.

Agriculture and manufacturing, the backbone of Punjab, are facing declining growth rates and an increase in the relative deprivation of different economic actors. Several sections of the Punjabi community have been left out of the new prosperity. Scheduled Castes still remain agricultural labourers and their literacy is a good 10 percent lower than that of the other communities. The migrant labourer, whose labour supports agriculture, suffers not only from the problems of migration, but is increasingly trapped in debt cycles and bondage. Along with the landless labourer, the crisis of peasant indebtedness affects small and marginal farmers as well.

The woman in Punjab has suffered discrimination. The statistics on gender ratio and particularly on Juvenile Sex Ratio imply that male female differential is alarming in Punjab and therefore a great cause of concern.

There are three dimensions in the structure of the report.

The first speaks of the state of human development of Punjab, looks at Punjab through its history, both before and since Independence and notes the successes that have been achieved.

The second profiles health and education and scrutinises development levels among the poor and marginalised.

[3] The National Sample Survey Organisation undertakes periodic surveys of people who live below the poverty line based on expenditure levels at which they survive. This type of poverty is often referred to as income poverty, to distinguish it from other forms of poverty.

The third section looks specifically at the fundamental rights and human development of women, children, dalits, migrants and agricultural labourers.

Human Development and Governance

Through the period of militancy, Punjab witnessed many years of Governor's rule, when law and order was the priority of the state. In spite of efforts, development, good governance, civil service institutions, democratic institutions were relegated to the background. Now the State has emerged from the impact of this era and is on the path of good governance and development. The people's bodies & collectives have started getting the benefits of decentralisation under the various development programmes. Though Panchayati Raj Institutions have been strengthened and have been given certain powers, yet these are to be levelled as in Kerala, West Bengal, Maharashtra, Madhya Pradesh, Uttar Pradesh, Rajasthan and like.

Following the end of militancy and the establishment of popular government, public good faith needs to be restored. Affirmative action programmes should be initiated to demonstrate the state's commitment to public care by reinvigorating the bureaucracy and infusing government institutions with new enthusiasm to tackle welfare objectives.

Although Punjab has already undertaken the exercise of fiscal reforms yet a lot is required to be done in this direction. To overcome the fiscal deficits the unpleasant decisions such as right-sizing the Govt. machinery and disinvestment of non performing PSUS are still to be taken. Towards this end, Certain decisions of the militancy years, such as budgetary allocations for law and order can now be done away with.

The Human Development Report tries to chart a way by which a hitherto 'law and order state' can become a 'development state'.

Human Development in Punjab

National domestic product calculations, per capita incomes, trends in national sensex ratings, estimates of income and poverty and purchasing power of a population are used to measure growth. If the economy was doing well people were assumed to be "better off" and some would even say "happier".

However, pure economic growth or per capita incomes often do not reveal an accurate level of well-being. An individual may have a low income but if the state provides him a clean environment and proper education, he may enjoy a better quality of life than a richer person living in an urban slum. Further, estimates of per capita income hide many aspects of deprivation. A healthy life, the ability to read, write and be a part of the lettered world, the basic freedom to make choices, have access to basic amenities like drinking water, decent shelter and clothing, basic and adequate nutrition, and for the woman, to be as equal and as blessed as her brother or her husband – these are not captured by simply measuring per capita incomes.

Morris D. Morris' work on Physical Quality of Life Index began a wide-ranging reassessment of the indicators that represent development.

In the late 1980s, a marriage took place between the ideas of Amartya Sen, Mahbub-ul-Haq and the United Nations Development Programme (UNDP) and the first global Human Development Report was released in 1990.

Although the impact was not dramatic, yet the idea that 'people-centred' development should be the cornerstone for nations gradually spread across the globe.

One of the most influential and debated parts of the Human Development Report has been the Human Development Index (HDI). Developed by Amartya Sen, the index offers an indicator

to replace or be read alongside economic indicators.

The HDI combines three essential elements of a decent life. These are *longevity*—the opportunity to live a long and basically healthy life, *knowledge*—which brings empowerment and the capacity to interact equally with society, and finally *per capita income*—which provides access to a decent standard of living.

The Human Development Index

The National Human Development Report (2001) prepared by the Planning Commission, Government of India ranks the State second for HDI 2001 among 15 major States (Table 1.1) and ranks Punjab 12th for HDI 1991 calculated for 32 States and Union Territories (Table 1.2).

The Human Development Index (HDI) was developed in UNDP's first Human Development Report in 1990. The methodology used has undergone many changes over the thirteen years since the first report was published. Apart from the methodology that UNDP uses, countries, individuals, states, and smaller administrative units have been experimenting, changing and improving the composition and methodology of these indices. Geography, data availability and relevance of index components, often change, leading to changes in index methodologies. In India, much work has taken place on changes in the HDI. The National Human Development Report 2001 reflected some of these changes in methodologies. At the state level, in creating their own district-level indices, Madhya Pradesh and Karnataka have modified UNDP's methodologies.

We have used UNDP's methodology for the districts of Punjab, with a few modifications depending on data.

Measuring of Human Development

Longevity

Longevity is measured by expectancy of life at birth. This is a comprehensive indicator covering all aspects of health. It can be assumed, that if people in a society live longer, then by and large they would also be healthier, their environment cleaner, a greater number of their infants would survive their first year, female foeticide would decline and women would be better nourished.

Table 1.1: **Human Development Index for India – Combined**

States/UTs	1981		1991		2001	
	Value	Rank	Value	Rank	Value	Rank
Andhra Pradesh	0.298	9	0.377	9	0.416	10
Assam	0.272	10	0.348	10	0.386	14
Bihar	0.237	15	0.308	15	0.367	15
Gujarat	0.360	4	0.431	6	0.479	6
Haryana	0.360	5	0.443	5	0.509	5
Karnataka	0.346	6	0.412	7	0.478	7
Kerala	0.500	1	0.591	1	0.638	1
Madhya Pradesh	0.245	14	0.328	13	0.394	12
Maharashtra	0.363	3	0.452	4	0.523	4
Orissa	0.267	11	0.345	12	0.404	11
Punjab	0.411	2	0.475	2	0.537	2
Rajasthan	0.256	12	0.347	11	0.424	9
Tamil Nadu	0.343	7	0.466	3	0.531	3
Uttar Pradesh	0.255	13	0.314	14	0.388	13
West Bengal	0.305	8	0.404	8	0.472	8
All India	**0.302**		**0.381**		**0.472**	

Source: Planning Commission (2002), *National Human Development Report, 2001*, Government of India.

Table 1.2: **Human Development Index – 1991**

States/UTs	Rural		Urban		Combined		Gender Disparity Index	
	Value	Rank	Value	Rank	Value	Rank	Value	Rank
Andhra Pradesh	0.344	23	0.473	29	0.377	23	0.801	23
Arunachal Pradesh	0.300	28	0.572	15	0.328	29	0.776	18
Assam	0.326	26	0.555	19	0.348	26	0.575	30
Bihar	0.286	30	0.460	31	0.308	32	0.469	32
Goa	0.534	3	0.658	3	0.575	4	0.775	13
Gujarat	0.380	18	0.532	23	0.431	17	0.714	22
Haryana	0.409	15	0.562	17	0.443	16	0.714	17
Himachal Pradesh	0.442	12	0.700	1	0.469	13	0.858	4
Jammu & Kashmir	0.364	22	0.575	14	0.402	21	0.740	25
Karnataka	0.367	21	0.523	24	0.412	19	0.753	11
Kerala	0.576	1	0.628	9	0.591	3	0.825	2
Madhya Pradesh	0.282	32	0.491	28	0.328	30	0.662	28
Maharashtra	0.403	16	0.548	21	0.452	15	0.793	15
Manipur	0.503	7	0.618	12	0.536	9	0.815	3
Meghalaya	0.332	24	0.624	10	0.365	24	0.807	12
Mizoram	0.464	10	0.648	5	0.548	7	0.770	6
Nagaland	0.442	13	0.633	7	0.486	11	0.729	21
Orissa	0.328	25	0.469	30	0.345	28	0.639	27
Punjab	0.447	11	0.566	16	0.475	12	0.710	19
Rajasthan	0.298	29	0.492	27	0.347	27	0.692	16
Sikkim	0.398	17	0.618	11	0.425	18	0.647	20
Tamil Nadu	0.421	14	0.560	18	0.466	14	0.813	9
Tripura	0.368	20	0.551	20	0.389	22	0.531	29
Uttar Pradesh	0.284	31	0.444	32	0.314	31	0.520	31
West Bengal	0.370	19	0.511	26	0.404	20	0.631	26
Andaman & Nicobar Is.	0.528	5	0.653	4	0.574	5	0.857	1
Chandigarh	0.501	8	0.694	2	0.674	1	0.764	7
Dadra & Nagar Haveli	0.310	27	0.519	25	0.361	25	0.832	14
Daman & Diu	0.492	9	0.629	8	0.544	8	0.714	8
Delhi	0.530	4	0.635	6	0.624	2	0.690	10
Lakshadweep	0.520	6	0.545	22	0.532	10	0.680	24
Pondicherry	0.556	2	0.591	13	0.571	6	0.783	5
All India	**0.340**		**0.511**		**0.381**		**0.676**	

Source: Planning Commission (2002), *National Human Development Report, 2001*, Government of India.

Direct estimates of district level life expectancy are not available, but we have data on district estimates for 1971, 1981 and estimated for 1991, all based on Census tables. Based on these tables, and the life expectancy of Punjab as a whole, projections have been made on life expectancy for districts. These estimates are applied for the HDI.

Knowledge

Knowledge is measured by two variables. UNDP uses enrolment of children aged five to 14 years in school, as it signifies the right of every child to be in school all through these years. For the population above 14 years, the UNDP index uses literacy, as it represents the basic measure of having had the benefit of education.

This indicator poses problems in Punjab. Date on adult literacy, or literacy for ages 15 years and above, is available by district only for 1991, derived from Census data. Hence we have taken the total literacy rate for 2001, in place of adult literacy and continued to use school enrolment data for ages up to 14 years.

Adjusted Incomes

The third component of the HDI is income, or per capita income. Since, there are massive variations in per capita income figures even in a single district, these figures often do not provide a comprehensive picture. Furthermore, beyond a certain limit, income might create luxurious living which does not necessarily create general welfare for all. Such living by itself is not a problem, but such large income, as compared to the three other indicators used to measure HDI, may give an unnecessary high value to very large income.

Since very high income often become what economists call diminishing marginal returns, UNDP has devised a way of deflating income beyond a particular limit. For the Punjab district HDI, we also use a limit, and adjust income accordingly.

For the international HDI, in order that incomes across countries are compared on an equal footing, UNDP uses purchasing power parity adjustments for national income. This is not required for district income indices, as across districts, the purchasing power of the rupee does not change.

District Human Development Index

The Punjab District Human Development indices have been developed for this report and are presented in Table 1.3 and Map 1. (For details please refer to technical notes.) While reading the table and analysing the indices, we must keep two factors in mind – one is to note the relative position of districts, as this relative ranking and difference between the index amongst districts is a representation of where districts stand vis-à-vis each other. The second is that this index is not strictly comparable to the international index used in the UNDP Human Development reports. This is because of some differences in methodology and different maximum and minimum targets used for the income component of the index.

The HDI for the districts of Punjab have been assessed for the Human Development Report, and presented in Table 1.3. Ludhiana district tops the state with an index value of 0.761, followed by the districts of Rup Nagar, Fatehgarh Sahib, Gurdaspur and Hoshiarpur. Mansa, with an index value of 0.633, is the lowest in this table. The other districts in ascending order of index value are Muktsar, Sangrur, and Bathinda. The areas in south and south-western Punjab come lowest in the human development list.

The districts have been mapped on the basis of the Human Development Index and the Gender-related Development Index (Map 1 and Map 2). The districts have been divided into three classes based on the HDI or GDI value keeping the class intervals equal.

Map 1: **Punjab Human Development Index – 2001**

Gender-related Development Index

Compared to women, men usually get better access to education, better nutrition and medical care. Men are more gainfully employed, as well as have greater access to productive sources. Further, very often women get paid less for the same work than men do and their status varies widely even within the same family.

Table 1.3: **Punjab Human Development Index – 2001**

District	HDI	Rank
Amritsar	0.700	9
Bathinda	0.674	14
F. G. Sahib	0.740	3
Faridkot	0.698	10
Firozpur	0.689	12
Gurdaspur	0.723	4
Hoshiarpur	0.718	5
Jalandhar	0.708	6
Kapurthala	0.707	7
Ludhiana	0.761	1
Mansa	0.633	17
Moga	0.683	13
Muktsar	0.651	16
Nawanshehar	0.707	7
Patiala	0.697	11
Rup Nagar	0.751	2
Sangrur	0.654	15
Punjab	**0.667**	

Table 1.4: **Gender-related Development Index in Punjab – 2001**

District	GDI	Rank
Amritsar	0.544	17
Bathinda	0.625	7
F. G. Sahib	0.556	16
Faridkot	0.643	4
Firozpur	0.643	4
Gurdaspur	0.565	15
Hoshiarpur	0.645	3
Jalandhar	0.632	6
Kapurthala	0.652	2
Ludhiana	0.619	9
Mansa	0.586	13
Moga	0.607	10
Muktsar	0.606	11
Nawanshehar	0.623	8
Patiala	0.600	12
Rup Nagar	0.669	1
Sangrur	0.575	14
Punjab	**0.614**	

In order to assess this difference, UNDP has also generated a gender-sensitised development index, called the gender-related development index, or GDI. The parameters used are the same as for the HDI. The index assumes that men and women would share in development equally and benefit equally from it. This index compares the state of development of women with others.

The GDI shows that Rup Nagar tops all districts in women's development, followed by Kapurthala and Hoshiarpur (Table 1.4). Fatehgarh Sahib and Gurdaspur, which were third and fourth among the HDI districts slip down to 16th and 15th positions respectively. There is considerable movement of districts in ranking comparisons between HDI and GDI. Districts with GDIs much lower than HDI and those whose GDI ranks are slipping, must be targeted to improve the social and economic status of women.

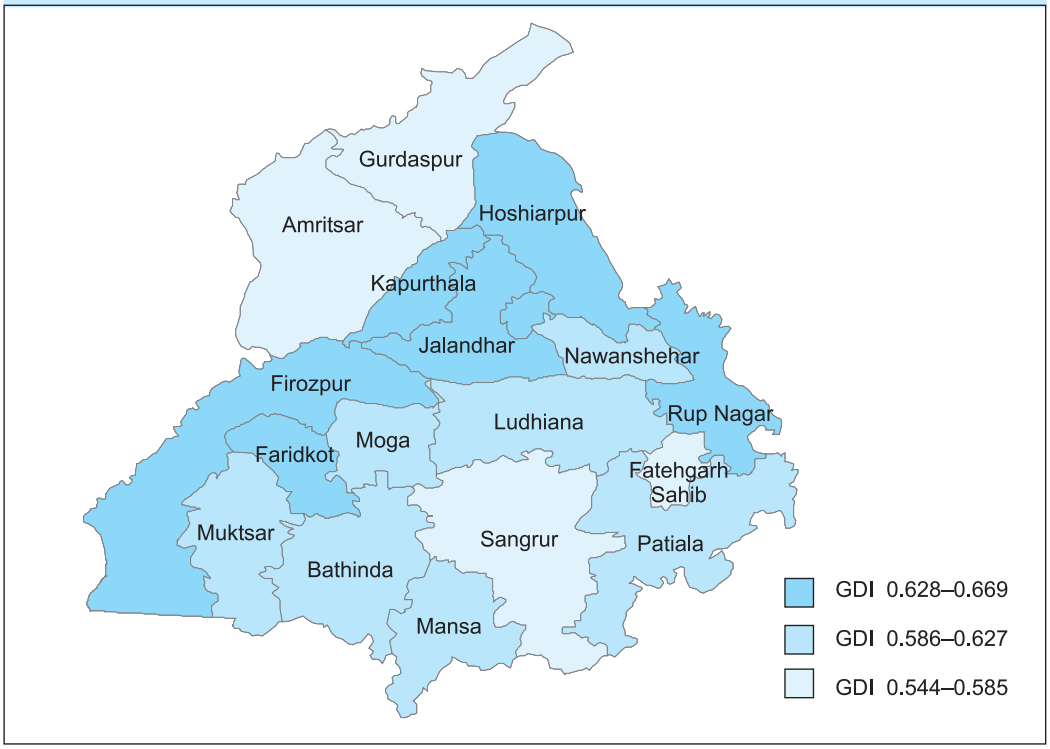
There are two problems regarding the Punjab GDI. One is that since it is not affected by gender ratios, low gender ratios are not reflected in the GDI. Secondly, female work participation rates in Punjab are very low and prevent women from becoming economically empowered. Yet the GDI is insensitive to low female work participation rates.

The Measures

The true value of HDI indices lies in the fact that they enable us to make comparisons of HDI and show how far districts have to travel before they achieve a level of development that can be called satisfactory. While the level of satisfaction is highly subjective,[4] there are still some broad objectives

[4] As individuals it will be very difficult to cite any particular state that satisfies all, but we can say with confidence that there are some achievements that are both necessary and which will provide a better quality of life to all and provide greater measure of satisfaction to more people.

Map 2: **Gender-related Development Index in Punjab – 2001**



that people, especially their government, can form for themselves and pursue.

The HDI tells us what some of these broad goalposts are. When the planning process begins, the general framework of human development helps considerably. If we need to push life expectancy to 85 years, then we need to ensure an infant mortality rate (IMR) of about 10, and ensure that even the poorest and most deprived group of people do not have an IMR of more than 20 or 30. If we talk of universal enrolment till class five, then it means providing a functional school to every child and ensuring that every child attends school throughout these five years.

In India, the concept of human development already exists in some form in traditional, political and social discourse, for example, the call for *Bahujan Hitaaya* and *Bahujan Sukhaay*. The idea of human development was also integral to Gandhiji's call to work for the *Daridra Narayan,* the poorest of the poor.

Simultaneously, in order to measure and assess development, we would use result-based indicators, and not input-based indicators. Let us take two examples from health – we would refer to fertility rate[5] rather than couples effectively covered to assess the success of our efforts in population control, and IMR rather than target coverage of immunisation for the success of basic health programmes.

Regional indices provide guidance on which geographical areas are most in need of attention and investment.

[5] Fertility rate or Total Fertility Rate (TFR) is the estimated average number of children a women would have in her life time.

2. Punjab: A Background

This chapter provides an account of Punjab's history. Important social and political changes are traced and the highs and lows of Punjab's past are charted. To start with, the chapter surveys Punjab's history up to the time India achieved Independence. Then there is a focus on the Green Revolution, which dramatically transformed Punjab's economy, followed by a look at the tumultuous period of Naxalite-inspired militancy in the state. Subsequently, there is an account of the period of militancy in the state in the 1980s until its collapse in the early 1990s. These specific events and periods have been selected because they have left an indelible mark on the life of the people. Additionally, Punjab, like all other states of the country, is a land of three or four distinct regions. Often many of the state's characteristics possess regional dimensions and many issues are strongly regional. Thus, the chapter ends with a comment on the regions of Punjab.

History of Punjab

The term 'Punjab' emerged during the Mughal period when the province of Lahore was enlarged to cover the whole of the Bist Jalandhar Doab and the upper portions of the remaining four *doabs* or interfluves. `Punjab' is thus actually co-terminous with the Mughal province of Lahore, that is, the Mughal Lahore became known as the province of *panj aab*. The boundaries of Punjab changed several times thereafter, under Maharaja Ranjit Singh, the British and in independent India.

Punjab witnessed important political changes over the last millennium. Its rulers from the 11th to the 14th century were Turks. They were followed by the Afghans in the 15th and 16th centuries, and by the Mughals till the mid-18th century. The Sikhs ruled over Punjab for over eighty years before the advent of British rule in 1849. The policies of the Turko-Afghan, Mughal, Sikh and British rulers; and,

the religious movements during these centuries, as well as the freedom movement in the rest of India had important affects on the economic and social life of the province.

Punjab – Early Years

There were many social changes as a result of Turkish rule. Traditional society so far had been closed and hierarchical, dominated by a rigid caste system in which the relative positions, duties and disadvantages of its different segments were determined by birth and were believed to be divinely ordained. This social structure began to significantly transform itself during the Turko-Afghan, Mughal, Sikh and British periods. The ruling class, or Rajputs, lost their status to newer elites and the Brahmins too lost state patronage. The upper castes, including Brahmins (priests) and Kshatriyas (rulers) were thus forced into other occupations. The former took to secular occupations; and the latter became, at best, *chaudhari*s, collecting revenue from a group of villages. Others became cultivators, traders and shopkeepers.

As a result of the hierarchical order being weakened by the Turko-Afghans and the Mughals, much greater social mobility became possible. Artisans and service-providing groups could move from rural to urban areas and serve the new ruling class in cities and towns, which were increasing in size and numbers, due to a spurt in craft production and trade. The extension of cultivation led to the emergence of new towns in the well cultivated upper *doabs* of Punjab. Merchants of Multan and Lahore began to play a crucial role in domestic and external trade. By the early 17th century, Punjab had an active commercial life, involving a wide range of traders, peddlers, brokers. The cash nexus was fairly well established under the Mughals, and interdependence between towns and the countryside increased considerably by the end of the 17th century.

The introduction of the 'Persian wheel' facilitated artificial irrigation, resulting in considerable increase in agricultural production. A certain degree of commercialisation of agriculture was in evidence during the early 17th century. The spinning wheel, carding-bow and improved wooden loom brought a major change in weaving technology and resulted in rapid growth in the textile industry under the Mughals. The introduction of lime mortar as cementing material and the abundance of lime (*chuna*) in Punjab facilitated brick-and-stone construction and gave impetus to the building industry. After the Turks introduced the manufacturing of paper, Sialkot emerged as an important centre of paper manufacture. Artisanal production, on the whole, continued to be carried on with elementary technology and simple tools in a system of production which was rooted in the caste society and based on the family as a unit of production. Minute specialisation by each occupational sub-caste created a vested interest in static labour-intensive technology. Since

Box 2.1: **Guru Nanak (1469-1539)**

GURU NANAK (1469-1539) based his message on the ideas of equality, universality and social commitment. All human beings, men and women, could join his path and become equal among themselves. They worshipped together in congregation (*sangat*), and ate together a common meal (*langar*). These two practices institutionalised the ideal of equality. All norms and values, whether spiritual or ethical, were equally applicable to all his followers. Social responsibility and spirituality were the two sides of the same ideological coin. By installing one of his followers as the Guru in his lifetime, Guru Nanak made the position of the Guru and the disciple interchangeable. This concept served as the basis of the unity of Guruship, leading eventually to the uncompromisingly democratic idea of the Panth as the Guru.

production of necessities like textiles, metal articles, leather goods and agro-manufactures was highly localised, mass production and technological innovation became relatively difficult.

Islamic Law was introduced for the administration of justice under Turko-Afghan and Mughal rule. Islam made spirituality accessible to all sections of society and Punjab soon developed a sizeable Muslim population.

A Period of Social and Religious Change

By the 16th century, many new ideas began to emerge. Sufism and the Sikh Panth gained considerable ground and popularity amongst the masses. Guru Nanak and his successors introduced and popularised a new ethic, which made no distinction on the basis of birth. To a large extent, spirituality became universally accessible.

The ideology of Guru Nanak and his successors had a special appeal for labouring sections. Day-labourers, craftsmen, agriculturists, traders and shopkeepers were electrified by the radical new doctrine. Their voluntary contributions to the common funds of the community enabled the Gurus to establish religious centres and establish new towns, which became centres of production and exchange. The financial independence of the community and its organisational networks spread all over the Mughal empire, making the Sikh Panth a sort of state within the Mughal empire.

The egalitarian nature of the Sikh Panth was reinforced by the institution of the Khalsa in 1699. In addition to equality in congregational worship and the community meal, the Khalsa encouraged equality in social and political life. The ideal was embodied in the doctrines of the scriptural Guru, that is, 'Guru-Granth Sahib', and the Guruship of the collectivity of the Khalsa, that is, Guru-Panth.

The 18th century struggle of the Khalsa was in many ways made possible by their faith in the Gurus, the doctrines they had propounded and the institutions they had evolved. It is significant that Punjab remains one of the few examples in India where the peasantry and backward castes were able to achieve political power. The Sikh social order was much more democratic than the traditional caste system which had so far dominated society.

British Rule

British rule in Punjab introduced new institutions and technologies. The colonial state subscribed to the values of humanism, rationalism and progress. Yet the state was geared towards using its technological and industrial superiority to perpetuate its own domination and maximise its economic advantages.

Thus an increase in agrarian production meant that the surplus was taken away by foreign agencies. The network of perennial canals built by the new

Box 2.2: **Guru Gobind Singh (1666-1708)**

GURU GOBIND SINGH (1666-1708) invited all the Sikhs to become his Khalsa by offering direct affiliation to him, accepting the new baptism of the *(khanda)* double-edged sword, with the obligations, among others, of keeping the hair uncut (*kesh*) and bearing arms. His objective was to unify the Sikh Panth in order to meet any external threat. He had already evolved the idea of war in the way of righteousness (*dharmayuddha*), which the Khalsa were now to pursue. In the process, Guru Gobind Singh sharpened the distinctive identity of the Sikhs and added political commitment to the idea of social responsibility. The order of the Khalsa was more emphatically an egalitarian social order. He institutionalized the ideal of equality by vesting Guruship in the Khalsa Panth. Guru Gobind Singh's mission was the culmination of the Sikh movement, and a point of departure leading to the Khalsa Raj.

Box 2.3: The Freedom Struggle

India's Freedom Struggle received a uniquely rich input from Punjab. In terms of sacrifice of life, property, jobs, and personal freedom, Punjab suffered more than any other province of British India. Relatively, among the Punjabis, the Sikhs suffered more, both as the revolutionaries and the peaceful agitators. The efficacy of non-violent passive resistance was successfully demonstrated first in the Akali *morchas*. The concern for *swadeshi* as an ideology and as a weapon was voiced first by the Punjabi Aryas. A secular all-India orientation, combined with an international outlook and the vision of a radically different society entailed the Ghadar and the Naujwan Bharat Sabha. The latter also gave the war cry of *inquilab zindabad* and subscribed to the goal of complete independence before the Congress adopted it. Through the Jallianwala incident, Bhagat Singh and the INA trials, the Punjabis gave three powerful symbols to the freedom struggle. The issue of partition of India and of Punjab was clinched finally by the Punjabis themselves.

state, combined with new agricultural techniques, implements and seeds, made Punjab agriculturally the best-developed region of India. The bulk of its agricultural surplus entered foreign trade. The commercialisation of agriculture transformed the large peasant proprietor in the upper *doabs* and the canal colonies into a producer for the world market. But the small peasant often had to depend on the moneylender to meet the fixed revenue demand. Thus, notwithstanding agricultural expansion and increase in production, an overwhelming proportion of the actual cultivators in colonial Punjab began to exist at the level of subsistence.

Shaheed-A-Azam, Sardar Bhagat Singh

As machine-made goods became available, the traditional artisan was faced with a shrinking market. As his incomes fell he began to look for opportunities outside the village community. However, not many opportunities were available since industry was slow to grow in Punjab. An increasing number of artisans thus became skilled and unskilled labourers on construction sites, railway tracks and railway workshops. Some migrated to the British colonies in Africa, Latin America and South-east Asia in search of work. However, others took to the new education and became professionals like teachers, lawyers and engineers. Some turned to petty trading and jobs related to industry; others joined the police, army and civil administration. Indeed, the new education became the single most important means of effecting a change in occupation.

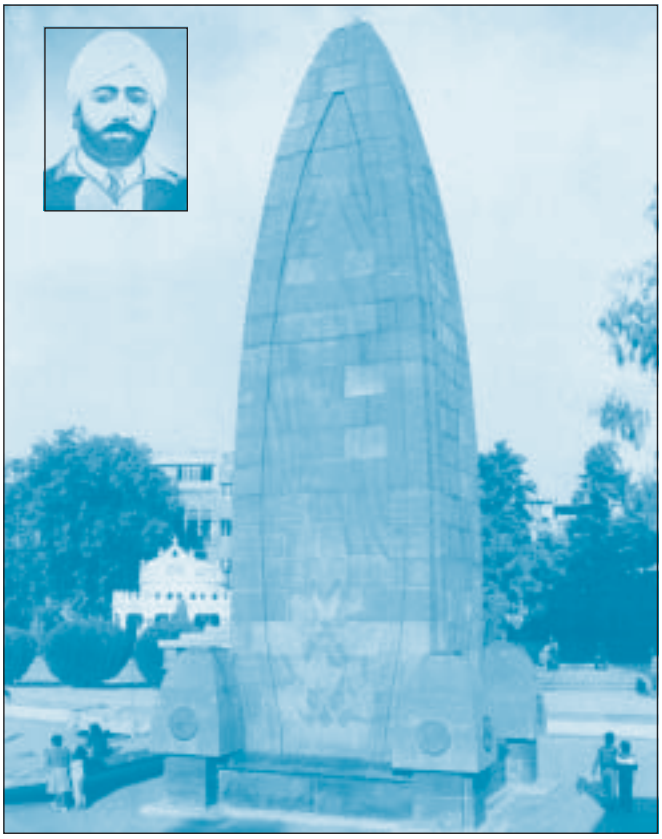
The colonial state took two policy decisions regarding education: one, that it was the responsibility of the state to impart education to the people, and two, that it should focus mainly

on Western knowledge and English language. The system of education, thus, was aimed primarily to provide manpower for the administrative, technical and military requirements of the colonial state. The content of education developed by the government was totally secular, consisting of natural and social services, languages and literature.

However, Christian missionaries were not only allowed but also encouraged to undertake educational projects. Often, the evangelical content of their educational programme motivated English-educated Punjabis to devise their own programmes of education. By 1900, several educational institutions came up in the Punjab under the aegis of the Arya Samajis, Singh Sabhas and Islamic Anjumans. The 20th century saw the extension of private enterprise in education along with an enlargement of the educational responsibilities of local bodies, particularly through municipalities. The principle of free elementary education for boys was conceded in 1919 and for girls in 1940. In this instance, humanism and progress were allowed to triumph over the needs of the colonial state.

A similar tendency is evident in the sphere of medicine and health. By the time the British annexed Punjab, the idea of regular Western-style hospitals for Europeans and soldiers was well established. Within the first two decades of British rule in Punjab, civil hospitals and dispensaries of different grades were established mainly at the district and tehsil headquarters, and a medical school was set up in 1860 at Lahore. Dispensaries and hospitals were also run by the missionaries and charitable institutions, which received some assistance in the form of grants-in-aid. However most of these dispensaries catered to the urban population.

Municipalities were expected to take care of sanitation. There was great disparity between the



Jallianwala Bagh, Memorial, Amritsar
(Inset Shaheed Udham Singh)

privileged enclaves occupied by the Europeans and congested urban centres and far flung rural areas in which Punjabis lived. Notwithstanding the number of hospitals and dispensaries in colonial Punjab, elementary health care reached only a small proportion of the population. Rural people suffered more than urban and women suffered more than men.

Social and Political Movements

Social and religious reform was to a significant extent spurred by Christian missionaries. A reaction and interface with Western Christian thought resulted in many educated Punjabis organising themselves into such organisations such as the Anjuman-i-Islamia, Lahore (1869), the Lahore Brahmo Samaj (1863), the Singh Sabha, Amritsar (1873) and the Arya Samaj, Lahore (1877). These spread themselves throughout Punjab by the end of the century. Religion became the dominant concern of the reformers. Their other

major concern was the spread of education. They were deeply interested in the upliftment of women through education, establishing a higher age of marriage and reforming customs related to marriage and death. Other organisations taking an interest in religious and social reform of some kind were the Namdharis and Nirankaris among Sikhs; the Dev Samaj and the Sanatan Dharm among Hindus; and the Ahmadiyahs among Muslims.

However, certain measures adopted as reforms led to communal bitterness and competitiveness for power, position and honours in the colonial context.

The resistance to British rule in Punjab goes back to the 1840s. However, the freedom struggle in the official sense was a phenomenon of the early 20th century. The ideal of *swadeshi* became popular at this time. The period 1920-22 was one of the peaks of the struggle, when three movements converged, namely, the movement for Gurdwara reform led by the Central Sikh League and the Shiromani Akali Dal, the Non-cooperation Movement led by Mahatma Gandhi and the Khilafat agitation, which mobilised the Muslims.

While sporadically responding to the Gandhian movements, many Punjabis became increasingly preoccupied with rivalries over provincial posts. The Muslim League's demand for Punjab and professional rivalries between Hindus and Muslims led to a sharpening of the communal divide which soon extended to villages. The determined resistance of the Akalis to the idea of Pakistan eventually obliged the government and the Congress to accede to their demand for the partition of the British province of Punjab rather than force non-Muslims to live in Pakistan.

To sum up, the British Raj greatly transformed Punjab. Different sub-regions of the province and different sections of its population were differently affected by a century of colonial rule. Economically, and in terms of urbanisation, the upper *doabs* and canal colonies were better developed than the south-eastern districts comprising the Haryana area. Hindus and Sikhs were better off, compared to Muslims. Specifically, the segments that did well as the collaborators of the colonial state were the professional middle classes, large landholders and traders. Those artisans who diversified from their traditional vocations also benefited. However, compared to the 1840s, a much larger proportion of artisans, small cultivators and landless labourers appear to have become impoverished. They lived in a situation of slow famine created by a large external trade, fixity of revenue demand and growing indebtedness. Those of the rural poor who managed to move to the cities were forced to live in slums and earn a survival wage.

Punjab in Independent India

In 1947, 13 out of 29 British districts of Punjab in undivided India came to East Punjab, which was renamed Punjab (India) on 26 January 1950. In 1948, the former princely states were organised separately as Himachal Pradesh and PEPSU (Patiala and East Punjab States Union), the latter merging with Punjab in 1956. Following the Akali agitation for a Punjabi-speaking state, and the Reorganisation Act of 1966, the territory of Punjab was bifurcated into the linguistic states of Punjab and Haryana, with the remaining hill areas going to Himachal Pradesh. Post-bifurcation, Punjab came to have an area of 50,362 sq. kilometres which was one-seventh of its size before independence. The new state was divided into eleven districts, including Rup Nagar, created as part of the reorganisation. Structurally, the development blocks which were introduced in 1952 presented the only new feature up to this period.[1]

[1] Gopal Krishan and Surya Kant, 'Administrative Space', *Punjab in Prosperity and Violence: Administration, Politics and Social Change 1947-1997*, eds. J.S. Grewal and Indu Banga (Chandigarh: Institute of Punjab Studies, 1998), p. 4.

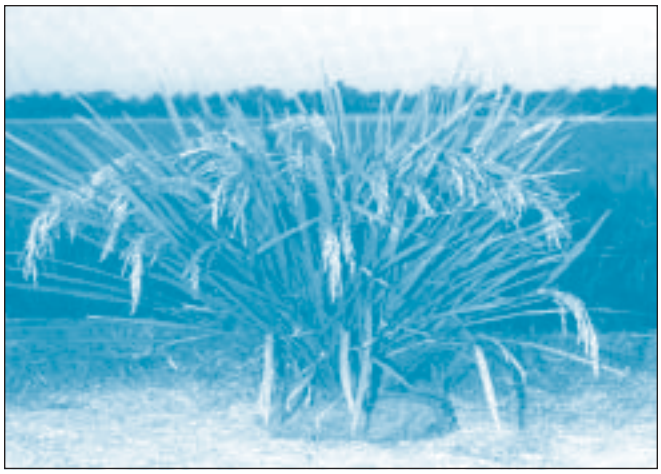
Following the re-organisation, Punjab took centrestage in the Green Revolution launched by the Government of India and the states. Much of what has happened in Punjab subsequently owes its origins, nature and impact in some direct or indirect way to the Green Revolution.

The Green Revolution

In this section an attempt has been made to understand why the Green Revolution was so successful in Punjab, to scrutinise its results and contrast it with the present agrarian crisis.

India has gone from a food-deficit to a food-surplus country largely because of the agricultural transformation of Punjab. The economic transformation of rural Punjab is basically a story of agricultural transformation. During the 1960s a fundamental change occurred in the institutional and economic infrastructure due to massive public investment. There was irrigation and power development, agricultural research and extension services, and the strengthening of the co-operative credit structure. Already, consolidation of holdings and the predominance of owner farmers had created crucial pre-requisites for the Green Revolution.

Punjab led the country's Green Revolution of the 1960s and earned for itself the distinction of becoming India's `bread basket'. The Green Revolution introduced a new technology of production in agriculture. The technology consisted of a package of inputs, such as, high-yielding varieties of seeds, chemical fertilisers, pesticides, insecticides, weedicides, machines like tractors, threshers, pumpsets/motors, combine harvesters/ reapers and others. The proper usage of these inputs required an assured irrigation system, a peasantry with the will and capacity to adopt the new technology and a government willing to lend its support and investment. All these conditions were present in Punjab.



High-Yielding Variety of Rice

In fact, before the Green Revolution, Punjab had experienced certain developments that set the stage for its rapid spread. Before Independence, Punjab's agriculture had been dominated by peasant proprietors (Singh, 1989). The rapid settlement of land claims after the partition of the state, and the completion of the consolidation of land holdings by the end of the 1950s created a favourable man-land ratio. The fragmentation of land holdings seen in other states of India was thus taken care of. This encouraged peasant proprietors to invest in land improvement and adopt new technologies, as their holdings had become economically viable. Land reform measures also encouraged several land owners to reclaim their land from tenants for self-cultivation (Gill, 2001). Punjab was also a major beneficiary of British investment in irrigation works and development of canal colonies where peasants from the east and central Punjab were resettled. In the post-Independence period, canal irrigation was further developed by the state. By 1960-61 the net sown area irrigated in Punjab had gone up to 54 percent.

During the British period, agriculture in Punjab, particularly in the canal colonies was largely commercialised. The peasants who migrated to Indian Punjab from western Punjab in 1947-48 during Partition were experienced in and geared

towards commercial agricultural production. Thus, even before the availability of the Green Revolution technology, Punjab was showing signs of rapid agricultural development. Between 1953-55 to 1963-65, the index of agricultural production of all crops experienced a growth rate of 4 percent compared to 2.2 percent at the all India level (Singh, 2001). These conditions in Punjab were accompanied by an official policy of strengthening and promoting agricultural research and extension. The College of Agriculture at Ludhiana was converted into the Punjab Agricultural University (PAU) in 1962. PAU was put in charge of agricultural research and education in the state and played an active role. It is renowned for its work on high yielding varieties of seeds and technical innovations like fertiliser drills and threshers.

Simultaneously, the government invested massively in rural development, ranging from irrigation works, drainage of rain water, reclamation of land to solve the problem of land salinity. To promote investment at the farm level, arrangements were made for credit on long and short term crop loans through land mortgage, banks and a network of cooperative credit societies.

High-yielding dwarf varieties of wheat from the International Centre for Maize and Wheat Improvement (CIMMYT) Mexico, were introduced leading to bumper crops. The availability of assured irrigation for fertile lands provided a conducive environment that enabled a dynamic peasantry to accept innovations in seed technology. Several farmers already possessed the immediate capacity (supported by the government) to make the necessary investments in the new technology. These initial innovators were immediately imitated by other farmers, irrespective of the size of their holdings, when they observed the sudden jumps in per hectare yield.

The impact was dramatic. Between 1965-66 and 1970-71 the per hectare yield of wheat doubled, from 1104 kg per hectare in 1965-66 to 2238 kg in 1970-71. Following the success of the new technology in wheat in the mid-1970s, a breakthrough was achieved in dwarf high-yielding varieties of paddy. After wheat, paddy provided a major push to agricultural prosperity in the state. By the mid-1980s, except for the southern parts of Punjab, the state began to follow a 'wheat-paddy rotation' pattern in cultivation, and, as a consequence Punjab became the food bowl of the country. It became the largest contributor to the central pool of procurement of food grains both for food security, as well as for running the public distribution system of food grains. With the minimum support price for wheat and paddy combined with the procurement system of the union government, crop production was greatly supported.

The Green Revolution has been the backbone of Punjab's development. It increased cropping intensity from 126 percent in 1960-62 to 185 percent in 1996-97, and the net sown area as a percentage of the geographical area rose from 75 to 85 during this period. The number of tractors rose from 10,646 in 1962-65 to 234,006 in 1990-93 and pumps sets from 45,900 to 721,220. Fertiliser (NPK) consumption increased from 30,060 tonnes in 1962-65 to 1212,570 tonnes in 1990-93. Consumption of chemical inputs also increased.

An important social affect of the Green Revolution was the destruction of the old *jajmani* system and its replacement by a contractual relationship. This severely affected the fortunes of service castes and artisans and resulted in unemployment and underemployment. Many were driven to poverty.

Another social change was the disappearance of caste rigidities and the emergence of the middle

Box 2.4: Case Study of Village Barwali Khurd, Machchiwara Block, Samrala Tehsil, Ludhiana

Some of the major changes found in this study that may have taken place in a period of 30 years falling between 1965 and 1995 are highlighted as follows:

The increase in agriculture productivity was reflected in the increase in capital investment. More and more *pucca* houses were constructed and roads were paved. The village presently has a middle school, a rural dispensary, telephone service, *pucca* roads, a co-operative bank, a milk collection post, police post and a focal point.

The social gap between the higher and the lower castes became negligible in this period. A major change in the caste hierarchy was visible in both public ceremonial functions and interpersonal relations, strengthening the cross-caste alliance. The cross-caste similarity of lifestyles, helped to promote egalitarian social interaction.

Many agricultural labourers migrated from UP and Bihar and this led to a change of occupation for the local labourer from agriculture to other occupations like masonry, construction work, driving, plumbing, etc.

Sources: B.L. Abbi and Singh . "Post-Green Revolution Rural Punjab: A Profile of Economic and Socio-Cultural Change (1965-1995)".

and rich peasants as the dominant peasantry in the state. A significant feature of the agrarian society in Punjab is the numerical preponderance of Jat Sikhs in rural areas. Scheduled Castes form what is called the agricultural proletariat or labour force.

The Green Revolution also brought changes in lifestyle. Aspirations increased—there was demand for better education for children, better housing and better consumer goods. The traditional 'joint family' system was gradually replaced by the 'nuclear family'.

Politics also changed. There was a gradual shift of power from the urban elite to the rural elite. The Jat Sikhs became the dominant political group and as a result, development of agriculture became the top priority of every successive government. Supply of agricultural inputs at cheaper rates became a core demand. In order to relieve farmers from moneylenders, co-operative societies and commercial banks were established in large numbers to provide agricultural credit to the farming community. As agriculture became modernised, electricity for agricultural purpose was required at cheap rates for long hours. Similarly, fertilisers and pesticides were also required to be supplied at cheap rates. Thus, successive governments responded by granting subsidies.

The impact of the Green Revolution differed through the regions of Punjab. The Doaba region saw a sizeable immigration of Sikhs to England, United States and Canada. Money remittances from overseas communities were used by the Jat Sikh farmers in the Doaba to improve their houses, increase lands and to buy machines. Recruitment in the army has always been an important adjunct to the agricultural economy. However, the trend of supplementing agricultural income from other sources was unevenly spread through the different regions. The Doaba region was foremost in this trend, followed by Majha and, only a part of the Malwa region, like the districts of Ludhiana and Patiala. One area where the impact of the Green Revolution was least felt was the so-called Kandi region (the area of the Himalayan foothills). Until today, the Kandi belt continues to remain relatively backward socially and economically.

The Green Revolution technology worked very well until the beginning of the 1980s. But subsequently agriculture began to show signs of fatigue. Productivity slowed, and stagnation set in. PAU

estimates show that on an average the Punjab farmer achieved 75 percent of the achievable potential yields of rice and wheat with the currently available technology (PAU, 1998).

As union and state government support to agriculture has declined, the present cropping pattern and production system seems to be economically unsustainable. Additionally, the Green Revolution technology has put great pressure on the ecological system, leading to a fall in the level of the ground water table, and soil depletion. Thus, the initial prosperity that the peasantry achieved is at this time diminishing at a very rapid rate. Punjab now requires new technology to make the present crops more profitable, as well as ecologically sustainable.

Box 2.4 presents a case study on the impact of the Green Revolution on rural Punjab by Abbi and Singh prepared in 1997.

Peasant Movement in Punjab

A distinct period of peasant activism was noticed in the 1960s and the 1970s in different parts of the state. However, the roots of peasant unrest stretch far beyond Independence. In fact, the Punjab peasantry has always contributed in important ways to the present social and political structure. Prior to Independence, the most influential ideology of the peasants was Sikhism. Sikhism, with its notions of equality and austerity, appealed to poorer sections, particularly the farmers. The notion of martyrdom, as exemplified by the various Gurus, occupies an important position in Sikh philosophy. The cult of the hero has always been popular and heroes such as Chandrashekhar Azad, Bhagat Singh and their comrades inspired many.

This culture of socially activist rebel-heroes encouraged the growth of militant groups such as the Kirtis and Akalis and provided support to peasant/tenant protests. Starting in 1935 there was a series of strikes and agitations by tenants, which were supported by the communists. These peaked with the Kisan demonstration at Amritsar in July 1938. As a result, the British and the Unionist Party government of Punjab were forced to accede to their demand of cancellation of debts of small farmers and led to land revenue being replaced by income tax.

The significant peasant struggles, both during the pre-Independence and post-Independence periods were conducted under the leadership of the United Communist Party of India (CPI) which in the early 1960s split into the Communist Party of India (CPI) and the Communist Party of India, Marxist CPI(M). Both parties formed separate organisations of agricultural labourers on a nationwide basis. Hence was born the *All India Organisation of Agricultural Labour*, which was named Bharatiya Khet Mazdoor Union by the CPI and the Dehati Khet Mazdoor Union by the CPI (M).

This was followed by the formation of the Radical Peasant Union, which later became known as the Naxalite movement under the leadership of the Communist Party of India–Marxist-Leninist CPI (M).

The formation of an independent agricultural labour organisation was a distinct departure from the earlier peasant organisations, which were confined to the concerns of the land-owning peasantry. The combined effect of pre-Independence peasant movements, and the early phase of the peasant movements in the 1950s, was successful in ensuring proprietary rights to the occupancy tenants but it did not make any significant difference to the status of the tenants-at-will and agricultural labourers. In fact, the condition of the tenants-at-will worsened in the early 1950s as landlords took to massive eviction. The woes of the tenants-at-will remained largely unaddressed.

Immediately after Independence and after the Partition of Punjab in 1947, there arose the issue

of the *Abad Kars* (agricultural workers/owners of small land holdings). This was closely linked with the land allotment policy of the Punjab Government. After the initial problems of rehabilitation of the peasants who had migrated from Pakistan, the attendant problems of settlement in different phases with temporary allotment, quasi permanent allotment and permanent allotment left only the inferior lands in the river beds of Sutlej and Ravi at the central government's disposal. These lands were transferred to the government of Punjab in the early 1960s, with the directive that these lands were to be distributed among the landless harijans, landless tenants and other poor cultivators. The Punjab Government, on the other hand, adopted a policy of open auction of evacuee lands, which resulted in large chunks of land being grabbed by influential people, and the *Abad Kars* were evicted.

Talib's observations are noteworthy here. He states that the poor tillers could not mobilise the requisite resources to compete with those who were rich and better connected who took away the land. In addition, these affluent sections had the goodwill and patronage of the auctioning officers on their side. As a result, the poor and needy who usually depended on agricultural loans were deprived of the opportunity to purchase their lands. Thus, the result of the open auction led to the uprooting of the actual tillers of the land. The cherished ideology of providing "land to the landless tillers" was thus largely overthrown. (*Ibid*, Desai, A.R, pp. 493-94).

This led to a confrontation between the tenant *Abad Kars* and government officials in the river bed areas along the Sutlej. The centre of the agitation was Nakodar tehsil of Jalandhar district. Other major centres of agitation were in the district of Ludhiana and in Kot Isse Khan in Zira tehsil of Firozpur district. These struggles were commonly known as *Abad Kar* struggles and were conducted under the aegies of the Joint Action Committee of the Kisan Sabha and Mazdoor Sabha. Rai Sikhs and Scheduled Castes made up the cadres of these movements at the grassroots. The Joint Action Committee undertook massive mobilisation of affected and deprived sections and highlighted the following demands:

- Spot verification of occupants of land through *Girdawari*.
- Right of ownership of land occupied by *Abad Kars* up to 5 acres per family.
- Lands occupied by *Abad Kars* not to be given to soldiers.

This mobilisation forced the Punjab Government to ensure the property rights of these small occupants of rural evacuee lands with the pre-conditions that the *Abad Kar* should be in continuous and undisputed occupation since 1976 Rabi crop; and, such a person should not own more than five ordinary acres inclusive of his own land [e.f. Desai, AR, pp. 494-495].

Thus, only a nominal element of social justice was rendered to the landless.

Another significant achievement of the Kisan Sabha during the 1950s and 1960s was the Anti-Betterment Levy agitation, which ultimately led to the non-payment of the Betterment Levy all over Punjab, including the present Punjab and Haryana. Talib rightly remarks that this was one of the most broad-based struggles in the post-independence years.

When capitalism arrived in Punjab's agriculture, caste barriers became diluted but class polarities sharpened. In the rural areas there emerged a clear divide between the capitalist farmers and rich peasants on the one hand, and agricultural labourers on the other. This social milieu contributed in important ways to the growth of extremist movements.

Naxalite Movement in Punjab

Far away from Punjab, in the village of Naxalbari in Alipurduar district of West Bengal, the famous Naxalite movement which took its name from this village. This movement spread over many parts of India, including Punjab where it spread widely through cities, universities, villages and farmer organisations.

Three phases may be discerned in the Naxalite movement in Punjab. These are:

(1) Mass struggles, which were organised up to 1969.
(2) Implementation of 'annihilation of class enemies' line
(3) Withdrawal of 'annihilation line' and adoption of militant agitations.

The Naxalites organised peasants according to the above objectives by means of forcible harvesting of crops, seizure of landholdings of the landlords and demand for an increase in wages of agricultural workers. Naxalites organised three militant mass struggles. However, their gains could not be sustained.

The first among these struggles was organised at Bhikhi-Samaon in Bathinda (now Mansa) district. On December 8, 1968, hundreds arrived in Samaon and the land of the rich landlords was occupied by hoisting red flags in the fields. The seizure was mainly symbolic in character.

The second struggle involved the organisation of workers employed by the Birla Farm. The Punjab Government had leased 1,000 acres of land to the Birlas near Rup Nagar for seed multiplication. The Naxalites organised farm labourers who went on strike on April 10, 1969 demanding higher wages. The farm management comprising at landlords, large farmers and absentee landlords used the police, as well as local chieftains to end these strikes. After the Naxalites attacked the police station at Chamkaur Sahib on April 30, 1969, the police began to crack down much more strongly on strikers.

The last mass struggle took place at Kila Hakima in Sangrur district in June 1969. Unlike the Bhikhi-Samaon struggle, at Kila Hakima, the Naxalites remained in the village or in the surrounding areas to sustain the seizure of land. Confronted with the large police force that was sent to the area, they burnt farm buildings. At this stage, the Ghadar Party, the Babbar Akalis and the Red Communists were the inspiration of the Naxalite leaders.

Thus, the major targets of the Naxalite attacks were the big landlords and moneylenders, who were identified as the class enemy. Naxalites also attacked police informers who were instrumental in the arrest of their comrades. The districts of Jalandhar and Kapurthala saw significant Naxalite activity.

Most of the Naxals were university students and hostels were their natural hiding places. The Naxalite-led movements, however began to wane after 1981, when a different movement began to grow, which far outshadowed the Naxalite agitations. This was the rise of militancy.

The Naxalite movement in Punjab failed to focus on the fundamental concerns of all agricultural labourers, and remained confined instead to the demands of the marginal and small peasants. It was only later that the Naxals took up more universal concerns of the land-owning peasantry such as remunerative prices for agricultural produce, reduction of electricity tariff and the abolition of indebtedness.

There were sub-groups within the Naxalite movement. One of these was the Kirti Kisan Union, which had a strong base in the lower peasantry, particularly in the Doab region. The KKU initially organised the Kala Sangathan struggle against the landlords in the Doaba. Later, it shifted the focus

of its struggle to the issue of remunerative prices and took up specific problems raised by the capitalist transition in Punjab agriculture.

The Naxalite movement in Punjab, unlike its counterparts in Andhra Pradesh and Bihar, failed to focus strongly enough on the agricultural labourer, although in the aftermath of the Green Revolution, during the 1970s, the CPI and CPI(M) did carry out several successful struggles on the question of agricultural labourers' wages.

The massive influx of migrant labourers to Punjab from the rest of India, that began from the 1960s severely affected the movement and wage rates of local agricultural labourers. Local farmers preferred to employ migrant labour, as it was cheaper and these labourers worked longer hours. Studies conducted during the 1970s and early 1980s pointed to simmering discontent among local agricultural labourers. The Left parties were unable to lead local and migrant labourers on the wage issue. Subsequently, militancy dealt a body blow to the Left in Punjab and buried any future mobilisation of agricultural labourers.

Militancy in Punjab: An Overview

Militancy has left an indelible mark on Punjab and has had drastic social, political and economic consequences. After Partition, it was militancy that once again revived communal identities as masses were mobilised to protect the Sikh identity and establish its difference from Hindus.

Rise of Militancy

Militancy in Punjab had its origin in several social, historical, religious, political, cultural, riparian and linguistic factors, combined with simmering frustrations and feelings of identity crisis. It would be inaccurate to attribute the rise of terrorism only to economic factors.

The dominant theme that unites all these explanations is the emerging centrality of Sikh religion and Sikh identity. Sikh identity, as a separate identity, was an idea used by communal forces to propagate ideas that all Sikhs should have common social, economic and political interests and, should therefore unite against the State which was seen as representing the interest of the Hindu majority. Religion was manipulated to suit the political ambitions of a few. Thus, "exploitation of religion for political gains has become a permanent feature of our political system, posing a serious threat not only to the national unity, but also to the purity of religion and sanctity of religious places."[2]

Jurgensmeyer's[3] explanation that militancy drew on a religious sanction for violence in times of perceived threat is also significant. He says the perceptions of those who participated in militancy in the name of religion were crucial. In his opinion, Sikh militants felt they were justified, to a certain extent, when they claimed that they acted as a result of religious conversions which, they felt were going on at this time, even while upholding notions of Indian secularism. He stressed that the militant movement in Punjab was an instance of a religious struggle emanating from a perceived threat and that religion was used to legitimise violence.

There are scholars who view economic and regional disparities as being the real cause for the rise of militancy. These explanations argue that although the Green Revolution was a success, it failed to provide sustainable and homogeneous development throughout the state. The effects of the Revolution also produced far reaching social changes. Environmentalist Vandana Shiva, an advocate of this argument says that the Green Revolution led to a destruction of the community and a consequent homogenising of social

[2] Samiliddin, 1985

[3] Jurgensmeyer, 1988

relations, purely on a communal criteria. Thus an overriding concern with economic growth, with total disregard to environmental and social factors led to a collapse of the community, giving rise to a violent situation. Gupta (1992) is also of the view that the Green Revolution failed to distribute benefits equally and thus made communal mobilisation possible.

Other scholars believe that communal mobilisation among the Sikhs occurred as a result of the anxieties generated by the process of modernisation. Sikhs feared being assimilated into Hinduism (Bomwall, 1985). They feared that in the name of national integration, their identity would be submerged within that of the majority community.

In conclusion, it can be said that militancy grew from a growing distrust with the State and its initiatives. It also grew from a deep dissatisfaction with the perceived discriminatory policies practised by the government and a lack of a responsive political will to address the needs of the people. The only successful policy had been the Green Revolution and even this was riddled with problems. It had created a vast mass of restless, unemployed youth who now became the cadres for the militant movement.

Profile of Militants

In the following section, a profile of militants based on various studies has been attempted.

Class and Caste Representation

From the studies done by Puri and Judge (1999) and Ram Narayan Kumar (1997), it has been concluded that the largest number of militants was from the land-owning Jat Sikh sections of the peasantry. Puri and Judge's study indicates that two-thirds of the militants were from landless labourer and small farmer communities, 22 percent were middle farmers and a small percentage were rich farmers. The study of Satyapal Dang (1988), however, contests the view that the majority of militants came from poor and middle peasant families. He states that a sizeable number of militants came from well-off, rich peasant landlord families. Many studies have shown that militancy was to a large extent, a middle class phenomenon.

Age-Wise Distribution

A predominant majority (80 percent) of the militants were young, ranging usually from 14 to 25 years (Puri and Judge, 1999); about 15 percent were between 26 and 35 years; only 5 percent were above 35 years. In contrast, the study of Satyapal Dang (1988) reports that only 37.5 percent were below 25 years and the remaining 62.5 percent were above 25 years. Notwithstanding the age differences as shown in the studies, it can be concluded nevertheless that a sizeable proportion of militants were young.

Educational Status

Studies show considerable variation in the educational qualifications of the militants. The study of Puri and Paramjit Singh shows that 24.15 percent of the militants were illiterate, 25.70 percent had acquired education up to the middle level and another 41.18 percent were matriculates, and only 8.5 percent had received education beyond the matriculation level. This indicated that on an average, militants had a low educational status. The study of Narayan Kumar confirms this.

However, variations are seen in Dang's study where 47.5 percent were illiterates, 5.5 percent were matriculates, and 47 percent had acquired higher education. Hence, militants seem to have received a fair amount of education.

Regional Distribution

Macro-level figures on the incidence of militancy show that the majority of the militants were from the Majha region from the districts of Amritsar and Gurdaspur, which border Pakistan (Source: Police Department, Punjab Government).

Motives for Joining Militancy

Puri and Judge show that there existed wide disparities in factors that operated in the village and the speeches on political objectives and grievances of the Sikh community that were being articulated by Sikh leaders and spokesmen.

The available evidence questions both the government's definition of the problem as a secessionist movement, as well as the ideological interpretation given by leaders. The evidence also defied another prevalent notion that most of those who took to armed struggle joined as a consequence of police atrocities on them or on the members of their families.

The work of Jasbir Singh states that feelings of discrimination and alienation coupled with widespread unemployment among educated youth substantially contributed in pushing the youth towards militancy.

Most of the other studies, however, point to the need to assert the Sikh identity arising from religious and political discrimination and alienation from the State.

Towards Militancy – Tracing the Landmarks

It is necessary to state the instance and events that led to this period of upheaval.

An important milestone in the road towards a more autonomous Punjab was the adoption of the Anandpur Sahib resolution in April 1973 by the Akali Party. In addition to demands for further autonomy, the resolution also demanded:

- Chandigarh as the capital of Punjab (with adequate compensation to Haryana to build a capital of its own).
- Readjustment of the state boundaries to include Punjabi-speaking areas of Haryana, Himachal and Rajasthan.
- Fairer allocation to Punjab of the waters of Ravi, Sutlej and Beas, to which it was the only Indian riparian state, including control over canal headworks and hydro-electric installations based on them.

For a long time the Anandpur Sahib resolution remained on the backburner. The Akali Party did confirm its commitment to this resolution at an annual conclave in Ludhiana, and when they came to power in the state in 1977, the case of re-allocation of river waters was submitted to the purview of the Supreme Court. However, the demand of the Anandpur Sahib resolution always hovered on the fringes of Punjab politics.

In the early 1980s, things started to change. The All India Sikh Student's Federation (AISSF) arrived on the political scene. Their determined demand for a ban on the sale of tobacco in 1981 led to a clash with some Hindu organisations demanding not only a ban on the sale of tobacco but also of liquor and meat. From then onwards, militancy entered its most violent phase.

Following the AISSF strike, a period of violence and killings was unleashed in Punjab. The instances and details of killings are too numerous to relate here. It included not just killings of police and militants, but killings of innocent civilians, large-scale killings during Operation Bluestar in Punjab, and many other anti-terrorist operations by both the army and police.

Militancy in Punjab came to an end after strong and effective intervention by the government from the late 1980s to the early 1990s. The determination of the political executive and its support to the police force was crucial, as was the leadership and valour shown by the police.

However, the undercurrent of this problem which thrives on various unseen linkages, both internal as well as external, are still strong. In fact, heavy recoveries of lethal explosives and weapons as

well as arrests of suspected terrorists during the last five years, indicate that efforts are afoot to revive militancy. Under these circumstances, the motivation and morale as well as up to date equipment of the police must be maintained to meet future challenges.

Certain basic lessons can be learnt from the period of militancy. Unresolved issues need to be taken up energetically. The state should be able to formulate and present policies that can create long, unhindered phases of development. Regional disparities must be addressed and the concerns of educated and unemployed youth must be taken into consideration. The state must be sensitive to communal identities while at the same time taking care not to allow these identities to be fanned by extremists.

The Regions of Punjab

Punjab roughly forms a plain; however the shifting courses of rivers and various processes of denudation have resulted in variations in relief, drainage, soils, and vegetation. In addition, there are cultural variations and each region possesses a separate cultural identity of its own.

Culturally, Punjab can be divided into three regions—Majha, Doaba and Malwa. The rivers mark the boundaries of these regions. Over time, each region has metamorphosed into distinct regions, separate in their physical environment, economic structure, social organisation and cultural pattern. Therefore, each region is also called a 'folk region.' Though there exist inter-regional differences, within regions there is a uniformity in geography, climate, vegetation, soils, drainage, livelihood and cultural environment.

Majha

Also called the 'Upper Bari Doab', this region is surrounded by three rivers, Ravi in the west, Beas in the east and Sutlej in the south. It consists of the districts of Amritsar and Gurdaspur. To the west of the region lies Pakistan, with Amritsar and Gurdaspur districts forming a long international boundary. It has an area of 8658 square kilometres, 17.17% of the total area of Punjab. Majha is one-fourth the size of Malwa and slightly smaller than Doaba.

Majha is the most densely populated region in Punjab. According to the 2001 Census, the average density of population of the region is 597 persons per square Km. Though constituting only 17 percent of the area of Punjab, Majha contributes around 21 percent of the population to the state (Census 2001). Amritsar has the largest population—12.65 percent of the total population of the state. A majority of the people of the region live in villages. Around 25 percent of the people in Gurdaspur district and 40 percent of the people of Amritsar district live in towns (Census 2001). Amritsar is the second largest city of Punjab, after Ludhiana, and has recently become a city of over a million people (Census 2001).

Amritsar is the Mecca of Sikhism and as expected, Sikhs constitute 75.63 percent of the total population of the district. Also, the district is home to 50 percent of the Christian population of Punjab. Majha region as a whole has 70 percent of the total Christian population of the state. The town of Quadian is the headquarters of the Shia sect of Muslims in India. People in Majha speak the Majha dialect, which is similar to the Doabi dialect.

Majha has a typical continental climate with hot summers and cold winters. Maximum temperature during summers ranges between 40 and 45 degrees Celsius. Winters are severe, with the temperature at times, going below 0 degree Celsius. The region receives a moderate rainfall of 50 cm per year. Part of this rainfall is caused by the western disturbances, which is good for the rabi, or winter crops.

Vegetation follows relief and rainfall patterns. It becomes gradually thin as one moves westwards

in the region. Pathankot tehsil has the maximum vegetation cover with its chirpine forests. However, these are depleting over the years. Bamboo, mulberry and khair trees can be found in low altitude areas. Almost the whole of Amritsar district and southwestern Gurdaspur have semi dry deciduous vegetation. Eucalyptus is omnipresent. Like the rest of Punjab, Majha is poor in minerals. However, the region is endowed with hydroelectric potential and a number of powerhouses constructed on the Upper Bari Doab canal provide power to the state. A dam on the river Ravi is currently under construction.

The presence of flat lands, fertile clay loamy soil, extensive irrigation from canals and tubewells, coupled with the hardworking people of Majha have made this region agriculturally prosperous. The land is intensively sown and irrigated. In fact, about three-fourths of the net cultivated area is sown more than once a year. Wheat, rice and sugarcane are the important crops here. As far as industry is concerned, about 17.3 percent of registered working factories are found in Majha. Important industries include sugar, cotton, wool and textiles.

Doaba

The tract of land between the rivers Beas and Sutlej, including the districts of Hoshiarpur, Nawanshehar, Kapurthala, and parts of Fazilka, Jalandhar and Gurdaspur, is a cultural buffer zone, where the influences of Majha and Malwa mingle. This region is called the Doaba or the Bist Doaba region. It is separated from Himachal Pradesh by the Shivaliks. It is triangular in shape, with its base at the Himachal border, and apex on the Beas-Sutlej confluence. It has an area of 8844 square kilometres, 17.6 percent of the total area of Punjab. There is a *choe* ridden (ravine-ridden) belt in the area bordered by the Shivaliks called the *Kandi* area. This area is a *bhabhar,* or a piedmont plain, lying at the foothills of the Shivaliks and formed by the coalescence of various alluvial fans resulting from the deposition of sediments by various *choe* at the foothills. The two rivers, Sutlej and Beas along with two other seasonal streams provide drainage to the region. Besides these, the Kandi region is full of seasonal streams.

Doaba has a continental climate. Temperature in summers ranges from 30 to 32 degrees Celsius while the maximum can go up to 45 degrees Celsius. Winters are moderately cold with normal temperatures falling between 10 and 15 degrees Celsius. Loo in the summers and frost in the winters are common features. Clay loams are found in Doaba, which turn to sandy loam as one moves to the eastern part of the region. In the extreme east, the soil becomes pebbly.

Doaba is a densely populated region, accounting for 19.64 percent of the population of Punjab (2001). Average density of population was 465 persons per square kilometre in 1991, which increased to 539 persons (Census 2001). Jalandhar has the second highest population density in the state, coming second to Ludhiana in Malwa. The eastern parts of Hoshiarpur and Nawanshehar have a low population density because these regions have *choe*–ridden hilly tracts. Sikhs do not predominate in the Doaba region. In 1991, there were 44% Sikhs in Jalandhar and 42% in Hoshiarpur district.

The dialect of the region is distinct and so is its cultural identity, which draws heavily on the folk traditions of Punjab. The dialect of the region was heavily influenced by the Persian reign during the 11th century A.D. The script was originally Persian-Arabic (*Shahmukhi*) and was later changed to *Gurmukhi* by one of the Gurus. Doabi is actually the most common dialect spoken. The Doabis are adventurous people and migrate all over the world.

Doaba has a well-developed agriculture with large-scale irrigation facilities by tubewells. In fact, tubewells provide around 90 percent of the total irrigation. Bist Doab also provides canal irrigation. Wheat, rice, maize, potatoes and sugarcane are

Gidha; the women folk dance of Punjab

the major crops grown in the area. Maize was traditionally the main crop although in recent decades the farmers have taken to the cultivation of wheat, sunflower and other cash crops. The region is rich in water power. The Pong dam on the river Beas and various powerhouses on the Mukerian Hydel Canal provide power to the region. Major industries include cotton textiles, sugar, leather and paper. Jalandhar is famous for sports goods production. Doaba has the highest road density of all the regions in Punjab.

Malwa

The area south of the river Sutlej is called Malwa. The name has its source from a clan called Molosis (sometimes written as Malawis in ancient works) who once ruled this area. Malwa constitutes 11 districts of Punjab, and is thus, the largest region of the state. The Jat landlords, who, it might be said, control the political pulse of Punjab, dominate this region. Malwa is very representative of Punjabi folk traditions. The people of the region speak the Malwa dialect, which is similar to Punjabi.

Malwa is surrounded by the river Sutlej in the north, the river Ghaggar in the south, the Shivalik Hills in the east and Pakistan in the west. Malwa comprises two-thirds of the total area of Punjab and is vast and undulating. The eastern parts of Rup Nagar are uneven and hilly, while the southwestern parts are studded with sand dunes.

Malwa is climatically different from Majha and Doaba and is comparatively hot, dry and arid. Aridity increases as one goes south-westwards. Summers are hot, with the mean temperature in Ludhiana being 32.5 degrees Celsius, while the mean temperature in winter is 14.1 degrees Celsius. Maximum temperature goes up to 49 degrees Celsius in summers. Monsoons bring in some respite. Rainfall decreases west and south-westwards. The average rainfall of Ludhiana is 68 cm and for Abohar it is 26.9 cm.

Compared to Majha and Doaba, Malwa is sparsely populated. Although it covers 65.2 percent area of the state, it is home to only 59.07 percent of the population (Census 2001). Population density has increased from 365 (1991) to 436 (2001) persons per squares km. Ludhiana is the most populated district of Malwa, accounting for 12.48 percent of the population of the state. Ludhiana was the city

in Punjab with a population of a million in 1991 and still has the highest population amongst all the other districts of Punjab. The south-western parts of Malwa are very sparsely populated.

Malwa has a preponderance of Sikh population with the highest percentage of Sikh population recorded in Faridkot. The people of this region speak Malwa, which can be called a dialect of Punjabi.

Malwa does not have any mineral wealth. Thermal power forms the chief source of power. It is obtained from the two coal-based power plants at Rup Nagar and Bathinda. In Rup Nagar district, the Nangal Hydel Channel has two powerhouses, which produce hydro-electricity.

Agriculture is the main occupation in Malwa. In the eastern districts of Malwa, there is good quality soil; excellent irrigation from tubewells and canals is available; and holdings are comparatively small. Agriculture is intensively practised here. However, in the south-western part of the state, which has a semi-arid climate, frequent occurrence of sand dunes, slightly undulating topography, canal irrigation, sandy loam soils and large holdings, extensive and moderately intensive farming is practised. Important crops include wheat, rice, cotton, pulses, oilseeds, bajra and sugarcane. Irrigation is the mainstay of agriculture in Malwa as the climate is semi-arid and there is always a water deficit, which requires an expansion of irrigation facilities.

Malwa has the largest network of canal irrigation in Punjab, although the chief source of irrigation is tube wells. Cotton, sugar and paper are the main industries of the region.

3. Economy and Livelihoods

This chapter is an attempt to examine the level and rate of material development of Punjab. It examines shifts in income, the nature of the workforce, relative development of various sectors and associated issues. The analysis of problems is accompanied by suggestions for improvement. An attempt is also made to provide a brief review of the various alternative policy options currently being discussed for Punjab.

Per Capita Income and Punjab's Rank

Punjab remains one of India's most advanced states. Growth rates of Net State Domestic Product (NSDP) have been dynamic for most of the post-Independence period. Being the cradle of the Green Revolution, it acquired a very high growth rate in the decade and a half since the mid-1960s. In the 1970s, Punjab was projected as a role model of development for other states. In per capita income, Punjab ranked fourth in 1960-61 but took first position in 1964-65.

The new technology in agriculture: Harvesting combine

The state continued to occupy the first rank among the major states until 1992-93. In 1993-94, Maharashtra displaced Punjab's position and became the highest income state among the major states. Although Punjab continues to rank second in per capita income, the gap between the per capita income of Punjab and Maharashtra fluctuates between one to ten percent of each other. In 1992-93 at constant prices of 1980-81, Punjab's per capita income was higher than that of Maharashtra by 2.45 percent. But in 1998-99 Maharashtra's per capita income was higher than that of Punjab by 12.47 percent. Punjab's per capita income had grown to more than double of the all India average in 1979-80. But in 1998-99 Punjab's per capita income was only 44.30 percent higher than the all India average.

The changes in Punjab's rank in per capita income among major states and its relative position vis-à-vis the all India average is explained by the behaviour of growth rates of the gross state income. Table 3.1 shows that till 1978-79, Punjab continued to record higher growth rates in the gross state income compared to growth rates of gross national income of India as a whole. The annual compound growth rate (ACGR) of the state's gross income was 3.6 percent between 1960-61 and 1965-66 compared to growth of gross national income of the country at the rate of 2.7 percent during this period. The state's annual compound growth rate became the highest during the late 1960s. The state recorded a growth-rate of 8.4 percent compared to the all India annual

Table 3.1: **Average Annual Compound Growth Rate of Gross State/National Income (in Percentage)**

Time Period	Punjab				India			
	P	S	T	O	P	S	T	O
1960-61 to 1965-66	2.4	6.0	4.5	3.6	-0.9	6.9	5.6	2.7
1965-66 to 1968-69	9.9	6.7	6.8	8.4	4.5	2.9	3.9	4.0
1970-71 to 1975-76	2.86	5.87	5.95	4.21	0.5	3.9	4.5	2.5
1974-75 to 1978-79	5.74	8.70	7.93	6.87	3.62	6.39	6.49	5.14
1980-81 to 1984-85	5.37	5.04	5.14	5.23	5.63	6.05	5.42	5.66
1985-86 to 1989-90	5.24	8.65	5.22	5.98	3.58	6.49	7.41	5.79
1992-93 to 1996-97	3.08	7.10	5.78	4.81	3.85	8.28	7.87	6.76
1997-98 to 2001-02 (Prov.)	1.84	6.20	5.38	4.08	2.21	4.52	7.77	5.34

Source: Statistical Abstract of Punjab (Various Issues).

Note: (i) P - Primary sector, S - Secondary sector, T - Tertiary sector and O - Over all growth-rate.

(ii) Up to 1968-69 growth rates are at 1960-61 prices; for period between 1970-71 to 1978-79; at 1970-71 prices; between 1980-81 and 1996-97, at 1980-81 prices, and for 1997-98 to 2001-02, at 1993-94 prices.

growth rate of 4.0 percent. It is evident that Punjab's growth performance was higher than the all India average between 1960-61 and 1978-79.

State policy in the 1980s was concentrated on the fight against insurgency, and development policies took a back seat. Consequently, Punjab's growth performance slowed down. For the first time since 1960-61, Punjab's annual compound growth rate (ACGR) fell to lower than the all India average during the period 1980-81 to 1984-85. The state recorded an annual compound growth rate of 5.23 percent compared to the all India growth rate of 5.66 percent during the same period. In the following five years (i.e. 1985-86 to 1989-90), Punjab's growth rate of 5.98 percent was marginally higher than the all India average of 5.79 percent. Thus, on an average, Punjab's growth rate roughly matched the all India average for the entire decade of 1980s. The 1990s, despite being a time of political stability with two popularly-elected governments, was not a decade of satisfactory growth.

Between 1992-93 and 1996-97 (coinciding with the Eighth Five Year Plan period), the average annual growth rate of Punjab was 4.8 percent compared to a national average of 6.8 percent. Punjab's position reversed in the 1990s as compared to the 1970s. The average annual growth rate of Punjab during 1974-75 to 1978-79 (Fifth Five Year Plan period) was 6.8 percent compared to the all India average of 5.1 percent. In fact, during 1997-98 to 1998-99, Punjab's growth rate had fallen to 3.58 percent against 5.91 percent of India as a whole. The economies of Maharashtra, Gujarat, West Bengal, Kerala and Rajasthan grew at a much higher rate during the 1990s. The average annual growth rate of Maharashtra was 9.5 percent during 1991-92 to 1996-97 followed by Gujarat (8.0 percent) and Rajasthan (7.2 percent).

The relative slowdown in the growth rate of Punjab's economy vis-à-vis that of the Indian economy and fast growing states like Maharashtra, Gujarat and Rajasthan is a cause of concern. The decade of the 1990s has seen liberalisation, privatisation and globalisation, but these have not helped Punjab to improve its growth performance.

Several factors at the macro level have led to the poor performance of Punjab's economy. These include: Punjab's comparatively low share in the level of proposed investment, low share of assistance disbursed by the Punjab State Financial Corporation and by all India financial institutions and a low credit-deposit ratio. Credit-deposit ratio on the last Friday of March 1998 in Punjab was 38.6 percent compared to 72.3 percent in

Maharashtra and 48.2 percent in Gujarat. Punjab's share in India's total population is 2.37 percent (Census 2001) and share in all India income was 3.5 percent in 1996-97. However, the state's share in the financial assistance provided by all India financial institutions cumulative up to 31 March 1997 was only 2.3 percent.

The share of assistance disbursed by the Punjab State Financial Corporation cumulative up to March 1997 was 3.6 percent and the state's share of the proposed investment under industrial memoranda (August 1991 to March 1998) was 3.3 percent. But in the case of Maharashtra and Gujarat, these shares were much higher than their share in the-all India income (N. J. Kuriyan, 1999). Further, the share of the state domestic product of Punjab used for capital formation has been either stagnating or declining. It stood at 22.98 percent in 1993-94 but varied between 20.21 percent and 23.71 percent up to 2000-01 except for the year 1995-96, when it rose abnormally to 32.41 percent (Table 3.2). This rise was experienced largely in the manufacturing sector. The share of development expenditure in the total government expenditure, which stood at 75.85 percent in 1991-92, declined to 54.46 percent in 1997-98. In order to improve Punjab's rank, both public and private investment must increase, the credit-deposit ratio of the commercial banks must rise to the all India average and the Punjab State Financial Corporation must play a more productive role.

Table 3.2: **Percentage Share of Capital Formation of Gross State Domestic Product of Punjab**

Years	Share of Gross State Domestic Product
1993-94	22.98
1994-95	23.71
1995-96	32.41
1996-97	20.21
1997-98	21.32
1998-99	21.05
1999-2000	20.50
2000-01	21.41

Source: Statistical Abstract of Punjab (Various Issues)

Sectoral Growth and Sectoral Shift in Income

The primary sector of Punjab's economy is agriculture and livestock. The contribution of other components such as forestry and logging, fishing, mining and quarrying has always been negligible in the gross state domestic product. The combined share of the three components has been less than 1 percent (0.56 percent in 2000-01) of the gross state domestic product since 1960-61. On the other hand, the combined share of agriculture and livestock is more than 40 percent (41.93 percent in 2000-01) of the gross state domestic product.

Agriculture and livestock are organically linked, as most people engaged in agriculture also rear milch cattle as a subsidiary occupation. Traditionally, livestock provided animal power for most agricultural operations such as ploughing and levelling of land, harvesting of crops, as well as for well irrigation and transport of agricultural produce. However, with the mechanisation of agriculture, tractors, motor pumps, threshers and power-operated combines have almost replaced the bullock. Bullocks have been replaced by buffaloes and cows as milch animals.

Except for the period of 1965-66 to 1970-71 the share of the primary sector in the net state domestic product (NSDP) has been declining. In the primary sector, the share of agriculture increased marginally till the 1970s but has since been continuously on the decline. Contrary to this, the share of livestock in the state domestic product continuously increased till early 1990s, after which it stagnated. The higher growth rate of the livestock sector has contributed to an increase in the rate of growth of the primary sector and increased the share of the livestock sector in the state domestic product.

The growth rate of the secondary sector has remained above 5 percent for all the years since

1960-61. In this sector, the registered industries have performed the best. Construction has also shown improvement in its share of NSDP. The share of unregistered manufacturing and electricity & water supply has remained stagnant in the NSDP. While unregistered manufacturing has shown a decline in its share of NSDP from previous decades except for 1990-91, electricity and water supply experienced considerable increase before their share fell. The tertiary sector of the state has generally grown at a rate closer to the overall rate of growth of Punjab's economy. The activities which have improved their share in NSDP are banking, insurance, real estate, ownership of dwellings and public administration. Activities like transport, communication and storage, trade, hotel and restaurants and other services experienced minor decline in their share of NSDP. Table 3.3 reflects the percentage contribution of various sectors in NSDP of Punjab in 1980-81 and 1990-91.

Workforce and its Sectoral Shift

Economic development is always accompanied by changes in economic structure. Incomes in various sectors change and there are changes in the workforce's share in employment in various sectors.

Changes in the sectoral share of the NSDP of Punjab have been discussed in the preceding section. Shifts in income in various sectors are accompanied by shifts in employment. Agriculture (and livestock) remains the major employer of the Punjab workforce. It accounted for 62.66 percent of the total workforce in 1971, 58.02 percent in 1981, 55.26 percent in 1991 and 39.4 percent in 2001. Employment in agriculture includes self-employed cultivators and agricultural labourers. The loss in the share of employment by the primary sector (agriculture) has been due to a shift of the workforce to the secondary and tertiary sectors. The share of manufacturing increased from 11.30 percent in 1971 to 12.28 percent in 1991.

Table 3.3: **Percentage Distribution of Net State Domestic Product of Punjab at Factor Cost at Constant Prices (at 1980-81 prices)**

Sector	1980-81	1990-91
Agriculture	48.46	47.63
(i) Agricultural Proper	32.22	30.69
(ii) Livestock	16.24	16.94
Forestry & Logging	0.99	0.59
Fishing	0.03	0.09
Mining &Quarrying	0.02	0.02
Sub Total Primary	**49.50**	**48.33**
Manufacturing	11.01	16.27
(i) Registered	5.91	9.41
(ii) Unregistered	5.10	6.86
Electricity, Gas & Water supply	1.31	2.45
Construction	6.15	3.82
Sub Total Secondary	**18.47**	**22.54**
Trade Hotels & Restaurants	14.59	11.33
Transport, Storage &communication	2.05	2.32
Banking & Insurance	2.55	4.67
Real Estate, ownership of dwellings and Business services	4.26	3.21
Public Administration	2.82	3.28
Other services	5.76	4.32
Sub-Total Tertiary	**32.03**	**29.13**
Total SDP	**100**	**100**

Source: Statistical Abstracts of Punjab

Table 3.4: **Distribution of Workforce in Punjab**

Year	Agriculture	Manufacturing	Construction	Transport, storage & communication	Others	Total
1971	2451858 (62.66)	442070 (11.30)	77356 (1.98)	109611 (2.80)	831697 (21.26)	3912592 (100.00)
1981	2859511 (58.02)	648592 (13.16)	100663 (2.04)	183877 (3.73)	1135116 (23.04)	4927759 (100.00)
1991	3370038 (55.26)	749136 (12.28)	156045 (2.55)	233787 (3.83)	1589368 (26.06)	6098374 (100.00)

Source: (i) Data For 1971, 1981 and 1991 are from Census of India

Note: Data in parenthesis denotes percentages.

The share of construction improved by 0.57 percent and that of transport and communication by 1.0 percent during 1971 and 1991. Service activities have been the major gainers in terms of their share in total absorption of the state workforce. The share of these increased from 21.26 percent in 1971 to 26.06 percent in 1991 (Table 3.4).

The comparative study of Table 3.3 and Table 3.4 indicates that a shift in workforce from agriculture to non-agriculture sectors is taking place at a rate less than the rate of shift in income share to the non-agricultural sectors. This also explains the cause of the shift of the workforce from agriculture to non-agricultural sectors. The income share of the non-agricultural sector in the NSDP is higher than its share of the workforce. This indicates that the per worker income in these sectors is higher than the per worker income in agriculture. If we just take the per worker distribution of income in different categories by dividing the share of income to share of workers, we find that the per worker share in agriculture was 86.6 percent in 1971, as against 123 percent for non-agriculture workers and this trend has been maintained over the years. It is obvious that the higher per worker income available in non-agricultural activities is pulling workers out of agriculture.

The differences in per worker income between agriculture and non-agricultural activities have widened over time. The per worker income in agriculture as a ratio of average per worker income in the state declined from 91.69 percent in 1971 to 82.62 percent in 1991 while that of workers in non-agricultural activities increased from 114.54 percent in 1971 to 123.90 percent in 1991. The average per worker income in non-agricultural activities in 1991 was 50 percent more than that of workers in the agriculture sector.

The relative shift of the workforce from agriculture to non-agricultural activities conforms to the Fisher-Clark-Kuznets hypothesis on structural change in the economy. Although the direction of structural change is indicative of a progressing economy, yet in terms of employment requirements, the pace of shift of the workforce is slow. This indicates that a large number are trapped in agriculture and need to be shifted elsewhere. Given the present level of development in Punjab, the fact that more than 50 percent of the workforce remains employed in agriculture is not a healthy indicator. Unless the manufacturing sector accounts for more than 20 percent of the workforce, the state cannot be treated as industrially advanced.

Workforce Utilisation and Unemployment

Punjab's total population is 2,42,89,296 (Census 2001), out of which 66 percent resides in rural areas and 34 percent in towns and cities. As per the Census 2001, the work participation rate (WPR) in

Punjab increased from 30.9 percent in 1991 to 37.6 percent in 2001, though it is less than the national average of 39.3 percent. There is a marked shift in workforce from agriculture sector to non-agriculture sector – the percentage of agricultural workers (cultivators and agricultural labourers) has declined from 55.2 percent in 1991 to 39.4 percent in 2001.

The 55th round survey conducted by the National Sample Survey Organisation (referred to as NSS or NSSO) recorded a labour participation rate of 29.2 percent for rural Punjab and 32.5 percent for urban areas using the Usual Principal Status Approach. In rural areas, labour participation rate is considerably lower than the all India average of 38.0 percent and is equal to the all India average (32.4 percent) in urban areas. The rural male participation rate is 52.6 percent, which is comparable to the all India average (52.5 percent), but the rural female participation is abnormally lower at 4.0 percent compared to the all India rate of 23.1 percent. The urban male participation rate is 54.1 percent and is higher than the all India average of 51.3 percent. Urban female participation rate is 7.3 percent, though higher than that of the rural Punjab, is still considerably lower than the all India rate of 11.7 percent. This indicates a high gender bias against women, which is supported by the fact that the state has the second lowest sex ratio (874 females per 1000 males) in the country.

The utilisation of the workforce in the state is less than the all India average. The unemployment rate in Punjab stood at 2.3 percent for rural males, 6.2 percent for rural females and 2.6 percent for rural persons, compared to all India average respective rates of 2.1 percent, 1.5 percent and 1.9 percent for males, females and persons, during 1999-2000. Workforce utilisation is better in the urban areas and unemployment rates are lower compared to the all India average but are higher compared to rural areas. The unemployment rate was 3.1 percent for urban males, 3.5 percent for urban females and 3.2 percent for urban persons compared to all India rates of 4.8 percent for urban males, 7.1 percent for females and 5.2 percent for urban persons as per usual status in 1999-2000 (NSS 2001).

The Planning Commission of India projected an alarming state of unemployment in Punjab. It was estimated that the rate of growth of employment per annum during the Ninth Five Year Plan (1997-2002) would be 0.73 percent compared to a per annum growth rate of the labour force at 2.27 percent during this period (Planning Commission, 1999). The major part of this unemployment was expected to be amongst the youth, particularly among the educated youth. A survey of unemployed youth in Punjab, conducted in 1998, showed that there were 14,71,527 unemployed youth in the age group of 15-35 years (Economic Census 1998, Economic & Statistical Organisation, Punjab). This indicates that nearly 20 percent of the 75 lakh workforce is unemployed. Evidence also suggests that unemployment in the state is increasing. As high income levels are achieved, the workforce in the state aspires for better quality of work.

Along with unemployment, which is fairly widespread among the youth, there is a high level of underemployment among those engaged in agriculture. Since agriculture is highly mechanised, it generates seasonal activities, which are partially supplemented by dairy as a subsidiary occupation. There has been a considerable decline in the labour absorption in agriculture. Per hectare wheat-paddy labour absorption stood at 153.78 days triennium, ending 1983-84, and declined to 106.16 days triennium ending 1996-97. With half of the work being done by hired labour, a cultivator with 2 hectares of land would be working for 106.16 days if he/she were not engaged in dairy as a supplementary activity. Even if dairy activity is duly accounted for, it is estimated that on an average cultivators/farmers get work for only half the year

(Gill, 2001). This indicates a very high level of underemployment for cultivators. The situation is not much better for casual labour engaged in agriculture, particularly in the districts away from the Amritsar-Delhi railway line and in villages which are distant from the major towns in the state.

There is a need to increase the labour participation rate particularly amongst women, to make proper use of human resources in Punjab. This requires an expansion of economic activities and job creation and also demands an improvement in the quality of jobs. Experience over the past decade shows that private sector jobs shrink when public sector employment diminishes and vice versa. The situation demands that the government shoulder the role of a major job creator, particularly in infrastructure development and social sectors like health and education. At the same time, it must create conditions for the private sector to undertake agro-processing and related activities. The government must also ensure minimum labour standards in the private sector to improve the quality of jobs.

Agriculture Development and its Sustainability

Agriculture and dairy are the major sources of livelihood in Punjab. In 1991, agriculture and dairy employed 55.26 percent of the workforce and contributed to 47.63 percent of NSDP. Today, certain basic questions are being raised regarding the sustainability of agricultural development.

Over-exploitation of Resources

First, it is argued that the physical resources and environment have been over-exploited and further exploitation would not only be economically expensive but also ecologically hazardous. Punjab has a geographical area of 50,36,000 hectares. The area under cultivation is 42,37,000 hectares, which constitutes 84.13 percent of the total area. Another 8.06 percent area is under non-agricultural use such as for houses, roads, railway lines, industrial sheds/ factories, hospitals, schools, etc. Thus, there is little possibility of more area being brought under cultivation. The forest cover is abnormally thin at only 5.56 percent. For a healthy environment, at least 15 percent of the total area is required to be under forests. Ninety-five percent of the net sown area is irrigated and the state's cropping intensity stands at a very high 185 percent.

Wheat and paddy rotation, which accounts for more than 70 percent of the gross cropped area, dominates the cropping pattern. This cropping pattern has increased the demand for water for irrigation purposes to a level that simply cannot be met in the years to come. The total demand for irrigation water in the state is estimated at 4.38 million-hectare metres with the existing technology and cropping pattern. But the total supply from both surface and annual recharge of ground water is only 3.13 million-hectare metres. The annual deficit turns out to be 1.25 million-hectare metres (Sondhi and Khepar, 1995). The deficit is met from over-exploitation of ground water resources through tubewells. As a result, the water table has been falling fast. In the central plains, the ground water table declined in the range of 0.7 metres to 1.7 metres during 1974-84 but it declined between 1.5 metres to 5.1 meters during 1984-94 (Sidhu and Johl, 2001). Most of the area in the central plains is labelled as 'dark area' from the point of view of ground water. There is the possibility that shallow tubewells will be rendered useless and instead there will be a requirement of massive investment on deep tubewells.

In the southern districts, where ground water is not fit for irrigation, intensive use of canal irrigation has led to a decline in the water table. This had made the land prone to waterlogging. The rise in the level of rainfall leads to flooding in these areas. Besides, these districts are traditionally cotton-growing areas, but are now shifting to irrigation- intensive paddy cultivation and thus putting further pressure on water resources. In addition to scarcity of irrigation water,

the quality of water has also become poor. Industrial and sewerage waste of cities is thrown into rivers, *nullahs* and drains, untreated. This is leading to pollution of surface and ground water resources. Intensive use of chemicals and poisons (insecticides and pesticides), along with untreated industrial water (heavy metals), has polluted the water in certain areas to such an extent that it is unfit for human and animal consumption.

The over exploitation of land through intensive use of chemical fertilisers, keeping land under cultivation during most of the year and returning little biomass to it (instead burning paddy and wheat straw) have reduced fertility and led to the quality of land becoming very poor. Organic carbon in the soil is making it deficient in nitrogen (N). Phosphorous (P) content has also been depleted due to wheat-paddy rotation. The fall in micro-nutrients in the soil is reducing productivity, leading to rising cost of production. The shift to high yielding varieties (generally mono varieties) has made crops more prone to pests and diseases. This has further led to greater use of chemicals to control weeds and pests. Massive use of chemical poisons has killed many friendly pests, birds and worms, leading to further ecological deterioration. From an environmental point of view (water scarcity, soil depletion, depletion of flora and fauna) the present cropping pattern simply cannot be sustained.

Non-sustainability of Agriculture

Second, the development of Punjab's agriculture is not sustainable. This development had centred around wheat and paddy crops with a view to supplying foodgrains to other states. This worked very well till the mid-1990s, but now large stocks of foodgrains (nearly 60 million tonnes) have been built up and their proper use and distribution have become a serious problem. India is unable to sell in the international market due to the depressed price of foodgrains and also due to the poor quality of stocked foodgrains. Within the country, several deficit states have increased foodgrain production and some find it cheaper to import from other countries. In the present circumstances, there are no takers for Punjab's wheat and paddy.

Non-sustainable Pattern of Cultivation

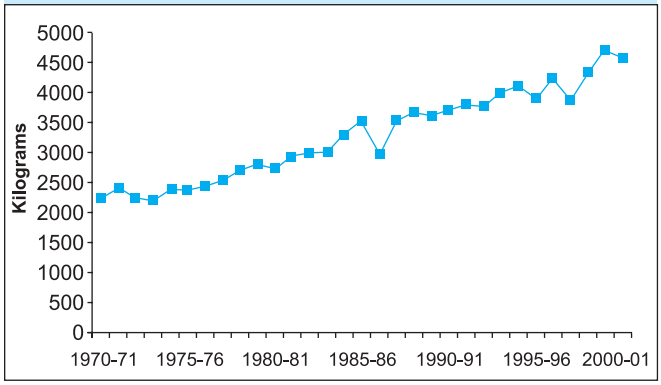
Third, the present pattern of organisation of cultivation has also become unsustainable for a large number of cultivators in the state. Since the production process is highly mechanised, bullock cultivation has been replaced by tractor cultivation. The harvesting of crops, and irrigation (tubewells) are also mechanised. Moreover, a massive amount of working capital is required to carry on daily operations along with the stock of machinery. It is extremely difficult for the marginal and small (poor) cultivators to access this capital. Thus small and marginal farms have become non-viable. A study by the Punjab Agriculture University shows that the economic condition of farmers owning 2 hectares of land (small) is unsatisfactory and the economic condition of farmers owning less than 1 hectare (marginal) is worse and cannot be improved with the existing technology and cropping system. Thus, a large proportion (35.43 percent in 1995-96) of the cultivators are facing ruin and a crisis of existence. Since work outside agriculture is not available to such cultivators and many of them know no other type of work, a large number of such cultivators are trapped in agriculture and doomed to a miserable life.

To sum up, Punjab's agriculture with its present level of technology and cropping pattern is ecologically unsustainable. The present level of foodgrain production is unwarranted. The pattern of cultivation based on individual resources of the cultivator is simply non-viable for a large number of cultivators.

Crisis of Agriculture

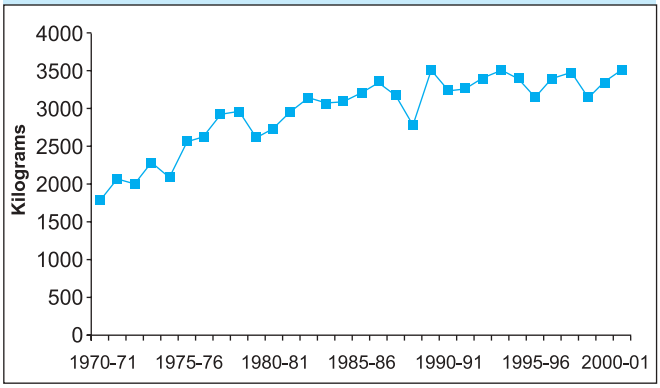
Scholars and analysts in Punjab have been concerned about the crisis of Punjab's agriculture for the decade and a half. The Government of

Figure 3.1 (a): **Per Hectare Yield of Wheat in Punjab (in kg)**



Source: Statistical Abstract of Punjab (various issues)

Figure 3.1 (b): **Per Hectare Yield of Rice in Punjab (in kg)**



Source: Statistical Abstract of Punjab (various issues)

Punjab appointed an expert committee in 1985 headed by S.S. Johl, which submitted its report on diversification of agriculture in May 1986. The committee was concerned about stagnating productivity levels, as well as the deteriorating environment due to a cropping pattern dominated by wheat-paddy rotation (Government of Punjab, 1986). The findings of the committee have come into sharper focus in the 1990s.

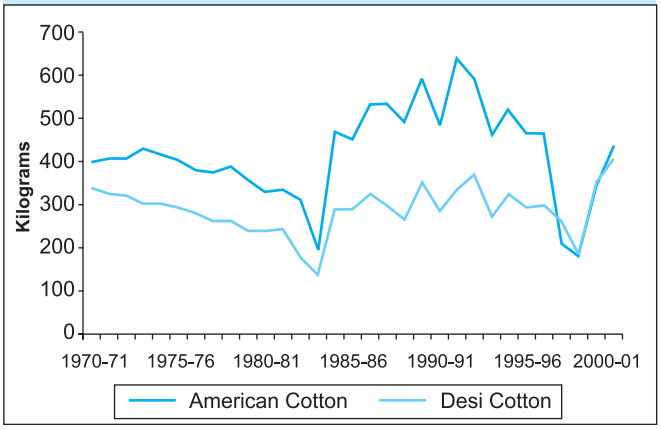
The data presented in Figures 3.1 (a) and 3.1 (b) indicate that per hectare yield of wheat and rice rose in 1981-82 over 1971-72 (three years moving average) respectively by 26.05 percent and 73.64 percent. The per hectare yield of these crops rose in 1991-92 over 1981-82 respectively by 30.25 percent and 11.78 percent. The yield further increased in 1997-98 over 1991-92 in case of wheat by 10 percent and rice by 3.22 percent. In fact, the per hectare yield of wheat fluctuated between 3,853 kg and 4,332 kg between 1993-94 and 1998-99 and in case of rice between 3,132 kg and 3,507 kg.

This indicates that with existing levels of technology the per hectare yield of wheat and paddy have reached their peak and have stabilised around 4000 kg in case of wheat and around 3,350 kg in case of rice.

The cotton crop in the state has shown signs of decline in the level of per hectare yield particularly in the 1990s (Figure 3.2). Though there have been wide fluctuations in the per hectare yield of both American as well as *desi* cotton, overall, yields declined in the 1990s. Since wheat, rice and cotton account for nearly 80 percent of the gross cropped area, the declining or stagnating yield of these crops has naturally affected all the cultivators in the state.

Contrary to the yield trend, the cost of cultivation has continuously risen. This is due to a rise in prices of inputs, and an increased requirement for inputs due to deterioration in the quality of soil and

Figure 3.2: **Per Hectare Yield of Cotton in Punjab (in kg)**



Source: Statistical Abstract of Punjab (Various Issues)

Table 3.5: **Decennial Rate of Growth of Per Hectare Returns at Cost A1, B2, and C2**

(in percentage)

Year	Wheat			Paddy			Wheat + Paddy		
	A1	B2	C2	A1	B2	C2	A1	B2	C2
1980s	3.93	2.76	3.55	1.90	-0.17	1.06	2.90	1.24	2.20
1990s	0.35	-6.48	-8.27	-2.83	-7.58	-11.38	-2.18	-1.03	-15.46

Source: R. S. Ghuman "World Trade Organisation and Indian Agriculture with Special Reference to Punjab: Crisis and Challenges", Man and Development Vol. XXIII No. 2, June 2001.

Note: 1. Cost A1 includes all actual expenses in cash and kind incurred in production by owner.

2. Cost B2 includes A1+ interest on value of owned fixed capital (excluding land) + rental value of owned land (net of land revenue) and rent paid on leased land.

3. Cost C2 includes B2 + imputed value of family labour.

degradation of the environment. The resultant fast increase in cost of production has led to a decline in returns from agriculture. Decennial trends in growth rates of per hectare returns show that in the 1980s these growth rates were positive. But during the 1990s the growth rates on returns were negative. This is shown in Table 3.5

The negative growth rate in per hectare rate of return on wheat and paddy in the 1990s has led to a reduction in the income of cultivators. Falling income has added to the difficulties of poor cultivators who do not have enough cushion for adjustment.

Besides falling income and negative growth in the rate of returns, the crisis of procurement has shaken the vast majority of cultivators. In the wake of India becoming a founder member of the World Trade Organisation (WTO) and the internal policy of liberalisation, the Union Government announced in the budget of 2001-2002 that but for public distribution requirements (PDS), procurement of foodgrains would be transferred to the states. States like Punjab have neither the financial resources nor logistic arrangements to undertake this function.

Problems related to the procurement systems of crops and ensuring a minimum support price (MSP) still remain and farmers continue to suffer from uncertainty.

To pull Punjab out of its agricultural crisis, high investment in research and development (R & D) is required to ensure the introduction of new technology, which could introduce new viable crops with a high level of productivity giving returns comparable to those of wheat and paddy. The alternative crops have to be such that they put minimum strain on exhaustible resources such as water and soil. At the same time, arrangement for MSP, along with a system of procurement, should be ensured. Simultaneously, there is need for investment in agro-processing of the proposed new crop. For this purpose, farmers need to be supported materially as well as through human resource development and above all through the creation of an environment which removes the uncertainties created by contemporary liberalisation and globalisation.

The state government is proposing to shift towards value-added, water light crops such as fruit and vegetables, maize, oilseeds, pulses, sugarcane and floriculture, and to revive allied occupations such as dairy farming, poultry, piggery, mushroom cultivation, bee keeping and others by launching a programme called 'Second Push in Punjab Agriculture and Allied Sectors'. The programme aims to create a voluntary shift in the cropping pattern, introduce income/employment-generating, productivity oriented programmes directly benefiting the farmers of Punjab; and safeguard

the valuable and scarce resources of land, water and environment from further deterioration.

Changing Pattern of Land Holdings

Since agriculture is dependent on capital-intensive technology, it requires massive investment both in fixed as well as working capital. This has resulted in marginal and small holdings fast losing their viability.

The data of operational holdings since 1970-71 indicates that the number and proportion of small and marginal holdings are decreasing. The number of marginal holdings (with less than one hectare land) in 1970-71 was 5,17,568; this declined to 2,03,876 in 1995-96. Similarly, the number of small holdings (with 1-2 hectares of land) declined from 2,60,083 in 1970-71 to 1,83,453 in 1995-96.

Marginal and small holdings constituted 56.54 percent of the total holdings in 1970-71 but declined to 35.43 percent in 1995-96. The number of medium, large and extra large holdings has increased respectively from 281103, 247755 and 68883 in 1970-71 to 320340, 305792 and 79612 in 1995-96. The combined share of these holdings (medium, large and extra large) increased from 43.46 percent in 1970-71 to 64.57 percent in 1995-96. The largest gain in number and proportion occurred in large holdings. They gained by 9.97 percentage points, followed by medium holdings with a gain of 8.87 percentage points and extra large holdings with a gain of 2.28 percentage points. Loss in the marginal holdings in number and proportion is the largest, followed by small holdings. While marginal holdings have lost by 18.98 percentage points, small holdings have lost by 2.13 percentage points. In absolute terms the number of holdings in 1995-96 over 1990-91 was less by 20.53 percent (Table 3.6). This means one-fifth of the operational holdings have declined/ disappeared from the scene, with mainly marginal and small holdings accounting for this disappearance.

The situation in 1995-96 reversed compared to 1970-71. In 1970-71 marginal and small holdings accounted for 56.54 percent of total holdings but in 1995-96, medium and large holdings accounted for 57.29 percent of total holdings. The longer term trend shows an increase in the number of medium and large holdings, thereby contributing towards

Table 3.6: **Distribution of Operational Land Holdings in Punjab, 1970-71, 1980-81, 1990-91 and 1995-96**

(In numbers)

Size Class (in hectares)	1970-71	1980-81	1990-91	1995-96
Marginal	517568	197323	296131	203876
(0-1)	(37.63)	(19.21)	(26.50)	(18.65)
Small	260083	199368	203842	183453
(1-2)	(18.91)	(19.41)	(18.24)	(16.78)
Medium	281103	287423	288788	320340
(2-4)	(20.44)	(27.99)	(25.85)	(29.31)
Large	247755	269072	261481	305792
(4-10)	(18.02)	(26.20)	(23.40)	(27.98)
Extra Large	68883	73941	67172	79612
(10 and above)	(5.00)	(7.19)	(6.01)	(7.28)
Total	**1375392 (100.00)**	**1027127 (100.00)**	**1117414 (100.00)**	**1093073 (100.00)**

Source: Director of Agriculture, Agricultural Census of Punjab 1970-71, 1980-81, 1990-91 and 1995-96, Government of Punjab, Chandigarh.

Note: Figures in parentheses are percentages.

disappearance of marginal holdings. The size of marginal holdings makes them non-viable given the present technology of production in Punjab. In the absence of job opportunities in other sectors of the economy, non-viability of the marginal, and to some extent, small holdings is a cause of worry. The cultivators with marginal land holdings are very poor, lack capital resources and have no other skill that can help them join the ranks of labour in rural or urban areas. This leads to lowering of their social status and loss of an assured source of livelihood. The situation demands the launch of a massive programme of human resource development through education and training for the marginal, small and poor cultivators. This has to be accompanied by financial support for setting up of enterprises in the chosen areas of training or their deployment in assured areas of employment.

Indebtedness of Farmers

The prosperity of the early years of the Green Revolution raised consumption standards in rural areas, particularly among cultivators. There was also considerable withdrawal of family labour from manual agricultural work among farmers. When cost of production continued to increase while productivity/ hectare stagnated in case of major crops, the majority of cultivators found themselves cash strapped. Additionally, family budgets were upset when there was a crop failure or a sudden spurt in consumption expenditure due to social ceremonies such as marriage, birth or death. This was reflected in a mounting debt burden on families.

It is estimated that the debt burden of farmers in Punjab is to the extent of Rs 5,700 crores. In per acre terms the incidence of indebtedness is highest among small and marginal farmers. The average per acre debt of these farmers is Rs. 10,105. The per acre debt of farmers of land holding in size group 5-10 acres was Rs. 7941, that or farmers with land holdings of 10-15 acres was Rs. 4230 (Shergill, 1998). Within these classes of farmers, the level of indebtedness is much higher for some farmers. The most vulnerable among them have four times the debt of the average estimated by Shergill. Debt of farmers with up to 2.5 acres of land is Rs. 40,965 per acre while it is Rs. 34,297 per acre for farmers with land of 2.5-5 acres.

The high debt burden on marginal and small cultivators has ruined many and they have had to either sell or mortgage their land. Economic hardship, high incidence of debt burden and harassment by bank officials and moneylenders have triggered instances of suicides by many cultivators. This phenomenon started during the second half of the 1980s and gathered momentum during the 1990s (AFDR, 2000; Iyer and Manick, 2000). The number of suicides has now increased to several hundred. Studies and newspaper reports on suicides have highlighted farmers' indebtedness and harassment by recovery staff of the loan-giving agencies. These include commercial and land mortgage banks and moneylenders (commission agents). The Government of Punjab has recognised this fact and in the budget session (March 2001) announced a programme of rehabilitation of the families in which members committed suicide due to economic distress and indebtedness. It was stated that Rs. 2.5 lakh would be given as compensation by the government to the suicide victim's family.

Although this announcement has not been concretised and details and procedures are yet to be worked out, it is undoubtedly a step in the right direction. The announcement needs to be supplemented by a massive programme of regeneration of rural education with emphasis on skill creation and re-organisation of the rural economy so that a large number of jobs are created in allied agricultural activities on farms, and in off-farm activities. At the same time the credit

market, particularly the non-formal market operated by commission agents, needs to be regulated and poor cultivators need to be protected from the demands of modern moneylenders.

Livestock, Animal Husbandry and Dairy

In the primary sector, after agriculture, livestock is the second largest contributor to the state domestic product. The share of livestock stood at 7.09 percent in NSDP in 1960-61 but increased to 15.27 percent in 1997-98. Its share increased steadily between 1960-61 and 1980-81 from 7.09 percent to 14.44 percent. The share of this sub-sector recorded a very slow improvement between 1980-81 and 1990-91—less than one percentage point—and virtually stagnated between 1990-91 and 2000-01 (Table 3.3). This indicates that during the earlier years, the rate of growth of livestock, as well as income of this sector, was growing at a rate much higher than the rate of growth of NSDP. But in the recent decade (1990s), the growth rate of income from livestock is matched by the rate of growth of NSDP, which has also slowed down. Thus, the overall slowdown is also reflected in this sector.

The trend in livestock numbers shows that they are growing over time. Table 3.7 shows that the number stood at 89.96 lakh in 1977, which increased to 96.78 lakh in 1990 and 98.57 lakh in 1997. In the livestock population, the number of cows (both male and female) has registered a decline from 33.12 lakh in 1977 to 26.39 lakh in 1997. The population of buffaloes (both male and female) increased from 41.10 lakh in 1977 to 61.71 lakh in 1997: an increase of 50.14 percent.

The population of other animals, mainly of sheep and goats, has been declining all through the last two and a half decades. There was a sizeable increase in poultry birds between 1977 and 1990, but subsequently there has been a decline in their numbers. This may be due to the militant 'diktat' against meat eating and threat to close down meat shops during the early 1990s.

If we go by animal population, the loss of the cow and other animal population is more than compensated for by an increase in the buffalo population resulting in a net gain in the total animal population in 1997 over 1990 and 1977. Since there is a decline in the use of animal power in agriculture as also in transport activities, (replaced by

Dairy farming in Punjab

Table 3.7: **Livestock Population in Punjab – 1977, 1990 and 1997 (in lakhs)**

Year	Cows (males & females)	Buffaloes (males & females)	Others	Total	Poultry Birds
1977	33.12	41.10	15.74	89.96	55.39
1990	28.32	55.78	12.68	96.78	152.76
1997	26.39	61.71	10.48	98.57	114.57

Source: Statistical Abstract of Punjab 2002.

machine power) income generation in this sector is now based mainly on milk.

The population of cows and buffaloes (88.10 lakh) constitute 89.37 percent of the total animal population in Punjab in 1997. In this population, 32.86 lakh (37.30 percent) were milch animals, the remaining being male animals, dry females and others. Among milch animals, 6 percent consisted of *Desi* cows, 19-21 percent cross-breed cows and 74.79 percent buffaloes (Figure 3.3). Thus, more than 80 percent of milch animals are of a traditional variety. If the production of milk is to be increased in a sustained manner, buffaloes and Desi cows will have to be replaced by cross-breed cows of a good variety (Kahlon, 2001).

Figure 3.3: **Composition of Milch Animals in Punjab – 1997**

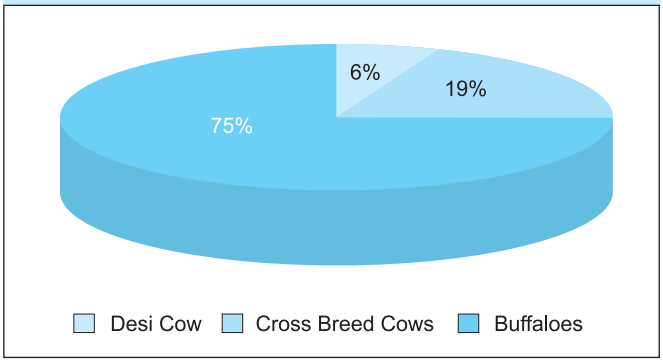


Table 3.8: **Composition of Milch Animals in Punjab – 1997**

Type of Animal	Number
Desi cows	1,97,300
Cross-breed cows	6,31,100
Buffaloes	24,57,400
Total	**32,85,800**

Source: Statistical Abstract of Punjab 2000.

At present, the dairy sector in Punjab functions as a subsidiary activity of agriculture. Most farmers and agricultural labourers rear one or two milch animals and sell their surplus milk to supplement their income. Milch animals are not reared on a commercial basis and many animal owners have no specialised knowledge of rearing milch animals commercially. Punjab dairying must be transformed from subsistence to commercial dairying by providing small and marginal farmers the necessary financial support, technical training and quality infrastructure in veterinary services (Kahlon, 2001). This needs to be supplemented by improved marketing services and by taking steps to remove various malpractices in adulteration of milk and milk products.

Agricultural Labour

Agricultural labour is the second largest category of total workers in the state. The share of this category, as well as its absolute number, has increased consistently since 1971. The number of agricultural labourers increased from 7,86,705 in 1971 to 14,52,228 in 1991. The share of agricultural labourers in the total workforce of the state increased from 20.10 percent in 1971 to 23.81 percent in 1991 (Table 3.9). Males dominate this category of workers. The highest proportion of females, recorded in 1991, was 4.43 percent of the total agricultural labourer.

Table 3.9: **Agricultural Labour in the Total Workforce of Punjab, 1971, 1981 and 1991**

Number of Agricultural Labourers				Total Workforce	Agricultural Labour as percentage of total workers
Year	Male	Female	Total		
1971	7,78,613	8,092	7,86,705	39,12,592	20.10
1981	10,47,175	45,050	10,92,225	49,27,759	22.16
1991	13,88,159	64,669	14,52,228	60,98,374	23.81

Source: Census of India, 1971,1981 and 1991

Information from Census of 2001[1] says that the number of agriculture labourers in the state is 16.4 percent of all workers in the state. This is not strictly comparable to the data table from the earlier census, as the earlier census data includes only main workers while the 2001 Census data pertains to both main and marginal workers. Amongst main and marginal workers, women agriculture labourers constitute 25.3 percent in 2001.

Agricultural labourers can be classified into two categories on the basis of nature of employment: casual labourers and attached labourers. In 1975-76, attached labourers constituted 38.27 percent of the total labour force, while the share of casual labourers was 61.73 percent. (Sidhu, 1991). Over a period of time, the category of attached labourers (commonly referred to as siris, they worked on contractual terms) disappeared. Now, relatively well off cultivators employ labourers on a contract basis for six months to a year. Though precise information is not available, it is estimated that these contractual labourers constitute approximately 30 percent of the agricultural labourers.

Agricultural labourers do not own land or other means of livelihood and depend on wage labour for survival. They belong to the lowest income strata in rural society. Agricultural activity being seasonal in nature, a large number of agricultural labourers are forced to seek work outside agriculture in the lean season. A sudden spurt in economic activities increases the demand for labour, which is often met through migrant labour from Uttar Pradesh and Bihar. The actual days of employment for local labour in agriculture, therefore, have been further reduced. Agricultural labourers living near cities try to find work in the urban informal sector in the lean periods, but those living far away from cities have to make do with a reduction in the days of employment.

Most agricultural labourers are not unionised. In those areas where they were unionised, their organisations have shrunk or become dormant. This is partly due to a large inflow of migrant labour and partly due to the threat to labour organisations from the terrorist movement which was hostile to them (Gill, S.S., 1996).

Unorganised and mostly illiterate, agricultural labourers are not in a position to obtain their due share of agricultural prosperity. When migrant labour did not have a strong presence in the state, the per capita earning of agricultural labour was 43.67 percent of per capital overall income in the state and 58.23 percent of the per capita income in rural areas. At present, they are suffering because of the death of the unions and because of the withdrawal of the state from enforcement of minimum wages. In the post-reform period, the real wages of casual agricultural labour declined by 3.69 percent between 1991 and 1996 (Gill and J.S. Brar 2001).

[1] Census of India, Paper III 2001, Registrar General of India, New Delhi.

Table 3.10: **Distribution of Main Workers in Punjab (in Percentage)**

Sectors	1971	1981	1991
Cultivators	42.56	35.86	31.44
Agricultural Labourers	20.11	22.16	23.82
Livestock, Forestry etc.	0.95	1.00	0.81
Mining and quarrying	0.01	0.02	0.01
Manufacturing:			
a. In household industry	3.17	2.58	1.33
b. Other than household industry	8.13	10.58	10.95
Construction	1.98	2.04	2.56
Trade and Commerce	8.22	9.47	10.55
Transport storage and communications	2.80	3.73	3.83
Other Services	12.07	12.54	14.70
Total	**100**	**100**	**100**

Source: Census of Punjab, 1971, 1981 and 1991.

Agricultural labourers belong to the lowest economic as well as social strata. Most are Scheduled Castes or backward castes. There is an urgent need to devise special programmes for their economic upliftment and upward mobility. Besides, they need to get organised so that they can participate in their own improvement through consultation and are able to implement decisions. There is a need to empower agricultural labour through its unionisation, and back it by implementation of statutory provisions for its improvement.

Non-Farm Sector

The role of the non-farm sector in the transformation of a developing economy is crucial. To understand the size and nature of the non-farm sector, first of all, it is necessary to examine the interaction between population and economy. The share of the main workers in the total population of the state increased from 28.81 percent in 1971, to 29.35 percent in 1981, and to 30.07 percent in 1991. A person is being described as a main worker if he/ she participates in any economically productive activity and remains in work during the major part of the year.

The share of non-workers in the total population of the state was 69.12 percent during 1991[2]. Table 3.10 provides the distribution of main workers into nine broad industrial categories during 1971, 1981 and 1991.[3] The share of cultivators among the main workers declined considerably from 42.56 percent in 1971 to 31.44 percent in 1991. However, the share of agricultural labourers increased marginally from 20.11 percent in 1971 to 23.82 percent in 1991. The share of main workers in the manufacturing sector increased from 11.3 percent in 1971 to 12.28 percent in 1991. Within the manufacturing sector, the share of the non-household sector increased over time. Similarly, the share of main workers in construction, trade and commerce, transport, storage and communication, and other services recorded some increase. The combined share of all these activities increased from 25.07 percent in 1971 to 31.64 percent in 1991. The share of main workers in livestock, forestry, fishing, hunting and plantations, orchards and allied activities declined from 0.95 percent in 1971 to 0.81 percent in 1991. Thus the share of main workers in non-farm activities increased from 36.37 percent in 1971 to 43.92 percent in 1991. The significance of the non-farm sector in the Punjab economy can

[2] Primary Census Abstract, Punjab Tables, Census of 1991, Registrar General of India, New Delhi

[3] Data pertaining to main workers in different industrial categories from the Census of 2001 was not available at the time of publication of this report.

be further ascertained by examining the various aspects of non-agricultural activities. This analysis has been carried out with the help of the data gathered from various Economic Census of the state.

In Punjab, the total number of non-agricultural enterprises was 7,01,267 in 1998. Out of these, the number of establishments was 2,28,184 and own account enterprises[4] was 4,73,083. Further, as many as 20,64,823 persons were usually working in such enterprises. Among these persons, the number of hired workers was 11,89,150. Thus, an average of 2.94 persons were usually found to be working for every non-agriculture enterprise. Out of these the number of hired workers per enterprise was 1.70 and that of non-hired workers was 1.24 persons (Statistical Abstract of Punjab, 2000, P.779). The various features of 'non-agricultural establishments' and 'non-agricultural own account enterprises' have been discussed in detail by using Table 3.11 and Table 13 (Statistical Tables) respectively. A perusal of Table 3.11 establishes that the number of non-agricultural establishments operating increased from 1,31,584 in 1980, to 1,86,537 in 1990 and to 2,28,184 in 1998. The number of establishments operating increased by 41.76 percent in 1990 over 1980, and by 22.33 percent during 1998 over 1990. Thus the growth in the number of non-agricultural establishments operating slowed down during the 1990s.

The analysis of data further reveals that out of these enterprises the number of seasonally operating ones was 6,065, those without premises was 5,151, with power fuel 72,205, co-operatives 3,656 and public 39,844, during the year 1998. Out of the total establishments, 12,765 (5.59 percent) were owned by Scheduled Castes. In these establishments 13,94,872 persons were usually found to be working in 1998. Out of these persons, 11,89,150 were hired workers. The share of the rural areas in non-agricultural establishments operating in the state was 36.37 percent in 1980, which increased to 37.60 percent in 1998. This implies that the rural areas had 47,370 establishments in 1980, 65,287 in 1990 and 86,790 in 1998. The number of persons

Table 3.11: **Number of Non-Agricultural Establishments and Persons usually Working**

Item	Year 1980	1990	1998
A. Total Establishment Operating	131584	186537	228184
Seasonally	3284	5640	6065
Without premises	1913	2223	5151
With power/fuel	37739	58434	72205
Co-operative	4662	5839	3656
Public	41512	35334	39844
Social Group of owner:			
(i) Scheduled Tribes	—	—	—
(ii) Scheduled Castes	3866	8786	12765
B. Persons usually Working:			
(i) Total	873082	1215353	1394872
(ii) Hired workers	758808	1062062	1189150
C. Share of Rural Area in Percentage:			
(i) Number of establishment	36.37	34.59	37.60
(ii) Total number of persons usually working	28.58	27.85	31.87
(iii) Number of hired workers	26.06	25.69	33.81

Source: Economic Census 1980,1990 and 1998.

[4] An own account enterprise is one having no hired worker; it is carried out solely by the family members.

working in these establishments was 2,53,193 in 1980, 3,40,298 in 1990 and 4,46,359 in 1998. This implies that, on an average, each establishment generated employment for five persons. Furthermore, the number of hired workers was 33.81 percent out of the total persons usually working in 1998. Thus, 1,51,762 persons worked in such establishments on a hired basis in 1998. Hence, per establishment the average employment was 1.74 persons on a hired basis and 3.26 persons on non-hired basis during 1998.

To further understand the nature of non-agricultural enterprises, the distribution of own account enterprises into major economic activity groups has been given in Table 13 (Statistical Tables). The table provides information for twelve categories of major activity groups. In 1998, there were as many as 4,73,083 non-agricultural own account enterprises operating in the state. Out of these, 2,05,943 (i.e. 43.53 percent) were in rural areas and 2,67,140 (i.e. 56.47 percent) in urban areas. These enterprises were dominated by three types of activities, i.e., manufacturing, retail trade and 'community, social and personal services', constituting 13.89 percent, 47.35 percent and 27.23 percent respectively of enterprises at the state level. The combined share of these three activities stood at 88.47 percent in 1998. Thus, the non-farm sector in the state economy experienced growth in terms of an increase in the proportion of main workers, number of non-agricultural establishments, own account enterprises as well as an increase in the number of persons usually working both in the rural and urban areas.

Inter-Sectoral Relationships

The flow of resources among different regions of an economy takes the form of commodity and financial flows. The Punjab economy, being a typical case of advanced agrarian capitalism supplies agricultural products, particularly wheat and paddy to the rest of the country. The state uses agrarian, mechanical and chemical inputs in quantities larger than the rest of the country. The agricultural produce of the state has been exchanged with the manufactured products of the rest of the economy. The exchange of primary sector output with secondary sector output raises the question of terms of trade.

Financial transfers between the state and the Centre become very important in a federal polity. The flow of resources from the Centre to the state takes the form of: (a) share of the state in central taxes and duties (b) plan and non-plan grants (c) plan and non-plan loans. There is a return flow from the state to the Centre as interest payments and repayments of accumulated loans from the Centre. Apart from terms of trade and statutory and non-statutory transfer between the Centre and the state, the transfer of financial resources by the scheduled commercial banks are of crucial importance. Savings collected by banks in a region and the advances made by those banks in that region determine the extent of resources transferred.

The finances of the state government reveal serious imbalances. The gross fiscal deficit of Punjab increased from Rs1,242.2 crore in 1990-91 to Rs 3,674.2 crore in 2000-2001 (B.E.). A substantial part of this deficit was to be financed by loans from the Centre. The gross devolution of resources from the Centre to the state was budgeted to the order of Rs. 4,682.2 crore during 2000-01. By contrast devolution from Centre to state was Rs. 1,620.5 crore during 1990-91. Gross loans from the Centre to the state have increased from Rs. 1,191.2 crore in 1990-91 to Rs. 3103.5 crore during 2000-01 (B.E.). The outstanding liabilities of the state, at the end of March 2001, stood at Rs. 28,307 crore. Out of these, the loans and advances from the central government stood at Rs. 16,357 crores (i.e. 57.78 percent) (Economic and Political Weekly, 2001: 1901-28). Thus, central transfers play a critical role in a state's fiscal management.

Table 14 (Statistical Tables) demonstrates the transfer of resources from the Centre to the state over the period 1990-91 to 2000-2001. The table demonstrates the resource transfer at three levels: share in central taxes, grants from the Centre, and net loans from the Centre. The amount of central taxes that accrued to the state increased from Rs. 248.2 crore in 1990-91 to Rs. 671.1 crore in 2000-2001. Similarly, grants increased from Rs. 181.1 crores to Rs. 907.6 crore and net loans from Rs. 745.2 crore to Rs. 1719.8 crore during the corresponding years. Thus, the total transfer from the Centre to state increased from Rs. 1,174.5 crore in 1990-91 to Rs. 3,298.5 crore in 2000-01. It is to be noted that from this total transfer the amount of interest payment made by the state to the Centre has not been excluded. The actual transfers are of much smaller amounts. Thus, column 5 of Table 14 (Statistical Tables) has been introduced, which shows the amount of net transfer from the Centre to Punjab. The net budgeted transfer from the Centre to the state stands at Rs. 1,451.77 crore during 2000-01. The total net transfer from the Centre to Punjab was to the order of Rs. 3770.30 crore during 1994-95 to 1998-99.

Table 15 (Statistical Tables) depicts the 'advance-deposit ratio' of public sector banks for nine selected states over the period 1971 to 1999. In the case of Punjab, the average 'advance-deposit ratio' was 39.76 percent during the decade 1971-80 and 43.96 percent during the decade 1981-90. Such ratios in the case of the rest of the states were substantially higher than that of Punjab. The all India average was 70.82 percent and 64.16 percent during the respective decades. Thus, the state experienced adverse 'advance-deposit ratios' for two decades continuously (1970 to 1990); the situation remained the same during the third decade from 1991 to 1999, for which yearly behaviour of such ratios have been demonstrated. The low 'advance-deposit ratio' observed in the state indicates that the banks have been collecting funds from Punjab and investing in states with a high ratio. The adverse 'advance-deposit ratio' indicated the creation of assets in other parts of the country. The Reserve Bank of India (RBI) prescribed an 'advance- deposit ratio' norm of 55 percent. If this norm had been upheld during the period of five years (i.e. 1994-95 to 1998-99) the state would have gained to the extent of Rs 21,900 crore in the form of additional investment by the banks.

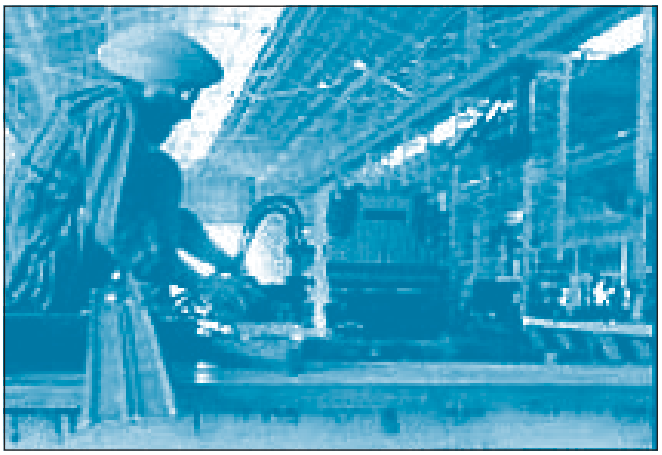
Industrial Development, Structure of Industries and Employment

The industrial sector is considered to be the most dynamic and vital sector of a growing economy. This sector rapidly adopts modern technology, provides a strong base for new employment and investment opportunities and absorbs the surplus workforce of the traditional sectors. The existence of a large modern industrial sector, therefore, ensures the expansion and growth of the economy, and is treated as a symbol of a modern economy.

Industrial growth in Punjab

At the time of Independence, Punjab was relatively industrially backward (Singh, L., 1992). Punjab's Partition in 1947 and reorganisation of the state in 1966 further weakened Punjab's industries. (Pandit, 1985, Raikhy and Mehra, 2000). After Independence, India embarked upon an ambitious

programme of planned industrial development. Under this strategy, massive public investment was made in the industrial sector. However, the industrial sector of Punjab was virtually by-passed as far as public investment was concerned and nor did the private corporate sector come forward (Banerjee and Ghosh, 1985). In the process, Punjab remained deficient in large-scale industrial units and its industrial structure is constituted mainly by small-scale and medium-sized industries.



Industrial work in progress

Industrial Development

The industrial sector of Punjab has grown at a faster rate since 1966; showing an 8.64 percent per annum growth rate in value of output at 1980-81 prices during the period 1966-67 to 1998-99 (Table 3.12). This seems to be an impressive growth rate. Further, growth rate in the manufacturing sector remained much higher than the agricultural sector growth rate during the same period. Since the average rate of growth for such a long period can conceal many facts related to a short period, the whole period (1966 to 1998-99) is divided into three sub-periods. The growth rate for the first sub-period 1966-67 to 1979-80 was 8.22 percent. Thereafter, the growth rate in the output from the manufacturing sector speeded up to 9.12 percent during 1980-81 to 1990-91. Since then, industrial growth rate has decelerated to 8.49 per annum between 1991-92 and 1998-99.

Growth rate trends in the organised manufacturing sector of Punjab, at disaggregated level, have shown a differential performance (Table 3.13). An analysis reveals that in terms of output growth, there are eight two-digit industry groups, which recorded more than a 10 percent growth rate between 1979-80 to 1996-97. Six industry groups recorded an output growth between 5 percent and 10 percent per annum each. Even capital stock was growing at the rate of 10 percent or more for all industry except three groups, namely, (i) rubber, plastic, petroleum and coal products; (ii) basic metals and alloys; and (iii) machinery, excluding electrical machinery. However, employment growth was substantially lower as compared to output growth and capital stock growth rates across industries. Only textile products, leather, chemicals, electrical and transport equipment industry groups, had employment growth rates of 5 percent or more. The food products and cotton textiles industry groups had a very modest growth rate in employment. Both the basic metal and alloys and

Table 3.12: **Trend of Growth Rates in Output of Manufacturing and Agricultural Sectors of Punjab**

Period	Trend of growth rate per annum (percent)			
	Industry	Agriculture and livestock	(a) Agriculture	(b) Livestock
1966-67 to 1998-99	8.64	4.29	3.68	5.68
1966-67 to 1979-80	8.22	3.79	3.18	6.10
1980-81 to 1990-91	9.12	5.15	4.87	5.70
1991-92 to 1998-99	8.49	2.16	0.37	5.10

Source: Lakhwinder Singh and Sukhpal Singh, 2001

Table 3.13: **Trend of Growth Rate of Factory Sector Industries in Punjab 1979-80 to 1996-97 (at 1981-82 prices)**

(In percent)

Industry Code	Name of Industry Group	Fixed Capital	Employment	Output
20-21	Food products	11.41	3.29	6.69
22	Beverages, tobacco and tobacco products	13.19	4.83	11.05
23	Cotton textiles	10.56	2.14	9.00
24	Wool, silk and synthetic fibre textiles	15.23	2.48	10.06
26	Textile products (including wearing apparel)	17.02	9.00	7.11
27	Wood and wood products	13.11	-2.73	-0.70
28	Paper and paper products and printing, publishing and allied industries	15.51	6.41	17.71
29	Leather and leather products	12.61	8.20	4.47
30	Rubber, plastic, petroleum and coal products	0.28	2.86	9.83
31	Chemicals and chemical products	16.26	8.85	13.88
32	Non-metallic mineral products	17.47	2.01	13.57
33	Basic metal and alloys	8.88	0.04	8.85
34	Metal products and parts except machinery and transport equipment	11.83	2.79	8.08
35	Machinery except electrical machinery	6.24	0.15	5.87
36	Electrical machine apparatus, appliances and parts	21.38	6.66	17.60
37	Transport equipment and parts	15.57	6.45	11.10
38	Other industries	5.13	1.81	11.89

Source: Estimated from the Annual Survey of Industries (various issues), Central Statistical Organisation, Government of India, New Delhi.

machinery sectors, excluding electrical machinery, have shown very low growth rates in employment. Thus, the employment elasticity of output is low and it differs across industry groups in Punjab.

Due to fast growth in these industries, the share of the manufacturing sector in the NSDP has improved substantially. Its share rose consistently from 8.00 percent in 1970-71 to 15.37 percent in 1990-91, and thereafter decreased by 2.15 percentage points to 13.22 percent in 1998-99 (Table 3.14). On the other hand, the share of the manufacturing sector in India as a whole is quite high as compared to the corresponding share in Punjab. Further, India's manufacturing sector has produced more than two-thirds of the output of the secondary sector, during all these years, which is more than that of Punjab.

A mention here of various government initiatives to give Punjab's industrial growth a further fillip is both

Industrial work in progress

Table 3.14: **Selected Indicators of Industrial Progress in Punjab (in percent)**

Year	Punjab			India		
	Secondary sector in NSDP	Manufacturing sector in NSDP	Manufacturing sector in secondary sector	Secondary sector in NSDP	Manufacturing sector in NSDP	Manufacturing sector in secondary sector
1970-71	15.31	8.00	52.26	19.79	14.19	71.70
1980-81	18.47	11.01	59.58	23.00	16.95	73.67
1990-91	22.28	15.37	68.96	25.51	18.14	71.08
1998-99	21.11	13.22	62.60	26.72*	18.57*	69.49*

*Year 1996-97

Source: Statistical Abstract of Punjab, Various issues

Statistical Abstract of India, Various Issues.

appropriate and necessary. Twenty-six Industrial Focal Points in an area of 6,217 acres have been developed in the state so far, and 9633 industrial plots have been given to the entrepreneurs. In the next five years 23 more Industrial Focal Points will be developed. With a view to taking industry to the rural areas, especially small-scale industries and creating jobs in villages 594 Rural Focal Points have been decided on. Keeping in mind the potential in information technology (IT), the state government has also created a Special Package of Incentives under the I.T. Policy for software and I.T. units to be set up in Punjab.

In this direction, the government has set up an Earth Station at Mohali and with the laying of fibre optics in the state by the Department of Telecommunication, infrastructure has been established for the growth of the I.T. industry. The government has also launched the Venture Capital Fund for providing financial assistance to I.T. units. Other areas in which the government is attempting to boost industrial growth are the setting up of a Regional Cleaner Production Centre, to improve efficiency in industrial production and protect the environment; and, setting up of an Export Promotion Industrial Park in Dhandari Kalan.

Industrial Labour

Census data is helpful on employment in the industrial sector. The data shows that industrial workers, in absolute numbers, had grown from 4,42,070 in 1971 to 6,48,592 workers in 1981 and to 7,49,136 workers in 1991. The distribution of the

Table 3.15: **Industrial Workforce in Punjab – 1971,1981 and 1991 Census**

	Industrial workforce working in			
Year	Household Industry (unit)	Non-Household Industry (unit)	Total (unit)	As percentage of total population
1971	1,24,102	3,17,968	4,42,070	3.26
	[28.07]	[71.93]	[100]	
	(3.17)	(8.13)	(11.30)	
1981	1,27,186	5,21,406	6,48,592	3.86
	[19.60]	[81.40]	[100]	
	(2.58)	(10.58)	(13.16)	
1991	81,084	6,68,052	7,49,136	3.69
	[10.82]	[89.18]	[100]	
	(1.32)	(10.95)	(12.28)	

Source: Census of Punjab, 1971,1981 and 1991.

Note: 1. Figures in index brackets are percentages, 2. Figures in brackets are percentage share of total workforce.

workforce in the manufacturing sectors of Punjab by household and non-household enterprise shows some interesting results (Table 3.15). First, the share of workforce employed in the manufacturing sector increased from 11.30 percent in 1971 to 12.28 percent in 1991. Second, within the manufacturing sector, the household sector employed 28.07 percent of the workforce in 1971. Its relative share dwindled to 19.60 percent in 1981 and 10.82 percent in 1991. This means that the household sector is employing far lesser numbers than it used to. Third, the workforce engaged in non-household enterprises as a percentage of the total workforce of the state, increased from 8.13 percent in 1971 to 10.58 percent in 1981 and 10.95 percent in 1991. Lastly, the census data clearly reveals a marked rise in the number of non-household enterprises on the one hand and a declining importance of the household sector on the other. This fact shows that economic development has a destructive effect on the household industry in Punjab. The workforce displaced by a disintegrating household sector was absorbed partly in the agricultural and partly in the modern factory sector, mainly in the form of unskilled labour (Singh and Bhangoo, 1988).

A classification of the registered factory sector, according to the size of workers employed, shows that the percentage share of workers in small factories declined considerably during the period 1971-1999. Table 16 (Statistical Tables) reveals that the share of employment in factories employing less than 50 workers was 41.51 percent in 1971. It declined to 32.48 percent in 1981 and 20.93 percent in 1999. The relative share of the largest size-group (1,000-5,000) consistently increased from 13.88 percent in 1971 to 33.94 percent in 1999. The two other large size-groups i.e. 100-500 and 500-1,000 recorded a 28.67 percent share in 1971 and their share increased to 31.08 percent in 1999. Obviously, the registered manufacturing sector has undergone an important change. The relative importance of small-size factories in total employment declined during this period, and, there was an increase in the share of large-size factories. Interestingly, in 1999, there was no factory in Punjab that employed more than 5,000 workers.

Industrial Structure

Punjab's industrial structure is dominated by small scale and unregistered tiny units. Unregistered units constituted 50.67 percent of the manufacturing sector output in Punjab in 1970-71 (Table 17–Statistical Tables). Corresponding percentages in Maharashtra and Gujarat were 22.25 percent and 24.24 percent respectively (Raikhy and Mehra, 2000). The share of the unregistered sector in Punjab declined to 42.81 percent in 1990-91 and 36.63 percent in 1998-99. The fact that the registered sector has gained importance is evident from its increasing share in the income generated in the manufacturing sector and the growing number of registered working factories in Punjab. As shown in Table 18 (Statistical Tables), registered working factories increased from 4,553 in 1971 to 11,705 in 1991 and 13,382 in 1999. Thus, during a period of 28 years the number of working factories has tripled. The workforce employed in these working factories has grown 3.77 times during the same period, which is higher than the growth in number of factories. The simple growth rate in the number of working factories was also lower during all sub-periods than the growth rate in employment. It needs to be noted here that the average number of workers per factory was only 26 in 1971, and it increased to 33 in 1991 and 34 in 1999. This shows that, contrary to the all-India experience, small-sized factories exist in Punjab (Patil, 1987).

Dominance of small-scale industries is evident from the composition of the number of industrial units and workers employed in the sector (Table 19 – Statistical Tables). The share of the small-scale sector in total employment was 67.85 percent in 1974-75 and increased to 79.14 percent in 1998-99. In terms of numbers, a tiny proportion of units are in the medium/large category. However, medium/

large industrial units have accounted for the increasing share of industrial output. Their share was 38.22 percent in 1970-71 and it increased to 50.51 percent in 1980-81 and remained 64 percent between 1990-91 and 1998-99. A similar trend has been shown in the capital stocks employed in medium/large industries. It is also evident from this table that small-scale industries involved less capital per worker as compared to medium/large industries. The output per worker in medium/large industries has been more than that of the small scale sector.

The significance of dominance of small scale and unregistered units lies in the fact that these units are not subject to regulations of labour laws which protect workers in terms of minimum wages, working hours, sanitation, old age security/ retirement benefits, etc. In fact, workers employed in these units are paid very low wages. This type of employment is therefore, not attractive for the educated youth or even for the non-educated local youth (Gill, S. S., 1994).

The structure of Punjab industries can also be examined from the distribution of manufacturing sector output and workforce employed by major industry groups. The analysis shows (Table 20 – Statistical Tables) that agricultural and allied input based industry groups (Codes 20 to 29) accounted for 47.28 percent of total workers and 58.96 percent of output in 1974-75. Though the share of these industry groups in employment over the time period has remained the same (47 percent), the share of output of these groups has declined from 50.51 percent in 1980-81 to 43.30 percent in 1990-91 and 42.27 percent in 1998-99. On the other hand, the mineral and metal-based industry groups (codes 32 to 35) employed 24.31 percent of the total workforce in 1974-75. Over the time period between 1974-75 and 1998-99, the employment share of these groups remained the same. However, this group's share in industrial output increased from 19.14 percent in 1974-75 to 23.23 percent in 1998-99, revealing a structural change in industrial output (Singh, Sukhwinder, 1988). Further, the share of chemical products (except petroleum products) in total employment remained static at 3.4 percent between 1974-75 and 1998-99. The transport equipment and parts industry group recorded a decline in the share of employment from 15.36 percent in 1974-75 to 9.39 percent in 1998-99. Interestingly, over this time period, repair and personal services groups have gained tremendous importance both in terms of share of output and employment.

Such an industrial structure reveals that agricultural development still continues to be the main source of industrial growth. The interdependence between agriculture and industry is directly shown by the growth of agro-processing industries. In the agro-processing sector, food-processing industries improved their share between 1966 and 1985 (Singh, Sukhpal, 1992) and also between 1974-75 and 1998-99 (Table 20–Statistical Tables). Agro-processing industries are being seen as a factor for diversification and further expansion of the agricultural sector in Punjab (Johl, 1988). Although agriculture-industry linkages continue to be a noteworthy factor in Punjab's industrial development, yet there are also signs that the links are weakening (Gill, S. S., 1994). Major industries are increasingly producing for export abroad and to other parts of India. In 1974-75, industrial exports from Punjab were worth Rs. 62.03 crore which consistently increased to Rs. 769.20 crore in 1990-91 and Rs. 3,629.13 crore in 1998-99 (Table 3.16). Industrial exports as a percent of value of industrial output in Punjab increased from 8.3 percent in 1974-75 to 9.11 percent in 1998-99.

The wide fluctuations in the share of exports to industrial production in other years have revealed the fragility of the industrial structure. Several industries such as sports, iron steel, woollen and silk textiles depend exclusively upon imported raw material, as well as outside markets for finished products; either in other states of India or abroad.

Table 3.16: **Value of Exports and Industrial Production of Industrial Goods in Punjab, 1974-75 to 1998-99**

(Rs. In crore)

Year	Value of Export	Value of Industrial production	Percent share
1974-75	62.03	744.54	8.33
1980-81	162.13	2259.51	7.18
1985-86	245.20	4685,52	5.23
1990-91	769.20	11213.51	6.86
1995-96	2564.61	26370.10	9.26
1998-99	3629.13	39820.08	9.11

Source : Statistical Abstract of Punjab, various issues.

The composition of industrial output is also showing slow signs of a shift in output towards intermediate and producer goods. Thus, in spite of fast growth and changes in the industrial sector of Punjab, it remains less significant than either agriculture or livestock, both in terms of its share in value added and workforce employed.

Punjab's industrial sector has grown mainly through private initiatives. The public sector's role in direct industrial activities has been very limited. For example, between 1971 and 1998, the share of the public sector in registered working factories was hardly 2 or 3 percent, and the number of workers employed in them varied between 10 and 13 percent (Table 3.17). On the whole, public sector industrial units in Punjab employed less than 6 percent of the total industrial workforce (both in registered and unregistered units) in 1998.

Another striking feature of the industrial structure of Punjab is ancilliarisation or sub-contracting. In this form of organisation, a number of small and tiny units operate around big units. There may be several forms of ancilliarisation/sub-contracting, but in Punjab, three prominent forms are commonly seen (Gill, S. S., 1994). These are: (i) component/ process ancilliarisation—such a pattern is largely found in engineering industries like sewing machines, bicycle, tractors, automobiles, etc.; (ii) assembly ancilliarisation—this type is found mainly in the electronic goods industries; and (iii) market ancilliarisation—this type has been developed in industries like hosiery, sports goods,

Table 3.17: **Share of Industrial Workforce in Public and Private Sectors in Punjab 1971-98**

Year	Public Sector		Private Sector		Total	
	Factories	Workers	Factories	Workers	Factories	Workers
1971	65	11,745	4,488	106,758	4553	118,503
	(1.43)	(9.91)	(98.57)	(90.09)	(100)	(100)
1981	184	20,571	7,132	188,161	7316	208732
	(2.52)	(9.86)	(97.48)	(90.14)	(100)	(100)
1991	313	50,664	11,392	333,434	11705	383,798
	(2.67)	(13.20)	(97.33)	(86.80)	(100)	(100)
1998	339	55012	13043	391,941	13382	446,953
	(2.53)	(12.31)	(97.47)	(87.69)	(100)	(100)

Source: Statistical Abstract of Punjab, various issues

Note: Figures in parentheses are percentage share

textile fabrics, carpet weaving, electric appliances, etc. (Singh, Balbir, 1995 and Singh, Manjit, 1990). This pattern of industrial development might create close links between small scale and large units and ensure transfer of sources from the large to the small. However, in practice, small units are exploited because of their weak bargaining power. The small units, in turn, pass on this burden to hired labourers who are largely unorganised. This pattern, in the past, has allowed some slow upward mobility to workers. Provided with incentives, they have become small-scale entrepreneurs/ sub-contractors (Singh, Balbir, 1995 and Singh, Manjit, 1990).

Thus, the industrial sector of Punjab shows both positive and negative trends. The sector has grown at a faster rate compared to the growth rate of the agricultural sector between 1966-67 and 1998-99. As a result, its relative share in the NSDP has improved substantially. The rate of growth of the industrial sector accelerated during the 1980s as compared to the Green Revolution period. However, deceleration in industrial growth set in during the 1990s. The industrial structure of the state continues to be dominated by small scale unregistered industries, yet it is showing healthy signs that medium/large units are becoming increasingly important.

Although a majority of small and unregistered units are free from labour laws, yet they are completely outside the modern manufacturing sector. These units are being integrated with the medium/large units through various forms of ancilliarisation/sub-contracting. In fact, these small and tiny industries, based mainly on family labour, do not represent the traditional industrial sector, but are part of the modern manufacturing sector. These units are governed by market forces and they are expected to respond quickly both to local and global market changes.

Moreover, the factory sector of the state, which was showing inefficient use of resources earlier (Dhesi and Ghuman, 1983) has shown signs of improvement (Singh, L., and Sukhpal Singh, 2001). Further improvements in efficiency can be brought about by introduction of new technology in various industries. With the introduction of NEP initiatives since 1991 and creation of the WTO in 1995, the industrial sector has been confronted with global market forces. In this context, two major constraints of the industrial sector have been identified.

First, the linkage between the agricultural and industrial sector remains relatively weak. To remove this constraint, more agro-industries need to be set up in Punjab. This step has been identified on the basis of comparative advantage across industries and states (Sidhu, H. S., 1996).

Second, the declining capacity of Punjab's industry to absorb labour and that too local labour— removal of this constraint requires massive intervention by the state and farmers' organisations. Although state intervention during globalisation is rather difficult, yet innovative and strategic intervention has become crucial, particularly in human capital formation, which requires massive investment in education, training and health.

The survival and growth of the industrial sector in Punjab will depend on greater efficiency in resource use, upgradation of production technology and promotion of skills of the producers, scientists and engineers engaged in production and development.

Strategy and Policy Options

Punjab at its present stage of development requires a strategy, which delivers a high as well as sustainable growth rate. It must conserve its exhaustible resources such as soil, sweet water (both surface and ground), while putting them to optimum and intensive use. It has to renew resources such as capital formation (including human capital), develop efficient (world class) infrastructure in transport, communication, quality educational institutions, health services, banking,

electricity, marketing facilities, etc. At the same time, development and its fruits have to be shared with all sections of the population.

When the 'crisis of the economy' began to be seriously noticed, the Punjab Government appointed an Expert Committee on Diversification of Agriculture in Punjab, popularly known as the Johl Committee, which submitted its report in 1986 (Government of Punjab, 1986). The committee while examining the crisis of agriculture made policy recommendations, which had implications for the entire economy. It suggested that 20 percent of the area presently under wheat and paddy must be shifted to fruits, vegetables and fodder cultivation.

For achievement of crop diversification, three conditions were worked out: (i) improvement in production technology for these crops, (ii) remunerative prices and (iii) quick market clearance. For the latter two conditions, it was suggested that the government and private sectors be involved—first, in the form of regulated marketing, based on the pattern of wheat and paddy procurement with minimum support prices and secondly, creation of storage facilities through construction of a chain of cold stores. It was further suggested that the success of these solutions depended on the establishment of agro-processing industries, which would ultimately ensure remunerative prices, as well as quick market clearance for the suggested crops.

As part of the discussion, further suggestions were made (Gill, 1988) where solution to the development crisis in Punjab was linked to planned development of the state. Diversification of agriculture would not be possible without diversification of the economy, in the form of massive industrialisation of the state dependent on its resources. Industrialisation of the economy would be relevant so long as it could absorb the labour force being released or not being absorbed in agriculture.

For this purpose, a change in pattern of industrial development from small-scale to medium and large-scale enterprises was recommended. The suggested pattern was to be based on state enterprises, private enterprises and a large number of co-operatives (with a changed Co-operative Act). The involvement of co-operatives was suggested to ensure participation of rich, capitalist farmers in industrial development. This would also encourage peasant-based co-operative processing activities. Enterprises must ensure that first, they employ at least 50 percent of local labour and second, that they strictly observe labour legislation, particularly in the matter of wages, salaries and hours of work. To achieve this successfully, it was suggested that massive personnel planning through planned educational restructuring, industrial planning and planning of crop diversification should be taken up simultaneously.

An exhaustive study of the Punjab economy (Bhalla and Singh, 1996) in the light of the GATT agreement 1994, and its possible impact on Punjab's agriculture, while accepting crop diversification and agro-processing as a solution to problems of Punjab's agriculture, made very interesting suggestions. It suggests ways of ensuring the viability of irrigation institutions, viz, State Irrigation Department and Punjab State Electricity Board through a system of rational irrigation charges, electricity pricing and improvement in operational efficiency. There are other suggestions on how to strengthen and sustain the irrigation system by replacing water-intensive crops with less water-intensive crops. Also, encouraging water economising technologies, simultaneous use of ground and surface water, lining of water channels, under-grounding of water courses and enacting of legislation to check over exploitation of groundwater resources. In the light of the GATT treaty (particularly TRIPS), emphasis must be placed on strengthening the public research system through the agricultural university. Appropriate market interventions (based on price fluctuation

differentials), agro-processing, strengthening of infrastructure are recommended, in comparison with competing states and international competitors. The policies of Punjab's competitors need to be studied continuously in order to take appropriate steps at the state level. As a measure to ensure wider participation, the role of farmers' co-operatives is also recommended.

Kahlon (2001) has recommended involvement of farmers' co-operatives in the dairy sector and suggested replacement of subsistence milk production by commercial dairying. The involvement of the state government in creation of infrastructure and facilities remains a key factor.

Since 1997, decentralised planning has been discussed as a mode of planning in the state. On an experimental basis, block plans for 24 development blocks have been prepared, in which area-specific solutions have been recommended.

In October 1998, Punjab Agricultural University organised a two-day brain-storming session to discuss the crisis of Punjab agriculture. This was a unique meeting, in which policy makers, experts working on Punjab from within and outside the state and senior bureaucrats of the Punjab government participated (PAU, 1998). Specific recommendations included diversification of Punjab's agriculture, reduction of pressure on land through industrialisation, strengthening of infrastructure—roads, water, power, health, education and agricultural research—increasing public investment in agro-processing, market information, market development, etc.

The crisis in the Punjab economy in general and that of Punjab agriculture in particular has been the focus of attention of many scholars working on Punjab.

In view of India's integration with the global economy following the country becoming a founder member of the WTO, and recent changes in internal policies, Punjab needs to formulate a long-term plan for its economy. The plan has to work out the direction and level of changes in economic activities in various sectors. The changes would have to be meticulously worked out in agriculture and industrial activities. For this, the state would have to create a structural adjustment fund of Rs. 5,000 to 10,000 crore. In the changed circumstances, the economy has to adjust to a new policy environment. The adjustment period itself would be 10-15 years. New areas of production have to be encouraged. They would need help, support and protection in various forms so that they can become as efficient as possible after the adjustment period.

The one common aspect of the various recommendations is the critical and substantial role that needs to be played by the government. The government has to make massive investments as well as encourage private investment. Private investment would follow but cannot lead public investment in view of the small size of private sector enterprises in the state. The government must mobilise the necessary resources and invest them judiciously (populism of all sorts needs to be avoided). Along with the massive public and private investment, the political will to perform in order to resolve the crisis has to be created. An energetic and no-nonsense capability to get work done and make things happen has to be created in the government sector.

This energy has dwindled and almost vanished during the last two decades. Without creating these conditions, it would not be possible to put Punjab on a high growth path.

The government cannot overlook its responsibility towards the disadvantaged groups such as agricultural labour, industrial labour, migrant workers, poor farmers, Scheduled Castes and backward communities. The economy cannot grow rapidly if its benefits are not widely shared. Welfare measures that promote weaker sections would also

help raise the growth performance of the economy. Gender discrimination is more pronounced in the state compared to India's other forward states. This discrimination needs to be corrected through concrete measures. These would include special educational and training programmes along with other measures of women's empowerment.

The role of economic growth cannot be under stated in any discussion on human development. As the chapter clearly demonstrates, quality of life, farmers' indebtedness, jobs and the opportunities for growth are directly associated with economic growth. Wages, incomes and work environment, which affect people directly, are in turn influenced by overall economic growth. If growth takes place equitably in most sectors, especially the primary sector, then the economy is further accelerated leading to a rise in real wages, and better working conditions.

Punjab's long period of economic prosperity is slowing down and there are signs of an emerging crisis. The state must invest in backward regions and build the infrastructure necessary for modern agriculture and modern manufacturing.

4. Health in Punjab

In the context of human development, health is seen as a matter of individual "rights". Longevity is an important goal of human development, based not just on a narrow definition of health[1].

Health care must begin in childhood itself. The child not only has the right to receive immunisation but also the right to benefit from available technology. The girl child has the right to receive the same health and nutrition inputs as her brother, and not simply be treated as a reproductive device. The definition of health thus goes beyond medicine and cure of disease. Instead, it takes into consideration all that goes into ensuring a healthy and long life, a clean and safe environment and an existence where human dignity is ensured.

Therefore, health includes sanitation, a clean environment, access to basic amenities, access to adequate and safe drinking water, access to energy and safe non-polluting fuels, as well as access to proper and adequate nutrition. Along with these basic entitlements of all citizens, health is equally affected by social customs, discriminations and practices based on gender, caste and marriage. Health is affected by crime as well as physical and mental conditions in homes and workplaces. In India, good health is particularly crucial as a healthy body is perhaps the best asset for the poor.

This chapter will look at the condition of health in Punjab, the various providers of health, specific health problems of groups such as infants, women, the girl child and the poor, as well as the ability of various health providers to dispense health care.

The role of the State is enormous here. The State must recognise its responsibilities to protect citizens from premature mortality and illnesses. In many ways, the Indian government has risen to these responsibilities and has formulated a range of initiatives.

India is a signatory to the Alma Ata Declaration (1978). This Declaration aims at 'health for all' by the year 2001 and views the health care system as a distributive mechanism based on equality and justice. To a certain extent, this is a utopian aim because like other services, the health care service too is marred by class inequalities, denial of opportunities to disadvantaged groups and rampant corruption. Making health services universally accessible is thus a difficult challenge.

Overview of Health Indicators

Punjab has one of the highest per capita incomes in India, next only to Delhi, Pondicherry and Maharashtra. It has an income poverty rate of just six percent.[2] Given these impressive economic numbers, the health sector must be

[1] Health in its accepted international definition is not just the absence of disease, but also the physical, mental, and social well-being of a person.

[2] Planning Commission estimates of poverty for 1999-2000.

Table 4.1: Life Expectancy in the Indian States

State	1951-61	1961-71	1981-85	1988-92	1992-96	Increase by 1992-96 from the years (in percentage)	
						1961	1985
India	**41.2**	**47.7**	**55.5**	**58.7**	**60.7**	**47.3**	**9.4**
Andhra Pradesh	36.9	44.4	58.4	60.2	62.0	68.0	6.2
Assam	36.8	46.0	51.9	54.1	56.2	52.7	8.3
Bihar	37.6	41.0	52.9	57.5	59.4	58.0	12.3
Gujarat	40.0	53.7	57.6	59.5	61.4	53.5	6.6
Haryana	N.A.	50.6	60.3	62.5	63.8	N.A.	5.8
Himachal Pradesh	N.A.	N.A.	N.A.	63.3	64.5*	N.A.	N.A.
Karnataka	40.2	44.6	60.7	62.2	62.9	56.5	3.6
Kerala	48.3	48.8	68.4	71.3	73.1	51.3	6.9
Madhya Pradesh	40.6	54.4	51.6	53.4	55.2	36.0	7.0
Maharashtra	45.2	54.4	60.7	63.4	65.2	44.2	7.4
Orissa	40.9	44.7	53.0	55.4	56.9	39.1	7.4
Punjab	47.5	43.8	63.1	66.6	67.4	41.9	6.8
Rajasthan	46.8	49.4	53.5	56.3	59.5	27.1	11.2
Tamil Nadu	39.8	49.6	56.9	61.5	63.7	60.1	12.0
Uttar Pradesh	38.9	43.0	50.0	55.4	57.2	47.0	14.4
West Bengal	44.3	44.9	57.4	61.4	62.4	40.9	8.7

Notes: N.A. : not available, * - for period 1991-95

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.

critically assessed. The Sample Registration Scheme of the Registrar General of India[3] estimated that for the year 2000 the infant mortality rate (IMR) of Punjab was 52, and the life expectancy at birth in 1996 was 67.4 years. In these crucial parameters, Punjab ranks far below Kerala, which recorded an IMR of just 14 per 1000 live births in 1999. Similarly, life expectancy of Kerala stood at 73.1 years, nearly six years more than that for Punjab.

Compared to international standards, the IMR and life expectancy rates of Punjab would fall in the range of medium human development nations, and far below those of Sri Lanka or even Vietnam. Additionally, the IMR in 1998 was much lower than the Alma Ata Declaration's aim of achieving 40 by the turn of the last century.

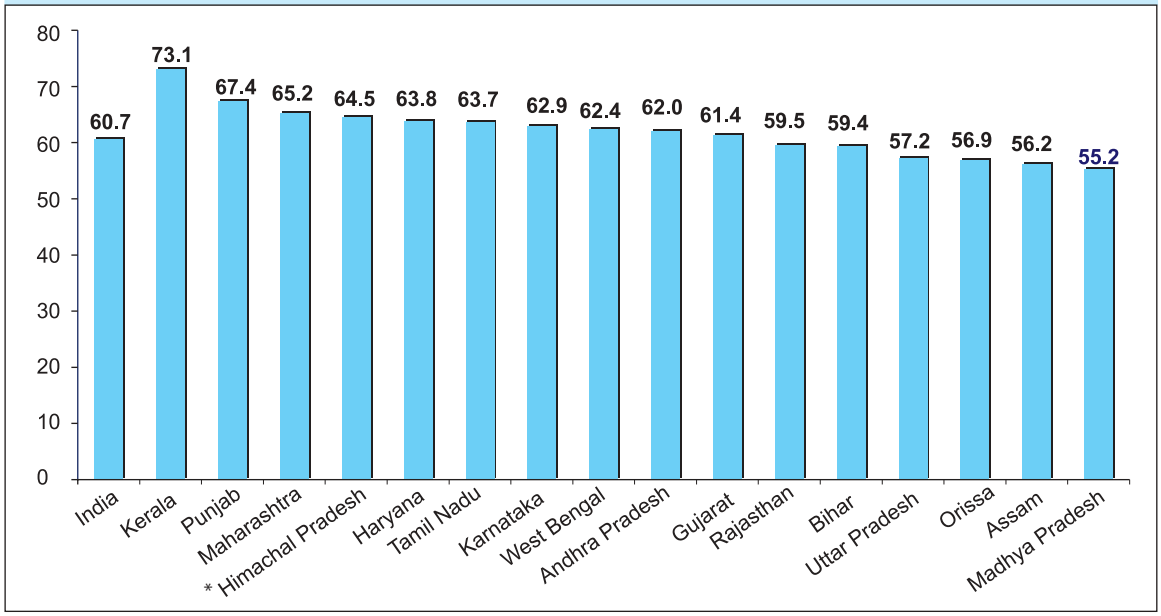
Life Expectancy

On an average a child in Punjab is born with a life expectancy of over 67 years (latest data for 1992-96 puts life expectancy at birth at 67.4 years). From Table 4.1, we find that life expectancy in Punjab has improved from 47.5 years in 1961 by over 40 percent, but in the last two decades this improvement has become far more gradual. In the 1990s, there was only a gradual increase in life expectancy.

Life expectancy at birth differs if we consider gender and spatial factors. In 1992-96, male life expectancy at birth was 66.4 years, while that of females was 68.6 years. While women on an average live 2.2 years more than men, this difference actually does not mean better quality of women's health, as

[3] SRS Bulletin, October 2001, Registrar General of India.

Figure 4.1: **Life Expectancy at Birth – Indian States, 1992-96**



* For period 1991-95

biologically healthier and sturdier females normally outlive men on an average by five years. The gap between urban and rural Punjab is however much sharper. The urban Punjabi has a life expectancy of 70.4 years (this compares well with Kerala's 73 years, as most of Kerala bears the character of an urban area), which is higher than the life expectancy of rural Punjabis, which stands at 66.7 years. The difference becomes even more acute when comparisons are drawn between regions and districts.

There are no direct estimates for life expectancy at the district level. Indirect estimates may be derived from census tables related with fertility that are available at an interval of ten years. The estimates for the years 1981 and 1991 are presented in Table 4.3.

Table 4.2: **Life Expectancy by Sex and Place of Residence (1992-96)**

	All	Male	Female
Total	**67.4**	**66.4**	**68.6**
Rural	66.7	65.9	67.5
Urban	70.4	67.6	71.5

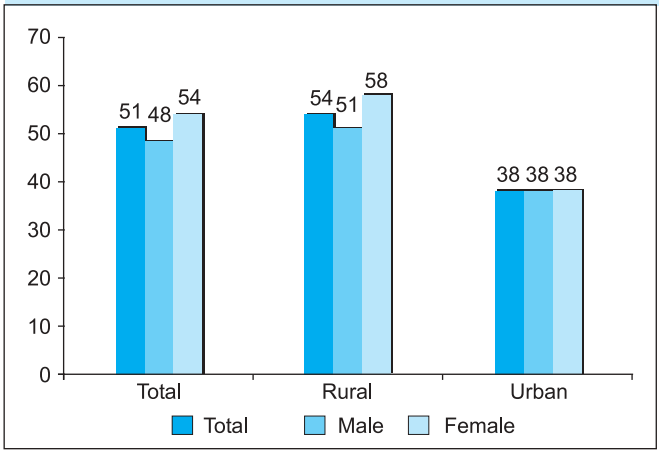
Source: Compendium of India's Fertility and Mortality Indicators 1971-1997, based on the SRS, Registrar, India, New Delhi 1999.

In 1991, Ludhiana had the highest life expectancy of 70 years. Gurdaspur came next, which interestingly had a life expectancy amongst the lowest in 1981. But a closer look at the rise in life expectancy in the inter-census period shows that life expectancy rose in most districts by three to four years, except Ludhiana and Gurdaspur (both above six years). The range between the highest and lowest life expectancy was only 3.8 years in 1981. But this rose to nearly eight years in 1991. Regionally, the state of health measured by life expectancy, showed that the southern districts were worse off than the northern, especially the north-eastern districts of Punjab.

Life expectancy in 1981 and the estimates for 1991 show some surprising changes. Gurdaspur performs well on the health scale, but two other changes are equally intriguing – Jalandhar and Nawanshehar, which were fourth and sixth in terms of life expectancy rank in 1981, fell to 16th and 15th place respectively. It is also a matter of concern

that two of the districts of the Doaba belt—Hoshiarpur and Kapurthala—were among the worst performing in 1981, and failed to improve their comparative position even in 1991. These districts of Doaba along with Jalandhar and Nawanshehar are among the highest in income and education. On the other hand, the districts of Muktsar, Moga and Firozpur in Malwa, to name three, in spite of high levels of poverty and backwardness, do relatively well compared to other districts of Punjab, especially those in the Doaba belt. As a regional phenomenon this is not very surprising, as in 1981 the neighbouring districts of Ganganagar and Bikaner in Rajasthan also showed a rise in life expectancy.

Figure 4.2: **Infant Mortality by Sex and Residence, 1998 (SRS estimates)**



Mortality Issues

The death of infants before they reach the age of one is termed infant mortality. The death of a child before she reaches the age of five years is termed child mortality. These are the most telling indicators on the health services, health awareness and satisfactory health practices.

Table 4.3: **Ranking of Districts by Life Expectancy in Punjab, 1981 and 1991**

Districts	Life Expectancy in 1981	Rank in 1981	Life Expectancy in 1991	Rank in 1991	Increase in the decade
Amritsar	62.4	3	67.2	3	4.8
Bathinda	61.1	13	64.7	11	3.6
Faridkot	61.6	8	65.8	8	4.2
Fateh Garh Sahib	61.7	7	65.6	9	3.9
Firozpur	62.1	5	66.6	5	4.5
Gurdaspur	61.4	11	67.8	2	6.4
Hoshiarpur	60.9	15	64.5	13	3.6
Jalandhar	62.3	4	64.2	16	1.9
Kapurthala	60.4	16	64.5	13	4.1
Ludhiana	64.2	1	70.5	1	6.3
Mansa	61.1	13	64.7	11	3.6
Moga	61.6	8	65.9	6	4.3
Muktsar	61.6	8	65.9	6	4.3
Nawanshehar	61.8	6	64.3	15	2.5
Patiala	61.4	11	65.4	10	4.0
Rup Nagar	62.9	2	66.8	4	3.9
Sangrur	60.4	16	62.8	17	2.4
Punjab	**61.7**		**65.6**		**3.9**
Highest	64.2		70.5		
Lowest	60.4		62.8		

Source: 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 estimates of life expectancy for 1991.

Infant Mortality

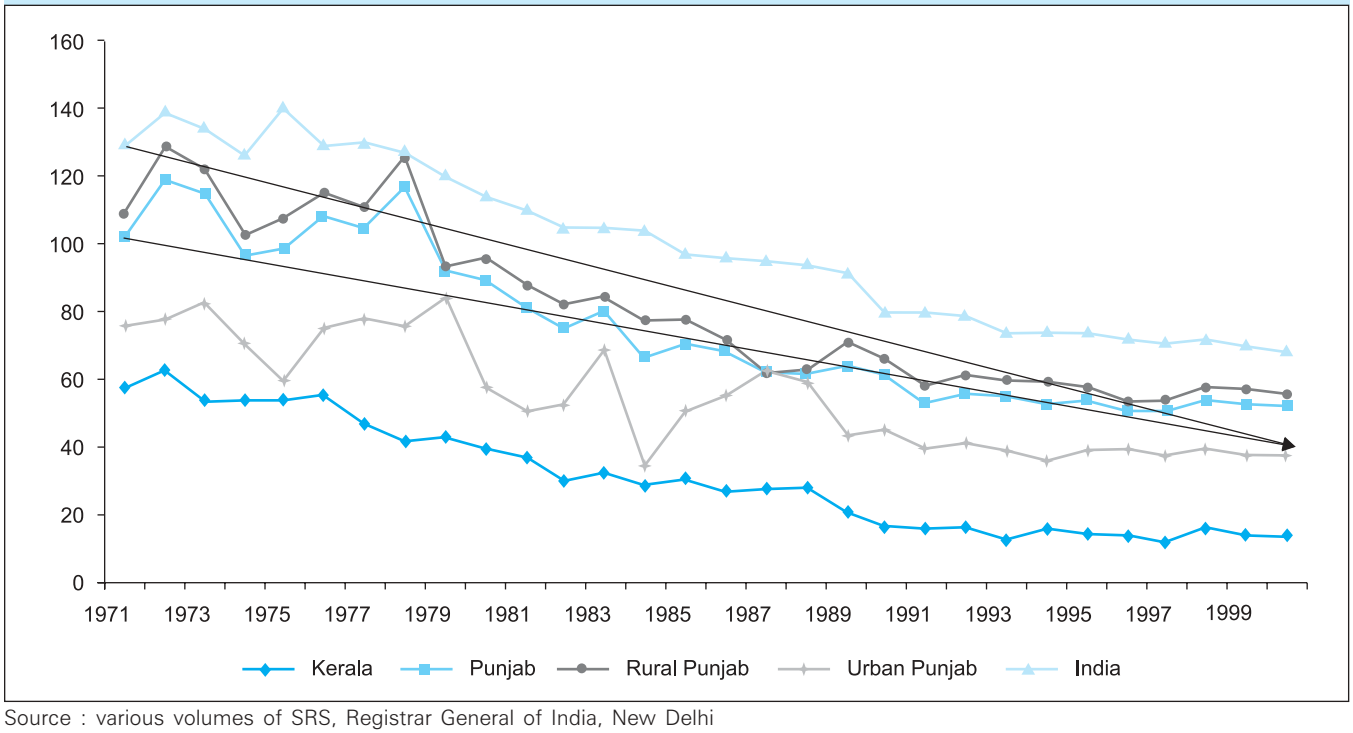
The IMR in Punjab was 51 in 1998. It was 54 for rural areas and 38 for urban areas.[4] A look at Figure 4.2 shows that in all rural areas of Punjab, female infant mortality is much higher than male infant mortality, whereas in urban areas it is equal. Biologically it is seen that the girl child is a much stronger child, and her ability to survive the first year after birth is much stronger than that of the male. A female IMR below or equal to the male IMR thus unequivocally reveals that there is discrimination against the girl child. The chapter 'Women in Punjab' provides greater focus on this subject.

Punjab's IMR of 51 in 1998 is much better than the national average of 71 but four times worse than the IMR of 12 achieved by Kerala. Figure 4.3 compares the IMR of Punjab with India and Kerala from 1971 till 2000. The two arrow lines points to the path of decline that Punjab and India should have followed to reach an IMR of 40 by the turn of the last century. It shows that while Punjab did follow the path till early 1990s, India was almost never on the required rate of decline. The difference between rural and urban areas seems to be narrowing over the last thirty years and the graph shows the two lines representing rural and urban IMRs moving towards convergence.

The 1990s, interestingly, is a period where the rate of decline in IMR in all the three regions presented in the Figure, seems to have reached a plateau. Punjab's IMR was erratic in the 1970s, but appears to be on a steady rate of decline from the late 1970s. These facts need to be kept in mind when health provisioning is examined later in this chapter, especially, levels of immunisation among children.

Most of the causes of infant mortality today are easily preventable through simple immunisation. This can prevent deaths from the main infant killer diseases like measles, diphtheria, tetanus, poliomyelitis and pertussis. In the years since the 1980s, and increasingly in the last decade, governments across

Figure 4.3: **Infant Mortality Rate from 1971 to 2000 – Kerala, India and Punjab**



Source : various volumes of SRS, Registrar General of India, New Delhi

[4] IMR for 2000 is available from SRS but disaggregated by residence only and not by sex of children.

Table 4.4: **Infant Mortality Indicators by Place of Residence**

Indicators	1971			1981			1991			1997		
	Total	Rural	Urban	Total	Rural	Urban	Total	Rural	Urban	Total	Rural	Urban
IMR	102	109	76	81	88	51	53	58	40	51	54	38
Change in IMR	-	-	-	20.6%	19.3%	32.9%	-	-	-	3.8%	6.9%	5.0%
Neo-natal mortality Rate	55.9	61.1	35.3	48.8	53.5	28.2	33.5	37.8	21.1	29.0	31.8	18.1
NNM as % of IMR	54.8	56.1	46.4	60.2	60.8	55.3	63.2	65.2	52.8	56.9	58.9	47.6
Post-natal Mortality	46.1	47.9	40.7	32.2	34.4	22.3	19.8	20.2	18.6	22.0	22.6	19.7
Peri-natal Mortality Rate	60.3	64.5	37.0	42.3	46.3	24.6	45.6	51.7	27.6	32.5	35.4	21.3
Still birth Rate	23.7	26.1	13.8	13.2	14.3	8.6	24.7	27.6	16.1	10.2	11.2	6.5

Source: Compendium of India's Fertility and Mortality Indicators 1971-1997, based on the SRS, Registrar, India, New Delhi 1999

the globe have focused attention on the prevention of infant and child deaths from easily preventable causes. National and state governments in India have given special attention to it. Every child is entitled by policy and provisioning to become fully immunised from such killer diseases. The failure to provide such cover to children is a serious lacuna in the health delivery system.

Infant mortality has been classified into two periods—death within the first 28 days of a live birth is termed as neo-natal mortality and death after the 28th day of a live birth until the child turns one year of age is termed as post-natal mortality. Fifty-seven percent of all infant deaths in Punjab take place within the first 28 days of birth, although this is still less than the national figure of 65 percent. The share of neo-natal deaths to total infant deaths is much higher in rural Punjab than in urban Punjab.

SRS estimated that in 1996, early neo-natal deaths in Punjab contributed half of all infant deaths (26 out of an IMR of 51).[5] Early neo-natal deaths, which are deaths occurring within the first seven days of childbirth, form a significant portion of infant mortality. Prevention of death within seven days of the birth of a child appears as an urgent necessity. The causes of early neo-natal mortality are related to natal care, type and quality of care during delivery and post-natal care for the mother and infant.

In order to estimate IMR, the state has been divided into two zones by SRS. The last regional estimates available are only till the year 1992, but this is a sufficient indicator of the broad trends in inter-regional IMRs. There is clear differential between urban and rural IMR. Urban infant mortality is two-thirds of the level in rural Punjab. There is also a large difference between the southern and northern rural areas. The northern region comprises of the areas under Doaba. The southern districts mostly fall in the relatively backward Malwa belt.

Child Mortality

The risk of death is high in children till they reach the age of five. The rate of child mortality in Punjab (death between the age one and five years) and its regions is estimated by SRS at 15 for Punjab, 17 for rural Punjab and 9 for urban Punjab. Child mortality rates disaggregated over sex and residence for the year 1996 are presented in Figure 4.4.

While child mortality in all regions of Punjab is lower than national rates, female child mortality is much

[5] Sample Registration Scheme – Statistical Report, 1996, Registrar General of India, New Delhi, 1998.

Table 4.5: **Regional Estimates of Infant Mortality Rate in Punjab, 1992**

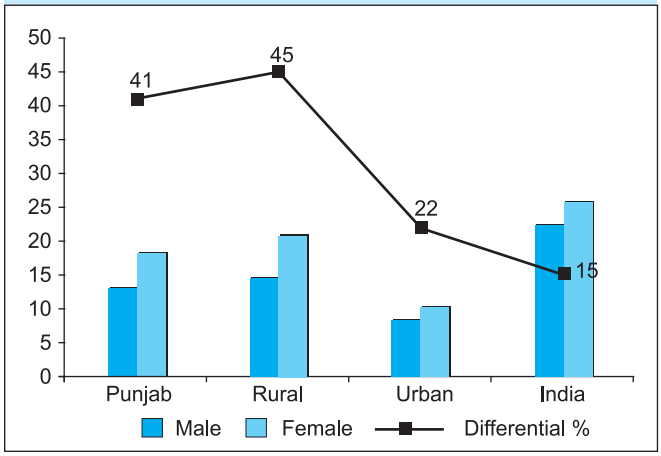
Region	IMR in 1992	Three-Years IMR Average (1990-92)	Inter-Regional Differential
Punjab	**56.00**	**56.67**	
			Urban IMR as percentage of Rural IMR
Rural Punjab	61.40	61.83	68%
Urban Punjab	40.60	41.80	
IMR in Regions of Punjab, 1992			Northern IMR as percentage of Southern IMR
Northern Region – Rural	53.70	56.30	83%
Southern Region – Rural	70.10	67.90	
Non-cities Urban	40.93	40.78	
City urban Areas	40.23	43.00	

Source: SRS Analytical Studies, Report No. 3 of 1996, Below State Level Estimates of Vital Rates - 1987-92, Registrar General of India, New Delhi

higher than male child mortality. This is also true of all India, but while the all India differential shows female child mortality as 15 percent higher than male child mortality, the differential is 41 percent higher for Punjab, and 45 percent higher for rural Punjab.

The reason why the biologically healthier female child dies more frequently than her brothers is without doubt an indicator of discrimination in nutrition, health care and medication. Such an alarming difference in mortality rates requires urgent legal, administrative, medical and political measures.

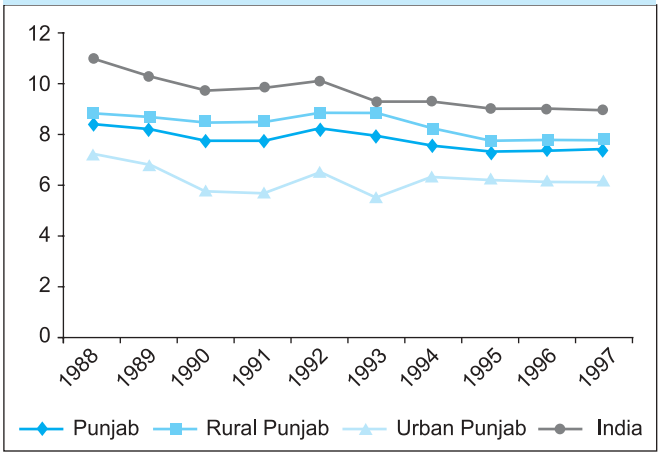
Figure 4.4: **Child Mortality in Punjab by Sex and Residence, 1996 (SRS estimates)**



Death Rates

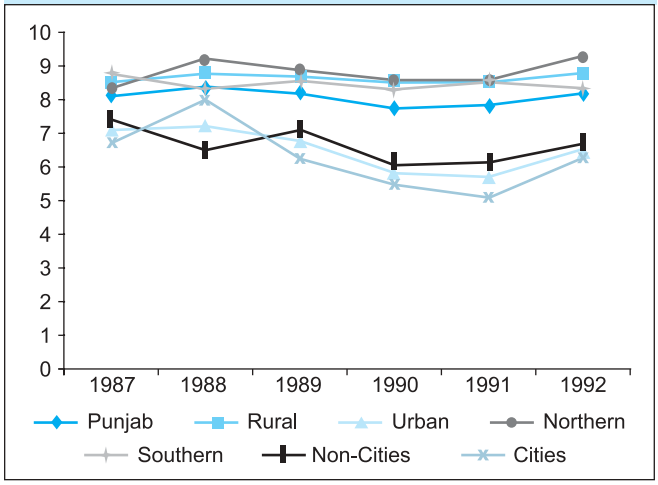
Death rate represents the number of people in 1000 persons from the entire population or an age group who are likely to die within a given year. It represents a very basic indicator of health, and in the absence of indicators of morbidity, affliction of deadly diseases and the impact of curative systems, death rate is an important indicator. The death rate of Punjab in 1996 was estimated by SRS at 7.4, 7.8 and 6.1 for all of Punjab, rural Punjab and urban Punjab respectively. Punjab's death rate is substantially lower than that of rest of India by

Figure 4.5: **Death Rates in Punjab and India, 1988 to 1997**



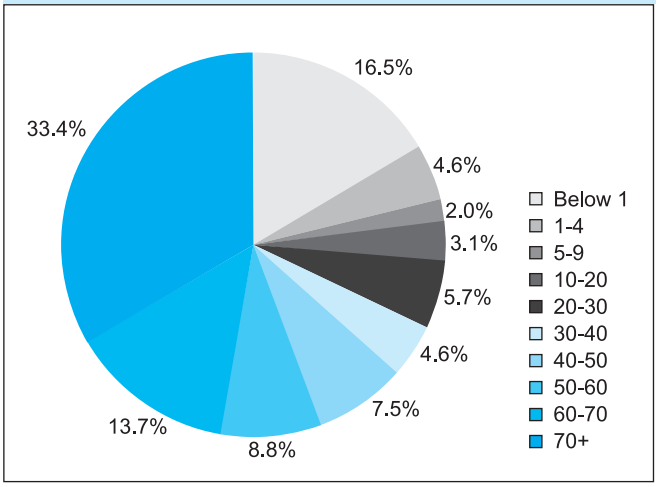
Source: Compendium of India's Fertility and Mortality Indicators 1971-1997, based on the SRS, Registrar general of India, New Delhi 1999

Figure 4.6: **Regional Death Rates in Punjab, 1987-1992**



Source: SRS Analytical Studies, Report No. 3 of 1996, Below State Level Estimates of Vital Rates - 1987-92.

Figure 4.7: **Share of Deaths in Different Age Groups to Total Estimated Deaths, 1996**



Source: Compendium of India's Fertility and Mortality Indicators 1971-1997, based on the SRS, Registrar General of India, New Delhi 1999.

1.5 deaths per thousand in a year, or 17 percentage points.

A comparison of death rates in Punjab and India is given in Figure 4.5, tracing these rates from 1988 till 1997. The death rates of Punjab and rural Punjab alike declined in late 1980s and early 1990s, and appear to be on a plateau for the last three to four years. Urban death rates fluctuate far more, but the last decade has not shown any decline in the death rate in spite of these fluctuations.

If we examine the trend in death rates in Punjab and India across the years, the gap appears to be closing. For the period 1971-80, the death rate of Punjab was less than the death rate of India on an average of 26.4%, and this average dropped to 24.3 % during 1981-90, and even further to 17.9% for the period 1991-97.

SRS also provides estimates of death rates by sex and residence for 1997. Presented in Figure 4.6, one clear indication of death rates in the early 1990s is that there is a growing difference between the regions. Regional death rates appear to move in similar directions but are becoming divergent.

Age-specific death rates (ASDR) enable us to estimate the age groups where larger number of deaths are occurring.

Death rate also shows which age groups record the maximum number of deaths. Figure 4.7 presents the share of deaths by age group in Punjab and Table 4.6 compares age-specific deaths to total deaths between males and females in Punjab.

Figure 4.7 shows the age group of below one year and above 70 years as recording the largest share of deaths in Punjab. Deaths above 70 years of age are influenced by ageing and can be assumed to be of lesser concern for the health system. Under-five child mortality accounts for one-third of deaths in the age group 0-70, and nearly half of all deaths below the age of 50. Clearly, infant and child mortality remain a basic challenge for Punjab's health system.

From Table 4.6 we see that the age-specific death rates amongst females in the reproductive age of 15 to 49 years do not appear to be inordinately high and in fact compare well with male age-specific deaths. If we compare the share of female

Table 4.6: **Age-Specific Share of Deaths to Total Estimated Deaths in 1996 (in percent)**

Age Group	Share of Age group in all estimated deaths	Cumulative Total	Share of Age group in all estimated male Deaths male	Cumulative Total	Share of Age group in all estimated female deaths	Cumulative Total	Female deaths rate over male death rate
Below 1	16.5	16.5	13.8	13.8	20.3	20.3	147%
1-4	4.6	21.1	2.7	16.5	7.4	27.7	274%
5-9	2.0	23.1	1.7	18.2	2.3	30.0	135%
10-14	1.2	24.3	1.4	19.6	0.9	30.9	64%
15-19	1.9	26.2	2.1	21.7	1.7	32.6	81%
20-24	2.7	28.9	2.8	24.5	2.5	35.1	89%
25-29	3.0	31.9	3.8	28.3	1.9	37.0	50%
30-34	2.3	34.2	2.5	30.8	2.1	39.1	84%
35-39	2.3	36.5	3.0	33.8	1.3	40.4	43%
40-44	2.8	39.3	3.5	37.3	1.7	42.1	49%
45-49	4.7	44.0	5.2	42.5	4.1	46.2	79%
50-54	4.9	48.9	4.7	47.2	5.2	51.4	111%
55-59	3.9	52.8	4.1	51.3	3.6	55.0	88%
60-64	6.6	59.4	5.9	57.2	7.7	62.7	131%
65-69	7.1	66.5	8.2	65.4	5.6	68.3	68%
70-74	8.8	75.3	10.0	75.4	7.2	75.5	72%
75-80	7.0	82.3	7.7	83.1	5.9	81.4	77%
80-84	8.2	90.5	7.8	90.9	8.8	90.2	113%
85+	9.4	99.9	9.1	100.0	9.7	99.9	107%
Deaths in reproductive age	19.7		22.9		15.3		

Source: SRS Statistical Report 1996, Registrar General of India, New Delhi, 1998.

deaths to total deaths from the reproductive ages, we see that this share is actually much lower than that for males.

Table 4.7 compares age-specific mortality rates of women in Punjab in the reproductive ages between 1971, 1981 and 1997. We see that there has been a drastic decline in mortality rates in these ages of females, especially between 1971 and today, except for the age group 15-19 years. The reduction in female mortality in the reproductive ages indicates increasing health cover during pregnancy and delivery, and better delivery practices. SRS estimates on maternal mortality for

Table 4.7: **Age-Specific Mortality Rates of Women in Punjab**

Age Group	ASDR in 1971	ASDR in 1981	Decline in ASDR between 1971 and 1981	ASDR in 1997	Decline in ASDR between 1971 and 1997
15-19	1.2	3.2	166.7%	1.5	25.0%
20-24	2.0	1.5	-25.0%	1.8	-10.0%
25-29	4.0	2.3	-42.5%	1.9	-52.5%
30-34	2.9	2.9	0.0%	1.3	-55.2%
35-39	4.7	3.3	-29.8%	1.7	-63.8%
40-44	4.5	1.1	-75.6%	3.8	-15.6%
45-49	2.7	2.9	7.4%	2.6	-3.7%

ASDR : Age Specific Death Rate

Source: Compendium of India's Fertility and Mortality Indicators, 1971-1997, based on the SRS, Registrar, India, New Delhi 1999.

Punjab were lower amongst Indian states in 1997, a rate of 196 deaths per 1,00,000 live births compared to 408 for rest of all India.

Fertility

The total fertility rates (TFR) reveals the total number of children an average woman is likely to have in her reproductive years of 15-45. A TFR of 2.1 is supposed to be the Net Replacement Rate (NRR), which ensures that a generation after this TFR is achieved by a population, it would stop increasing. The TFR of Punjab was 2.7 in 1997 according to SRS estimates, 2.9 for rural Punjab, and nearly reaching the NRR at 2.2 for urban Punjab. At the current rate of decline it should take Punjab another 10-15 years to reach a TFR of 2.1. National Family Health Surveys undertaken in 1993 and again in 1998-99 have also made estimates for fertility rates in Punjab. They show an impressive decline in fertility rates in this period. Table 4.8 below compares SRS and NFHS estimates for two years. The two surveys give the same estimate for 1993, but the NFHS survey estimates a much lower TFR for Punjab in 1998-99 than what SRS estimates for 1997. If the estimates by NFHS are more accurate, then it shows that Punjab could easily achieve the desired TFR within a few years. A concerted additional effort should accelerate such an achievement and then maintain it.

Closely associated with TFR is birth rate, which represents number of births per 1000 people in a given year. The birth rate of Punjab estimated by SRS for 1997 was 23.4, which compares very well with the national birth rate of 26.1. The birth rate was marginally higher at 22.5 for rural Punjab, but much lesser at 18.6 for towns and cities.

Table 4.8: **Estimate of TFR for Punjab**

Survey	1993	1997
SRS	3.00	2.70
	1993	**1998/99**
NFHS	2.91	2.21

Source: NFHS II Preliminary Report, and SRS Bulletin, RGI, New Delhi.

The Burden of Disease–Challenges for Curative Health

Numbers on births and deaths do not necessarily provide a complete picture of Punjab's health. An important component of health is how long an individual might be able to remain productive and free of disease, crucial for those toiling as daily wagers or casual labourers.

Economists have long argued on the economic and productive merit of a healthy population, and how prevention of disease is far less costly than curing disease. Thus investments in health are investments in the economy. A long disease-free life where the individual is able to make full use of his or her skills and potential is an asset to society.

There are no absolute estimates of morbidity. We take evidence from the National Sample Survey's 52nd round in 1995-96 to assess morbidity.

PAP figures (persons ailing per 1000 population) reveal the level of morbidity. From the NSS data, Punjab's rural PAP of 76 is the third highest, and its urban PAP is also the third highest among all states. These numbers applied to population figures of 2001, indicate that over 19 lakh people suffer from any ailment at any given point of time in a population of 242 lakh.

The following is a survey of the different types of diseases in Punjab and the severe problems faced by the physically and mentally challenged.

Diseases of Poverty

While Punjab is one of India's most prosperous states, mortality rates are high and many communities, particularly Scheduled Castes, landless and migrant labourers live in poverty and squalor.

Table 4.9: **Number of Persons Ailing per 1000 (Population) in Indian States**

State	Rural		Urban	
	PAP	PPC	PAP	PPC
Andhra Pradesh	64	35	61	31
Assam	80	52	86	57
Bihar	34	17	41	22
Gujarat	46	27	36	21
Haryana	61	34	63	24
Karnataka	45	24	40	22
Kerala	118	60	88	43
Madhya Pradesh	41	26	38	22
Maharashtra	52	29	48	26
Orissa	62	43	62	47
Punjab	76	33	85	37
Rajasthan	28	15	33	19
Tamil Nadu	52	31	58	37
Uttar Pradesh	61	33	72	41
West Bengal	65	38	65	42
India	**55**	**31**	**54**	**30**

Source: Report No 441, Morbidity and Treatment of Ailments, NSS 52nd Round, National Sample Survey Organisation, GoI, November 1998.

Note: 1. PAP - Estimated number of ailing per 1000 persons
2. PPC - Persons reporting commencement of any ailment

Classified among diseases of poverty are those which are generally associated with poor sanitation, low levels of nutrition and resistance, communicable diseases found in unsanitary living conditions and water-borne diseases.

As elsewhere in the country, tuberculosis is a major disease in Punjab. The annual administrative report of 1999-2000 of the Department of Health and Family Welfare, Government of Punjab, acknowledges TB to be the major public health problem of the state. The report estimated that currently there were around 3 lakh persons suffering from tuberculosis in Punjab, of which 75,000 cases were "highly infectious". The report also analyses that "one of the major reasons of the spread of infections is migratory labour who come into the state."

Malaria is the other important public health issue. Waterlogging in fields (especially accumulated irrigation water in agricultural fields), poor sanitation in towns and slums lead to malaria. However, malaria seems to be declining in Punjab. According to the Department of Health and Family Welfare, the number of detected cases of malaria was 5,316 and 1,113 in 1998-99 and 1999-2000 respectively.

NFHS 1998-99[6] assessed that the prevalence of malaria three months prior to their survey was 1,082 cases per 100,000 persons. This rate was much higher in rural Punjab at 1,140 than for urban Punjab at 949.

NFHS data from their first survey on other diseases of poverty is presented in Table 4.10.

These estimates do not calculate actual numbers, but assess the quantum of the problem. The major challenges, as it appears, are in prevention and cure, and in rehabilitation and support services to

Table 4.10: **Rate of Prevalence of Diseases of Poverty by Place of Residence and Estimated Number of Patients, 1993**

Indicator	Blindness		Leprosy	Physical Impairment of Limbs
	Partial	Complete		
Urban Prevalence Rate	5.9	1.6		6.1
Estimated Patients in '000s	49	13	0	50
Rural Prevalence Rate	6.9	2.2	0.4	9.3
Estimated Patients in '000s	111	35	6	149

Source: National Family Health Survey, Punjab Report 1993, Institute of Population Studies, Mumbai.

[6] Indian Institute of Population Sciences, National Family Health Survey 1998-99 (Punjab), Mumbai, India (page 127-128).

patients of TB, partial and complete blindness and the physically challenged.

Data from surveys is not available to give an idea of the prevalence of other diseases. Here we will look at data from government hospitals and the types of diseases treated amongst out-patients, and in-patients and the causes of death in Punjab.

The main diseases amongst outdoor patients in 1999 were diseases of the respiratory system, infectious and parasitic diseases, diseases of the nervous system and sense organs and diseases of the digestive system. In indoor patients, the main disease for which patients were admitted were injury and poisoning, complication of pregnancy, childbirth and the puerperium, infectious and parasitic diseases, diseases of genito-urinary system, respiratory system, digestive system, circulatory system, and nervous system and sense organs. Amongst the main killer diseases were diseases of the circulatory system, injury and poisoning, infectious and parasitic diseases, and diseases of the respiratory system.

Other Diseases

With only six percent income poverty and the second highest per capita income in India among Indian states, a high urbanisation rate (a third of the population), increasing 'white collarisation' of the workforce, '2 million plus' inhabitants in cities (Ludhiana and Amritsar), 14 'lakh plus' inhabitants in towns[7], in Punjab the disease burden includes

Table 4.11: **Broad Category-wise Outdoor Patients, Indoor Patients treated and Number of Deaths among Indoor Patients in Punjab, 1999**

S. No	Name of Diseases	Outdoor-patient		Indoor-patient		Deaths	
		Number	%	Number	%	Number	%
1	Infectious and parasitic diseases	1884230	16.3	64556	13.9	2420	16.8
2	Neoplasms	56381	0.5	10512	2.3	1030	7.1
3	Endocrine, nutritional and metabolic diseases and immunity disorders	245176	2.1	16614	3.6	671	4.7
4	Diseases of blood and blood forming organs	987343	8.5	10619	2.3	193	1.3
5	Mental disorders	118984	1.0	4619	1	111	0.8
6	Diseases of the nervous system and sense organs	1197388	10.4	26160	5.6	244	1.7
7	Diseases of the circulatory system	405321	3.5	30451	6.6	3134	21.7
8	Diseases of the respiratory system	2191490	19.0	33051	7.1	1175	8.2
9	Diseases of the digestive system	1201150	10.4	32588	7.0	918	6.4
10	Diseases of genito-urinary system	305001	2.6	34903	7.5	173	1.2
11	Complication of pregnancy, childbirth and the puerperium	216342	1.9	71143	15.3	92	0.6
12	Diseases of the skin and subcutaneous tissue	997213	8.6	3501	0.8	17	0.1
13	Diseases of the musculoskelctal system and connective tissue	475839	4.1	5215	1.1	117	0.8
14	Congenital anomalies	12038	0.1	2053	0.5	60	0.4
15	Certain condition, originating in the period	17378	0.2	5136	1.1	525	3.6
16	Symptoms, signs and ill-defined conditions	605218	5.2	25047	5.4	649	4.5
17	Injury and poisoning	647672	5.6	87511	18.9	2897	20.1
	Total	**11564164**		**463679**		**14426**	

Source: Director, Health and Family Welfare, Punjab

[7] According to the census of 1991.

those diseases created by urbanisation and prosperity.

There is already a very high rate of cardiac problems, diabetes and cancer. There is little information available on prevalence of such diseases, but based on anecdotal evidence, discussions with doctors and others associated with medicine in Punjab, it is possible to say that these diseases have a high rate of affliction in urban and even rural Punjab.

Mental Health

The issue of mental health has received comparatively little attention in health discourse. This may be partially due to ignorance and partially due to the presence of far more potentially fatal diseases. On mental health, there is an absence of data and supportive programmes. Investment rates are quite low, mirroring the national trend, where only .01 % of the health budget is allocated to mental health care services. Further, according to WHO estimates, the doctor (psychiatrist) to patient ratio is an alarming 1: 25,00,000 in India. This syndrome also persists in Punjab.

In Punjab, as in the rest of India, the incidence of mental health disorders is rising. However, little is being done to bring mental illness into the domain of public health. Prevalent attitudes are an obstacle. Mental health is not seen as a problem requiring serious intervention by a health professional. As in other parts of India, it is generally believed that mental illnesses are just an extension of a poor physical state so that once the latter is treated the former will automatically disappear. There is a reliance on traditional practitioners, soothsayers, preachers, priests and fortune tellers, a tendency which seriously affects attempts to correctly estimate the extent and magnitude of mental health problems.

Affordability and accessibility of mental health care services are of primary importance. Most government hospitals do not have qualified psychiatrists, on their boards and so patients usually go to general physicians, who often provide only symptomatic relief. Since private doctors are expensive, it is very important to set up mental health services under the primary health care systems that are accessible.

In state-run institutions, there is often a lack of sanitary facilities for inmates, no proper diet or medical assistance. The staff is untrained and therefore insensitive. Thus mental institutions are similar to homes for the destitute rather than a centre designed specifically to cope with severe mental disorders.

There are few initiatives for children. Problems such as hyperactivity or bedwetting are not covered by mental health professionals. In fact, most parents are ignorant that their child may require professional help. Also, in cases where they do decide to seek help, there is an absence of services.

Voluntary sector efforts are also absent in Punjab. Matters would be helped if the state could find a partner in the non-government sector which could deliver mental health services.

There is enough evidence, strengthened through discussions with members of the medical fraternity in Punjab, that there is an increase in the incidence of neurosis, especially amongst women. However, we have no national statistics or statistics from Punjab to make a firm assessment. Many women do not think anxiety-based disorders and depression require professional medical help nor can they access professional psychiatrists. Above all, doctors themselves (especially at government PHCs) are unaware of these problems and are able to provide only symptomatic relief.

Physically Challenged

The problems of the physically challenged (both physical and visual), are serious challenges. While

there is far greater awareness than in the case of mental health, and there are many state-run and voluntary managed institutions looking after physically and visually challenged persons, there is an urgent need to create support structures within society that will help the disabled live the lives of normal citizens.

Some steps have been taken towards granting of equal rights to the physically and visually challenged, especially in terms of employment and facilities in public places. But these are still highly restricted and far more is required both by the state and by the legal and labour administration to ensure that prejudices are removed. Attitudinal changes are crucial. Society must no longer ask what a disabled individual can do, but instead ask what they cannot do.

Alcoholism and Drug Abuse

The incidence of drug abuse and alcoholism has risen in recent times leading to a range of social and economic problems. From illicit manufacture of drugs and alcohol, to trafficking and consumption of drugs, the menace of drugs has become widespread. Systematic information on drug abuse is still absent precisely because of the highly secretive nature of drug-related activities. Little effort has been made to collate the numerous smaller studies in this field into a comprehensive whole.

Drug Risk Groups

Women

There are few studies on women and drug abuse. Most concentrate on men, and so the male experience has been passed off as the 'general' one. Services in drug abuse need to become gender sensitive.

There have been some changes, however. Women's groups have been witnessing increasing drug abuse among women and are demanding more legislative measures, policies and programmes. The HIV epidemic, coupled with transmission of diseases like hepatitis and tuberculosis introduces new dimensions of risk.

Street Children

Another category of potential drug-abusers are street children. It is difficult to enumerate this group because this is a 'floating' population and not covered by census figures. This is a sector open to sexual as well as drug abuse. The most common drugs taken are tobacco, crude alcohol, brown sugar, heroin, paint thinner, kerosene, cough syrups, etc. The government has yet to formulate a national policy for street children and this is a sector that is mostly being tackled by NGOs whose efforts are scattered and not united under a single canopy. Some of the key issues that need to be addressed are vulnerability of children as easy targets for drug-pushing, easy availability and affordability of drugs, poor access to health facilities, lack of sensitive organisations and absence of preventive services that can protect children from drugs.

Child rights have been emphasised in the Convention on the Rights of the Child and street children need extra care as they come from the most vulnerable and marginalised sections. However, there is a certain lack of political will in making child rights a reality.

The Narcotics Drugs and Psychotropic Substances Act (NDPS) of 1985 was the first legislative measure enacted to deal with the menace of drugs. A number of committees and sub committees have been set up under this Act.

There is little data on the extent and form of drug abuse in Punjab. The absence of data should not be mistaken for absence of the drug menace. Rather, it is a pointer towards the need to have a body of knowledge so that the state can intervene urgently.

Unemployed Youth

Punjab has always had a large number of youth studying and training in institutes of higher

education. This section is particularly vulnerable to alcoholism.

A significant section of the younger generation of Punjab has been brought up in an era of prosperity and many have experienced high levels of income and a luxurious and fairly carefree lifestyle. For this group of youth, employment has become a serious issue as their aspirations go beyond the jobs on offer. Agriculture is no longer a youth option and given the paucity of well-paid 'white collar' jobs, youth groups face long periods of unemployment. Yet, as a result of family incomes from agriculture or other activities, these young people are still able to afford high consumption levels, and alcohol becomes an easy recourse for them.

Workers and Labourers

For workers and agricultural labourers, many of them migrants living away from home and families, in a hostile and alien culture, alcohol becomes a refuge.

Extent of Drug Abuse in Punjab

Drug addiction is rising in Punjab, particularly in the areas adjacent to Pakistan. Many young people have been trapped by drugs with severe consequences for the family. An attempt was made to gauge the magnitude of this problem through a comprehensive random survey of 12,300 male adults during the years 1995-97 in rural Rup Nagar district.[8] It was found that 8 percent of the male adult population was involved in drug abuse, other than tobacco and alcohol. Seventy-three percent male adults indulged in tobacco. If one were to project the above figures for the state of Punjab, there would be not less than one million cases of narcotic addiction and alcoholics, who are in need of intervention. The problem is compounded by the fact that many tobacco users are hardly aware of its affects on health.

According to a report by the United Nations Office on Drugs and Crime (UNODC) on the problem of drug abuse in South Asia, there were 2.5 million drug addicts in India at the end of 1996-97. The survey reports that there are likely to be more than a million cases in Punjab alone. It could be that this is an inflated figure which has emerged due to the differences in the areas chosen for the study, as well as methodology and tools used for the survey. But the fact is that drug use is certainly rising, especially in the case of heroin and narcotic injectables. This is due to the easy availability of these drugs. In the absence of proper policing and implementation measures, vigorous anti-drug strategies must be deployed both by government and NGOs.

Areas Requiring Intervention

First and foremost there is a need to build up a collateral body of data that can effectively point out the extent of abuse. Secondly, it has been found that NGOs have been very effective in drug reduction activities and the state must not overlook such an important channel. A fruitful partnership between NGOs and government can provide good results in curbing drug use.

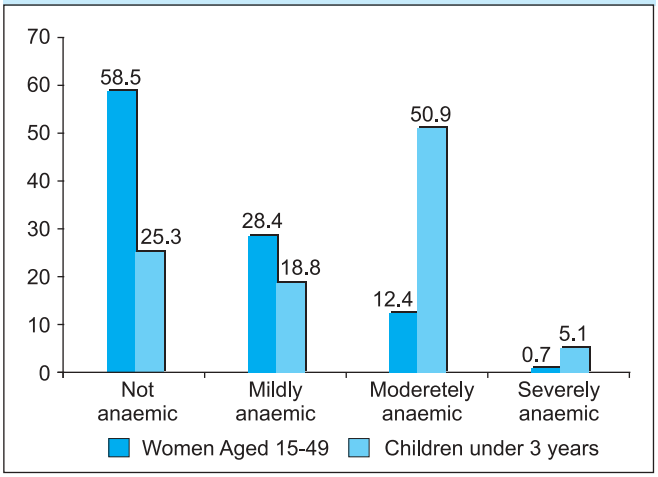
There is also a need to raise the level of public awareness. There is not only a great stigma attached to the problem of drugs, but also ignorance about their physiological basis. Public messages to control the drug menace simply say "Say No to Drugs". This sort of preaching will not yield results unless the correlation between drugs and their specific negative effects on individual lives can be focused upon. Most teenagers become victims of drugs because of peer pressure, curiosity and the belief that they can leave it at any time they want to. There is a need to emphasise the effect that drugs have on the physiology of the body, and the fact that a single dose can trigger

[8] This survey was conducted under the guidance of Project Director, Dr. J. S. Lamba, and Psychiatrist Dr. Rajender Singh from the Drug De-addiction Centre, Mohali.

off an addiction. The role of the media becomes crucial here and so their support must be solicited. Society's attitudes towards addicts need to be changed. Most rehabilitation measures fail because the family and the community are not supportive enough. This leads to a high rate of relapse.

The government must recognise the need to intervene in this area and back it with political will. There is a need for lobbying, pressure groups and advocacy forums, which can place drug abuse higher on the agenda. Sensitisation of key individuals in the policy-making process is of great importance. As yet, there is little evidence of any organised effort in this direction.

Figure 4.8: **Anaemia amongst women**



Source : NFHS II 1998-99, Punjab – Preliminary Report.

Nutrition Status

Very little information is usually available on nutrition. Under the government's ICDS scheme, children are normally weighed and measured, and checked for proper growth (a direct measure of proper nutrition or lack of it). However, this data is not reliable for use to estimate the level of underweight children at large, since their coverage is not universal and there is a definite programme user bias in the sample. The NFHS checked the level of anaemia amongst mothers and children, and this survey is our best source of information on nutrition related data.

Based on the 1998-99 survey data the Figure 4.8 compares the percentage of anaemic women and children under different levels of anaemia.[9]

The number of children who were moderately anaemic was very high, and 74.8 percent of the children were found to suffer from some form of anaemia. Even amongst women, 42 percent were detected as anaemic. Availability of food, vegetables and milk is certainly not a problem in Punjab, and even in terms of purchasing power, just 6 percent income poverty makes us believe that this too could not be an adequate reason. Such a high level of anaemia could be a combination of a lack of a proper diet to children and that some sections are unable to provide a balanced diet.

Table 4.12: **Cases Treated at the De-addiction Centre, Mohali (Nov. 1991-Dec. 1998)**

Addictive Drug	No. of cases
Opium Husk (Bhuki)	3172
Alcohol	1150
Other Drugs*	546
Narcotic Injectables	525
Smack (Brown Sugar)	462
Total	**5855****

* Other drugs include Cap Dextropropoxyphene (Proxyvon) Syrup, Tab Diphenoxylate (Lomotil)

Source: Drug De-addiction Centre, Mohali

** Out of these, 655 cases were addicted to two or more drugs. The actual number of patients treated was 5200

Provision of Health

Health services are provided by public health centres and hospitals as well as private doctors, clinics, nursing homes. The role of the state and

[9] Anaemia results from "nutritional deficiency of iron, folate, vitamin B12, and some other nutrients". It adversely affects maternal and child health, and can cause direct problems in development of the child, especially her "cognitive performance, motor development, co-ordination, language development, scholastic achievement and body resistance." (NFHS II Preliminary Report, page 33).

its agencies is focused almost entirely on various government health centres and hospitals. However, in recent years, in fact for the last twenty years at least, in Punjab the private sector has become the major provider of medical treatment, be it out-patient treatment or hospitalised treatment. There are figures available for analysis on the role of the state in providing care.

NSS reports that only seven percent outdoor patients visited a government facility, whereas 93 percent visited a private facility for outdoor treatment in 1995 in rural Punjab, and just six percent visited a government facility in urban Punjab. For treatment that requires hospitalisation, government facilities are more popular. Of all cases of hospitalisation, 39 percent in rural and 28 percent in urban areas went to a government facility, the remaining 61 percent in rural and 72 percent in urban preferred private facilities.

There is an increasing trend towards the privatisation of medical care. A comparison between NSS estimates of the 42nd round conducted in 1985-86 and the 52nd round conducted in 1995-96, shows that the percentage of ailments treated in a government facility has fallen in the ten-year-period between the two surveys, from 12 to 7 percent in rural and 11 to 6 percent in urban areas.

This decline in using government facilities for non-hospitalised treatment, and the abysmally low levels of usage of government facilities poses a question on the efficiency and utility of massive government primary care facilities. There is a large number of sub-health and primary health centres dedicated to primary care, and non-hospitalised treatment would be a major service for such centres. The fact that this vast system caters to only one out of every twenty patients that seek non-hospitalised care in Punjab calls for a review of this system, its management and funding patterns.

Government Health Services and Infrastructure

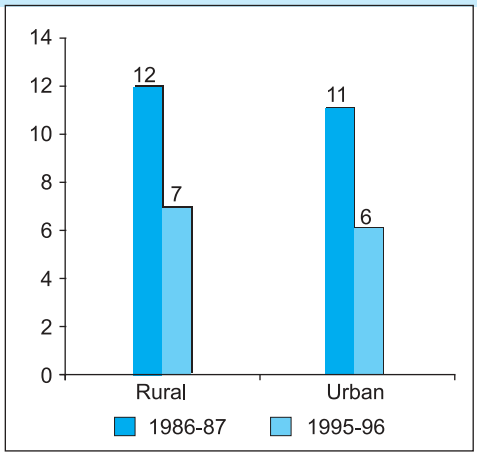
The government has put in place an elaborate and extensive network of health facilities. Rural health facilities are based on nationally accepted norms based on the recommendations of the Bhore Committee Report, and modified from time to time. Health facilities are based on a four-tier system with Sub-Health Centres (SHCs) at the base providing basic health services. Above every six SHCs there is a Primary Health Centre (PHC)

Table 4.13: **Hospitalised and Non-Hospitalised Treatment Received in Punjab and India**

	Non-Hospitalised Treatment in Rural Area (%)			Non-Hospitalised Treatment in Urban Areas (%)		
	From Govt.	**Others**	**All**	**From Govt.**	**Others**	**All**
Punjab	7	93	100	6	91	97
India	19	64	83	20	72	92
Share of Hospitalised Treatment per 1000 Public Providers						
	Hospitalised Treatment in Rural Areas			**Hospitalised Treatment in Urban Areas**		
	Govt. facility	**Others**	**All**	**Govt. facility**	**Others**	**All**
Punjab	394	606	1000	276	724	1000
India	453	537	990	431	569	1000

Source: Report No 441, Morbidity and Treatment of Ailments, NSS 52nd Round, National Sample Survey Organisation, GoI, November 1998.

Figure 4.9: **Percentage of Ailments Receiving Non-Hospitalised Treatment from a Government Facility, 1985-86 and 1995-96**



Source: Report No 441, Morbidity and Treatment of Ailments, NSS 52nd Round, National Sample Survey Organisation, GoI, November 1998

that should cover a population of 20,000–40,000 people. Over the PHCs come the Community Health Centres, usually covering a population of a lakh or so. At the district or city level are the Civil Hospitals or the District Hospitals. Crowning this system are the larger hospitals, the medical colleges and speciality hospitals.

The current spread and reach of the health infrastructure is given in Table 4.14. The reach of health institutions is very good in Punjab. The average population covered by any medical institution is around 10,000–11,000, and the population served per bed just under one bed per 1000 population. In terms of access, the average radius served per institution is 2.68 km. There has been a four-fold increase in the number of Primary Health Centres servicing rural Punjab since 1980, covering the entire state.

Considering the number of outdoor and indoor patients coming to government facilities, we get an average of 5,188 outdoor patients per medical institution in a year, or an average of 17 patients per day (assuming 300 working days in a year); and an average of 18 patients per installed bed per year in government facilities. Though the average comes to 17 patients per day in a medical institution, the district, city or civil hospitals and the large speciality hospitals must be taking in many more than just 17 patients a day. Looking at this picture, it shows that the number of patients actually using a rural primary care institutions must be even lower than 17.

The personnel involved in health services and their population coverage are given in Table 4.16. There is, on an average, one doctor per 1,500 people and one midwife per 1,000 persons. There are substantial district-wise variations. Nawanshehar has a doctor covering a population of 38,000, and in both Muktsar and Fateh Garh Sahib a doctor

Table 4.14: **Public Medical Institutions in Punjab by Location and Ownership, 2000**

(in numbers)

Year	Total	Located in		Owned by		
		Rural Area	Urban Area	State Govt.	Local Govt.	Voluntary Org.
1980	1656	1310	346	1561	51	44
1990	2204	1799	405	2128	25	51
1998	2229	1776	453	2153	25	51
1999	2229	1776	453	2153	25	51
2000	2229	1776	453	2153	25	51
2001	2229	1777	452	2153	25	51
2002	2246	1776	470	2172	24	50

Source: Statistical Abstract of Punjab, 2002.

Table 4.15: **Public Medical Institutions in Punjab by Type of Institution, 2000**

(in numbers)

Year	Rural Area				Urban Area			
	Hospitals	PHCs	Dispensaries	Hospitals/ CHC/ PHC	Hospitals	PHCs	Dispensaries	Hospitals/ CHC/ PHC
1980	111	103	1,096	-	142	26	178	-
1990	88	419	1,249	43	131	23	224	27
1998	73	421	1,220	62	135	24	249	45
1999	72	418	1217	69	135	22	248	48
2000	72	418	1217	69	135	22	248	48
2001	73	418	1217	69	134	22	248	48
2002	73	416	1223	64	147	25	259	39

Source: Statistical Abstract of Punjab, 2002.

covers over 26,000 people. Similarly, Muktsar has one midwife over 17,000 people and a nurse per 36,000 people. We will take a closer look at this distribution and what it indicates a little later. Before that, let us take a look at ailments and births that the medical personnel handle.

If the birth rate of Punjab was 23.4 in 1997, and we assume the same in 2000-2001, then one midwife handles approximately 20-24 live births in a year. Applying the same numbers and including *dais* in the figure, we find that on an average a midwife or *dai* handles 8-9 live births in a year. With a doctor covering 1500 people on an average, there is a doctor for every 120 ailments in a year.

If we go back once again to district-wise provisioning of health infrastructure and medical personnel presented in Table 4.16, there is evidence of inter-district variations.

While Jalandhar has a doctor for every 946 people and Hoshiarpur has a doctor for every 1845 people, in Nawanshehar, (which was carved out of Jalandhar and Hoshiarpur) which has the lowest urbanisation rate in the three districts, one doctor serves nearly 38635 people.

Without going into such detail for the other newly created districts, we see (Table 4.16) that for each group of districts from which new districts have been carved, the population served per doctor is highest in the new districts. They also have the highest rural population percentage within their group of districts. Thus if the affect of urban and district headquarter centred institutions are removed and rural zones within the districts are carved out then it would be clear that the availability of medical doctors is not as high as the average numbers indicate. Of course, the mere division of a district does not prevent people from continuing

Box 4.1: **Ailments and Births in a Year**

NSS estimates of PAP of 76 and 85 in rural and urban Punjab are applied to population in '000 as per 2001 Census and we arrive at 19,20,197 ailments per year or a PAP of 79 for Punjab. With a doctor for 1500 people it would therefore mean 79 x 1.5 or 120 ailments per doctor.

Punjab's birth rate of 23.4 is assumed for 2001 and applied to the 2001 population to estimate that 5.74 lakh total births take place in a year. This is divided by the number of midwives and *dais* to find births per medical personnel.

Table 4.16: **Population Served per Medical Institution, per Bed, per Medical and Paramedical Personnel in Punjab**

District	Population served per Medical Institution	Population serviced per Bed in Medical Institutions	Doctor	Midwife	Nurse	Rural Population %
	1	2	3	4	5	6
Punjab	**10786**	**947**	**1485**	**1015**	**1696**	
Amritsar	10494	617	873	840	1454	40
Bathinda	10006	1172	1421	1253	8351	30
Faridkot	13228	709	1219	817	1529	34
Fatehgarh Sahib	10404	1343	26530	6471	10011	28
Firozpur	11899	1068	3511	1324	1640	26
Gurdaspur	10235	1273	2382	579	973	25
Hoshiarpur	8842	998	1845	669	2057	20
Jalandhar	11172	878	946	1084	1559	47
Kapurthala	9044	971	1867	1463	3910	32
Ludhiana	14827	934	1174	674	892	56
Mansa	10895	1393	27691	7467	16209	21
Moga (R)	10712	1331	21687	2137	2887	20
Muktsar	10541	1257	26534	17488	36062	26
Nawanshehar	8133	1266	38635	4683	5569	14
Patiala	11102	743	724	1532	1696	35
Rup Nagar	9455	1141	2468	1198	2983	32
Sangrur	10822	1275	2518	1794	4469	29

Source: Statistical Abstract of Punjab, 2000.

Note: Information given in column 1 and 2 is for the year 2000, and the information given in column 3, 4 and 5 is for the year 1999.

to use the medical institutions situated in the erstwhile parent district.

Therefore, an analysis of availability, reach and spread of medical institutions and medical personnel based on averages across large geographical entities, in a sector like health, where travel and time are both critical for care, has to be carried out with greater care, greater dis-aggregation of data and the type of disease burden.

The availability of doctors in rural medical institutions needs to be considered, since as far as area and population covered per medical institution is concerned, almost all districts provide the same average coverage numbers. In fact, it is interesting to see that in each of the groups displayed below, districts with the highest urbanisation rate also have the largest number of people dependent on a medical institution. Quite clearly, urban areas have fewer medical institutions (primarily institutions like the SHCs, PHCs and CHCs), but adequately make up with large hospitals with more doctors.

Private Health Services and Infrastructure

Private medical care is the chief health service provider in Punjab. Covering over 90 percent cases of non-hospital care and over two-thirds of the cases of hospitalised care, private health services dominate and direct curative health.

There is very little information available on private medical services and thus it is not possible to make any definitive comments on the private medical system in the state. However, certain features may be highlighted.

In many instances the private sector operates without adhering to regulations and is often a hindrance to making health care accessible to all.

Further, patients' rights are often not adequately served in the private health sector.

The anecdotal evidence on female foeticide, discussions with doctors running small nursing homes where such facilities are available show that in spite of regulations, private doctors do not hesitate to carry out sex determination tests on pregnant mothers. These hospital administrations may often be willing to terminate pregnancies in case the foetus is found to be female. In such cases, the profit motive drives out any adherence to ethics.

There are many arguments that private medical aid should be expensive because one, it will then guarantee quality medical care, and two, take the pressure of richer clientele off government facilities. Although there is some merit in these arguments, yet completely unregulated medical care can cause all sorts of problems.

The greater demand for private medical services would certainly be welcome if it grows to accommodate sections that can pay for private care. However, the large numbers accessing private care shows that even the poor are turning to private health service providers.

The blame cannot rest entirely with the private sector. The fact that the poor have to pay large sums for treatment (leading to further impoverishment) reveals the breakdown of the public health care system. "The hospitalised Indian spends more than half his total annual expenditure on buying health care; more than 40 percent of hospitalised people borrow money or sell assets to cover expenses and 35 percent fall below the poverty line".[10] The same study also suggests that out-of-pocket medical costs may alone push 2.2 percent of the population below the poverty line.

Courtesy: UNICEF

Health care services have become more accessible

Accountability is an important issue here. This is not just applicable to the private sector but for the entire spectrum of health service providers. The techno-centric nature of treatment traps patients in a web of technology-centred medical care and a system that is confusing, intimidating and expensive. Whatever be the legislation in medical care, both in place and being contemplated, including issues such as consumer rights in health, there is an urgent need to change attitudes. Health providers, including doctors and specialists, have to become more accountable to their patients. In turn, patients and the public have to demand and play the role of guardians of their own health care. Institutionally, this can only occur when health administration provides for public representatives and people's groups to play an active role in the management of health institutions.

Health Services for Women and Children

Reproductive and Maternal Health

A birth rate of 21.5 indicates that in the year 1999, 5.5 lakh women gave birth to a child. The state's TFR indicates that in her lifetime a woman on an average will give birth to 2.8 children.[11] If we take age-specific fertility rates from SRS tables for Punjab presented in Table 4.17, and apply them to the female population in different age categories, we get approximate numbers of children born in a

[10] "India–Raising the Sights: Better Health Systems for India's Poor", World Bank, May 2001.

[11] The figure of 2.8 children appears odd, but must be seen as an average, and actually shows that of every ten women in Punjab there will be about 28 children born.

Table 4.17: **Number of Children Expected to be Born in 2001 per 1000 Females in the Reproductive Ages**

Age group	ASFR - Total	ASFR - Rural	ASFR – urban	Children Born Total	Children Born Rural	Children Born Urban
15-19	14.9	16.8	8.6	14492	11532	2960
20-24	213.8	225.0	181.9	240915	171417	69498
25-29	197.2	213.0	152.9	198842	146208	52634
30-34	86.8	95.8	64.5	86996	65036	21959
35-39	27.3	31.2	17.5	21410	16709	4700
40-44	8.9	11.1	3.6	6035	5191	844
45-49	4.0	3.6	5.0	2027	1195	832
All ages	2.8	3.0	2.2	570717	417288	153429

ASFR : Age-Specific Fertility Rate

Source: Census of India 2001 for population estimates, SRS Statistical report 1996, Registrar General of India, New Delhi.

year to different age group of women. These numbers show the scale of births and the scale of issues related to reproductive health.

There are three time periods and three types of care for the pregnant and the young mother, pre-natal care from the onset of pregnancy, the delivery itself, and care after childbirth.

For pre-natal care, the 52nd round of NSS held in 1995-96 found out that amongst pregnant mothers, 60 percent in rural and 55 percent in urban Punjab registered for pre-natal care, and the average visits to the medical service provider was 4.1 and 4.6 times respectively. Public medical facilities are the main source of pre-natal care for women. In rural Punjab, maximum pregnant women went to a public dispensary (36 percent of those seeking pre-natal care), followed by public hospital (30 percent of those registered). Among urban pregnant women seeking pre-natal care, 45 percent went to a public hospital, and 20 percent to a private hospital. During the NFHS II survey in 1998-99, 74 percent of pregnant women who had received antenatal check-ups.

The medical care required by pregnant women includes pre-natal check-ups and at the very minimum, doses of anti-tetanus and iron folic acid (IFA) tablets. Both these services are provided from government primary health facilities and hospitals, and are also part of the standard prescription and treatment that private doctors must also prescribe and administer to pregnant women. The NSS survey of 1995-96 found that nearly three out of five pregnant women had received two doses of anti-tetanus, whereas 20 percent had not received any dosage. Among pregnant women (aged 15-49 years) 45 percent women in Punjab did not receive any IFA tablets, 12 percent received around 50 or less tablets, and 32 percent received 50-100 tablets. Only six percent got the required number of 100 tablets. NFHS II estimates of 42 percent women being anaemic in 1998-99 should be read with this information about women having received IFA tablets.

Care during childbirth is crucial for the health of mother and infant. In case complications arise during delivery, proper medical attention, use of clean instruments in delivery and basic hygiene at place of childbirth are essential. These are provided in an institution (institutional delivery), i.e. delivery in a medical facility with a trained doctor, proper instruments and facilities at least for common complications during delivery. In case institutional delivery is not possible, recourse to a Trained Birth Attendant (TBA) is also a safe option. Normally in rural and often even in urban deliveries, traditional *dais,* or midwives, are used, but they are not

capable of handling complications. The government has been involved in providing trained midwives, along with institutions that can handle such deliveries.

We have two estimates of the type of delivery by way of attention at childbirth. NSS 52nd round of 1995-96 showed that only 1.9 percent rural and 1.5 percent urban deliveries took place without any attendance. This is in sharp contrast to 35.8 percent rural and 15.9 percent urban deliveries for all India that take place without any attendance. It is revealing to note the type of attendant in child-births in Punjab from this survey. It showed that "government-appointed doctors" attended only six percent births, "government-appointed nurses or midwives" attended 9.5 percent of all childbirths, and "other doctors", who we can assume are private doctors, attended 15.6 percent. The remaining 62.9 percent childbirths were attended by "other nurse/ midwife". This figure is very high for Punjab compared to all India average of 18.9 percent child-births attended by such midwives or nurses. This high percentage of midwife-attended childbirths is a characteristic of Punjab and no other state has such a high dependence. The survey does not give an idea of the level of skills or training that these nurses or midwives may have and we can only assume that such attendants are perhaps not all trained. This estimate corresponds with NFHS II, which tells us that in 1998-99 institutional deliveries in Punjab were 37.5 percent, an increase from an estimated 25 percent institutional deliveries found by NFHS I in 1993. NFHS II further tells us that 63 percent of all deliveries were "safe deliveries".

Box 4.2: Immunisation of Children

- BCG
- DPT
- Polio drops
- Tetanus
- Measles

Immunisation of Pregnant Women

- Tetanus

Immunisation of children

Table 4.18: **Targets and Achievements of the Immunisation Programme in Punjab, 1999-2000**

Vaccine	Target	Achievement	Achievement rate
TT (pregnant women)	603006	581734	96.5%
DPT (infants)	520038	592625	114.0%
Polio (infants)	520038	592326	113.9%
BCG (infants)	520038	606275	116.6%
Measles (infants)	520038	560552	107.8%
DT (5 years)	538087	581207	108.0%
TT (10 years)	538087	501441	93.2%
TT (16 years)	492001	454259	92.3%

Source: Annual Report 1999-2000 Department of Health, Government of Punjab.

From both these estimates, it appears that there is a very large number of childbirths that are not safe and do not get the quality of trained attendance required to ensure proper care.

Immunisation

Following the Alma Ata Declaration, immunisation was taken up on a near war footing across the globe. The 1990s saw a massive programme launched by the Government of India, with many international aid agencies and the state governments, to universalise immunisation of children and pregnant mothers.

The basic immunisation programme covers children against the major killer and debilitating diseases. The entire process that takes a little over a year leaves a child fully immunised against these diseases. It needs to be kept in mind that unless the child receives all doses, he or she is not fully safe from these diseases, and therefore for the purpose of our analysis we will ignore data on partially immunised children.

We have information on levels of immunisation from two sources, the preliminary report of the National Family Health Survey 1998-99 and the NSS 52nd round survey on maternity and child care conducted in 1995-96. Both are recent and we will use and compare figures from both sources as and where found relevant.

Government programmes for immunisation of children have met their targets quite successfully

Table 4.19: **Vaccination coverage in Punjab as per NFHS I and II, and, NSS 52nd Round, 1995-96**

Vaccine	Coverage		Vaccination Coverage from NSS 52nd Round, 1995-96				
	NFHS I	NFHS II		BCG (0-4 age group)	DPT (3 doses in 1st year and booster within 3 years)	OPV (3 doses in 1st year and booster within 3 years)	Measles
% of children fully vaccinated	61.9	72.1					
B.C.G.	77.4	88.7	Punjab	840	462	462	600
Polio 0	1.7	11.2	India	679	373	392	442
DPT 1	81.9	88.4					
DPT 2	78.5	87.3					
DPT 3	73.6	82.0					
Polio 1	82.2	90.5					
Polio 2	78.2	88.5					
Polio 3	73.4	83.6					
Measles	64.8	76.5					
None	17.5	8.7					

Source : Sarvekshana, 82nd Issue, NSSO, Government of India.

over some years now. Data published in the annual report of the Department of Health and Family Welfare, Government of Punjab, for the year 1999-2000 shows that the targets of immunisation have been met and even exceeded. Targets are exceeded because often the number of children is higher than estimated through population growth assumptions, and also because of the children of migrants to the state. The achievement rates are given in Table 4.18.

The level of immunisation on the other hand, is a slightly different story. The estimates from the two NFHS surveys undertaken in 1993 and now in 1998-99 are compared in Table 4.19.

In NFHS II, we find that 72 percent children were fully immunised. This is much higher than the level in other states of India, but it still leave 28 percent children vulnerable to one or more of the deadly infant diseases. There are 9 percent children who did not receive any dose at all, and would be the most vulnerable section of children. In terms of coverage by type of vaccine, measles has the lowest coverage. However, it is encouraging that in nearly all types of vaccines, there has been an improvement in the level of achievement reached in 1993, and the percentage of children who did not receive any vaccination at all has been reduced by half.

NSS estimates from 1995-96 are more conservative in the achievement attained by Punjab, and while there is 84 percent coverage of BCG, the coverage of DPT and OPV is less than half of the targeted children, and 60 percent in the case of measles. In DPT and OPV, Punjab comes eighth amongst the states.

The level of awareness amongst mothers on immunisation, both for themselves and for their children is fairly high in Punjab. NSS 52nd round survey found over 95 and 94 percent rural women, respectively, aware of these needs.

The number of children, who are either left out completely from the safety cover of immunisation or receive selective protection, is still quite large. We also need to urgently know who are the children who are being left out of immunisation, where do they live and why they are not receiving vaccination.

Child Care

Newborns are at a high risk of mortality within the first seven days after birth and then for the next 21 days. The risk of mortality in this period is considerably reduced by proper and clean delivery practices, proper care of the newborn and ante-natal check-ups.

Estimates from NSS 52nd round survey states that in rural Punjab in the late 1990s, 64 percent boys

Table 4.20: **Villages Covered under Rural Drinking Water Supply Schemes in Punjab (Year 2000)**

(in numbers)

Years	Inhabited villages	Identified Water Scarcity Villages	Scarcity Villages where water Supply Schemes Commissioned	Balance of Scarcity villages where water supply schemes still to be initiated	%age Col.3/2	Villages with adequate water supply %
0	1	2	3	4	5	6
1980	12188	3712	1945	1767	52.4	85.5
1990	12342	6287	3898	2389	62.0	80.6
1998	12428	8527	6891	1636	80.8	86.8
1999	12428	8517	6957	1560	81.7	87.4
2000	12428	8518	7092	1426	83.3	88.5

Source: Statistical Abstract of Punjab, 2000.

and 62 percent girls were registered for paediatric care in rural areas and 52 percent boys and 55 percent girls were registered for paediatric care in urban areas. Amongst the rural consumers of paediatric care, nearly four out of five went to a hospital, whereas among urban consumers 85 percent went to a hospital.

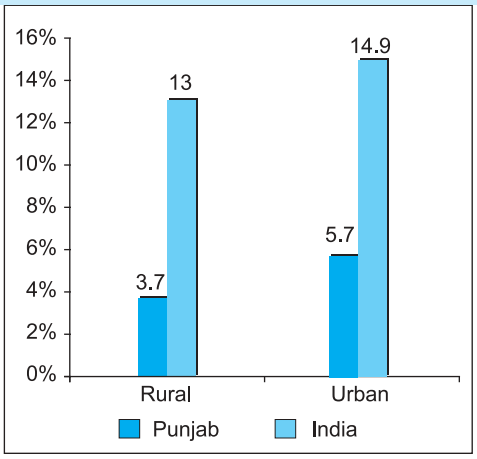
Public Health: Issues Beyond Medicine and Cure

Health is increasingly seen as not just the mere absence of disease. Availability of adequate and safe drinking water, clean living environment, adequate and nutritious food from the time of birth, proper drainage and garbage disposal services are all components of health. Along with these, there are the equally important issues of sources of energy (use of polluting fuels, for example, adversely affects the health of women) and social attitudes that govern pre-natal care and practices.

Drinking Water

Unclean drinking water has a devastating impact on health. The Census of 1991 estimated that 93 percent of all households in Punjab and 92 percent households of rural Punjab had access to safe drinking water. Table 4.20 on provisioning of water supply in Punjab's villages, tells us that in 1990, eighty-one percent villages were adequately covered with rural drinking water supply schemes. This number has risen to 89 percent in 2000, and correspondingly, the population with access to safe drinking water would also have risen considerably.

Figure 4.10: **Households Reporting Insufficient Drinking Water for Some Part of the Year, 1998**



Source : NSS 54th Round, Sarvekshana 82nd Issue, January-March 2000, NSSO, Government of India.

There are district-wise variations in rural drinking water schemes in Punjab. Mansa, Moga, Muktsar, and Faridkot had 100 percent coverage, but in Gurdaspur, 60.9 percent villages were covered. Kapurthala had coverage of 88 percent, and in Ludhiana 75.6 percent villages were covered. The 1991 Census did not provide data showing high variation among districts in households with access to safe drinking water. The highest access was in Amritsar, Ludhiana and Kapurthala (95 percent households), and least access was in Rup Nagar (86 percent) and Hoshiarpur (84 percent).

The National Sample Survey 54th round (1998)[12] provides data on households with access to adequate drinking water. According to this survey, Punjab has the best level of access to adequate drinking water amongst all the states in India. This survey also provides information on the sources of drinking water and the distance people have to travel to access drinking water.

In 1998, 60 percent of the households in urban Punjab, possessed sources of water within their dwelling units, and the most popular source of drinking water was the tap, catering to 64 percent households, followed by tube well or hand pump, catering to 36 percent urban households. In urban Punjab, 33.6 percent households accessed their principal source of drinking water outside their dwelling but within the household premises. Urban

[12] Sarvekshana 82nd Issue, January-March 2000, NSSO, Government of India

Table 4.21: **Number of Households per 1000 Using Different Processes to Clean Drinking Water**

Region	Filtering		Chemical treatment	Boiling
	With plain cloth	By other process		
Rural Punjab	1	11	4	3
Rural India	152	29	12	43
Highest in Rural India	745	200	67	216
Lowest in Rural India	1	8	1	2
Urban Punjab	3	28	5	16
Urban India	227	129	12	489
Highest in Urban India	796	441	120	653
Lowest in Urban India	3	28	4	12

Source: Sarvekshana 82nd Issue, January-March 2000, NSSO, Government of India.

water supply systems provided 47 percent urban households with tap water within their dwellings.

In rural Punjab, 45 percent households possessed drinking water sources within their dwellings, whereas 37 percent had access to drinking water outside their dwelling but within their premises, and 17 percent households accessed drinking water within a distance of 0.2 km from their dwelling. The main source of drinking water in rural areas was the tube well or hand pump (83 percent households) followed by tap water (15 percent households). Four percent rural households possessed a tap connection within their dwelling.

The challenge before Punjab is no longer the provisioning of safe drinking water, but to ensure that the few villages and people who have not been able to get the benefit of assured supply of safe drinking water, do so.

The quality of water is equally crucial. The NSS survey gives an adequate indication of the quality of water available for drinking in Punjab. In rural Punjab, 85.2 percent households had water "of satisfactory quality", and this number equals the national average. In urban pockets, 93 percent households report water "of satisfactory quality", which is much lower than that of states like Karnataka, Haryana, Kerala, Madhya Pradesh, Maharashtra, Uttar Pradesh and even Rajasthan. It appears that while Punjab tops the list of states in terms of quantity of water supply, there are problems as far as quality of water is concerned. The treatment of water is an important element in clean and safe drinking water. Table 4.21 presents the various measures adopted in treating drinking water and in the kinds of water storage practices in use.

The table shows that most Punjabis do not use any form of water filtering or cleaning facilities in their homes, and the tendency is to use tap or hand pump or well water straight as it comes from the outlet. At the moment, there are reports of contamination of surface and ground water from sources such as fertilizers used in agriculture filtering into the soil, as well as industrial and vehicular pollution. It is, therefore, important that households adopt home-based practices of cleaning or filtering water in some form or the other.

Sanitation

Sanitation is closely linked to safe drinking water. Essential features of sanitation include basic hygiene of the individual and community, drainage of water, proper garbage disposal, facilities used for defecation and its disposal.

NSS survey in 1995-96 gives us indications on sanitation. The percentage of rural households in

Table 4.22: **Types of Latrines and Types of Drainage Used per 1000 Households in Punjab**

Type of latrine	Rural Punjab	Urban Punjab	Punjab
No latrine	655	175	479
Service latrine	54	36	47
Septic tank	199	208	202
Flush system	30	560	224
Other	62	19	47
Type of Drainage			
No Drainage	222	114	183
Open Kuccha	313	57	219
Open Pucca	426	522	461
Covered Pucca	7	98	40
Underground	32	209	97

Source: NSS 1995-96 Survey, Sarvekshana, NSSO, Government of India.

Punjab that did not use any type of latrine was 65.5, while the percentage of urban households without a latrine was 17.5. The types of latrine detected by NSS in use are shown in Table 4.22.

About one household in every five does not have any drainage facility in Punjab. Covered drainage—the most effective drainage as it reduces contact of drainage with air to minimum—covered only 4 percent households. It is encouraging, however, that half of the households have access to pucca drainage. The proper and timely maintenance of drainage systems is always key to effective drainage. There is little data to show the maintenance of drainage facilities. However anecdotal and visual evidence puts a question mark on the effective maintenance of drainage systems in Punjab, especially in small towns and high-density habitats.

Habitat and Shelter

Generally speaking, the availability of shelter is fairly satisfactory in Punjab. During the Census of India in 1991, 77 percent households lived in "permanent" structures, and only 12 percent lived in *kuccha* houses. In Firozpur half of the households occupied permanent or *pucca* houses. In Faridkot, Hoshiarpur, Bathinda, and Amritsar there were approximately 70 percent permanent households. In the other districts, housing had already reached fairly high levels of residence in permanent structures. The Census of 2001 in its recently released data takes a somewhat different classification and shows that 57 percent houses were in good condition, 39 percent in livable, while only 4.4 percent houses were in a dilapidated state.[13]

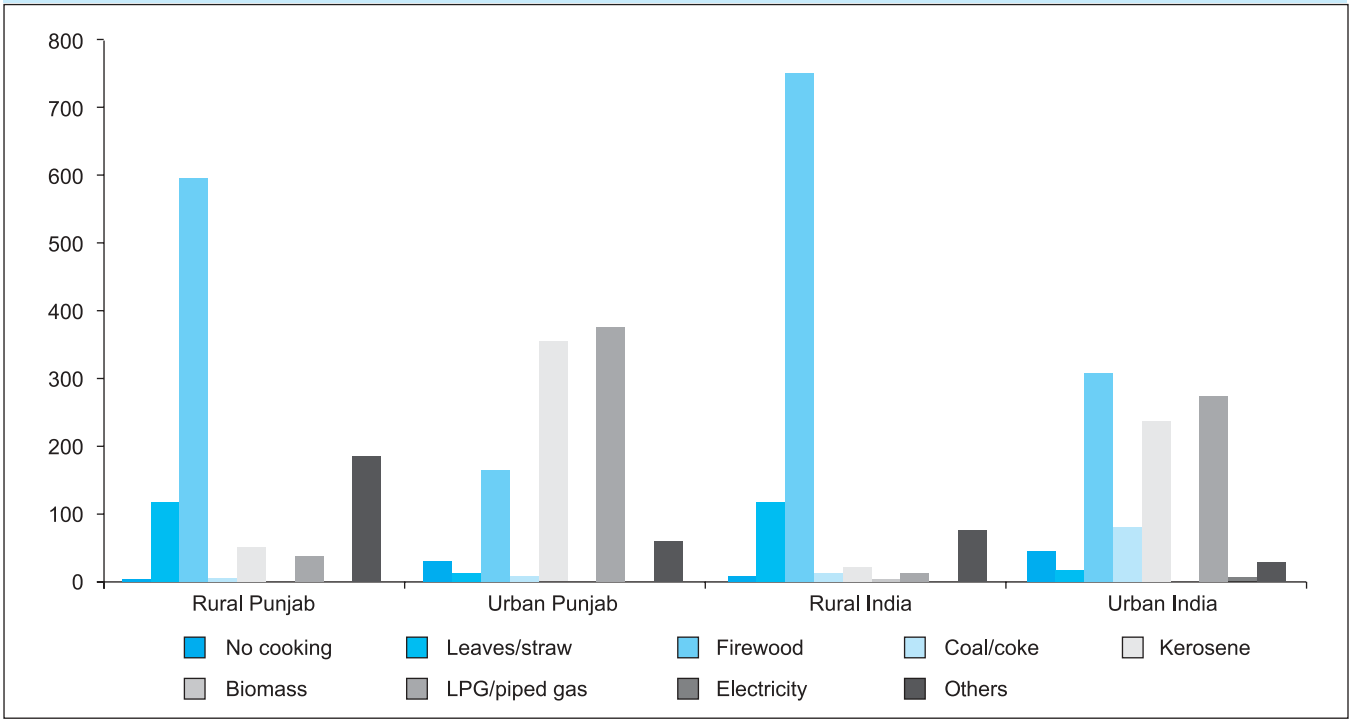
Census 1991 found that 82 percent households had electricity, with 95 percent access to electricity in urban areas and 82 percent in rural areas. The number of houses with access to electricity had gone up to 93 percent by 2001.

The 49th National Sample Survey confirms a very high number of permanent dwellings and high access to electricity in households in 1993. Eighty percent rural houses and 92 percent urban houses were *pucca*, the highest proportion of such dwellings among all the major states in India. This survey also found that rural households using electricity for lighting were 85 percent, and urban households were 94 percent. Only Jammu and Kashmir and Himachal Pradesh have similar levels of access to electricity. Permanent home construction and presence of electricity provides for a relatively "better" quality of living in households. This also reduces the additional burden on women who handle minor house repairs and usage of kerosene and biomass for lighting purposes, both of which are polluting fuels and add to the work burden of women.

The kind of energy used for cooking affects the health of women. Smoke-emitting fuelwood, bio-mass, kerosene, and coal affect the respiratory system. The types of cooking fuels used in Punjab households in

[13] Data pertaining to households at district level from the Census of 2001 was not available at the time of publishing of this report.

Figure 4.11: **Type of Cooking Fuel used per 1000 Households, Punjab 1993**



Source : NSS 49th round, Sarvekshana, 78th issue, 1999, NSSO, Government of India.

1993 are presented in Figure 4.11. The number of households using fuelwood in rural Punjab is among the lowest among all states (59 percent). This, combined with the 12 percent households which use leaves and straw, raises the percentage of households using smoke-emitting fuel to 71 percent. In urban houses, however, the use of fuelwood, straw and leaves, is much less, and a large number use kerosene and even LPG gas.

Health Care: Public Provisioning, Finances and Costs

The expenditure by the state government on medicine and public health has shown an increase in the allocations over time, in the Five Year Plans. From a share of 7.5 percent in the 7th and the 8th Plans, this share went up to 13 percent in the 9th Plan. The allocations to health in fact, went up by three and half times between the 8th and 9th Plans. In the increase in Plan size between the 8th and 9th Plan, the raise in allocation in health has been much more than the general raises in the Plan size.

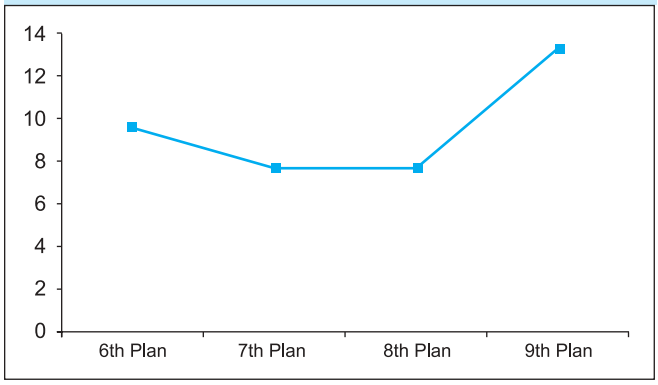
In the state budget, the allocation to health for the year 1998-99, for which accounts are available, shows a per capita expenditure of Rs. 204 for the year. In the budgeted allocations for the years 1999-2000 and 2000-2001, allocations in health have

Table 4.23: **Budget Allocation for Health in Five Year Plans**

	6th Plan	7th Plan	8th Plan	9th Plan
Health	18774	25050	50423	189788.5
Growth in Allocation		33.4%	101.3%	276.4%
Share of Health in Plan	9.6%	7.6%	7.7%	13.3%
Total Plan Allocation	195700	328500	657000.00	1430000
Growth in Plan Size		67.9%	100.0%	117.7%

Source: Various Five-Year Plans of Government of Punjab.

Figure 4.12: **Allocation to Medical and Public Health in Five Year Plans**



Source: Various Five-Year Plans of Government of Punjab.

gone up to Rs. 271 per capita for 1999-2000 and to Rs. 292 per capita in 2000-2001.

The actual expenditure made on health is just 0.99 percent of the state NSDP for the year 1998-99.

Strengthening Health in Punjab

Investments

Public investments in health are very low and need to be substantially increased. Primary health care suffers from poor levels of investment, and this in turn, is pushing people towards expensive and unregulated private service providers.

Within the state budgets for health, there is little financial allocation for primary and secondary health care, sectors that are crucial for the poor. Simply increasing financial allocations in health will not solve the problem. Instead, there must be sensitive health investment planning which is biased towards greater distribution of resources to under-privileged areas, places and groups.

Further, greater investments will have to be made in increasing immunisation coverage, encouraging better maternal and childcare including natal care, strong measures to stop female foeticide and related practices, and regulate the type of medical care being provided by private practitioners.

Apart from investments, increased cost recovery may generate funds in the health system. User charges in government hospitals, along with better and improved health services can ensure that a fair amount of costs are recovered. The experience of Rogi Kalyan Samitis in Madhya Pradesh has shown that people are not averse to paying user charges, provided there are clear mechanisms to ensure that this money is utilised for patient welfare and patients feel they are participating in hospital management.

Focus on the Child

Full immunisation coverage, proper delivery services, and proper paediatric care for children must be ensured. There must be a two-pronged strategy: one, the use of immunisation services, proper medical care during delivery and taking

Table 4.24: **Expenditure on Medicine and Public Health by Government of Punjab, State Budget 1998-99**

Expenditure on Health in State Budget 1998/99	In Rupees
Expenditure on Medicine and Public Health- Revenue Expenditure	4,74,51,00,000
Expenditure on Medicine and Public Health- Capital Expenditure	2,22,00,000
Total	**4,76,73,00,000**
Per Capita Expenditure – revenue	203
Per Capita Expenditure – Total	204
Net State Domestic Product (at current prices) in 1998/99	4,79,00,15,00,000
Per Capita Income	20,463
Expenditure on Health as a percentage of NSDP	0.991 %

Source: State Budget for 1999/2000, Department of Finance, Government of Punjab, Chandigarh.

children for regular and proper paediatric check ups must be promoted, and two, primary care centres and hospitals must be equipped with adequate facilities for such services.

The draft of the National Health Policy of India has declared that its target is to reduce infant mortality rate to 30 within the next four years. Punjab simultaneously must target an IMR of at least 25 or even 20 in the same time period. There must be a focus on marginalised and vulnerable sections such as migrants, slum dwellers and children in backward areas like Kandi, as well as in border districts.

Kerala and Tamil Nadu can be a source of new ideas. The impressive health achievements of Kerala can certainly be a model for Punjab.

Regulation

The private health care sector must be regulated. There are adequate norms and rules governing government medical care, but almost none governing private care. A framework of norms that promotes ethical medical practices is needed.

Inter-Sectorality

Health is highly compartmentalised. There are different departments responsible for the child, women, Scheduled Castes, etc. Non-medicine related issues in health fall under different departments and there is often a lack of co-ordinated focus. Provision of safe drinking water, sanitation, keeping cities and slums clean, ensuring proper nutrition and food security for families and children of poor households, all have a direct bearing on health. But there is little evidence that these departments work in a co-ordinated manner and aim at targets other than departmental ones.

This excessive compartmentalisation means that the health sector often cannot work as an integrated whole. Within compartments, there is an over-emphasis on selected subjects. In fact, a separate integrated public health cadre might be very useful in implementing programmes.

Institutional Care

Rural health services have been a neglected area, both in prices and infrastructure. Although, a great deal of financial support was extended in the Sixth

Box 4.3: Following the Example of Kerala

Kerala has achieved the net replacement rate for TFR in 1988, Goa a little before that and Tamil Nadu, in 1993. Why did these states achieve this level of fertility control when others did not? Was there anything special about these states? Yes, there was.

These states consciously or unconsciously emphasised social development and invested heavily in it. Provision of adequate health care and education facilities, reduction in infant mortality and promotion of family planning were some of their priorities. The Information, Education and Communication (IEC) package was also an integral part of their social development strategy. The results speak for themselves.

For instance, according to the 1991 Census, the literacy level was 90 percent in Kerala, 76 percent in Goa and 63 percent in Tamil Nadu. In contrast, the literacy level in Rajasthan in 1991 was 38.6 percent, 41.6 percent in Uttar Pradesh, and 58.5 percent in Punjab. These have risen to 91, 82 and 73 percent for Kerala, Goa and Tamil Nadu, and 61, 57 and 70 percent for Rajasthan, Uttar Pradesh and Punjab, respectively. In 1991, female literacy in Kerala was 86 percent, Goa had 67 percent, Tamil Nadu had 51.3 percent. But in Rajasthan, female literacy was only 20 percent, while it was 25 percent in Uttar Pradesh and 50 percent in Punjab.

There are some who argue that it is poverty that is largely responsible for high fertility in India. By that reasoning Punjab, which is one of the most prosperous states, should have registered low fertility. But the fact remains that Punjab's fertility is much higher than Kerala's, despite Kerala's lower per capita income.

and the Seventh Five Year Plans, the situation failed to improve, as there was often no one to run these institutes. There are few doctors in rural and remote areas, mainly as a result of poor working conditions and lack of transparency. The private sector should be encouraged to work in remote areas and local practitioners such as *hakims*, *vaids*, etc., who often have a loyal clientele, must be integrated into government PHCs in remote districts to ensure maximum community participation.

Finally, ineffective monitoring of PHCs leads to their under-utilisation. There is a lack of accountability at all levels, especially when it comes to the quality and quantity of drugs available in the market.

A good referral system should be developed whereby a patient moves from one level of health care to another level of health care according to their medical needs rather than going to a higher level directly. This means that the role of primary, secondary and tertiary levels of health care should be properly defined.

The health of the average Punjabi is good: the image of a robust, healthy well-built, human being, capable of hard physical labour is more or less accurate. However, in Punjab, there is also the presence of the weak and unhealthy, the dying child and the weakened mother.

The new National Health Policy on the anvil has called for reducing IMR to 30 in another nine years, eliminating diseases such as polio and leprosy in five years and reducing mortality by half from diseases like TB and malaria by 2010. These should not be the targets for Punjab.

For Punjab the efforts must be to rival Kerala and do better—place IMR to around 15 in another five to eight years; reduce mortality and incidence of occurrence of TB and malaria to one-fifth of its current levels by 2010; take maternal mortality to below 50 by 2010; reduce low birth babies to less than 5 percent; ensure 100 per cent immunisation of infants and mothers and ensure near hundred percent paediatric and post-natal care. Also, push life expectancy at birth to at least 75 years for all, and nearing 80 for women. There is also a need to ensure that by the next census in 2011, Punjab should be quoted as an example of an increase in both overall and juvenile sex ratio. This figure is possibly more revelatory of the state of Punjab's health than figures for life expectancy.

This means ensuring that primary health care reaches the most remote and deprived. Punjab needs to ensure that it begins to spend at least eight percent of its state budget on health within the next three to four years.

Punjab has a well laid out road and power network, numerous private and public health facilities and large sections of the population have very high purchasing power. The state also possesses high awareness levels and personnel and thus, with far-sighted policies, can become India's most healthy state.

5. Education – Building People

Apart from its intrinsic value, the importance of education in contributing towards the development of human potential is well accepted, both at the national level and in Punjab. Education has been accorded a fair amount of centrality in policy initiatives. Since Independence, economic planners have grappled with education policies. Over the years, a vast network of schools and institutions for training teachers, for effective development of curriculum, publication of textbooks, etc., has been set up. A number of schemes and incentives have been launched to attract children, especially the girl child, to school. Special efforts have been taken to persuade parents to send their children to school. All these efforts have paid dividends.

A significant move towards universalising education in India was the formulation of the National Policy on Education (1986). The Policy sought to provide education for all and focused primarily on providing marginalised groups greater access to education. Promotion of education for women, as underlined in the Policy, became a priority area.

Internationally, the Jomtien World Conference (1990) was a major initiative in education. By being a signatory to the Conference declarations (See Box 5.1), the government reaffirmed its commitment to a dual approach of according equal importance to primary education and adult literacy.

Courtesy IDC

Education for development of human potential

It is the provision of greater access to education for all which demands attention. The quality of life of the learner will hardly improve if the manner, form and content of education is far removed from reality. The Jomtien Declaration, 1990, in this

Box 5.1: Jomtien Declaration, 1990

The Jomtien Declaration (1990) states that "Every person–child, youth and adult–shall be able to benefit from educational opportunities designed to meet their basic learning needs. These needs comprise essential learning tools and basic learning content required by human beings to be able to survive, to develop their full capacities, to live and work with dignity, to participate fully in development, to improve the quality of their lives, to make informed decisions and to continue learning."

context says that "Whether or not expanded educational opportunities will translate into meaningful development—for an individual or for society—depends ultimately on whether people actually learn as a result of those opportunities, i.e., whether they incorporate useful knowledge, reasoning ability, skills, and values."

Hence, the real emphasis needs to be on developing a curriculum that is not divorced from the realities faced by the respective learners.

The Declaration also marked the transition from an instrumental approach, where individual development was superseded and productivity of society was the key concern, to a more people-centred approach. Development of society became secondary and individual development through education became primary. This trend was a welcome one, especially in the case of women's education. Women's education was advocated chiefly to achieve greater productivity in society, whether it was as better informed wives and mothers or whether it was as effective participants in keeping down the birth and mortality rates.

The Declaration aimed to bring in far reaching changes. For the first time, women were recognised as individuals in their own right, with hopes and aspirations that were theirs alone. Being equal partners in the development process, they had the right to develop their individual lives. This was recognised and given due cognisance.

The role of the State was clearly outlined in the Jomtien Declaration. It stressed that the State was responsible for ensuring that everyone, minus discriminations, had access to education. Prior to the Declaration, the Constitution of India had provided a key role for the State. According to Article 45 of the Directive Principles of State Policy, the State must guarantee free and compulsory schooling for children up to the age of 14 within a period of 10 years.

Yet the Directive Principle was perhaps a little too optimistic. In India, poor enrolments and high drop-out rate are often governed by various socio-economic reasons. State interference becomes imperative, even crucial, not just in providing a sound education policy and infrastructure, but also in tackling socio-economic impediments. It is only with this two-pronged attack that education can be used in the way intended by the World Declaration of 1990.

Education in Punjab: Present Scenario

The greatest concern in Punjab is that still few sections do not have access to education. Despite Punjab being economically progressive, it is yet short to universalise elementary education for all its children. Punjab has registered a literacy rate of 69.95 percent (Census 2001). It has an all India rank of 10 on the literacy scale among Indian states. If we also consider the union territories (UTs), Punjab slips down six places further. Nevertheless, the data given below highlights that the state has achieved some success in the field of education. The data presents the educational levels over several decades.

It can be noted from Table 5.1 that there has been a substantial increase in literacy rates over the years. These rates have shown an increase across the population, both male and female.

Table 5.1: **Literacy Rates by Sex in Punjab (in percent)**

Year	Persons	Males	Females
1971	34.12	42.23	24.65
1981	43.37	51.23	34.35
1991	58.51	65.66	50.41
2001	69.95	75.63	63.55

Source: Provisional Population totals, Census 2001.

Note: The rates for the years 1971-2001 relate to the population aged 7 years and above.

There has also been a substantial increase in the number of schools set up both at the primary and middle levels. The increase over the years (1966-2000) has been approximately 52 percent at the level of primary schooling facilities. Similarly, at middle school level, there has been an increase of 34 percent.

At the level of primary schooling, the percentage increase in the number of teachers was approximately 49 percent. For middle schools, the increase was a mere 0.99 percent. This reveals the emphasis the government has placed on primary education.

Key indicators are overall literacy rates of the population, enrolment rates and dropout rates. In the following section we will try and highlight these through an analysis of secondary data from the Census (2000-2001), Registrar General of India. For the purpose of this report, 'literate' has been defined as any person who is able to read and write in any language.

Table 5.2: **States and Union Territories Ranked by Literacy Rate, 2001**

Rank	India/ State/ Union territory	Literacy rate (in percent)		
		Persons	Males	Females
	INDIA	**65.38**	**75.85**	**54.16**
1	Kerala	90.92	94.20	87.86
2	Mizoram	88.49	90.69	86.13
3	Lakshadweep	87.52	93.15	81.56
4	Goa	82.32	88.88	75.51
5	Delhi	81.82	87.37	75.00
6	Chandigarh	81.76	85.65	76.65
7	Pondicherry	81.49	88.89	74.13
8	Andaman & Nicobar Is.	81.18	86.07	75.29
9	Daman & Diu	81.09	88.40	70.37
10	Maharashtra	77.27	86.27	67.51
11	Himachal Pradesh	77.13	86.02	68.08
12	Tripura	73.66	81.47	65.41
13	Tamil Nadu	73.47	82.33	64.55
14	Uttaranchal	72.28	84.01	60.26
15	Gujarat	69.97	80.50	58.60
16	Punjab	69.95	75.63	63.55
17	Sikkim	69.68	76.73	61.46
18	West Bengal	69.22	77.58	60.22
19	Manipur	68.87	77.87	59.70
20	Haryana	68.59	79.25	56.31
21	Nagaland	67.11	71.77	61.92
22	Karnataka	67.04	76.29	57.45
23	Chhattisgarh	65.18	77.86	52.40
24	Assam	64.28	71.93	56.03
25	Madhya Pradesh	64.11	76.80	50.28
26	Orissa	63.61	75.95	50.97
27	Meghalaya	63.31	66.14	60.41
28	Andhra Pradesh	61.11	70.85	51.17
29	Rajasthan	61.03	76.46	44.34
30	Dadra & Nagar Haveli	60.03	73.32	42.99
31	Uttar Pradesh	57.36	70.23	42.98
32	Arunachal Pradesh	54.74	64.07	44.24
33	Jammu & Kashmir	54.46	65.75	41.82
34	Jharkhand	54.13	67.94	39.38
35	Bihar	47.53	60.32	33.57

Source : Census of India, 2001, Tables downloaded from Census website, Registrar General of India, New Delhi.

Table 5.3: **Ranking of Districts by Literacy (in percent)**

Districts	Literacy Rate	
	Persons	Rank
Amritsar	67.85	10
Bathinda	61.51	13
F. G. Sahib	74.10	7
Faridkot	63.34	12
Firozpur	61.42	14
Gurdaspur	74.19	6
Hoshiarpur	81.40	1
Jalandhar	77.91	3
Kapurthala	73.56	8
Ludhiana	76.54	5
Mansa	52.50	17
Moga	63.94	11
Mukatsar	58.67	16
Nawanshehar	76.86	4
Patiala	69.96	9
Rup Nagar	78.49	2
Sangrur	60.04	15
Punjab	**69.95**	

Source: Provisional Population Totals, Paper 1 of 2001, Census of India.

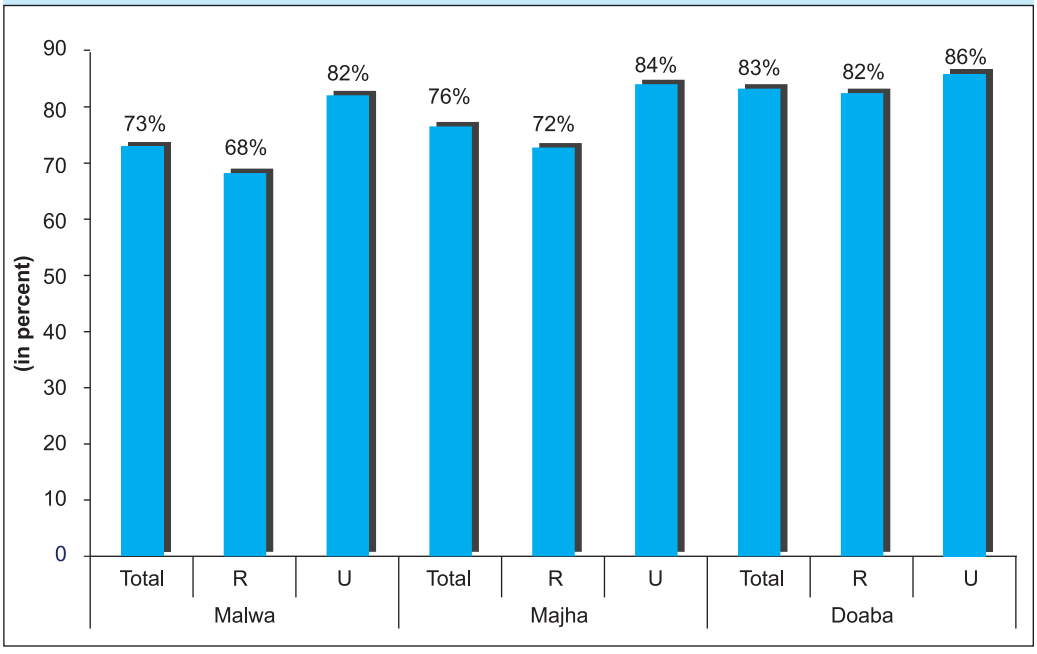
Out of a total population of 24,289,296 in the state (Census 2001), 14,853,810 are literate. The provisional results show an overall literacy rate of 69.95 percent, which is slightly higher than the national average of 65.38 percent. However, in spite of a relatively high rate of literacy, there are 63.8 lakh illiterates in the state.

From Table 5.2 it is seen that among the states and UTs, Punjab ranks 16 in terms of literacy. Kerala has the highest literacy rate of 90.92 percent, while Bihar has the lowest literacy rate of 47.53 percent. Punjab has shown an impressive growth in the number of literates in the last decade. During the period 1991-2001, the percentage increase in the number of literates in the state has gone up by 49.55 points. However, the same for India has gone up by 56.81 points.

Intra-state comparisons throw up an interesting picture. Literacy rates for Punjab, disaggregated at the district level, are given in Table 5.3.

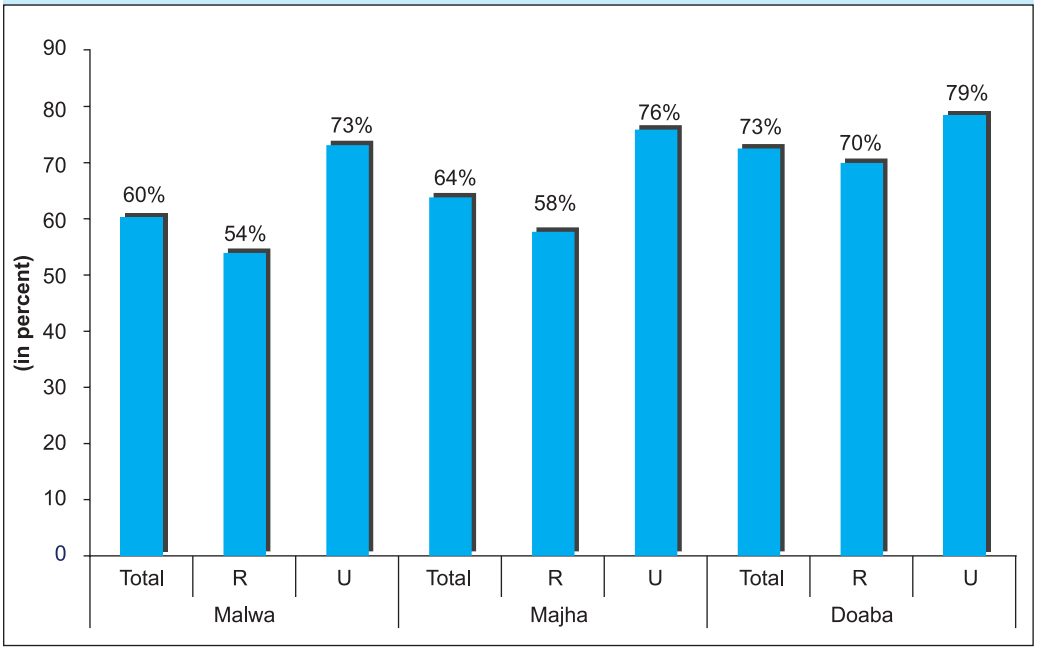
Hoshiarpur district has the highest literacy figures while Mansa has the lowest. It may be pointed out here that not only are Mansa's literacy levels much lower as compared to the all India figure of

Figure 5.1: **Region-wise Literacy Rate for Males**



Source: Based on Provisional Series 2 of Census of India, 2001.

Figure 5.2: **Region-wise Literacy Rate for Females**



Source: Based on Provisional Series 2 of Census of India, 2001.

65.38 percent; it is even lower than the state of Uttar Pradesh, which had a literacy rate of 57.4 percent and ranks 31st amongst all states and UTs.

Regional Variations

For the purpose of this report, Punjab has been divided into three cultural regions—Majha, Malwa and Doaba.

Educational differences among these regions are interesting. Figures 5.1 and 5.2 would help understand some of the literacy differences between the regions.

While education levels on a comparative basis are high for the Doaba region, they are moderate for the Majha region and low for the Malwa region. All the districts in the Doaba region have literacy rates higher than the overall figures for the state of Punjab. This applies to both male and female literacy rates. In the Majha region, while the figures for the district of Amritsar are slightly less than those of the state of Punjab, for the district of Gurdaspur, they are higher. So, overall the region is close to the state average. However, most of the districts in the Malwa region lag behind the state average. Except for Rup Nagar, Ludhiana and F. G. Sahib, all other districts are far below the state average. Thus there are clear regional divides on literacy rates.

The graphs show clearly that Malwa region lags behind the other two regions. The most contrasting figures are for rural female literacy rates. In the whole of rural Doaba, female literacy rate is a little less than 70 percent; while the corresponding figure for the Malwa region is less than 54 percent. These regional differences could be due to the overwhelming existence of larger land holdings in the Malwa region, with agriculture being the primary occupation requiring little emphasis on education. Thus, women's education is even further neglected, a tendency compounded by the fact that communities in Malwa tend to be male-dominated, patriarchal and feudal.

In the Doaba region, education assumes greater importance because there is a high incidence of out-migration. There are instances of women's

Table 5.4: **District-wise Data on the Rural-Urban Divide and Percentage Decrease in Rural-Urban Differential**

(in percent)

Districts	R-U difference (2001)	R-U difference (1991)	Percentage decrease in Rural-Urban differential (1991-2001)
Amritsar	17.72	24.21	6.49
Bathinda	20.66	27.65	6.99
F. G. Sahib	8.51	13.79	5.28
Faridkot	14.13	23.12	8.99
Firozpur	21.47	27.42	5.95
Gurdaspur	12.47	15.25	2.78
Hoshiarpur	6.57	8.55	1.98
Jalandhar	7.33	15.06	7.73
Kapurthala	9.06	16.94	7.88
Ludhiana	6.54	9.43	2.89
Mansa	23.67	30.34	6.67
Moga	13.66	19.69	6.03
Mukatsar	17.83	26.10	8.27
Nawanshehar	6.27	8.41	2.14
Patiala	18.65	25.72	7.07
Rup Nagar	12.09	17.57	5.48
Sangrur	14.26	18.78	4.52
Punjab	**13.97**	**19.39**	**5.42**

Source: Based on Provisional Series 2, Census of India.

education being advocated for matrimonial purposes.

Rural-Urban Divide

Any understanding of literacy in Punjab remains incomplete without an analysis of the rural-urban divide.

An analysis of rural and urban literacy rates shows that Hoshiarpur tops again with 80.09 percent and 86.66 percent in the rural and urban literacy rates, respectively. Mansa is the least literate with only 47.56 percent rural literacy and 71.23 percent urban literacy.

Urban literacy rates are consistently higher than rural literacy rates for all 17 districts of Punjab. This is nothing unusual. However, except for the first five districts, that is, Hoshiarpur, Rup Nagar, Jalandhar, Nawanshehar and Ludhiana, there is a very clear rural-urban divide. Incidentally, these five districts ranked the first five in the overall literacy rates in 1991 as well as in 2001. Thus, these five districts are clearly in a different category from the others. Again the last five districts were the same in both 1991 and 2001, implying that the pattern has not changed drastically.

Compared to the figures of 1991, Mansa has taken the lead with the highest growth in rural literacy rate, which is 15.34 percent, while the least growth is shown by Hoshiarpur district, with 9.48 percent growth. Nawanshehar has shown the highest urban literacy growth rate over 1991, with a growth rate of 10.95 percent, while Kapurthala has shown the lowest rate, at 3.79 percent.

Thus the highest rural-urban disparity occurs in Mansa at 23.67 percent, while in Nawanshehar, the rural and urban literacy gap has narrowed and there was a difference of only 6.27 percent.

The Gender Component

Women's education, as an effective tool for empowerment has been advocated for decades,

Table 5.5: **District-wise Literacy Rates by Sex**

(in percent)

Districts	Literacy rates (2001)					
	Persons	Rank	Males	Rank	Females	Rank
Amritsar	67.85	10	73.58	10	61.41	10
Bathinda	61.51	13	68.31	14	53.76	13
F. G. Sahib	74.10	7	78.85	7	68.60	6
Faridkot	63.34	12	68.92	12	57.09	12
Firozpur	61.42	14	69.55	11	52.33	15
Gurdaspur	74.19	6	80.44	5	67.31	8
Hoshiarpur	81.40	1	86.97	1	75.56	1
Jalandhar	77.91	3	82.37	4	72.93	2
Kapurthala	73.56	8	78.66	8	67.90	7
Ludhiana	76.54	5	80.19	6	72.11	3
Mansa	52.50	17	59.12	17	45.07	17
Moga	63.94	11	68.40	13	58.96	11
Mukatsar	58.67	16	65.94	16	50.59	16
Nawanshehar	76.86	4	83.67	3	69.52	5
Patiala	69.96	9	76.13	9	62.94	9
Rup Nagar	78.49	2	84.43	2	71.74	4
Sangrur	60.04	15	65.97	15	53.29	14
Punjab	**69.95**		**75.63**		**63.55**	

Source: Provisional Population Totals Paper 1 of 2001.

but was finally given international legitimacy at the Beijing World Conference on Women (1995). Earlier, the emphasis on education was designed to create better informed wives and mothers. However, at Beijing, the definition of women's education was given a revolutionary new meaning and education for women was advocated in order to enable them to have increased choices, take their own decisions and make improvements in their lives, all of which would lead to empowerment, the overall goal of the women's movement.

The UNDP, drawing from the lessons of the Beijing Conference, has stressed that no study that purports to measure the level of education of any region can be considered complete if it does not take into account the literacy rates of women.

From Table 5.6 it is clear that there has been an increase in female literacy rates during 1991–2001. While for males there has been an increase of just 10 points, for females the increase has been over 13 points. A district wise analysis of the data shows that Hoshiarpur tops the list on female literacy with 75.56 percent, while Mansa is at the bottom with 45.07 percent (Table 5.5). However, while Mansa improved its position by 16.53 points between 1991 and 2001, the maximum in the state, Ludhiana showed the least increase of 10.87 points over the same years.

Table 5.6: **Comparative Male-Female Literacy rates in Punjab**

Years	Literacy Rate			M-F Differential	Rate of decline of M-F Differential
	Persons	Males	Females		
1971	34.12	42.23	24.65	17.58	—
1981	43.37	51.23	34.35	16.88	3.98
1991	58.51	65.66	50.41	15.25	9.66
2001	69.95	75.63	63.55	12.08	20.79

Source: Based on Provisional Series, Paper 1, Census of India, 2001.

For male literacy, Hoshiarpur tops with 86.97 percent. Mansa has the lowest male literacy rate of 59.12 percent.

However, the differences between male and female literacy rates do not correlate very well with overall literacy rates. For example, in a district like Nawanshehar, which stands 4th in the overall literacy rate, there is a glaring difference in male-female literacy. In fact, Nawanshehar would be ranked 14th if the districts were ranked by the male-female literacy differential.

An analysis of literacy rates of males and females reveals that the male-female differentials have been declining over decades. For example, the male-female difference rate was 17.58 percent in 1971; it fell to 16.88 percent in 1981 and further to 15.25 and 12.08 percent in 1991 and 2001, respectively. Punjab, with a male-female differential of 12.08 percent, compares well with the states of Haryana and Himachal Pradesh, which have male-female differentials of 22.94 and 17.94 respectively.

This fact is further reinforced once we look at the rate of decline of the male-female literacy gap. In 1981, the rate of decline was 3.98 percent while in 1991 it rose to 9.66 percent and further to 20.79 percent in 2001. This has only been possible because of a faster rate of growth of female literacy in the state. For example, male literacy rate increased by 33 percent from 1971 to 2001, while female literacy rate increased by 39 percent.

Gender in Urban and Rural Literacy

From Table 5.7, we see that urban males lead with 82.97 percent while rural females have the lowest literacy rate (57.91).

At the district level, a rural-urban literacy comparison of males and females shows that Hoshiarpur has the highest percentage of male literates in rural areas, 86.11 percent, whereas male rural literacy is lowest in the district of Mansa standing only at 54.27 percent. Among rural females, the highest percentage again is found in Hoshiarpur, at 73.87 percent, while the lowest rural female literacy rates are in Mansa (40.03 percent).

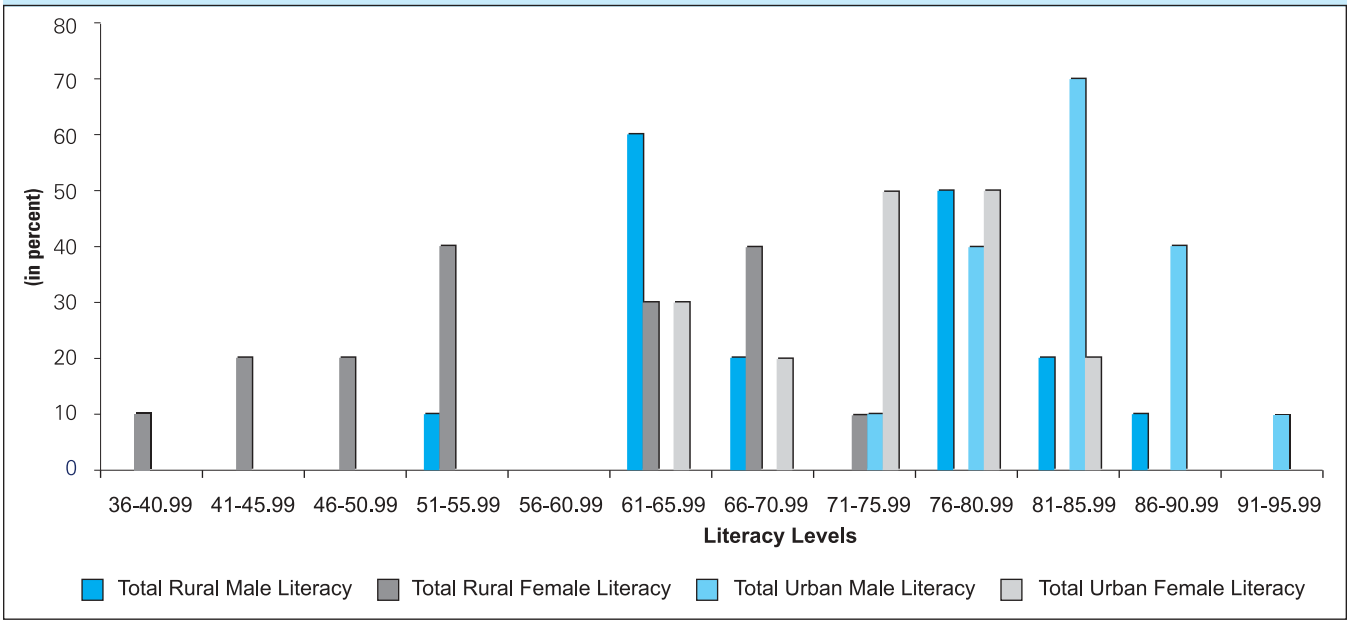
Table 5.7: **District-wise Male and Female Literacy in Urban and Rural Areas, Punjab, 2001**

(in percent)

Districts	Punjab		Rural Punjab		Urban Punjab	
	Male	Female	Male	Female	Male	Female
Amritsar	73.58	61.41	67.83	52.69	81.84	74.39
Bathinda	68.31	53.76	62.46	47.16	81.88	69.19
Faridkot	68.92	57.09	64.18	52.27	78.35	66.49
FG Sahib	78.85	68.60	76.86	65.83	83.87	75.87
Firozpur	69.55	52.33	64.78	45.78	82.58	71.03
Gurdaspur	80.44	67.31	77.70	63.58	88.16	78.11
Hoshiarpur	86.97	75.56	86.11	73.87	90.30	82.62
Jalandhar	82.37	72.93	80.14	68.17	84.73	78.29
Kapurthala	78.66	67.90	76.27	64.41	83.30	75.33
Ludhiana	80.19	72.11	78.32	66.73	81.58	76.66
Mansa	59.12	45.07	54.27	40.03	77.56	64.14
Moga	68.40	58.96	65.93	55.87	78.05	71.20
Muktsar	65.94	50.59	61.84	45.49	77.78	65.40
Nawanshehar	83.67	69.52	83.15	68.27	86.84	77.30
Patiala	76.13	62.94	70.40	55.29	86.52	76.84
Rup Nagar	84.43	71.74	81.39	66.71	90.63	82.01
Sangrur	65.97	53.29	61.93	48.98	75.67	63.76
Punjab	**75.63**	**63.55**	**71.70**	**57.91**	**82.97**	**74.63**

Source: Paper 1 for Punjab, Census of India 2001, Registrar General of India.

Figure 5.3: **Distribution of Districts as per their Literacy Levels by Sex and Place of Residence**



Source: Based on Provisional Series 2 of 2001, Census of India.

Inter-district literacy disparity becomes much more evident once we look at the gaps in literacy between these two districts. The gap between these two districts in the case of rural male literacy is 31.84 percent, while the gap between the districts is 33.84 in the case of rural female literacy rate. The differences are sharp for urban male and female literacy rates between the two districts.

Twelve out of the 17 districts of Punjab have rural female literacy rates that are less than 66 percent. Correspondingly, only three districts have less than 66 percent urban female literacy rate. In the case of males, seven districts have less than 66 percent male literacy rate in rural Punjab while no district in urban Punjab has a male literacy rate that is less than 66 percent. Only one district, Hoshiarpur, has a rural female literacy rate of more than 71 percent.

In contrast, in urban Punjab 12 districts have a female literacy rate of more than 71 percent (Figure 5.7). This points to the fact that women's education in the rural areas has perhaps not been given the same importance as in the urban areas.

Also, Punjab has managed to reduce the absolute total number of illiterates both in the case of males

Table 5.8: **Decadal Decrease in Illiteracy Rates of Males and Females, 1991-2001**

Illiteracy among Males					Illiteracy among Females				
Number of Male Illiterates		Decadal Decrease	Percentage Decrease	Percentage Contribution in Decrease to the country	Number of Female Illiterates		Decadal Decrease	Percentage Decrease	Percentage Contribution in Decrease to the country
1991	2001				1991	2001			
3095357	2743910	351447	11.35	1.64	3948251	3636084	312167	7.9	2.97

Source: Based on Provisional series, Paper 1 for Punjab, Census of India, 2001.

and females. This is supported by Table 5.8, which shows the percentage decrease in illiteracy figures for both males and females over 1991-2001. The percentage decrease in the case of males has been 11.35 percent, which is lesser than the all India level decrease of 16.34 percent.

The situation is different in case of female illiterates. The percentage decrease of 7.90 is more than the all India figure of 5.25 percentage points. The percent contribution of Punjab to the country as a whole, in decreasing female illiteracy is more than its contribution in the reduction of male illiteracy.

Enrolment and Dropouts

Enrolment and dropout rates are crucial indicators in the study of literacy levels. An analysis of these figures brings out the actual levels of learning at the primary stage. These figures are influenced and biased by the immediate socio-economic realities of the potential learner and interpretations should ideally take these into account.

Table 5.9: **Estimated Enrolment Rates in Primary Schools in Punjab, 1999**

District	Total	Male	Female
Amritsar	64.23	61.54	67.31
Bathinda	72.92	75.67	69.83
F. G. Sahib	67.60	65.50	70.05
Faridkot	73.53	74.78	72.12
Firozpur	66.84	69.22	64.16
Gurdaspur	77.40	74.91	80.27
Hoshiarpur	78.36	78.08	78.67
Jalandhar	72.43	71.61	73.37
Kapurthala	64.79	63.75	65.95
Ludhiana	57.80	57.03	58.72
Mansa	66.20	67.40	64.87
Moga	67.18	66.84	67.57
Mukatsar	67.78	70.11	65.16
Nawanshehar	71.40	69.07	74.00
Patiala	63.65	63.48	63.85
Rup Nagar	70.05	68.67	71.61
Sangrur	61.81	61.86	61.75
Punjab	**67.47**	**66.95**	**68.07**

Source: Enrolment rates have been derived from data on enrolled children from the Directorate of Public Instruction (Schools) and estimated number of children in school going ages from Population Projections and age group based on Census of India 1991 and 2001.

As regards enrolment rates, female enrolment rates are higher for the state as a whole than male enrolment rates. The male enrolment rate for the state in the year 1999 was 66.95 percent, while it was 68.07 percent for females. For as many as 11 districts the female enrolment rate was higher than that of the male. Surprisingly, most of these districts belong to the Majha and Doaba belt. The highest male enrolment rate was in Hoshiarpur district, while the highest female enrolment rate was in Gurdaspur district. The lowest male and female enrolment rate was found in Ludhiana, at 57.03 and 58.72 percent.

The primary level dropout rate from 1995 to 1999 was 22.17 percent. For males the primary level dropout rate was 24.12 percent, while for females it was 19.99 percent. At the secondary level too, that is from class 6^{th} to 10^{th}, the dropout rate shows a similar trend. The dropout rate for boys is 21.43 percent while for the girls it is 14.22 percent. Also, the dropout rate decreases from the primary to the secondary level. At the primary level the dropout rate was 22.17 while at the secondary level it was 18.24 percent. The dropout rate falls more steeply for the females than for males from the primary to the secondary level.

School Infrastructure: Access and Provision

Punjab's achievements have been impressive in provision of schools. From just 6,820 primary schools in 1966-67, the number has gone up to 12,996, servicing nearly every habitation in the state. Table 5.10 shows that the greatest expansion of schooling facilities took place in the 1970s in Punjab, when the number of schools rose by two-thirds, covering the entire state.

There has also been a substantial increase in the number of teachers. The number of primary school teachers rose from nearly 23,000 in 1966-67 to nearly 47,000 in 2000. Again it was the 1970s which saw a massive increase in the number of school teachers.

Table 5.10: **Year-wise Provision of Schools**

Period	Primary Schools		Middle Schools		Primary School Teachers	
	Numbers	% Change over Previous Period	Numbers	% Change over Previous Period	Numbers	% Change over Previous Period
1966/67	6820		872		22713	
1970-71	7458	9.35	1060	21.56	22794	0.4
1980-81	12383	66.04	1498	41.32	47903	110.2
1990-91	12400	0.14	1421	-5.14	47974	0.1
1999/2000	12996	4.81	2534	78.33	46556	-3.0

Source: Directorate of Public Instructions (Schools), Punjab.

Today Punjab's educational infrastructure is third best in India. According to latest statistics[1], 96 percent of habitations were covered by a primary school within a distance of one kilometre. Only Tamil Nadu and Gujarat have a better coverage rate. The coverage of middle schools is, however, not as good: only 84 percent habitations have a middle school within three kilometres. In this, Punjab ranks sixth among all major states of India.

The 6th All India Education Survey provides information on the facilities available in schools. In 1995-96, the percentage of children in primary schools equipped with drinking water facilities was 89, but only 59 percent children had schools with a urinal, and just 29 percent schools were equipped with urinals for girls.

Table 5.11: **Teacher-Student Ratio at the Three Levels of Education**

Region / District	Teacher-Pupil Ratio		
	Primary Schools	Middle Schools	High Schools
Majha			
Amritsar	39	23	31
Gurdaspur	31	28	21
Doaba			
Hoshiarpur	34	25	23
Jalandhar	43	27	25
Kapurthala	34	22	19
Nawanshehar	47	30	23
Malwa			
Bathinda	48	28	20
F. G. Sahib	43	30	23
Faridkot	46	23	14
Firozpur	49	27	25
Ludhiana	40	25	21
Mansa	55	30	23
Moga	50	34	20
Mukatsar	52	27	23
Patiala	41	28	23
Rup Nagar	36	24	23
Sangrur	47	30	23
Punjab	**41**	**26**	**23**

Source: Statistical Abstract of Punjab, 2000.

[1] "Selected Educational Statistics 2000-2001", Government of India, New Delhi, 2002.

Teacher-Pupil Ratio

The number of teachers attending to a class of students is crucial to education. The norm in India, also adopted by Punjab, is 40 students per teacher for primary classes.

An analysis of the data shows that the teacher-pupil ratio for the state is 41 students per teacher at the primary level. At the district level, in Mansa district there are 55 students per teacher, which is the highest rate among the districts. Incidentally, Mansa is the least literate district in the state both in terms of male and female literacy. Also, Mansa is lowest in the enrolment rate. Minimum students per teacher are found in Gurdaspur district at 31 students per teacher. Gurdaspur is among the most literate districts of Punjab. Gurdaspur also has the highest female enrolment rate and one of the highest male enrolment rates. This affirms a possible positive correlation between literacy, enrolment and the teacher-student ratio, though this may not be true of all the districts where there could be other important factors affecting enrolment and literacy rates.

Higher Education

As we move from lower classes to higher classes, there is a sharp drop in the number of students enrolled. Taking the data of different classes and disciplines for the year 1999, we get an enrolment pyramid revealing huge numbers of drop-outs as children advance in education. In a state where trends indicate that there is a movement away from agriculture and that children of agriculturists are shifting from their family occupation, such a large drop-out rate is a matter of concern.

In 1999, there were nearly 3.8 lakh children on an average per class from classes one to eight, but this dropped to 2.4 lakh in high school, and to just 57,000 per class in graduate classes (all disciplines included).

Table 5.12 shows that there are five universities in Punjab, nearly 200 arts and science colleges and about 22 institutions for engineering and medicine. In science and arts colleges, nearly 1.7 lakh students are enrolled in all classes, and 20,000 are enrolled in medical, engineering and other professional colleges.

Students should be encouraged to opt for professional courses, courses offering basic sciences as well as the liberal arts. While professional courses make students more employable, liberal education sustains a liberal environment in civil society.

The State and Education

The state government is the largest and most important provider of education, more importantly it is the largest regulator of the quality of education. An analysis of government programmes is therefore essential.

Table 5.12 : **Graduate and Post Graduate Education Institutions in Punjab**

Year	University	Arts, Science, Commerce and Home Science colleges	Engineering, Technology and Architecture college	Medical Colleges (Allopathic only)	Teachers Training College (B.Ed.)
1971*	3	122	2	4	17
1980	3	162	3	5	18
1990	3	171	3	5	18
2000	5	204	16	6	22
2001	5	205	16	6	23

* Information relates to 31 March

Source: Statistical Abstract of Punjab, 2002.

Programmes for Universalisation of Elementary Education

Free and Compulsory Education

The Government of Punjab provides free educational opportunities to all children in the age group of 6-14 years under the Free and Compulsory Education Scheme. The steps taken under this initiative include efforts to increase the retention of students in classes, increase enrolment rates, improving existing infrastructure and providing it wherever required, promoting innovative approaches in schools and introducing decentralised planning in education. Also the government must ensure that all communities get access to and take advantage of educational facilities.

As part of its strategy to improve primary education, the initiative states that mobilising community support in villages where a large percentage of the illiterate population resides, is imperative. Pockets with poor levels of literacy have been identified, namely the districts of Firozpur, Mansa, Sangrur and Bathinda. Within these, the pockets inhabited by the Scheduled Castes and the economically backward population have been identified. In these pockets, incentives such as free residential school for day-scholars, non-formal education, stipends and scholarships, free books and mid-day meals for children are provided in the hope that these will improve attendance and boost overall literacy of these regions.

Total Literacy Campaigns

In improving literacy levels, the large backlog of adults (described as those above the age of 15 years) who have not had the benefit of education in their early years, must also be considered. Punjab has been running literacy programmes for these un-lettered adults, primarily though the Total Literacy Scheme, which includes total literacy campaigns, post-literacy campaigns and continuing education for neo-literate adults.

Sarva Shiksha Abhiyan and Jan Sampark Abhiyan

The Sarva Shiksha Abhiyan (SSA) is operational in Punjab and is designed to fill the gaps in the government's education agenda. It was launched with the support of the Government of India. This programme selects educationally backward districts, involves local communities and tries to reach out to educationally deprived children by providing them with a teacher and a school.

The aim of the Sarva Shiksha Abhiyan is to ensure that no child aged 6-14 remains out of school. SSA provides grants for construction and repair of school buildings, setting up of Education Guarantee Scheme (EGS) Centres, free books to SC students and girls, training to teachers, training to parent-teacher associations, etc.

Practical decisions and decisions on the amount of money to be spent are taken by Village Education Development Committees. The same committees are responsible for giving contracts to families or social service agencies in the villages to prepare mid-day meals and distribute these to all primary school children.

The state government has adopted the concept of Jan Sampark Abhiyan. In this programme, officials have fanned out to all 216 educational blocks of the state to monitor the implementation of the Sarva Shiksha Abhiyan and other programmes. The Jan Sampark Abhiyan tries to ensure that there is genuine community participation.

Teachers' Training

State Council of Education Research & Training (SCERT)

Established in 1981, various units of SCERT have been focusing on pre-service and in-service teacher training, as envisaged in the National Policy of Education. There are 13 District Institutes of Education and Training and JBT schools that impart pre-service training to primary teachers. To provide in-service training to working secondary teachers, 12 in-service training centres are functioning at various district headquarters. In addition, the State Institute of Science Education imparts in-service training to science/maths teachers. To impart training in the latest /advanced educational technology, SCERT organises seminars for teachers through their educational technology cell. SCERT also stores comparative data in their Data Processing Unit to assess rates of success. The Evaluation Unit of the SCERT is also working on examination reforms. The Educational and Vocational Guidance Bureau motivates students and teachers to appreciate dignity of labour and self-employment and try and prevent frustration resulting from unemployment.

District Institutes of Education and Training (DIETs)

There are 17 DIETs in the state, one in each district. Twelve of these have been approved by the NCERT. There are approximately 100 seats per DIET. Recently, the number of seats was increased in areas where the density of population is high. Fifty percent of the seats in each of the DIETs are reserved for women. The training imparted at the DIET is known as Elementary Teachers' Training and lasts for two years. The minimum qualification required for this training is 10+2 with at least 50 percent marks and the job securing age for an ETT teacher is 18-35 years.

The State government has also provided for In-service training. There are 12 In-service Training Centres in the state, which are responsible for training and updating working ETT teachers in accordance with recommendations of the State Education Policy.

Every year about 8,000 primary school teachers and the same number of secondary school teachers are given training through these centres.

Upgrading infrastructure

Punjab's major achievement has been to provide a primary school in every village with a "minimum enrolment of 50 students". To ensure that children from Scheduled Caste communities (who may not have the same access to schools situated in non-SC areas) and children living in remote hilly areas where a population of 50 school-going children is not always available, schools have also been opened for 'less than 50 children'. Since the aim is to improve accessibility to education, schools have been opened in sub-mountainous areas in the Kandi region. The state education administration is also trying to provide drinking water and toilets in all schools. The sixth All India Education Survey shows that 11 percent of primary schools did not have drinking water facilities, 41 percent needed a urinal, while nearly 71 percent of schools needed a separate urinal for girls. Efforts are being made to rectify the situation. For example, the state annual plan for 2000-2001 provides Rs. 5 crore for toilets for boys and girls. It aims to provide this facility to each government primary school. Similarly, Rs. 4.5 crore have been planned for handpumps to schools without adequate drinking water facilities, at an average of Rs. 15,000 per hand pump. The aim is to install 3,000 handpumps. The state government is also making constant efforts to improve school infrastructure.

Other efforts include providing "innovative, imaginative and interesting teaching and learning equipment like books, blackboards, maps, colourful charts, models, globes, etc.", and promoting extra-curricular activities.

Elementary education for all

Direct initiatives are being undertaken to ensure better school attendance by children of disadvantaged groups and increase retention rates. The state pays attendance incentive scholarship of Rs. 50 per month to Scheduled Caste girl students if they manage 80 percent attendance. A scholarship of Rs. 30 per month is given to Vimukt Jati students. The Punjab School Education Board also provides free textbooks to all the Scheduled Caste students at the primary level.

The mid-day meal scheme has been introduced in 40 blocks, selected on the basis of lowest female literacy rates (1991 rates) in the state. These blocks are located in nine districts Patiala, Firozpur, Mukatsar, Mansa, Faridkot, Amritsar, Bathinda, Sangrur and Moga. Under the scheme, 3 kg of grain is given to each student.

Quality of Education

Gaining access to a school, passing examinations and being enumerated as literate are the major indicators of assessing education. However, these figures hide certain central questions in education in Punjab today.

Quality of Teaching

Much is written and said about quality of teaching, which greatly depends on the quality of textbooks. Many school teachers across different primary schools have spoken about the fact that school texts are badly written and do not attempt to be interesting or exciting for a child.[2]

Prof. Yashpal in the report, "Learning without Burden", wrote in the preface that "I and my colleagues.... are convinced that the more pernicious burden is that of non-comprehension. In fact, a significant fraction of children who drop out may be those who refuse to compromise with non-comprehension – they are potentially superior to those who just memorise and do well in examinations, without comprehending very much!"

There is an urgent need to make textbooks readable, exciting for children and written in a manner that makes learning fun.

[2] These discussions were held with school teachers during visits to rural government schools by Project Team.

Equally crucial is the teacher-pupil ratio. How effective is the 40 students per teacher formula which has been laid down as the national norm? Further, in innumerable cases where the teacher-pupil ratio is more than 40 to one, the burden on the teacher becomes enormous.

Given the wide variations in conditions, perhaps it is difficult to establish a fixed number to the teacher-student ratio. In discussions, many primary school teachers confessed to being more comfortable with numbers of students closer to 30 rather than 40. As soon as student numbers begin to exceed 40 per teacher, education suffers.

The challenge is not only to take education to every child, however backward and marginalised, but also to maintain the quality of education. Given the demand on the states' resources, it might be difficult to increase the number of teachers in government schools. However, there are many innovative community-based mechanisms available to increase the number of teachers for schools, such as making use of responsible literate mothers as part-time teachers.

Private Education

Private schools have mushroomed across the state, from nursery to high schools. These enclaves of relatively better but high-cost education provide alternatives to the state system but also create certain problems.

The advantages are easy to see—better educated children, varied activities and so on. The problems are more complex. Private schooling creates pockets of quality education, leaving children educated in government schools burdened with low quality education. Thus a dual system of education develops, in which private schools become associated with quality and government schools with large quantities.

Building Years, from Ages Three to Six

The child's growing years from birth up to the age of six are a critical phase in a child's development, since over 60 percent of a person's learning takes place in this time period. Those families aware of this, as well as influenced by peer pressure in cities and towns, send their children to some sort of school from the age of three or four. On the other hand, most rural children, children in slums, and children from poorer backgrounds do not enter a school till the age of six or seven or even eight years of age. Thus, the mental development of these children tends to fall behind that of those who have attended some sort of school from a much younger age.

The constitutional amendment which gives the right of education to every child aged 6-14 years, misses out on the earlier crucial years.

In Punjab, there are opportunities for pioneering efforts in this age group and the state could devise innovative community-based ways to educate children of ages below six years. Many child care programmes, child care centres and child care facilities are available in most villages and all smaller urban locations. These could be effectively used and run with local representatives.

Future Challenges

The most important challenge that faces the state government today is to implement within 10 years, Article 45 of the Directive Principles of the Constitution of India. Most of the states in India, including Punjab, have not been able to fulfil this Directive Principle. It is still virtually impossible for many children to gain access to primary schools.

The increasing privatisation of education, especially at the stage of primary education, whilst providing good and quality education to many children, has created a social divide. Privatisation of schools has

ensured that students who have the resources to pay for their education, can now gain access to better educational facilities. This has created elites at the level of primary schooling. In contrast, government schools have fallen behind in the crucial areas of infrastructure and quality of teachers, resulting in relatively poor students and unmotivated teachers. Nor can government schools compete with the few model schools known as the Navodya Vidyalayas or Adarsh Schools. These institutions, like their private counterparts, siphon off students belonging to more affluent sections, leaving overcrowded government schools sunk in gloom, burdened with inadequate teachers and poor facilities.

Privatisation of schooling has intensified class differences and led to the commercialisation of education. The government needs a policy which can effectively address these social divisions.

The main aim must be delivering quality education in public schools and ensuring that all children receive a similar quality of education up to at least primary and secondary levels. Government schools should not become bywords for bad students. Basic infrastructure, which the state is trying to ensure, trained and motivated teachers, a curriculum and textbooks that excite children, must be put in place. Most assessments of government standard books across India have shown them to be poor in quality and often severely uninteresting for children.

Curriculum should be made relevant to the needs of the 21st century. This is an area that needs urgent and maximum attention. Uniformity in education should also be ensured in the universities. Financial management is also important. A format should be prepared on how educational institutions should submit financial requirements for infrastructure development, procurement of equipment, etc.

The state government should also work out a policy that ensures greater co-ordination between education at school and college levels. Education must be job-oriented, geared towards finding employment opportunities and encouraging students towards self-employment.

Accountability of institutions needs to be strengthened. Decentralisation, granting greater autonomy to certain institutions, forging linkages with the private sector with a view to raising funds and keeping costs down need to be explored.

State education institutions must work to make curriculum more relevant, create interesting textbooks, work on teachers' training and motivation and on basic issues of school management. The Panchayat system in Punjab has not yet become as vibrant as it is in other states and in the absence of this, user committees of parents and other community leaders must be given a role in school management. Stakeholder involvement is critical to ensure accountability of teachers and primary school managers.

6. Women and Children – Facets of Human Development

Introduction

The Indian Constitution is firmly grounded in the principles of liberty, fraternity, equality and justice. It emphasises freedom for all and contains a number of provisions for the empowerment of women. Women's right to equality and non-discrimination are guaranteed under the constitution. Further, it has been explicitly clarified that affirmative action programmes for women are not incompatible with the principle of non-discrimination on grounds of sex.

India has reaffirmed its commitment to women by ratifying the UN conventions and international covenants like the CEDAW and Beijing Platform of Action.

The Constitutional provisions and affirmations at the global level have unfortunately not translated into the intended status for women in the country. Development in India and its states has not been equitable and men and women have benefited differently from development and progress, be it in the economic or on the political front. The social environment further exacerbates and reinforces this difference in development. The sex stereotypes in expected roles and responsibilities continue to perpetuate and reiterate this differential.

Punjab is no different from other states. Although the development levels by the state are exemplary, the status of women continues to be a cause of concern. On the political, economic and social front, women have lagged behind not because they are not capable but because they have been denied opportunities even to survive. The male- female sex ratio, the educational attainment levels, the infant mortality rates, the skilled workforce, access to common properties, right to inheritance are but a few indicators that highlight the differentials.

At the same time, it is important to note that there has been a dramatic increase in the spaces available to women, many of which have been a consequence of state initiatives, through the formulation of gender-sensitive programmes, initiatives by NGOs and other civil society groups. These changes have not come about in a single day. Rather they have been the result of concerted efforts by women themselves.

However, the critical issues that require to be addressed are increased violence against women and children in newer and more terrifying forms, the growing menace of identity-politics, the growing trend in economic policies which are eroding principles of distributive justice, growing environmental destruction, the continued marginalisation of women in public spheres and more importantly, from the areas of education, employment and better health services.

This chapter seeks to examine the social, political and economic life of Punjab and compare the

Box 6.1: Why Invest More in Women?

The Global HDR of UNDP 1995 noted, "Human development is a process of enlarging the choices for all people, not just one part of the society. Such a process becomes unjust and discriminatory if most women are excluded from its benefits. And the continuing exclusion of women from many economic and political opportunities is a continuing indictment of modern progress."

Experience has shown that the fruits of development, if invested in women, spread not only over a wider group of people, but also over a longer time span. Moreover, investing in women also entails a better and informed childcare, which can make a great difference in the growing up years of the child. Apart from these there remains the classic argument of multiplier effect that a gendered development perspective brings about in the overall development of a region.

The returns to society from investing in girls education are even larger and last for generations. Educated women have fewer children, and thus slow down the rate of population growth. They also tend to ensure better health and education for the future generations. The rate of return for girls' education is more than one percentage point higher than that for boys. The largest difference in returns comes from secondary education: 18.4 percent for girls and 13.9 percent for boys.

relative position of the sexes. It asks some simple questions: Do women in Punjab have the opportunity to live their lives with dignity? Do they have the right to choose what they want to do and the freedom to develop their lives in any way they wish to? Do they have the capability to acquire knowledge? Do they live long and healthy lives? Are they protected from major sources of violence, discrimination, want, fear and injustice? Do they enjoy the same choices and chances as the men?

To draw attention to gender issues, UNDP's Global Human Development Report 1995 introduced the Gender Development Index (GDI) and Gender Empowerment Measure (GEM). GDI attempts to adjust the HDI for inequalities in the achievement of men and women. A comparison of a country's/state's ranking on the HDI and its ranking on the GDI can indicate the existence of gender discrepancy. GEM is a composite indicator that captures gender inequality in three key areas of political participation, economic participation and power over economic resources.

The GDI in itself is not a comprehensive tool to give a complete picture of gender equality and related concerns and issues but it does throw light on the situation of women. The various components, which have a direct bearing on gender equality and women's empowerment need to be studied in detail through demographic indicators, health, reproductive and child health, livelihoods, education. This chapter does that and brings out the inter and intra-state differentials.

Women's Place in Punjabi Society

As in other parts of India, Punjabi society consists of hierarchies based on caste, class and community. Within these hierarchies there is yet another hierarchy—of gender—women being at the lower rung.

Generalisations on the condition of Punjabi women are almost impossible as there are sharp regional differences. There are many differences in health, literacy, education, sex ratio, rate of mortality, employment, incidence of poverty, political participation and so on.

The causes of such differences are, among others, pre-existing levels of development, availability or otherwise of natural resources, policies of the state government and regional norms and beliefs.

However, notwithstanding disparities, deprivation of women cuts across regions, classes and

castes. For example, the success of the Green Revolution has pushed women, so far important contributors in the production process, back into the private domain. They lost their economic independence and their higher status within their class, because, with increased income and consequent higher social status for the families, women were the first to be withdrawn from the workforce as symbols of newly acquired status.

Certain development policies, or rather the lack of them, had severe consequences in creating newer disparities. There were marked differentials in labour force participation for poor women, both urban and rural. The state of rural women, who comprise the majority of the women's labour force, is pitiable. Most of them belong to the informal sector, with little or no bargaining power, which contributes to their marginalisation. This sector requires urgent action and intervention by the state.

The Custom of Son Preference

Sikhism, Punjab's major religion, emphasises an egalitarian society. Sikh scriptures proclaim, "Why speak ill of those who give birth to kings?" But although in the realm of philosophy women are given equal, even elevated status, everyday realities tell a different story.

Discrimination against girls and women seems to be woven into the very socio-cultural fabric of the society.

The Punjabi society continues to place a premium on the male child. The birth of a son is an occasion to rejoice while the birth of a girl is a time for disappointment. Folk songs and dances reflect people's values and beliefs. The following two verses express clear preference for a male child:

"Chann chariya baap de vehre, ne veer ghar putt janmiya" (The moon shines in my father's courtyard, because a son has been born in my brother's house).

"*Jad ghar janmi dhee ve babula, sochee pai gaye jee ve babula*" (O father, it is a solemn occasion, a time for deep reflection, when a girl is born in the house).

So much so that the farewell note during the death of a girl child sometimes says, "*Gur khain, puni kattin, aap jayin bhra nu ghallee*" (Eat jaggery, spin yarn, you go, send a brother).

Is it a surprise then that female foeticide and infanticide are practised? Furthermore, those 'God-fearing' persons who cannot practise female foeticide continue to have children till the woman bears a male child—her health not being a matter of concern. A woman's status in society, among her own peers is measured not by what she is and what she does but if she has at least one male child. So strong is this need to 'belong' to the society and community that women themselves perpetuate the custom of son preference.

The preference for the male child is strongly rooted in economics, particularly scarcity of agricultural resources, such as land. Since women have been largely left out of the agricultural process, land and its use have become a typically male domain. Any woman trying to get her share of the ancestral property was accused of being vile, base and depraved.

A number of customs can be traced to efforts at keeping valued assets within the family. Widows were married off to younger brothers-in-law through a practice known as '*chadar pauna*'. Sisters were discouraged from asking for their share in property and any actions in this direction invariably led to rift in family ties. Women were thus discouraged from claiming any rights to land or assets of value.

The post-1975 period saw awareness among women about rights, particularly inheritance rights.

However, this awareness backfired as families began to fear that their property would go into the hands of the son-in-law, popularly known as *begana puut*, a possibility that could be avoided if there was already a son in the family. Thus, there emerged a heightened preference for the male child.

The custom of dowry, or the giving of gifts to a girl at the time of her marriage, gained ground. Dowry was seen as assets given in lieu of a girl's share in her parental property. It became customary to demand greater amounts of dowry and there were instances of women themselves demanding greater expenditure at weddings. These developments reinforced the existing preference for a son and rates of foeticide and infanticide began to rise.

Table 6.1: **HDI for Indian States, 2001**

States	Human Development Index
Andhra Pradesh	0.416
Assam	0.386
Bihar	0.367
Gujarat	0.479
Haryana	0.509
Karnataka	0.478
Kerala	0.638
Madhya Pradesh	0.394
Maharashtra	0.523
Orissa	0.404
Punjab	**0.537**
Rajasthan	0.424
Tamil Nadu	0.531
Uttar Pradesh	0.388
West Bengal	0.472
India	**0.472**

Source: Government of India 2001, "National Human Development Report", Planning Commission, New Delhi.

Population control measures such as sterilisations and a tendency towards nuclear or smaller families also fuelled the desire for male children.

Gender Development Index

During the post-Independence period, Punjab witnessed a high level of economic prosperity. The Green and the White Revolutions[1] ushered in economic growth as seen from high per capita incomes. High levels of economic development gave Punjab a relatively high HDI rank.[2] Punjab has an HDI value of 0.537. Only Kerala has a higher value of 0.638.

However, the high levels of development did not translate into progress for women. Society remained feudal and women's development abysmal resulting in a low gender development index. In the words of Dreze and Sen, "The north-western states, for instance, are notorious for highly unequal gender relations, some symptoms of which include the continued practice of female seclusion, very low female labour participation rates, a large gap in literacy rates, extremely restricted property rights, strong boy preference in fertility decisions, widespread neglect of female children and drastic separation of a married woman from her natal family."[3]

In Table 6.2, it can be seen that Punjab recorded low levels of development in crucial indicators such as life expectancy at birth, adult literacy levels and share of earned income.

The poor status of women is reflected through the gender development index (GDI), which measures the unequal achievements of men and women using the same indicators as HDI. Table 6.2 also reveals the gender equality index (GEI)[4] values of Indian states vis-à-vis Punjab in 1991.

[1] While the Green Revolution is a term given to the initiatives undertaken to promote agriculture production in the country in selected areas in late 1960s and 1970s, the White Revolution is a term referred to similar efforts to increase the production of milk in the country.

[2] UNDP's Human Development Index (HDI), using three indices—life expectancy, educational attainments and per capita GDP—measures a country's achievement in human capabilities.

[3] Jean Dreze and Amartya Sen, India: Economic Development and Social Opportunity, OUP, Delhi, 1995, p.47.

[4] The National Human Development Report released by the Planning Commission has made a Gender Equity Index, similar to the GDI.

Table 6.2: **Gender Equality Index (GEI) for Indian States, 1991**

State	HDI	GEI	Persons in the Labour Force (Per cent) 1999-2000		Life Expectancy at Birth (Years) 1992-96		Literacy Rate (Percent) 2001	
			Females	Males	Females	Males	Females	Males
Andhra Pradesh	0.377	0.801	54.2	85.1	63.0	60.8	51.17	70.85
Arunachal Pradesh	0.328	0.776	42.3	67.3	N.A.	N.A.	44.24	64.07
Assam	0.348	0.575	24.0	83.4	56.6	56.1	56.03	71.93
Bihar	0.308	0.469	26.3	85.2	58.2	60.2	33.57	60.32
Goa	0.575	0.775	24.6	77.4	N.A.	N.A.	75.51	88.88
Gujarat	0.431	0.714	44.6	84.9	62.5	60.5	55.61	76.46
Haryana	0.443	0.714	27.4	77.4	64.3	63.4	56.31	79.25
Himachal Pradesh	0.469	0.858	63.4	81.7	N.A.	N.A.	67.08	84.57
Jammu and Kashmir	0.402	0.740	38.5	81.2	N.A.	N.A.	41.82	65.75
Karnataka	0.412	0.753	45.4	85.0	64.5	61.1	57.45	76.29
Kerala	0.591	0.825	35.3	80.8	75.8	70.2	87.86	94.20
Madhya Pradesh	0.328	0.662	50.7	84.6	54.7	55.1	50.55	76.50
Maharashtra	0.452	0.793	46.3	82.1	66.2	63.8	67.51	86.27
Manipur	0.536	0.815	34.8	73.8	N.A.	N.A.	59.70	77.87
Meghalaya	0.365	0.807	62.1	85.0	N.A.	N.A.	60.41	66.14
Mizoram	0.548	0.770	48.7	78.5	N.A.	N.A.	86.13	90.69
Nagaland	0.486	0.729	60.6	74.1	N.A.	N.A.	61.92	71.77
Orissa	0.345	0.639	40.6	84.1	56.6	56.9	50.97	75.95
Punjab	0.475	0.710	33.9	82.2	68.6	66.4	63.55	75.63
Rajasthan	0.347	0.692	50.2	82.6	59.6	58.6	44.34	76.46
Sikkim	0.425	0.647	36.9	79.5	N.A.	N.A.	61.46	76.73
Tamil Nadu	0.466	0.813	47.6	83.6	64.8	62.8	64.55	82.33
Tripura	0.389	0.531	11.2	78.6	N.A.	N.A.	65.41	81.47
Uttar Pradesh	0.314	0.520	29.1	83.3	56.4	57.7	42.97	70.23
West Bengal	0.404	0.631	22.2	84.6	63.1	61.8	60.22	77.58
India	**0.381**	**0.676**	**38.5**	**83.5**	**61.4**	**60.1**	**54.03**	**75.64**

Source: Government of India 2001, "National Human Development Report", Planning Commission, New Delhi.

Table 6.3 compares HDI and GEI ranks of the Indian states.

Of the 25 States, Punjab ranks sixth in HDI but in GEI rankings it comes 16th. This gives the highest negative differential when HDI rank is compared vis-à-vis the GEI ranks and indicates that Punjab's affluence does not translate into better opportunities for women, and reinforces the fact that gender inequalities cannot be linked to income levels alone.

Within Punjab, an inter-district comparison (Table 6.4) reveals a high variation, with Rup Nagar having the highest GDI value of 0.669 and Amritsar, the lowest of 0.544. It is significant that Ludhiana, which has the highest HDI amongst the districts, ranks 9th in terms of GDI, revealing the high level of gender disparities. Likewise, in spite of its economic development, Fatehgarh Sahib ranks 3rd in HDI and 16th in GDI. Even Firozpur, Faridkot and

Gender imbalance; A serious concern for all

Table 6.3: HDI and GEI for Indian States, 1991

State	HDI	HDI Rank (out of 25 states)	GEI	GEI Rank (out of 25 states)	HDI Rank minus GEI Rank
Andhra Pradesh	0.377	17	0.801	6	11
Arunachal Pradesh	0.328	22	0.776	8	14
Assam	0.348	19	0.575	22	-3
Bihar	0.308	25	0.469	25	0
Goa	0.575	2	0.775	9	-7
Gujarat	0.431	11	0.714	14	-3
Haryana	0.443	10	0.714	15	-5
Himachal Pradesh	0.469	7	0.858	1	6
Jammu and Kashmir	0.402	15	0.740	12	3
Karnataka	0.412	13	0.753	11	2
Kerala	0.591	1	0.825	2	-1
Madhya Pradesh	0.328	23	0.662	18	5
Maharashtra	0.452	9	0.793	7	2
Manipur	0.536	4	0.815	3	1
Meghalaya	0.365	18	0.807	5	13
Mizoram	0.548	3	0.770	10	-7
Nagaland	0.486	5	0.729	13	-8
Orissa	0.345	21	0.639	20	-1
Punjab	**0.475**	**6**	**0.710**	**16**	**-10**
Rajasthan	0.347	20	0.692	17	3
Sikkim	0.425	12	0.647	19	-7
Tamil Nadu	0.466	8	0.813	4	4
Tripura	0.389	16	0.531	23	-7
Uttar Pradesh	0.314	24	0.520	24	0
West Bengal	0.404	14	0.631	21	-7
India	**0.381**		**0.676**		

Source: Government of India 2001, "National Human Development Report"", Planning Commission, New Delhi.

Table 6.4: HDI and GDI for the Districts in Punjab

Districts	Education		Health		Income		Overall		Rank		HDI Rank minus GDI Rank	Difference in Index
	HDI	GDI	HDI	GDI	HDI	GDI	HDI	GDI	HDI	GDI		
Amritsar	0.681	0.665	0.784	0.784	0.635	0.182	0.700	0.544	9	17	-8	22.29
Bathinda	0.655	0.648	0.722	0.714	0.646	0.512	0.674	0.625	14	7	7	7.27
F.G.Sahib	0.734	0.719	0.744	0.744	0.742	0.205	0.740	0.556	3	16	-13	24.86
Faridkot	0.669	0.665	0.752	0.746	0.673	0.518	0.698	0.643	10	4	6	7.88
Firozpur	0.627	0.626	0.767	0.769	0.671	0.535	0.689	0.643	12	4	8	6.68
Gurdaspur	0.761	0.752	0.820	0.821	0.589	0.123	0.723	0.565	4	15	-11	21.85
Hoshiarpur	0.801	0.803	0.719	0.715	0.635	0.419	0.718	0.645	5	3	2	10.17
Jalandhar	0.765	0.760	0.685	0.708	0.674	0.427	0.708	0.632	6	6	0	10.73
Kapurthala	0.705	0.705	0.728	0.752	0.688	0.498	0.707	0.652	8	2	5	7.78
Ludhiana	0.692	0.702	0.863	0.864	0.728	0.291	0.761	0.619	1	9	-8	18.66
Mansa	0.576	0.567	0.722	0.714	0.602	0.477	0.633	0.586	17	13	4	7.42
Moga	0.647	0.649	0.753	0.749	0.648	0.423	0.683	0.607	13	10	3	11.13
Muktsar	0.618	0.612	0.753	0.749	0.582	0.458	0.651	0.606	16	11	5	6.91
Nawanshehar	0.738	0.749	0.695	0.710	0.686	0.410	0.707	0.623	7	8	-1	11.88
Patiala	0.680	0.676	0.741	0.732	0.670	0.393	0.697	0.600	11	12	-1	13.92
Rup Nagar	0.753	0.755	0.762	0.766	0.737	0.485	0.751	0.669	2	1	1	10.92
Sangrur	0.601	0.604	0.669	0.690	0.690	0.433	0.654	0.575	15	14	1	12.08
Punjab		**0.689**		**0.745**		**0.406**		**0.614**				

Source: Calculated by Project team, based on tables 1 and 2 in the Statistical Tables

Bathinda rank better in GDI at 4th, 4th and 7th places respectively (both Firozpur and Faridkot have the same rank), while in terms of HDI they rank at 12th, 10th and 14th places respectively. This analysis also proves that a high level of HDI does not ensure an equally high level of GDI. The difference in ranking between HDI and GDI for the districts is highest in Fatehgarh Sahib and lowest in Patiala, Ropar, Sangrur and Nawanshehar; Jalandhar is the only district in Punjab where the HDI and GDI ranking is the same.

GDI however is not a fully adequate measure of women's status. This is indicated from the fact that Ropar district, which ranks 12th in terms of sex ratio and 4th in terms of female literacy, has the highest GDI. Thus for a better and more accurate analysis, the HDI-GDI percent is taken into consideration. The highest differential in this context is prevalent in Fatehgarh Sahib (24.86%) and lowest in Firozpur (6.68%). This is especially significant considering Firozpur's low ranking in terms of HDI, while Fatehgarh Sahib is much better placed.

A noteworthy factor in this context is that there is very little variation in education and health HDI and GDI figures, while the variation in income indices for both is quite significant. It would be seen from Table 6.4 that in Ludhiana, the education GDI at 0.702 is higher than HDI at 0.692, the health HDI is 0.863 and the GDI is 0.864, while the income index variation is to the tune of 0.437 with HDI income at 0.728 and GDI 0.291. This is indicative of not only marginalisation of women's labour, but more significantly the invisibility of women.[5]

It is again significant that Ropar which ranked first in per capita income at constant prices in 1998-99, ranks 1st in GDI, but Ludhiana and Fatehgarh Sahib, which ranked 2nd and 3rd in respect of per capita income (1998-99 at constant prices) rank 9th and 16th in terms of GDI. Interestingly, Muktsar, which ranks last in income, is relatively better placed in respect of GDI at number 11. This is a very clear indicator of the fact that the income level is no consideration in ensuring a better quality of life or more equal treatment for women. Thus, no general conclusions can be drawn with reference to HDI and GDI.

It has been argued that the HDI, GDI and the gender empowerment measure (GEM)[6] as concepts are not satisfactory as "(a) they do not measure the concerns of women in the south, (b) they measure gender development at the individual level only, ignoring macro and structural aspects of gender development, and (c) they are quite narrowly defined in terms of their coverage."[7] The HDI, furthermore, does not capture all aspects of human development, some of which such as autonomy, choice and political freedom are non-quantifiable. The Human Development in South Asia, 2000 Report too points out, "Composite indices such as the GDI and GEM cannot be taken as complete measures of gender equality or women's empowerment, as many facets of equity and empowerment—security, mobility, dignity, access to resources, autonomy—cannot be adequately represented by proxy measures. GDI and GEM can be important, however, to draw the attention of policy-makers and analysts to the 'gendered' effects of development in South Asia."[8]

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[5] In this context, it would not be out of place to mention the existence of family enterprises, including animal husbandry, in which women play a major role and contribute in significant proportion to the family income, yet their work is undercounted and under enumerated.

[6] The UNDP has also brought out the Gender Empowerment Measure, which attempts to measure and rank nations in terms of level of gender empowerment.

[7] Indira Hirway and Darshini Mahadevia, "Critique of Gender Development Index: Towards an Alternative", Economic and Political Weekly, October 26, 1996, p.ws-96

[8] Human Development in South Asia, Mahbub ul Haq Human Development Centre, OUP, Karachi, 2000, pp 40-41.

A gender- related balance sheet must be assessed within the complex socio-cultural situation of the state. The status of women in any society must be assessed in the context of not only the indicators taken for calculating the GDI, but in terms of other factors such as demography, health, education, work, political participation, as well as crimes against women.

Demographic Indicators

Sex Ratio

Sex ratio is a sensitive indicator of the status of women in society, at a given point of time. Men have outnumbered women in every census of the century. India's low sex ratio of 933 females per 1000 males in the current Census 2001 reveals a continuing imbalance in gender relations. The physiological strength of the girl child and her higher life expectancy at birth should actually keep the sex ratio above 1000, yet the perceptible decline from a sex ratio of 972 in 1901 to 933 in 2001 indicates an increasing gap between male and female children. Only Kerala and the union territory of Pondicherry have sex ratios above unity; 17 states have sex ratios above the national average.

Sex ratios in Punjab are similarly grim at the district level. Table 6.5 reveals that only Hoshiarpur has a sex ratio which is at least comparable with the national average and only two districts, viz. Hoshiarpur and Nawanshehar, have a sex ratio above 900. All the other 15 districts have sex ratios lower than 900. Hoshiarpur ranks at the top, with a sex ratio of 935 and Ludhiana at the bottom with a sex ratio of a mere 824.

Comparing inter-district rankings between 1991 and 2001 it can be seen that although the top and bottom status of Hoshiarpur and Ludhiana remain unchanged, there are considerable shifts in district ranks. Muktsar, for instance, has improved from 11th to 4th place, while Patiala has dropped from 10th place to 15th. Only Firozpur and Moga have shown no variation in ranks, continuing at 6th and 7th place respectively. Significantly, only five districts have shown an improvement in sex ratio, with the highest increase in Nawanshehar of 13

Table 6.5: **Ranking of Districts by Sex Ratio: 1991 and 2001**

Districts	Sex Ratio in 2001			Ranks in 2001			Sex Ratio in 1991			Ranks in 1991		
	T	R	U	T	R	U	T	R	U	T	R	U
Punjab	**874**	**887**	**848**	**-**	**-**	**-**	**882**	**888**	**868**	**-**	**-**	**-**
Amritsar	874	885	859	11	8	12	873	871	876	12	13	12
Bathinda	865	868	860	14	15	11	884	888	873	7	7	13
F.Sahib	851	859	832	16	17	16	871	870	873	14	15	13
Faridkot	881	876	892	9	11	2	883	882	884	9	9	8
Firozpur	883	893	857	6	6	14	895	898	887	6	5	7
Gurdaspur	888	895	868	3	5	8	903	905	895	2	4	3
Hoshiarpur	935	947	888	1	1	3	924	932	890	1	1	4
Jalandhar	882	904	859	8	4	12	897	907	883	4	3	9
Kapurthala	886	907	843	4	3	15	896	910	857	5	2	16
Ludhiana	824	877	784	17	10	17	844	880	812	17	10	17
Mansa	875	875	878	10	12	5	873	871	881	12	13	10
Moga	883	885	873	6	8	6	884	883	889	7	8	5
Muktsar	886	888	883	4	7	4	880	877	888	11	11	6
Nawanshehar	913	914	911	2	2	1	900	898	914	3	5	1
Patiala	864	862	868	15	16	8	882	875	899	10	12	2
Rup Nagar	870	869	871	12	13	7	870	870	870	15	15	15
Sangrur	868	869	864	13	13	10	870	866	881	15	17	10

Source: Provisional Series, Paper I of Punjab, Census of India

Note: T = Total; R = Rural; U = Urban

points, followed by Hoshiarpur (11), Muktsar (6), Mansa (2) and Amritsar (1). All others reveal a regression, the highest being in Ludhiana and Fatehgarh Sahib (20 points each).

There are wide variations between rural and urban areas. The rural sex ratio is generally higher then the urban one. Among the districts, it is noteworthy that Hoshiarpur ranks at the top in its rural sex ratio, but 3rd in urban sex ratio. Nawanshehar is at the top in urban sex ratio. Paradoxically, Ludhiana is 17th in urban sex ratio, but 10th in rural sex ratio. This seems to justify the hypothesis of male in- migration as the cause of a low sex ratio. But Fatehgarh Sahib is last in rural sex ratio and 16th in urban sex ratio. It is significant to note further, that Faridkot, Mansa, Ropar and Patiala have better sex ratios in urban areas in contrast to the generally prevailing trend in Punjab, reflective, perhaps of greater 'son preference' in rural areas, particularly in districts with a lower level of urbanisation.

Punjab has shown a consistently adverse sex ratio over time (Table 6.6) It was, however, heartening to see that the low sex ratio, apart from a sharp fall in early decades of the twentieth century[9] was slowly inching upwards until 1991. Alarmingly, the 2001 Census reveals a drop to a pre-1981 status, a case of one-step forward, two steps back.

A district-wise analysis does not reveal a consistently rising or declining trend for each of the districts. Districts which show a positive trend in one census show a decline in the next and vice versa. Between 1951-61, Moga, Muktsar, Faridkot, and Bathinda witnessed a decline in sex ratios. In the next decade, it was Hoshiarpur, Nawanshehar and Ludhiana, which showed a declining trend. But, significantly, during 1971-81, all districts showed a perceptible increase in sex ratio. Post 1981, four districts—Gurdaspur, Kapurthala, Ludhiana and Muktsar—saw a negative trend, but in the current census, as many as 11 districts, for the first time since Independence, have shown a decline in sex

Table 6.6: **Sex Ratio of Punjab and its Districts 1901 – 2001**

District	1901	1911	1921	1931	1941	1951	1961	1971	1981	1991	2001
Punjab	**832**	**780**	**799**	**815**	**836**	**844**	**854**	**865**	**879**	**882**	**874**
Amritsar	829	781	796	803	841	841	854	856	871	873	874
Bathinda	N.A.	N.A.	N.A.	N.A.	N.A.	839	834	851	861	884	865
Faridkot	N.A.	N.A.	N.A.	N.A.	N.A.	856	849	866	879	883	881
Fatehgarh	N.A.	N.A.	N.A.	N.A.	N.A.	773	815	831	841	871	851
Firozpur	826	778	802	814	810	835	840	876	884	895	883
Gurdaspur	853	774	794	809	843	846	869	890	907	903	888
Hoshiarpur	878	828	856	867	879	877	902	899	919	924	935
Jalandhar	848	783	807	841	859	857	867	883	890	897	882
Kapurthala	N.A.	N.A.	N.A.	N.A.	N.A.	880	886	889	898	896	886
Ludhiana	829	765	784	791	832	852	856	848	860	844	824
Mansa	N.A.	N.A.	N.A.	N.A.	N.A.	824	830	852	869	873	875
Moga	N.A.	N.A.	N.A.	N.A.	N.A.	867	862	866	881	884	883
Muktsar	N.A.	N.A.	N.A.	N.A.	N.A.	862	846	863	885	880	886
Nawanshehar	856	796	821	848	865	876	900	887	898	900	913
Patiala	N.A.	N.A.	N.A.	N.A.	N.A.	809	831	850	870	882	864
Rup Nagar	807	756	781	789	802	812	812	854	862	870	870
Sangrur	N.A.	N.A.	N.A.	N.A.	N.A.	820	832	840	860	870	868

Source: Census of India, 2001, Series-4, Punjab (Provisional Population Totals, Paper 1 of 2001)

Note: N.A. = Not available

[9] One of the causes for this sudden sharp decline could have been the plague, which occurred in the early twentieth century. It is important to consider, however, that the effect should have been the same for men and women. However, its greater impact on women can only be linked to the "insignificance " of a woman's life in a strongly patriarchal state.

Table 6.7: **Sex Ratio in the 0-6 age Group for Punjab and its Districts**

State/Districts	Sex Ratio in 0-6 age group – 1991 Census			Sex Ratio in 0-6 age group – 2001 Census			Change in points		
	Total	Rural	Urban	Total	Rural	Urban	Total	Rural	Urban
Punjab	**875**	**878**	**866**	**793**	**795**	**789**	**-82**	**-83**	**-77**
Amritsar	861	864	856	783	789	772	-78	-75	-84
Bathinda	860	866	844	779	789	756	-81	-77	-88
Faridkot	865	867	861	805	805	806	-60	-62	-55
FG Sahib	874	872	881	754	747	774	-120	-125	-107
Firozpur	887	894	864	819	824	804	-68	-70	-60
Gurdaspur	878	881	868	775	789	729	-103	-92	-139
Hoshiarpur	884	887	873	810	813	800	-74	-74	-73
Jalandhar	886	891	879	797	806	786	-89	-85	-93
Kapurthala	879	875	891	775	773	779	-104	-102	-112
Ludhiana	877	886	869	814	812	816	-63	-74	-53
Mansa	873	883	814	779	780	775	-94	-103	-39
Moga	867	867	866	819	820	811	-48	-47	-55
Muktsar	858	864	839	807	810	798	-51	-54	-41
Nawanshehar	900	898	913	810	811	805	-90	-87	-108
Patiala	871	870	872	770	764	786	-101	-106	-86
Rup Nagar	884	883	886	791	787	800	-93	-96	-86
Sangrur	873	877	863	784	779	798	-89	-98	65

Source: Provisional Series, Paper 2 of Punjab, Census of India, 2001

ratio. Policy makers are continuing to grapple with these figures.

The 0-6 age group portrays future trends. Data on this group is presented in Table 6.7, and the analysis is very disturbing. Punjab has the lowest child sex ratio in the country (793). It has witnessed a decrease of 82 points, which is the highest among states, although almost all the states show some degree of regression; Sikkim, Mizoram, Tripura, Lakshadweep and Kerala have witnessed some increase.

Punjab's districts show some appalling rates of regression. None of the districts show a positive trend. As a matter of fact, the lowest decline is as high as 48 points. Fatehgarh Sahib witnessed the highest decline of 120 points, and Moga, the lowest of 48 points. The decline is above the state average, in as many as nine districts. However, its extent and area varies. In some districts, urban areas show a greater adversity in sex ratio as in Gurdaspur, Amritsar, Kapurthala, Jalandhar, Nawanshehar, Moga, and Bathinda. In all the other districts, rural areas present a higher degree of decline. Dr. Sarala Gopalan and Dr. Mira Shiva reported that "Of the 55 districts in the country that have less than 900 girls per 1000 boys, 28 districts are in Haryana and Punjab".[10]

A comparison between districts on the general sex ratio and the sex ratio in the 0-6 age group reveals intriguing results. Ludhiana, which ranks at the bottom in general sex ratio, ranks 3rd in sex ratio in the 0-6 age group. In contrast, Hoshiarpur (first in general sex ratio) is at 4th place. Moga and Firozpur, ranking 7th and 6th respectively in overall sex ratio are at the top with a sex ratio of 819, while Fatehgarh Sahib continues to rank last with sex ratio at a mere 754.

The fact that of the 10 districts with the lowest child sex ratio in the whole of India seven belong to Punjab, viz. Fatehgarh Sahib, Patiala, Gurdaspur,

[10] S Gopalan & Mira Shiva, National Profile on Women, Health & Development, VHAI & WHO, 2000, p.19.

Table 6.8: **Districts with the Lowest Child Sex Ratio in India, 2001**

District	State	Sex Ratio
Ambala	Haryana	784
Amritsar	Punjab	783
Bathinda	Punjab	779
Fatehgarh Sahib	Punjab	754
Gurdaspur	Punjab	775
Kapurthala	Punjab	775
Kurukshetra	Haryana	770
Mansa	Punjab	779
Patiala	Punjab	770
Sonepat	Haryana	783

Source: Presentation by Mr. Sunil Gulati, Director, Census Operations, Haryana, at Regional Data Dissemination Workshop, Chandigarh, July 10, 2001

Box 6.2: **Misuse of Diagnostic Techniques for Male Child**

"A farmer, well past 60, and his wife, 55, wanted a child of their own. Not just any child, a male child who would be heir to their 150 acres. Their eldest son (24) is physically and mentally disabled, a daughter (23) has been married off and their youngest son (23) died of brain tumour. So they chose to go in for a male child to inherit their land. Medical help was easily available to them at Ludhiana, complete with an ultrasound test confirming that the foetus was male. The couple and the doctors have given jubilant interviews even though the entire exercise was a gross violation of the Pre-natal Diagnostic Techniques (Regulation and Prevention of Misuse) Act.

(Indian Express, 3.06.1998)

Kapurthala, Bathinda, Mansa, Amritsar, is once again appalling. The other three belong to Haryana. In 1991, three of such districts fell in Punjab, the others belonged to Tamil Nadu (1), Madhya Pradesh (1), Rajasthan (1) and Haryana (4). It is therefore alarming that by 2001, the number of districts have increased from 3 to 7. Decline in the sex ratio at birth, from 946 in 1981 to 854 in 1991, is equally indicative of increasing foeticide.[11]

It is difficult to arrive at a set of reasons for these low sex ratios. Punjab has a high level of development and ranks comparatively high in the HDI. Thus poverty cannot be cited as the foremost reason for a declining sex ratio.

The causes of a poor sex ratio cannot be traced to literacy either. Notably, the district with the highest sex ratio, viz. Hoshiarpur, also has the highest overall and female literacy rates, but the districts with lowest sex ratio, Ludhiana and Fatehgarh Sahib (17th and 16th respectively) are also ranked considerably high in literacy rates. Ludhiana is ranked 5th in overall literacy and 3rd in female literacy, while Fatehgarh Sahib is ranked 7th in overall literacy and 6th in female literacy. So the link with education too is difficult to sustain.

Nor can industrialisation and urbanisation be accepted as causes. Ludhiana is the industrial hub of the state and in-migration of labour is stated as one of the causes of the adverse sex ratio. However, Fatehgarh Sahib is a semi-urban, rural area and the same causes would not hold true here.

The declining sex ratio therefore must be considered along with factors of improved life expectancy, greater availability of health services and declining female mortality. A lower female death rate and higher life expectancy, seen along with a declining sex ratio can only indicate the increasing incidence of female foeticide as well as negligence of the girl child. Perhaps this was due to the large number of Sex determination Clinics which continued to proliferate all over the state in clear violation of the

[11] A survey conducted by the Institute for Development and Communication highlights a few features of the prevailing scenario in Punjab: (1) Thirty-three percent of respondents acknowledged having undergone sex determination tests in 2001, (2) In 2000, 45 % mentioned use of methods to ensure birth of male child. , (3) Strata and locational variance in practice of female foeticide: 53% respondents belonging to upper income group were found to be the largest users of pre-natal tests; middle income and lower income mentioned 39% and 19% respectively; urban (38 %), rural (33%), semi-urban (27%), (4) Eighty-one percent mentioned the necessity of a male child. In this females constituted 84% and males 78%.

Prenatal Diagnostic Techniques ACT. A technology developed to eliminate birth defects was being used to deny the girl child the Right to be born. The Govt. has been alarmed on this situation and the enforcement of the Act has been made strict.

That the five head priests of the Akal Takht[12] have declared the practice of killing the girl child as "*bajjar kurahit*" (unpardonable sin) is encouraging. Since this is a stern directive and not a request with excommunication as punishment, it reveals how concerned community leaders are.

To understand the paradox of a declining sex ratio in the face of improvement of economic indicators, there is a need to examine the gamut of socio-economic and cultural variables, which make the Punjab women equal yet unequal, marginalised yet valorised. Not only must the issues be correctly identified but the state must undertake wide ranging measures by which cultural and social attitudes are changed and legal strictures put in place.

Mortality Rates

Declining sex ratios generally mean a high death rate of women. Yet, here again Punjab presents contrasts. Overall death rates in Punjab are lower than the national level, but female mortality is higher than the national average for the year 1997. The difference between male and female mortality is also higher in Punjab (1.2 percent) as compared to the national level (0.6 percent).

Overall death rates may be in favour of females, but a look at age-specific death rates reveals a different picture. Table 6.9 reveals that in the 0-4 age group females have a much higher mortality rate than males, in spite of the fact that females at this age are biologically stronger. In this context, Barbara D. Miller makes a spine chilling report, "Not all groups practised female infanticide, but there are grim reports that a few entire villages in the north-western plains had never raised one daughter."[13]

Although mortality rates in the age group of 0-4 years for both males and females are much higher in rural areas as compared to urban areas, it is significant to note that the differentials in male-female mortality are much higher in urban areas as compared to rural areas. Higher female mortality is seen up to the age of 19, after which there is a reversal in the trend with a higher percentage of male mortality. Significantly in the 5-9 age group, not only does the difference between male and female mortality diminish, but the rural-urban divide in case of male mortality vanishes. The rural-urban divide continues in case of females, with females recording a higher incidence of mortality in rural areas as compared to urban areas. Interestingly, in the 25-29 and 70+ age group, female mortality is higher in urban areas as compared to rural areas. Considering the fact of higher female life expectancy at birth and lower female mortality rates overall, the implications of the declining sex ratio appear even more horrific.

A significant factor affecting mortality differentials is the birth order. A study in Punjab recorded a female to male mortality ratio of 0.75 among 0-4 years of age in the case of the first child. The ratio rose to 1.23 for the second child and doubled to 1.53 for the fourth or later children.[14] It was found that mortality rates were even higher amongst second-born girls if the first surviving child was a girl. These variations reveal that the benefits of medical advances and

[12] The supreme seat of Sikh religious authority.

[13] Barbara D. Miller, "Female Infanticide and Child Neglect in Rural North India" in Caroline B. Bretall and Carolyn F. Sargent (eds.) Gender in Cross-Cultural Perspective, Prentice-Hall, New Jersey, 1993)

[14] Monica Dasgupta, "Selective Discrimination against Female Children in Rural Punjab, India," Population and Development Review, 13 (1), March 1987.

Table 6.9: **Age-specific Mortality Rate by Sex and Residence, 1997 (Punjab)**

Age-group	Total			Male			Female		
	Total	Rural	Urban	Total	Rural	Urban	Total	Rural	Urban
0-4	14.9	16.2	10.7	12.6	14.7	6.3	17.6	18.1	16.1
5-9	0.7	0.8	0.5	0.2	0.2	0.3	1.3	1.5	0.8
10-14	0.8	0.8	0.6	0.5	0.4	0.7	1.0	1.3	0.4
15-19	1.4	1.5	1.0	1.2	1.3	0.8	1.5	1.6	1.3
20-24	2.0	2.3	1.3	2.2	2.4	1.6	1.8	2.2	0.9
25-29	2.8	3.0	2.3	3.6	4.2	2.1	1.9	1.8	2.4
30-34	2.2	2.9	0.5	3.2	4.0	1.0	1.3	1.8	0.0
35-39	3.3	3.5	3.0	4.8	4.9	4.6	1.7	2.0	1.2
40-44	6.1	7.4	2.7	8.2	10.3	3.2	3.8	4.5	2.1
45-49	4.5	4.8	3.7	6.2	6.9	4.6	2.6	2.6	2.7
50-54	12.9	12.6	13.8	14.0	13.5	15.5	11.5	11.5	11.8
55-59	11.9	10.5	15.6	13.3	12.6	15.0	10.4	8.3	16.3
60-64	20.1	18.9	24.7	23.3	21.9	28.5	17.1	16.1	20.7
65-69	29.1	27.9	33.2	32.8	29.3	46.0	25.1	26.3	21.1
70+	70.2	68.4	77.7	77.7	76.0	85.5	62.1	59.9	70.4
All ages	7.4	7.8	6.1	8.0	8.5	6.3	6.8	7.0	6.0

Source: Compendium of India's Fertility and Mortality Indicators, 1971-97 based on SRS.

improved health care delivery system reach greater number of male than female children. In her analysis of Khanna in Ludhiana District, Monica Dasgupta, further shows that girl children are selectively eliminated as part of a woman's family building strategy that aims to have more sons than daughters. If not infanticide, then death is caused by neglect. She reaches the startling conclusion that education has not altered these results.

Infant and Child Mortality

The implications of the declining sex ratio also need to be analysed keeping in mind the decline in infant

Table 6.10: **District-wise Total Infant Mortality Rate, Male Infant Mortality Rate and Female Infant Mortality Rate for 1981 and 1991**

Districts	Infant Mortality					
	Total		Male		Female	
	1981	1991	1981	1991	1981	1991
Amritsar	74	49	@	48	78	50
Bathinda	80	72	@	69	83	74
Faridkot	78	53	77	54	78	51
Firozpur	75	61	74	58	76	63
Gurdaspur	78	75	75	75	82	74
Hoshiarpur	81	76	76	68	@	85
Jalandhar	75	53	70	56	80	51
Kapurthala	92	86	77	73	@	94
Ludhiana	66	45	66	42	69	47
Patiala	78	64	76	69	@	59
Rup Nagar	73	60	71	59	75	60
Sangrur	87	53	89	54	@	51
Punjab	**77**	**56**	**74**	**62**	**79**	**53**

Source: 1.Occasional Paper No. 10 of 1998, Fertility & Child Mortality Estimates of Punjab. Table 2.1 q (1), Page 41-44, Census of India, 1981, 2 .Punjab State District Profile-1991, Table no.14, (q1), page 26, Census of India, 1991. Note: @ Not Available

Table 6.11: **Mortality Rate of Children Under 5 Years**

Districts	Infant Mortality					
	Total		Male		Female	
	1981	1991	1981	1991	1981	1991
Amritsar	103	61	73	65	115	60
Bathinda	114	87	107	84	121	91
Faridkot	112	67	109	68	117	65
Firozpur	108	77	103	76	114	79
Gurdaspur	116	99	107	96	126	101
Hoshiarpur	118	100	110	101	127	99
Jalandhar	109	69	101	70	118	69
Kapurthala	106	112	107	101	105	121
Ludhiana	94	60	88	59	100	61
Patiala	114	80	109	81	119	73
Rup Nagar	103	76	98	77	109	74
Sangrur	129	79	123	78	135	80
Punjab	**111**	**92**	**104**	**97**	**118**	**82**

Source: 1. Occasional Paper No.10 of 1998, Fertility & Child Mortality Estimates of Punjab, Table 2.1 q (5), Page 41-44, Census of India, 1981. 2. Punjab State District Profile-1991, Table no.14,(q5), page 26, Census of India, 1991.

mortality in general and female infant mortality in particular.

Table 6.10 provides interesting figures. Female infant mortality is lower in every district as compared to male infant mortality. Female infant mortality has decreased at a faster rate vis-à-vis male infant mortality from 79 to 53 per 1000 live births, a decline of 26 as compared to 12 in the case of male infant mortality over the decade 1981-91.

Considering the mortality rate of children less than 5 years of age, Table 6.11 shows that over the ten-year period from 1981 to 1991, female mortality rate in this age group declined at a much faster rate by 36 points as compared to only 7 points for males. Amongst the districts, Kapurthala has the highest female child mortality rate, while Amritsar has the lowest. This shows that it is not infant and child mortality that are leading to a low sex ratio in Punjab.

Fertility Rate

The decline in death rates is accompanied by a corresponding decline in birth rates, indicative of Punjab's demographic transition. Table 6.12 reveals that the birth rate in Punjab has declined from 34.2 in 1971 to 23.4 in 1997, i.e., a decline of 1.8 percent. The decline is much greater in urban areas as compared to rural areas.

Frequent childbirth is one of the major causes for the low health status of women. Corresponding to the decline in birth rates, fertility rates too have declined from 5.2 in 1971 to 2.7 in 1997. The decline is slightly greater in rural areas at 2.9 as compared to urban areas (2.2), although the fertility rate in urban areas continues to be lower than that in rural areas.

Table 6.12: **Birth Rate and Total fertility Rate in Punjab (1971-1997) by place of residence**

Year	Birth rate			Total Fertility Rate		
	Total	Rural	Urban	Total	Rural	Urban
1971	34.2	35.0	31.4	5.2	5.5	4.4
1981	30.3	30.8	28.5	4.0	4.1	3.4
1991	27.7	28.5	25.6	3.1	3.2	2.8
1997	23.4	24.9	19.0	2.7	2.9	2.2

Source: Compendium of India's Fertility and Mortality Indicators, 1971-1997, based on SRS.

Decline in fertility rates can have significant ramifications for women's health, leading to its overall improvement. The NFHS-II estimate of the TFR for the state is 2.2 children per woman, which is the average number of children that would be born to a woman if, hypothetically, she experienced current age-specific fertility rates as she lived through her reproductive years, that is, age 15-49.

During 1989-91 and the next five years, TFR in Punjab declined from 2.9 to 2.2, a decline of 24 percent.[15] NFHS II however reveals a faster decline in fertility in urban areas as compared to rural areas. It also reports that fertility in urban areas is about 15 percent above the replacement level. The peak of fertility, again revealed by NFHS II is in the age group of 20 to 24 years with a sharp decline after the age of 30 years.

Maternal and Child Health Issues

The biological processes of conception and childbearing are among the most significant facts influencing a woman's health. In fact, most studies on women's health focus on reproductive health matters to the exclusion of others. Millions of women face challenges to their health during this very natural process of childbirth. In fact, the problem starts from the adolescent years, i.e., between puberty and young adulthood, as reproductive health care is not given adequate importance in our society.

The issue of sexual health assumes primacy in the case of girls. Sex is a taboo subject in most homes and most young girls are unaware of its implications.

There is a prevalence of anaemia among a number of adolescent girls. Most girls suffer from anaemia primarily due to widespread discrimination in the quality and quantity of food that is available to them. Anaemia naturally has unfavourable consequences for the reproductive years and tackling it at the adolescent stage is likely to yield better results than trying to deal with it during the limited period of contact between a pregnant woman and a health worker.

Crucial inputs are needed to raise girls' awareness. Girls at this stage need to be made more aware of AIDS, safe sexual practices, contraception, sexually transmitted diseases, etc. Teenagers should also be made to understand the positive consequences of physical sanitation. A number of infections occur due to poor hygiene during the menstrual cycle.

The state needs to promote certain programmes. Perhaps a woman worker from the community can be attached to the *anganwadi* to help adolescent girls in their transition to womanhood. The worker should be able to work at all levels, at the level of the girls, with her parents and the community. At a wider level, the state ought to protect the right of girl adolescents so they may lead a healthy and safe life.

Maternal health indicators provide figures on the social and economic inequalities between women and men.

Table 6.13 reveals that Punjab ranks very low on maternal health indicators compared to other states. It ranks 9th in respect of number of registered pregnant women, 10th in terms of women receiving iron and folic acid tablets (IFA), 8th in terms of institutional delivery and 10th in terms of post-natal care. The only positive point may be seen in the number of women receiving two doses of tetanus toxide, in which case Punjab is ranked 3rd. In respect of IFA tablets, even Orissa is ranked better than Punjab. Considering the high level of availability of health services, the high level of development, per capita income and literacy levels,

[15] NFHS-II, Punjab Preliminary Report.

Table 6.13: **Some Maternal Health Indicators of 15 Major States, 1995-96**

States	Pre-natal care			Natal Care	Post-Natal Care
	No. Registered per 1000 Pregnant Women	No. Received per 1000 Pregnant Women		Delivery in Health Institutions per 1000 Deliveries	No. Registered per 1000 Mothers
		2 doses of Tetanus Toxide	Iron and Folic Acid Tablets		
Andhra Pradesh	772 (3)	546 (5)	670 (3)	365 (5)	416 (5)
Assam	650 (6)	377 (11)	615 (7)	135 (12)	366 (6)
Bihar	99 (15)	231 (15)	125 (15)	95 (15)	74 (15)
Gujarat	644 (7)	474 (8)	629 (6)	332 (6)	419 (4)
Haryana	421 (11)	441 (10)	416 (11)	202 (9)	251 (11)
Karnataka	721 (5)	531 (6)	646 (5)	458 (4)	364 (7)
Kerala	874 (1)	644 (1)	783 (1)	924 (1)	495 (3)
Madhya Pradesh	417 (12)	270 (12)	399 (12)	164 (10)	304 (8)
Maharashtra	734 (4)	490 (7)	665 (4)	462 (3)	518 (2)
Orissa	489 (10)	453 (9)	520 (9)	131 (13)	277 (9)
Punjab	585 (9)	586 (3)	502 (10)	242 (8)	268 (10)
Rajasthan	270 (13)	234 (14)	289 (13)	147 (11)	120 (14)
Tamil Nadu	828 (2)	600 (2)	743 (2)	718 (2)	554 (1)
Uttar Pradesh	192 (14)	246 (13)	177 (14)	106 (14)	141 (13)
West Bengal	637 (8)	580 (4)	573 (8)	312 (7)	246 (12)
All India	**455**	**381**	**424**	**254**	**271**

Source: Sarvekshana, Vol. XXIII, No. 3, Jan-March, 2000, Issue No. 82, NSS 52nd Round, July 1995-June 1996

Note: Numbers in parentheses indicate ranking

these figures indicate the high inequalities between the sexes in the household.

The condition of children in the state is also not heartening. The causes of poor survival rates are generally premature deliveries, respiratory diseases, poor nutrition and infections such as diarrhoea, measles, mumps, jaundice, etc. Also absent, especially in the rural and underdeveloped parts of the state is effective ante-natal and post-natal care. Babies born to mothers who are very young or very old and those where the inter-pregnancy interval is very little, are at high risk.

There is also the incidence of diseases arising from unsanitary living/ working conditions. Water-borne diseases, which constitute 70 percent of all diseases, affect the health status of children. Among them diarrhoea has received considerable attention primarily because the incidence is highest in the 6-11 months bracket and is a major killer disease for children under 5 years. The government has initiated an Oral Rehydration Therapy Programme, mainly to improve child survival figures. The drive includes trying to raise the awareness of women and the community on this problem. Acute respiratory diseases are also a major threat for children, which has been the subject of research by the Central Bureau of Health Intelligence (1991). Acute respiratory-tract infection, primarily pneumonia was a common cause of death among infants and children in the age group of 6-11 months.

There are diseases that create physical and mental handicaps in children. As children are already a vulnerable group and largely dependent on others, those children who are challenged, either mentally or physically, are doubly disadvantaged and need greater support. Legislative as well as rehabilitative support mechanisms are required here.

Vaccination and immunisation occupy a central position in child health. Immunisation of children against six serious but preventable diseases (TB, diphtheria, measles, tetanus, polio and pertussis)

has been a cornerstone of the health care system. It has been given priority in the National Health Policy. In Punjab, 72 percent of the children in the age group of 12-23 months had been immunised against all six diseases (NFHS-II).

Nutrition

Levinson's study of Punjab shows that gender is the most significant determinant of nutritional status.[16] Another study of Punjab compared 'privileged' and 'under-privileged' sections and found that even in the privileged group 24 percent of females were malnourished. In the under-privileged group this percentage increased to 74 percent. The percentages for males were lower in both cases i.e. 14 percent among the privileged and 67 percent in the under-privileged group. This illustrates that not only is the girl child more likely to suffer from malnutrition, but that when they do the severity of their malnutrition is greater.[17]

While poverty is a major contributing factor to nutritional deficiencies, Punjab, with its legendary rivers of milk and abundance of food grains presents a paradoxical picture, where abundance combines with a high level of undernutrition in children as reported by NFHS–II (Punjab, 1998-99). It further reports that there is some evidence to indicate that female children are nutritionally disadvantaged, although differences are relatively small.

During pregnancy and lactation, women fail to get the requisite special diet and prevailing gender inequalities in the household make it difficult for them to access this diet. This is substantiated by a World Bank Study conducted in Punjab.[18]

However, Punjabi women are relatively better off compared to those in other states with respect to nutritional deficiencies, one indication of which is low levels of anaemia amongst women. NFHS II (India) survey results show that 41.4% of women suffer from anaemia, 28.4% are mildly anaemic, 12.3% have moderate anaemia and 0.7% are severely anaemic. Only Kerala (22.7%), and Himachal Pradesh (40.5%) amongst the peer states are better placed in this regard. However, 80% of children were found to be anaemic. This is significantly higher than the all India average of 74.3 percent and is lower than only Haryana and Bihar even Uttar Pradesh and Orissa are better off in terms of anaemia in children.[19]

The most vulnerable group, which faces malnutrition, is the age group between 6 months to 2 years (NFHS-II). This period has been described as one of 'perpetual hunger', characterised by dependence on others for food.

Age at Marriage

Age at marriage is relatively high in Punjab. NFHS II (Punjab) reports that a majority of women in Punjab get married only after attaining the legal minimum age of marriage. The Singulate Mean Age at Marriage (SMAM) for females age 25-49 years estimated by the National Family Health Survey (1998-99 - Punjab) is 21 years in urban areas, 20 in rural areas and 21 years overall. Marriage ages have been rising over time. The SMAM for females has risen by three and a half years during the two decades from 17.5 years in 1961 to 21.1 years in 1981. Age at marriage had remained unchanged between 1981 and 1998.[20]

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[16] F.J.Levinson, Morinda: An Economic Analysis of Malnutrition Among Young Children in Rural India, Cornell-MIT, International Nutrition Policy Series, Cambridge, Mass., 1974.

[17] D.Das, J.Dhanoa and B.Cowan, "Letting them Live" in Meera Chatterjee, A Report on Indian Women from Birth to Twenty, NIPCCD, New Delhi, 1990, p.12.

[18] Human Development in South Asia, Mahbub ul Haq Human Development Centre, Karachi, 2000, p.125.

[19] NFHS 2, (1998-99), International Institute of Population Sciences, Oct. 2000

[20] National Family Health Survey, Punjab, 1998-99.

Family Planning

Knowledge and correct usage of contraception have a positive impact on the lives of women and often women have very little say in decisions concerning family planning. It is the husband who decides whether and what form of contraception to use. Amongst the methods of contraception used in Punjab, female sterilisation (tubectomy) is the most popular contraceptive method (29%) followed by condoms (14%), rhythm/ safe period and withdrawal (6%), pill (3%) and male sterilisation (vasectomy, 2%).[21] The much higher prevalence of tubectomies against vasectomies is again indicative of a gender bias in decision-making regarding family planning and contraception. The Statistical Abstract, 2000, also reveals that in 1999-2000, there were 1,24,261 tubectomies as compared to merely 1800 vasectomies.

Access to Medical Aid

Compared to other states, the availability of medical aid in Punjab is fairly good. The delivery of health services is governed mainly by the National Health Policy, which places a major emphasis on ensuring primary health care to all by the Year 2000. Some of the major goals under this were reduction of infant mortality rate to less than 40 per thousand live births; reduction of 1-4 years mortality rate to less than 10 by 2000 AD; reduction in vaccine-preventable diseases; enhancement of the use of ORT; reduction of mortality rates due to acute respiratory infection among children under 5 years by 40% from the present level; to reduce by 50 % the pre natal and neo-natal mortality from the 1990 level.

Better availability of health facilities is reflected in the fall in birth rate, death rate, infant mortality rate and increase in life expectancy. The Statistical Abstract of Punjab 2000 reveals that in 1999 out of a total of 4,63,679 indoor patients, 2,28,985 were men and 2,34,694 were women and out of 115,64,164 outdoor patients, again a majority (60,31,473) were women as compared to 55,32,691 men.

Education

Although significant progress has been made in education, yet vast gender gaps persist. Punjab ranks 16th in terms of literacy compared to other states and union territories. It is better placed in terms of female literacy (14th) as compared to male literacy (25th). This could be indicative of the increased efforts to promote female education. In comparison, in a number of states female literacy rate is almost half of that of male literacy rate, as in Jharkhand and Bihar.

Table 6.14 reveals that overall literacy rates for Punjab have more than doubled in the last 30 years. Female literacy has increased at a much rapid pace than male literacy, and as a result the gap, which was 17.58% in 1971, declined to 12.08% in 2001, indicative of increasing access to educational facilities. A district wise analysis reveals Hoshiarpur as the most literate district with almost four out of every five persons possessing some amount of education. Mansa stands at the bottom rung of the ladder with only 52.50 percent literates. In respect to female literacy too, Hoshiarpur tops the list (75.56%) while Mansa is at the bottom (45.07%). It is however noteworthy that Mansa shows the highest increase in overall as well as female literacy over 1991 (15.27 & 16.53).

Table 6.14: **Literacy Rate in Punjab**

(in percent)

Year	Persons	Males	Females
1971	34.12	42.23	24.65
1981	43.37	51.23	34.35
1991	58.51	65.66	50.41
2001	69.95	75.63	63.55

Source: Census of India, 2001, Series 4, Punjab (Provisional Population Totals, Paper 1 of 2001)

It is generally believed that greater urbanisation would create more educational opportunities for women. This is true only to a very limited extent in Punjab. Ludhiana, notwithstanding its high level of industrialisation and urbanisation, ranks at fifth place in literacy levels, while Hoshiarpur, where industrialisation is relatively a new phenomenon, ranks at the top. Rural-urban differentials are considerable for overall literacy as well as male and female literacy. However, the rural-urban gap in female literacy is much higher as compared to male literacy. The same is true at the district level. The rural-urban gap in female education is the most glaring in Mansa district (24.11%) and is the lowest in Hoshiarpur.

District-wise, Ludhiana shows the minimum gender literacy gap of 8.08 percent in 2001, while Firozpur has the highest percentage gap of 17.22 percent. This gender gap in education has declined for other districts as well. The highest decline of 5.47 percent was in Hoshiarpur district, while the lowest was in Bathinda, a mere 1.41 percent.

The Human Development in South Asia Report (2000), of Mahbub ul Haq Development Centre, succinctly points to the causes of the prevailing gender gap in education: "Low female participation in the education system is primarily the outcome of two factors: low parental demand for girls' schooling; and the public and private sectors' supply of educational services that do not respond to the communities' needs." The report also alludes to the "opportunity costs" of sending girls to school as they perform more chores at home as compared to boys.[22]

Sex Ratio and Literacy Levels: A Comparison

The relationship between education and health has been established by a number of studies. However, a comparison of literacy ranking with ranking in sex

Table 6.15: **District-wise Literacy Rate in Punjab: 2001**

(in percent)

State / Districts	Literacy rate*								
	Total			Rural			Urban		
	Total	Male	Female	Total	Male	Female	Total	Male	Female
Punjab	**69.95**	**75.63**	**63.55**	**65.16**	**71.70**	**57.91**	**79.13**	**82.97**	**74.63**
Amritsar	67.85	73.58	61.41	60.65	67.83	52.69	78.37	81.84	74.39
Bathinda	61.51	68.31	53.76	55.30	62.46	47.16	75.96	81.88	69.19
Fetehgarh Sahib	74.10	78.85	68.60	71.71	76.86	65.83	80.22	83.87	75.87
Faridkot	63.34	68.92	57.09	58.58	64.18	52.27	72.71	78.35	66.49
Firozpur	61.42	69.55	52.33	55.75	64.78	45.78	77.22	2.58	71.03
Gurdaspur	74.19	80.44	67.31	70.96	77.70	63.58	83.43	88.16	78.11
Hoshiarpur	81.40	86.97	75.56	80.09	86.11	73.87	86.66	90.30	82.62
Jalandhar	77.91	82.37	72.93	74.41	80.14	68.17	81.74	84.73	78.29
Kapurthala	73.56	78.66	67.90	70.57	76.27	64.41	79.63	83.30	75.33
Ludhiana	76.54	80.19	72.11	72.88	78.32	66.73	79.42	81.58	76.66
Mansa	52.50	59.12	45.07	47.56	54.27	40.03	71.23	77.56	64.14
Moga	63.94	68.40	58.96	61.18	65.93	55.87	74.84	78.05	71.20
Muktsar	58.67	65.94	50.59	54.10	61.84	45.49	71.93	77.78	65.40
Nawanshehar	76.86	83.67	69.52	75.99	83.15	68.27	82.26	86.84	77.30
Patiala	69.96	76.13	62.94	63.34	70.40	55.29	81.99	86.52	76.84
Rup Nagar	78.49	84.43	71.74	74.51	81.39	66.71	86.60	90.63	82.01
Sangrur	60.04	65.97	53.29	55.86	61.93	48.98	70.12	75.67	63.76

Source: Census of India, 2001, Series-4, Punjab (Provisional Population Totals, Paper 1 of 2001)

Note: *Literacy Rate is the percentage of literates to population aged 7 years and above.

[22] Human Development in South Asia, Mahbub ul Haq Human Development Centre, Karachi, 2000, p.116

ratio presents an intriguing picture. Hoshiarpur is the only district which shows some correlation between higher literacy and sex ratio. Data for the other districts does not permit any general correlation. Muktsar, which ranks 16th in terms of literacy, is at 4th place in sex ratio. Paradoxically, Ropar, which is ranked second in literacy levels, is 12th in sex ratio and Ludhiana, which has the lowest sex ratio in Punjab, is ranked 5th in literacy. The implications of these figures to some extent negate the assumption that improved literacy levels positively influences sex ratios.

Box 6.3: Engendered Education

"A truly engendered education does not end at basic literacy: that is where it begins. Women must also learn about their rights and choices and acquire the skill necessary to exercise them." (Human Development in South Asia, Mahbub ul Haq Human Development Centre, OUP, Karachi, 2000, p.116)

Women and Work

In Punjab as in India, women are relatively invisible in workforce statistics. Restrictive definitions of 'work', mostly based on economic concepts of productivity, have reduced women to economic non-entities. This is because women's labour, in most cases does not directly produce marketable goods or services. This gendered notion of work has hugely undermined women's contribution to the economy, resulting in the non-recognition of women as important economic entities.

This fact was emphatically recognised in Shramshakti, which declared, "Although women work for longer hours and contribute substantially to the family income, they are not perceived as workers by either the women themselves or the data collecting agencies and the government, as all of them do not recognise the multidimensional functions of women, which include their productive and reproductive labour. Women quite often are the major earners for their families. This also goes unrecognised." [23]

Table 6.16: Ranking of Districts by Sex Ratio and Literacy Levels 2001

District	Ranking by sex ratio	Ranking by literacy		
		Total	Male	Female
Amritsar	11	10	10	10
Bathinda	14	13	14	13
Fatehgarh Sahib	16	7	7	6
Faridkot	9	12	12	12
Firozpur	6	14	11	15
Gurdaspur	3	6	5	8
Hoshiarpur	1	1	1	1
Jalandhar	8	3	4	2
Kapurthala	4	8	8	7
Ludhiana	17	5	6	3
Mansa	10	17	17	17
Moga	6	11	13	11
Muktsar	4	16	16	16
Nawanshehar	2	4	3	5
Patiala	15	9	9	9
Rup Nagar	12	2	2	4
Sangrur	13	15	15	14

Source: Census of India, Series 4, Punjab, Provisional Population Totals, 2001

[23] Shramshakti, p.7

The causes of the low participation rate of women have been outlined by the Human Development in South Asia Report, 2000: "The invisibility of women's work, domestic chores and other tasks, are part of a cultural/traditional attitude which views man as the primary bread-winner. Indeed, women report themselves as non-workers because they tend to regard their labour as 'domestic responsibilities' and are therefore, outside market related or remunerated work."[24]

This holds particularly true for Punjab. Notwithstanding the high level of development and education, Punjab has the lowest female workforce participation rate in the country. The majority of women are included in the category of non-workers, conclusive evidence of the invisibility of women's work.

Table 6.17 reveals that even general workforce participation rates (WPR) for Punjab are lower than the national level though these have increased since 1991. This has been accompanied by an increase in female work participation rates. The female work participation rates have increased for both main and marginal workers and that too substantially.

The overall female work participation rates have increased, but this is much more significant for rural Punjab compared to urban Punjab. In spite of this increase, female WPRs remain very low in Punjab. Why is women's work invisible? Can the causes be traced to migration of female labour, to the Green Revolution and technological use, which ignores female unskilled labourers, or should it be attributed to a decline in sex ratios?

Table 6.17: **Total Workers, Main Workers, Marginal Workers and Non-Workers as Percentage of Total Population, 1991 & 2001**

	Total/Rural/ Urban	Persons/ Males/Females	Total Workers		Main Workers		Marginal Workers		Non-Workers	
			1991	2001	1991	2001	1991	2001	1991	2001
India	Total	Persons	37.50	39.26	34.18	30.55	3.32	8.71	62.50	60.74
		Males	51.61	51.93	51.00	45.35	0.61	6.59	48.39	48.07
		Females	22.27	25.68	16.03	14.68	6.24	10.99	77.73	74.32
	Rural	Persons	40.09	41.97	35.84	31.03	4.25	10.94	59.91	58.03
		Males	52.58	52.36	51.88	44.51	0.70	7.85	47.42	47.64
		Females	26.79	30.98	18.75	16.77	8.04	14.21	73.21	69.02
	Urban	Persons	30.16	32.23	29.48	29.30	0.68	2.93	69.84	67.77
		Males	48.92	50.85	48.57	47.46	0.35	3.38	51.08	49.15
		Females	9.19	11.55	8.15	9.12	1.04	2.43	90.81	88.45
Punjab	Total	Persons	30.88	37.58	30.07	32.23	0.81	5.36	69.12	62.42
		Males	54.22	54.10	54.12	49.97	0.10	4.13	45.78	45.90
		Females	4.40	18.68	2.79	11.92	1.61	6.76	95.60	81.32
	Rural	Persons	31.21	39.73	30.11	32.70	1.10	7.03	68.79	60.27
		Males	55.04	54.45	54.92	49.35	0.12	5.10	44.96	45.55
		Females	4.37	23.15	2.16	13.95	2.21	9.21	95.63	76.85
	Urban	Persons	30.06	33.40	29.96	31.31	0.10	2.09	69.94	66.60
		Males	52.26	53.42	52.22	51.14	0.04	2.28	47.74	46.58
		Females	4.48	9.74	4.31	7.87	0.17	1.87	95.52	90.26

Source: Census of India, 2001

[24] Human Development in South Asia, Mahbub ul Haq Human Development Centre, Karachi, 2000, p.55

Table 6.18 (a): **Percentage of Main, Marginal and Non-Workers in Punjab by Sex**

Districts	Main Workers		Marginal Workers		Non-Workers	
	Male	Female	Male	Female	Male	Female
Amritsar	85.7	14.3	42.4	57.6	39.0	61.0
Bathinda	80.2	19.8	25.8	74.2	41.4	58.6
Faridkot	80.4	19.6	46.5	53.5	37.4	62.6
Fatehgarh Sahib	82.3	17.7	45.3	54.7	39.2	60.8
Firozpur	85.8	14.2	33.4	66.6	39.2	60.8
Gurdaspur	88.9	11.1	53.1	46.9	38.3	61.7
Hoshiarpur	82.8	17.2	46.9	53.1	38.8	61.2
Jalandhar	87.1	12.9	53.3	46.7	37.2	62.8
Kapurthala	84.8	15.2	52.9	47.1	38.0	62.0
Ludhiana	84.6	15.4	50.1	49.9	38.9	61.1
Mansa	82.2	17.8	24.5	75.5	41.0	59.0
Moga	77.8	22.2	38.8	61.2	40.5	59.5
Muktsar	81.2	18.8	28.8	71.2	39.4	60.6
Nawanshehar	67.4	32.6	41.1	58.9	42.0	58.0
Patiala	84.2	15.8	38.9	61.1	39.2	60.8
Rup Nagar	74.9	25.1	44.1	55.9	41.6	58.4
Sangrur	78.2	21.8	30.8	69.2	40.6	59.4
Punjab	**82.8**	**17.2**	**41.2**	**58.8**	**39.3**	**60.7**

The all-India WPR has slightly increased for rural and urban areas. Total female work participation rates are significantly higher at the national level in rural and urban areas, as compared to Punjab.

Table 6.18 further reveals that of the total main workers, women account for a mere 17 percent. In contrast, 59 percent marginal workers are females. Even amongst the non-workers, women

Table 6.18 (b): **Ranking of Districts by Female Workforce Participation Rate and Sex Ratio**

District	Male WPR	Female WPR	Sex Ratio	Rank in FWPR	Rank in Sex Ratio
Gurdaspur	51.85%	12.72%	888	16	3
Amritsar	53.23%	16.27%	874	13	11
Kapurthala	53.42%	14.11%	886	15	4
Jalandhar	54.13%	12.30%	882	17	8
Hoshiarpur	50.98%	17.34%	935	12	1
Nawanshehar	55.64%	33.05%	913	1	2
Rup Nagar	52.84%	23.78%	870	6	12
Fatehgarh Sahib	55.13%	18.29%	851	10	16
Ludhiana	55.94%	15.66%	824	14	17
Moga	54.26%	24.20%	883	4	6
Firozpur	53.56%	18.49%	883	9	6
Muktsar	55.15%	22.34%	886	8	4
Faridkot	59.52%	23.04%	881	7	9
Bathinda	55.37%	26.97%	865	2	14
Mansa	54.40%	25.13%	875	3	10
Sangrur	54.93%	24.05%	868	5	13
Patiala	54.12%	17.57%	864	11	15

Source: Census of India, 2001

constitute a majority of 60.7 percent. Among districts, it is notable that Nawanshehar has the highest percentage of female main workers, while Gurdaspur has the lowest. In the category of marginal workers, Mansa ranks at the top with 75.5 percent female marginal workers, while Gurdaspur has the lowest percentage of female marginal workers.

It is interesting to examine the linkages between work participation rates and sex ratio. Nawanshehar, which has the second highest sex ratio, has the highest female WPR, and Ludhiana, with one of the lowest female WPR, also has the lowest sex ratio. Mansa, on the other hand, which is one of the most underdeveloped districts of the state and ranks 10th in terms of sex ratio, has a good female work participation rate. The picture becomes more complex when it is seen that Hoshiarpur, which is at the top in terms of sex ratio, lies somewhere in the middle of the scale in terms of female work participation rate. Thus it becomes difficult to draw any general conclusions on whether sex ratios determine work participation rates or vice versa.

Political Participation

When women participate in politics they are able to advance their own empowerment. In Punjab, women are more or less invisible in decision-making bodies and consequently many issues are left unattended. An analysis of the political participation of women, whether as legislators or as voters, highlights women's subordination. Consequently, a demand has arisen for 33% reservation for women in Parliament and State Legislative Assemblies. This, it is argued, will push women into the public sphere to ensure better representation of their views and needs.

Punjab is divided into 13 constituencies for Lok Sabha elections or elections to the lower house of Parliament. The figures on women's representation (Table 6.19) in the Lok Sabha from Punjab are disturbing. First, the number of women contestants has remained very low, not exceeding 8 until 1996. After 1996 there was an increase when 17 women contested elections which again decreased to 14 in 1999. Secondly, the number of women winners is insignificant. Only two women contestants in year 1996 (11.8 percent)

Table 6.19: **Representation of Women in Lok Sabha from Punjab 1952-1998**

(Election wise)

Year	Total MP seats	Total No. of contestants	No. of Women Contestants	No. of seats won	Percentage of women
1952	14	101	2	Nil	-
1957	17	78	1	1	5.88
1962	22	112	Nil	Nil	-
1967	13	75	3	2	15.38
1971	13	83	1	Nil	-
1977	13	79	1	Nil	-
1980	13	146	3	2	15.38
1985	13	74	5	1	7.69
1989	13	227	8	3	23.07
1992	13	81	4	2	15.38
1996	13	259	17	2	15.38
1998	13	102	9	1	7.69
1999	13	120	14	2	15.38

Source: State Election Commission Records, Punjab, Chandigarh

Table 6.20: **Representation of Women in State Legislative Assembly, 1952-1997**

(Election wise)

Year	Total No. of seats	Total No. of contestants	No. of Women Contestants	No. of seats won	% of women M.L.A.'s
1952	154	830	13	5	3.24
1957	154	606	17	9	7.43
1962	154	749	13	7	4.54
1967	104	602	6	2	1.92
1969	104	470	6	Nil	-
1972	104	469	11	7	6.73
1977	117	681	16	3	2.56
1980	117	720	15	6	5.12
1985	117	862	22	4	3.43
1992	117	569	22	6	5.12
1997	117	693	52	7	5.98
2002	117	923	70	8	6.83

Source: State Election Commission Records, Punjab, Chandigarh

and also in 1999 (14.3 percent) were successful. There have been four general elections in Punjab in which not a single woman has been elected to the Lok Sabha.

A study conducted by the Centre for Women's Studies and Development, Punjab University, Chandigarh, revealed that in Punjab, most political parties, sidelined women in granting election tickets. In 1996, notwithstanding political promises, only the Congress (I) granted 33 percent tickets to women. The other parties including the major regional party Shiromani Akali Dal, ignored women in the granting of tickets. Ten out of the 17 women candidates contested as independents in 1996.

Similarly, Punjab has drawn a blank as far as female representation in the upper house is concerned. The state has had only one woman representative in the Rajya Sabha, Bibi Nirlep Kaur.

These dismal figures are replicated in the Legislative Assembly of Punjab (Table 6.20). In the State Legislative Assembly, the representation of women has never exceeded the 7.43 percent achieved as long ago as 1957. The 1969 Punjab State Assembly consisted only of men.

The low participation of women in corporate bodies is highlighted in Table 6.21. The percentage of women elected to these bodies was almost half as that of men.

Table 6.21: **Corporators in Punjab as on 1.11.97**

Area	Total	Male	Female
Ludhiana	70	47	23
Jalandhar	55	38	17
Amritsar	60	43	17
Total	185	128	57
Percentage	100	69.2	30.8

Source: State Election Commission Records, Punjab, Chandigarh

In the Council of Ministers (2001), out of 40 ministers, only three are women. Even where women do get elected, they are allotted relatively unimportant portfolios. Rarely are women given portfolios in finance, industrial development, agriculture, transport and communication.

Apart from women's representation in Parliament and Legislative Assemblies, voting behaviour is an important indicator of political participation. The right to vote is rarely exercised independently by women and choices are usually determined by male members of the family, be it the father, brother, husband or even son. Females remain

Table 6.22: **Number and Percentage of Electors and Voters in Punjab in 1999**

	1996			1999		
	Male	**Female**	**Total**	**Male**	**Female**	**Total**
Total Electorate	76,34,482 (52.69%)	68,5,344 (47.31%)	1,44,89,825 (100.00%)	82,93,908 (52.77%)	74,23,396 (47.23%)	1,57,17,304 (100.00%)
Total Votes Polled	48,29,957	41,89,345	90,19,302	47,72,250	40,46,950	88,19,200
Percentage (Male & Female votes polled to total votes polled)	53.55	46.45	100.00	54.11	45.89	100.00

Source: Statistical Abstract, 2003

sidelined during casting of votes. Polling percentages in 1996 and 1999 as seen in Table 6.22 were quite low, but were even lower for females.

Punjab was the first state to co-opt women members in local bodies. The Punjab Municipal Act, 1911, provided for co-opting of two women members if there were no elected women present. The 73rd and 74th Constitutional Amendments provided the basis for empowering women at the grass roots, essentially by providing 33 percent reservation for women. One-third seats of sarpanches or heads of village local bodies, were to be reserved for women by rotation. This ensured the entry of thousands of women into politics at the grass roots. This trend needs to be replicated at the state level as well.

Crimes against Women

"Any act … that results in, or is likely to result in physical, sexual or psychological harm or suffering to women, including threats of such acts, coercion or arbitrary deprivation of liberty, whether occurring in public or private life" is how the Beijing Platform for Action defines violence against women.

The state of Punjab has been witness to two violent episodes since Independence. The Partition of the country saw massive bloodshed in Punjab and crimes against women were horrifying. Raped, killed, mutilated, kidnapped or simply left to die, women became victims not only of the enemy, but sometimes of their own families. They became symbols, as well as targets of family (read male) honour and the easiest targets of violence.

Similarly, during the period of militancy, women became easy prey both for militants, as well as for the state administration. Where they were not subject to direct assault, they often faced indirect consequences. At this time, hundreds of women became destitute as a result of losing their husbands or sons.

Aside from hardships during war and militancy, women are subject to violence in the everyday course of their lives. Box 6.4 gives an overview of the violence women face in their life cycle.

A comparison of the incidence and rate of crimes committed against women with other states shows Punjab to be a low-risk state. For instance, in 1996, Punjab's percentage contribution to the all-India total was 0.8. It was ranked 28th in the extent of violence perpetrated against women, with Delhi at the top and Lakshadweep at the bottom. This position, however, must be taken with a pinch of salt because, first, cases registered with the police are not a true index of the crimes against women as many cases go unreported. Secondly, many of the crimes and atrocities may not be overt acts. For instance,

Box 6.4: Violence Women Face over the Life Cycle

Foetal stage
- Sex selection
- Female infanticide

Infancy
- Infanticide
- Malnutrition

Childhood
- Neglect due to absence of medical care and education
- Sexual abuse
- Physical violence

Adolescence and adulthood
- Early marriage
- Early pregnancy
- Sexual violence
- Domestic violence
- Dowry harassment
- Harassment due to infertility/failure to produce sons
- Desertion
- Witch hunt

Older women and widows
- Desertion
- Neglect—emotional, financial, social

Source: National Profile on Women, Health and Development-India, VHAI & WHO, April 2000, p.222.

intimidation of a wife, resorting to pressure tactics or even depriving women the use of health, education, employment and other opportunities are acts of violence if one goes by the definition stated in the Beijing Platform for Action. In the above cases, there is clearly a deprivation of liberty and is most likely to cause psychological harm.

The most severe criminal offence perpetrated against women is the barbaric practice of female foeticide and infanticide. The denial of the basic right to life is one of the grossest forms of human rights abuse. Additionally, pregnant women are subject to a massive amount of mental pressure to deliver a male child. In fact, Punjab, with its many sex diagnostic clinics and abortion centres, can be described as a state that is largely insensitive to its female population.

Table 6.23 reveals the total number of reported crimes against women during the period 1996-99. It may be seen that the number of murders has increased substantially over this period. Dowry deaths on the other hand show a decline. This begs the question: Is this the real picture, or is this low incidence of dowry deaths a pointer to the under-reporting of such cases?

Suicides have registered a fall between 1996 and 1999. The number of reported cases of rape and kidnapping declined during 1998-1999, but dowry cases, as distinct from dowry deaths, increased. Among the districts, Amritsar ranked at the top in murder cases, while Ludhiana ranked highest in rape and kidnapping. Ludhiana was significantly higher than all other districts in dowry death cases.

Eighty-five dowry deaths were reported in the first six months of the year 2000 and 337 dowry cases were registered in the first half of 2000. Other crimes against women too have shown an upward trend. There have been 248 kidnappings in 2000 and 136 rape cases.[25] Crimes against women seem to stand in inverse proportion with sex ratio. Increase in the former results in decline in the latter. `Eve teasing' remains the under reported crime in the state.

[25] *The Times of India*, July 5, 2000

Table 6.23: District-Wise Number of Crime Cases Against Women

Districts	Murder				Dowry Death				Suicide				Dowry cases			
	1996	1997	1998	1999	1996	1997	1998	1999	1996	1997	1998	1999	1996	1997	1998	1999
Gurdaspur	3	9	18	11	13	22	16	15	22	11	3	2	3	6	6	9
Amritsar	15	25	22	37	26	36	49	12	30	15	29	23	5	11	19	10
Kapurthala	1	0	7	14	16	14	8	7	8	4	3	4	1	4	6	3
Jalandhar	13	18	12	14	15	35	24	24	21	7	10	9	5	4	9	4
Nawanshehar	0	2	7	2	2	5	8	2	3	3	1	2	3	0	3	4
Hoshiarpur	0	2	9	30	14	26	11	13	12	11	2	3	11	9	9	6
Rup Nagar	2	6	9	6	7	18	11	12	5	7	6	1	4	4	6	3
Ludhiana	8	16	26	37	53	103	125	24	23	17	9	11	4	6	12	6
Firozpur	7	6	10	12	13	26	17	11	17	7	15	11	1	5	11	4
Faridkot	3	1	4	0	7	6	6	4	5	1	0	2	3	3	1	2
Muktsar	0	3	2	4	0	11	12	6	7	2	2	2	1	0	2	2
Moga	0	2	1	0	8	5	1	7	6	5	3	3	0	1	5	3
Bathinda	5	4	6	7	9	16	13	6	10	6	6	8	2	2	9	9
Mansa	0	1	3	0	1	9	1	4	6	1	3	3	0	3	0	2
Sangrur	3	7	12	6	24	22	17	19	13	8	8	4	4	4	5	8
Patiala	4	4	11	11	9	23	66	16	17	15	9	3	5	7	14	8
Fatehgarh Sahib	2	2	3	10	3	7	6	2	5	5	1	0	3	4	3	3
GRP Patiala	0	1	2	0	0	0	0	1	2	2	0	0	2	0	0	0
Punjab	**66**	**109**	**164**	**201**	**220**	**384**	**391**	**182**	**212**	**127**	**110**	**91**	**57**	**68**	**120**	**86**

Districts	Rape				Kidnapping				Molestation				Eve-teasing			
	1996	1997	1998	1999	1996	1997	1998	1999	1996	1997	1998	1999	1996	1997	1998	1999
Gurdaspur	12	23	21	0	0	2	0	15	17	18	9	5	10	12	9	7
Amritsar	17	19	26	1	2	6	2	23	25	22	35	27	13	14	26	29
Kapurthala	11	9	10	0	0	0	0	5	14	4	9	11	7	12	7	4
Jalandhar	12	13	17	0	0	0	0	5	25	23	37	11	4	13	0	0
Nawanshehar	4	4	0	1	0	0	0	7	4	6	6	2	1	0	2	3
Hoshiarpur	20	13	13	2	0	0	0	6	19	12	12	7	18	9	8	6
Rup Nagar	5	6	6	0	0	0	1	8	4	6	8	5	1	9	3	5
Ludhiana	26	16	24	0	0	0	0	28	26	39	31	39	3	12	6	2
Firozpur	9	13	16	0	0	0	0	21	5	13	18	8	9	4	14	14
Faridkot	1	10	1	0	0	0	0	2	1	1	0	2	5	5	2	0
Muktsar	1	2	1	0	0	0	0	1	0	0	1	0	0	0	1	0
Moga	5	1	4	0	0	0	0	1	2	8	8	6	1	1	3	1
Bathinda	8	8	8	0	0	0	0	6	0	2	5	4	6	12	8	6
Mansa	0	3	6	0	0	0	0	7	0	1	2	0	0	4	3	5
Sangrur	8	11	13	0	1	2	2	7	9	9	16	15	5	11	7	11
Patiala	6	10	14	0	0	0	0	22	12	12	23	19	8	9	3	24
Fatehgarh Sahib	3	0	3	0	0	0	0	4	0	0	6	2	0	0	3	2
GRP Patiala	0	0	3	0	2	0	0	0	1	0	0	0	1	1	3	2
Punjab	**148**	**161**	**186**	**4**	**5**	**10**	**5**	**168**	**164**	**176**	**226**	**163**	**92**	**128**	**108**	**121**

Source: Director General of Police, Government of Punjab

Child Labour

Across India, child labour is accepted as the single largest source of child abuse and exploitation. Thus it is necessary to give it a certain amount of importance in the present chapter.

Child labour is defined as 'participation in gainful activity by children who are 5–14 years of age'. India has the dubious distinction of being the largest possessor of a child labour force. According to ILO estimates, one-fourth of the working children in the world are Indians. An NSS estimate puts the figure at 17.31 million (1983); Balai Data Bank, Manila, estimates the figure at 111 million. The unofficial estimates could be still higher.

According to the 1981 Census, there were 13.6 million working children in India, which decreased to 11.28 million in 1991. Child labour exists and thrives in all parts of the country mainly due to interplay between factors constituting the demand and supply of this kind of labour. The innumerable legislations drawn up to combat this inhuman, unjust and even criminal practice have failed. Poverty till date has been identified as the single largest reason for child labour.

Courtesy IDC

Child labour

Although the magnitude of absolute poverty in Punjab is relatively less compared to many states' but within Punjab there are many pockets of relative poverty. Even in Punjab, poverty contributes to the existence of a sizeable child labour force and in most cases children are used to augment the family income. Child labour thrives in situations where adults are unemployed, families are large, there is a lack of land and other resources, and there is overall backwardness in terms of literacy and skills. Children of migrant workers from Bihar, Uttar Pradesh and Orissa, as well as those belonging to the backward castes of Punjab are more likely to be found engaged as child labourers. Moreover, since a child needs to be paid only half the wages of an adult, many employers prefer to employ child labour. The stipulation that children are supposed to work for only half the time as an adult is invariably not followed. As a result, the child labourer ends up displacing an adult from the work force.

For the girl child, the burden is even greater. Here patriarchal norms limits them to domestic chores. There is very little premium placed on the lives of the girl child in Punjab (as evident from the poor sex ratio and high incidence of female infanticide and foeticide), even less on her education. Hence child labour follows as a natural corollary.

Gerry Rodgers and Guy Standings of the ILO have classified child labour into four areas: domestic work, non-domestic and non-monetary work, wage labour and bonded labour. There is a huge lacuna in data in the first two categories, mainly due to definitions of work which do not take into consideration any work that does not result in the production of goods and services. The wage labourer is usually found in the urban unorganised sector. They are subject to work at low rates in poor working conditions.

However, it is the state of bonded child labourers that needs urgent intervention. Bonded labourers

are mostly pledged by parents in lieu of a reduction or omission of debts incurred by them. This is especially true of children of migrants whose parents run up huge debts and are unable to pay them back. Migrant workers in the brick industry, sugar industry, textile and agro-based industries, as also those in the agricultural sector have huge debts and their children often become bonded for long periods, sometimes even for their entire lives. (Manjit Singh, Sindhu and Rangi, et al, 1998).

Efforts to Eradicate Child Labour

Various schools of thought ranging from the classical, to the neo-classical, to modern liberal thought have offered explanations for the massive presence of children in the labour force. The strategies they advocate to eradicate it are varied. Some see the phenomenon as a consequence of the inability of the state to provide the fundamental right of education to children. It places the responsibility of eradication on the state and maintains that ensuring accessibility to primary and elementary education can reduce the incidence of child labour.

In contrast, there are those who see the problem as arising out of a failure of civil society in ensuring that children are provided with a friendly environment. There is thus a need for every responsible individual in society to ensure that children are not sucked into the workforce.

The state government has initiated certain efforts to deal with the problem of child labour. The basis of the government policy and programmes is the National Policy on Child Labour (1987) and the National Child Labour Project (NCLP 1994). The government takes the view that since the figures hide a number of truths and unscrupulous employers sometimes don't reveal the facts, it is best to concentrate on those areas where child labour is known to exist in large numbers.

Here the state works to release and rehabilitate children working in hazardous conditions. The guidelines adopted were:

a) Imparting non-formal education to enable the children released from work to receive functional literacy and acquire a level of equivalence with the corresponding grade and level in the formal system.
b) Provide supplementary nutrition through midday meals.
c) Provide income and employment generation opportunities to adult family members primarily by imparting skills.
d) Stepping up enforcement of child labour laws.

In a survey conducted by V.V. Giri of National Labour Institute, Noida, in the year 1998, it was estimated that there were around 10,000 children working in the sports goods industry in Jalandhar district. This study placed all children in the following three categories:

a) Only Working (OW): The children in this category did not go to school at all. Thus this is a category similar to main workers listed in the census.
b) Working and school going (WSG): The children falling under this category combined education with work, but work usually got greater weightage than education. This category is similar to that of marginal workers listed in the census.
c) Only school going (OSG): This category includes children whose main and only activity is school education and who may or may not participate in household chores.

The study estimated that there were approximately 1350 children in Jalandhar falling in the OW category, out of which 755 were boys and 595 were girls, and around 8650 children in the WSG category. These children were involved in the manufacture of various sports goods such as footballs, shuttle cocks, badminton racquets, rubber goods, etc.

Based on the findings of the National Labour Institute, the state government took the necessary steps towards rehabilitating the working children in Jalandhar. Twenty-seven schools were started in the year 2000 and the functioning of these schools has been given to a number of NGOs/ trade unions/ clubs, etc. The Assistant Labour Commissioner of Jalandhar has been appointed as the Director of the project and a project level society has been established under the name of 'Child Labour cum Welfare Society' to supervise its day-to-day functioning. Various NGOs in consultation with the Project Director have recruited staff for these schools. The curriculum of these schools is similar to that of other regular schools and the children in these schools are expected to achieve the level of Class 5 in a period of three years. After the completion of primary education each child is expected to make a choice between the formal stream of education i.e., 6th standard onwards, or a vocational training of his/her choice. Every child attending these schools gets a stipend of Rs. 100 per month and Rs. 2.50 is spent every day on each child for refreshments. The total cost of this project is approximately Rs. 2.5 crore and the responsibility for monitoring the project from time to time lies with Secretary, Labour and Employment.

After the initial success of the NCLP in Jalandhar, a survey was also conducted in other industrial cities of Punjab. It was found that there were 2051 and 2316 children working in Ludhiana and Amritsar respectively. Based on these estimates the state government has proposed to start two NCLP projects worth Rs. 5.1 crore. Under these projects, 40 schools of 50 children each will be started in Ludhiana as well as Amritsar.

Punjab has been allocated three projects in Amritsar, Ludhiana and Jalandhar. To review the functioning of this project, the state has constituted a state level monitoring body on the pattern of the Central Monitoring Committee under the chairmanship of the Secretary, Labour and Employment, Punjab. The first meeting was held on November 20th, 2001, where it was decided that a convergence of different poverty alleviation schemes of the district would be explored.

Governmental Programmes and Policies

The Beijing Platform for Action urged countries to draw up national plans of action and formulate specific strategies to eliminate gender disparities in all the fields of women's subordination. Yet the goal of gender equality remains elusive. Clearly, there is a need for policies which can incorporate the awareness of the "implications of gender into all areas of policy-making and planning so that women's needs can be met, their capabilities enhanced and their opportunities enlarged."[26]

The Punjab government has taken a number of initiatives in this context, some in keeping with the centre's policies and programmes, some on its own. A State Policy for Women was formulated in 1996, focusing on various critical areas of concern and ranging from gender justice, access to education, skill and resource development, to promoting entrepreneurship and empowering women not only as individuals but also collectively through women's groups.

The Punjab State Commission for Women was constituted on the pattern of the National Commission for Women on 7th January, 1994. The guidelines of the Commission require it to work for the redressal of women's grievances and protection of their legal and constitutional rights. Most cases which come to the commission are related to harassment for dowry, extra-marital affairs, property cases, sexual harassment, etc.

Various programmes and schemes aiming at the upliftment of women are also being run under

[26] Human Development in South Asia, Mahbub ul Haq Human Development Centre, OUP, Karachi, 2000, p.168

central assistance by the state government. These schemes basically provide financial assistance and aim at employment and income generation.

As early as 1969, the state government introduced a scheme of financial assistance and social security to widows and destitute women. Certain schemes such as the National Maternity Benefit Scheme, which provides for specific sums to pregnant women who are below the poverty line; Vocational Rehabilitation Centre; homes for widows and destitute women, in Jalandhar, Kapurthala and a women's *ashram* in Hoshiarpur, observation homes in 7 districts for delinquent girls are also being run by the Department of Women and Child Development. Other schemes aiming specifically at the girl child include Kanya Jagriti Jyoti Scheme, Girl Child Development Scheme, Indira Mahila Yojana and free transport facilities.

The Punjab State Social Welfare Advisory Board is equally active. The Board focuses on welfare, extension, and demonstration of projects that are linked to the woman, the girl child as well as the family. The Board has started a scheme of condensed courses which provide women with education and relevant skills.

It also provides assistance to organisations who have the requisite capability, experience and infrastructure to provide vocational training to needy women in the age groups of 15 years and above. Grants are also provided by the Board to organise and conduct Awareness Generation Camps, setting up of crèche units for children of working and ailing mothers belonging to lower income groups and setting up Family Counselling Centres (FCCs). FCCs provide counselling, referral and if possible, rehabilitative services to women who may be victims of atrocities inflicted by family and society. Broad-based women's organisations can avail of grants from the Board to assist women beneficiaries to set up agro-based units.

Development of Women and Children in Rural Areas (DWCRA) is a programme specifically designed to provide support for poor women in rural areas by the Government of India. It is a sub-component of the Integrated Rural Development Programme (IRDP). In Punjab, since the inception of the DWCRA programme up to 1997-98, approximately 7000 groups have been formed in all the districts.

Another programme focusing on women and girl children is the Composite Programme for Women and Pre-school Children, which was started in Punjab from the year 1974-75. The main objective of this scheme is to impart training to rural women and girls in tailoring, embroidery, etc., through crafts centres. On the occasion of Republic Day i.e. 26th January, 1999, two welfare insurance policies for women, named Raj Rajeshwari Mahila Kalyan Yojna and Shri Bal Bhalai Policy, were launched in Punjab. Under the former, females in the age group of 10 to 75 would have to pay an annual premium of Rs. 23 per head and every woman under the scheme would be entitled to Rs. 2500 as compensation in case of becoming blind or handicapped. In case of loss of an eye, she would be allowed compensation amounting to Rs. 12,500/-.

Courtesy IDC

Training to rural women in tailoring and embroidery

A critical review of the strategies adopted to uplift the status of women indicates two trends. First, there has been a definite shift from a welfare approach to an approach which aims to include women in developmental efforts, which is a healthy trend.

There has been a perceptible shift from simply providing basic minimum needs like health, education, etc., to initiating efforts to improve the entire quality of life of women. However, there is considerable progress that still needs to be made and much depends on the manner in which these programmes are actually able to deliver benefits. Women, specific development schemes still reveal biases because patriarchal tendencies are difficult to remove.

The importance of women has been recognised but it is an importance which has been relegated to the domestic and traditional domain. Women's concerns and issues are seldom integrated into mainstream policies and they continue to remain invisible in the planning process.

Conclusion

From the above discussion, we can conclude that the state needs to take rigorous steps to deal with the concerns of its women and children.

The declining sex ratio, rising rates of female infanticide and foeticide, the poor workforce participation of women, restriction of women in the informal sector where there is a high incidence of exploitation, both sexual and otherwise, the high rates of crimes against women and continued exclusion of women from the public sphere, indicates that the economic prosperity in the state has not been able to ensure a better quality of life for Punjab's women.

Although current development efforts and government policies provide centrality to women and aim to improve their status, yet these still suffer from too many biases. Political will is important here. Ultimately it is the vision of elected representatives which can bring long-term change.

A similar picture emerges from an analysis on development work for children. State efforts should not stop at merely setting up schools. Rather, vulnerable and marginalised children should be identified and their needs attended to. Street children, victims of child abuse, victims of sexual abuse and physically and mentally challenged children, are either counted as numbers or worse, they are completely invisible.

While the state has done substantial work for children in the arena of immunisation and literacy to some extent, state initiatives are required in many more areas, specially with respect to generating awareness of child's rights, quality education for children, problems of special groups, and security and safety of children, both within the households and outside.

Finally, public attitudes are often the greatest obstacles to change. There must be a public effort to demonstrate that the prosperity of Punjab is built on the shoulders of men, as well as women. Development will not be carried into the future unless it bases itself on the health and welfare of children.

7. Dalits – On the Margins of Development

Dalit[1] communities are among the poorest and most deprived sections not only in Punjab, but throughout India. Today, in spite of massive efforts, mainly through policies such as reservations and subsidies, Dalit communities have still not fully entered the political, economic and social mainstream.

Punjab has the highest proportion of Scheduled Castes within its population. The spread of religions such as Islam and Christianity, the birth and spread of Sikhism, the rise of social and political movements in the state, especially peasant movements—all these were driven, at some point or the other, by the deprivation, discrimination and subjugation experienced by Dalits.

The Dalits in Punjab are certainly not as poor or as deprived as their counterparts in other parts of the country. In fact, they are relatively prosperous. However, the status of the Dalits has not registered notable changes and is bereft of social, economic and political opportunities. Dalits are still deprived of ownership of crucial assets like land, capital, etc., and access to basic social infrastructure.

Several social and religious movements in the state, spanning the last few centuries, have had a major impact on the Dalit population. In fact, this trend continues even today. Peasant movements, as well as the Naxalite movement, contributed to strengthening the position of Dalits, gave them better bargaining powers and a more substantial position in the politics and consciousness of Punjab.

In the following sections, the status of Dalits in Punjab is examined. The impact of social and religious movements on Dalits, the role of peasant movements and their impact on Dalit labour is also studied, as are comparisons between the Dalits of Punjab and Dalits in other states.

Movements and the Status of Dalits

In Punjab, the last two centuries have seen social movements that have directly or indirectly affected the status of Dalits. These movements have led to some alleviation in the plight of the Dalits and resulted in the breaking of various social barriers. Certain changes have been brought in the discrimination that Dalits have faced. Some of the important movements and their impact are chronicled below.

Impact of Sikh Religion

The growth of the Sikh religion has played a very important role in changing the status of Dalits. Sikhism was a protest movement against upper castes discrimination and thus became popular in

[1] It is necessary to mention here that while the term 'Dalit ' in the Ambedkarian framework includes Scheduled Castes primarily, a broader concept of Dalit would include the economically, socially and politically underprivileged section.

the larger community. With the passage of time, Sikhism started being identified with social justice. Started by Guru Nanak, Sikhism sought to do away with the rigid caste system. It included concepts such as '*langar*', which tried to remove social divisions through common meals. Many Dalits were attracted to Sikhism as it gave them an opportunity to escape from crippling social stigmas. Guru Gobind Singh, the tenth Guru of the Sikh religion (1666-1708) vigorously furthered the cause of the Dalits through the establishment of the Khalsa army. In the Khalsa, the backward and oppressed were given a place of honour. However, the efforts of the Gurus did not succeed in completely changing the social structure. The simple, egalitarian order that had been laid down soon became diluted and various rituals emerged which worked to the disadvantage of lower castes, particularly the Dalits.

The Singh Sabha Movement and the Akali Movement created a fresh awakening among Sikhs and challenged the authority of the Brahmin priests. A dispute erupted which resulted in the priests handing over the control of the Golden Temple to the people. Thereafter, many Sikhs belonging to Scheduled Caste communities such as Bhais, Granthis and Ragis have become Sikh priests or helpers (Sewadars) in the Gurudwaras.[2] This brought about a radical transformation in the self-image of lower castes. The first popularly elected Shiromani Gurudwara Prabandhak Committee[3] (SGPC) was formed in 1921 to which all baptised Sikhs were eligible for elections, including Scheduled Castes.[4]

The emergence of Sikhism minimised the intensity of untouchability in Punjab. The Sikh gurus took bold steps to root out untouchability. At the time of baptism, or initiation into the Sikh order, Sikhs get five freedoms, four of which relate to untouchability:

- Deliverance from the prejudices of all previous religious customs, and practices.
- Freedom from the influence of previous caste or family.
- Freedom from the stigma attached to previous calling or hereditary professions.
- Deliverance from all previous rituals, prejudices and inhibitions.

However, while Sikhism sought to break caste barriers, in reality land-owning classes like the Jat Sikhs, as well as non-Sikhs, seldom allowed Dalits equal status in villages. Any attempt by them to assert their rights was met with a show of force.

Impact of the Ad Dharam Movement

The Ad Dharam Movement, under the direction and leadership of Mangu Ram, also sought to uplift Scheduled Castes. There were several positive results. One, the boot-making business of the charmakars received a boost with the inflow of government army contracts. Second, their social mobility was heightened with the rise of new educational opportunities provided by the Arya Samaj. Mangu Ram, a Dalit, identified the Ad Dharam movement with Qaumiat (communal pride), Mazhabi (religion) and Majlis (organisation). He suggested that untouchables should think of themselves as a community – a Quam – similar to Muslims, Sikhs and Hindus. He stated that they were the original inhabitants of India and their religion was Ad Dharam.

The Ad Dharam Movement failed to transform upper caste attitudes. Outside their own enclaves, Dalits continued to face discrimination and oppression. However, the prosperity that resulted from the leather trade and migration abroad as well

[2] These are different types of priests and people who serve in Sikh temples (Gurudwaras).

[3] This is a supreme body of Sikhs organised to manage and maintain gurudwaras and their wealth and property

[4] See Gobinder Singh, p. 82

as the emergence of Dalit administrators, businessmen and teachers created a vocal, urban middle section among Ad Dharmis.

Impact of Christianity

In Punjab, Christianity enjoyed considerable importance for about 60 years. Conversions to Christianity began in the mid-1870s, mainly amongst the Balmiki etc., who were at the lowest level of the caste hierarchy, overwhelmingly illiterate, backward and socially deprived. The Christian initiative in education increased the availability of Western education to lower castes and gave them greater opportunities for social mobility. Conversion to Christianity was often a matter of concern for Hindu, Muslim and Sikh religious leaders, although in rural Punjab, mass conversions to Christianity diminished from the mid-1920s. After Independence the Christian community was more or less ignored politically.

Impact of Arya Samaj

The Arya Samaj programme for upliftment of untouchables was an important part of the teachings of its founder Swami Dayanand Saraswati. His aim was to persuade upper caste Hindus to accept untouchables as equals. By becoming Aryas/ Mahashas or Arya Bhagats, untouchables could gain access to the Vedas. They participated in religious activities, an important consequence being the education of untouchable children. However, these efforts still did not destroy the caste status of Dalits; inter- dining remained limited to occasional feasts on religious occasions; there were no inter-marriages; occupational mobility was limited; the Hindu attitude towards 'Shudh Aryas' was one of apathy; untouchability continued to be practised and acts of discrimination and exclusion continued.

Other Movements

Radhasoami

Baba Jaimal Singh set up the Beas Dera of the Radhasoami sect in 1891. The fourth master, Maharaja Charan Singh was determined to end untouchability and the Radhasoami movement abolished untouchability and proclaimed equality among all Satsangis. They, however, do not intermarry, and in spite of their best efforts caste-based distinctions are still practised among Radhasoamis.

The Unionists

The National Unionist Party was formed in 1923. Its primary objective was to help backward communities, including Scheduled Castes. The Unionist Party also helped the depressed castes to get government lands on easy terms of payment.

The Bahujan Samaj Party

In April 1984, Kanshi Ram created the Bahujan Samaj Party. The party adopted Ambedkar's ideology, and soon became the political voice of the Dalits in Punjab. Kanshi Ram took an openly anti-Brahmin, anti-upper caste, anti-Gandhi and anti-Communist stand. In 1985 the BSP polled 2.2 percent of the valid votes; thereby damaging the Congress, CPI and CPI (M) parties. It won its first political victory by winning the Phillaur reserved constituency. Thus began a phase of Dalit political assertion in Punjab.

Social Profile of the Scheduled Castes

There are 37 Scheduled Castes in Punjab. Major Scheduled Caste groups are Mazhabis, Charmakars (including Ramdasias), Ad Dharmis, Balmiki, Bazigars, Dumna (Mahasha), Megh, Sansi, Bauria, Kabirpanthi (Julaha) and Dhanak. These eight castes in order of composition make up 92 percent of the Scheduled Caste population. As per the 1991 Census, the percentage of the eight numerically preponderant Scheduled Castes are shown in Table 7.1.

Ad Dharmis and Ramadasias belong to the same social strata. Similarly, Balmikis and Mazhabis belong to the same group. Balmikis are characterised as Hindus and Mazhabis are those who are converted to Sikhism. Similarly, the Ramdasias are Charmakars converted to Sikhism.

Table 7.1: **Population of Major Scheduled Castes in Punjab, 1991**

Name of the Scheduled Caste	Population in 1991	Percentage of Population to All Scheduled Castes
Ad Dharmi	915098	15.9
Bauria, Bawaria	78429	1.4
Bazigar	162804	2.8
Charmakar (incuding Jatia Charmakar Rehgar, Raigar, Ramdasi, Ravidasi	1484268	25.8
Balmiki etc.	640210	11.1
Dhanak	57997	1.0
Dumna, Mahasha, Doom	158357	2.8
Kabirpanthi, Julaha	65028	1.1
Mazhabi	1765798	30.7
Megh	105157	1.8
Sansi, Bhedkut, Manesh	81062	1.4

Source: Tables on Scheduled Castes from Census of India 1991, available on CD-ROM, Registrar General of India, New Delhi.

Thus both the Charmakars and Balmiki category together constitute over 80 percent of the total Scheduled Caste population and individually over 40 percent each. This establishes the important point that the Scheduled Castes are not a homogeneous but a heterogeneous category. Scheduled Castes, as a percentage of the total population in the state, were 24.7 percent during 1971, which increased to 26.9 percent in 1981 and further increased to 28.3 percent by 1991.

The Ad Dharmis are concentrated in the Doaba region; Mazhabis in Majha and Malwa region; Ramdasias in Malwa region and Balmikis in the Doaba and Malwa region. Mazhabis and Ramdasias primarily follow the Sikh religion. Although the Ad-Dharmis tried to establish a separate religious identity, they continue to practise Sikh rituals (*Anand Karaj* in their marriages); only the Balmikis follow the Hindu religion. Thus an overwhelming number of Scheduled Castes are Sikh.

In Punjab, low caste Sikhs were included in the list of Scheduled Castes, although this status was not granted to deprived sections of other minority communities, such as Muslims, Christians, Buddhists and Jains. In the 1961 Census, an overwhelming number of Scheduled Castes (98.56 percent) were recorded as Hindus and the remaining 1.44 percent were entered as Sikhs (cf. Singh 1985, p. 10). However, among Sikhs, Scheduled Castes constituted 29.2 percent. The social composition of United Punjab before Partition consisted of 50.86 percent Muslims, 36.35 percent Hindus and only 12 percent Sikhs (Sharma, 1985, p. 178). After Punjab was carved out as a separate state in 1966, Sikhs emerged as a majority community.

Scheduled Caste Sikhs were not quite enthusiastic about the emergence of Punjab as a separate state, because they were apprehensive of the hegemonic position of the Jat Sikhs. They feared that they would be placed in a vulnerable status within rural Punjab (Nayar, 1966; pp. 50-51).

Hindus constituted the majority in urban Punjab while Sikhs were preponderant in rural areas. For example, 76.46% in Jalandhar and 76 percent in Gurdaspur were Hindus. On the other hand, Sikhs were 89 percent of the total rural population in Amritsar and 87 percent in rural Bathinda[5]. Urban Punjab is preponderantly dominated by the trading castes (Khatris and Aroras, both Hindus and Sikhs).

[5] Data pertains to Census of 1961

In rural Punjab the dominant groups were Jat Sikhs. Scheduled Castes remained perpetually subordinate to these two groups.

The Sikh Light Infantry, a regiment of the Indian Army, consists of the Sikhs belonging to Scheduled Castes and this regiment is widely known for its courage and valour in the battlefield.

A large percentage of Scheduled Caste communities from Punjab, particularly from Jalandhar and Hoshiarpur districts, have migrated abroad, especially to U.K. and Canada. Their ties with their homes remain strong and such linkages have profoundly changed living patterns of the area.

Dalits – A Profile

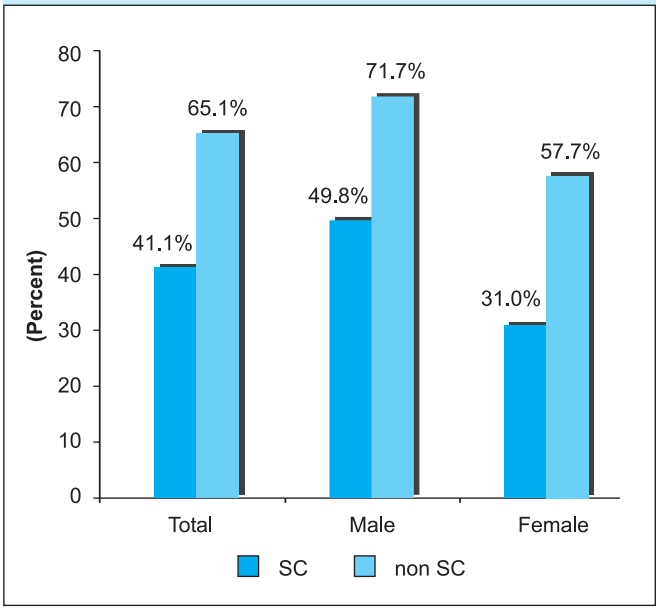
Education

There has been a consistent rise in literacy rates of Scheduled Castes in Punjab. It was recorded at 23.9 percent in 1981, and increased to 41 percent in 1991. The literacy rate of males was 31 percent in 1981, which then increased to almost 50 percent by 1991. Female literacy, which was just 15.7 percent during 1981, increased to 31 percent by 1991. Although there has been an increase in total literacy rates, a gap persists in the literacy rate of Scheduled Castes and that of the general population.

The literacy rate of Scheduled Castes was 41 percent in 1991, as compared to a literacy rate of 58.5 percent in the general population. The gap between the literacy rate of Scheduled Castes and non-SC population is even greater. Figure 7.1 compares the two literacy rates. There is a gap of 24 percent between the literacy rate of Scheduled Castes and that of the non-SC population in Punjab.

Within Scheduled Castes, there is considerable gap between female and male literacy, a gap of nearly 19 percent. The literacy differential amongst Scheduled Castes becomes even sharper if it is compared across sex and district and shows considerable deprivation of even basic literacy. A look at Table 7.2 shows that female literacy amongst Scheduled Castes was abysmally low in 1991 (below 20 percent) in Sangrur, Faridkot, Firozpur, Bathinda. Contrast this with the overall male literacy of above 80 percent in Hoshiarpur and we get an idea of the huge difference between different populations in Punjab (the difference would be even sharper if comparisons were drawn with the non-SC population). The Ad Dharmis had the highest literacy rate in 1991, in fact better than the Punjab average, while the Mazhabis, the largest group amongst Scheduled Castes, had a literacy of just 26 percent (Table 7.3). Such wide variation among large communities demands that deprived sections are immediately identified and their access to basic education is urgently promoted.

Figure 7.1: **Literacy Rates among SCs and non-SCs in Punjab, 1991**



Source: Tables on Scheduled Castes from Census of India 1991, available on CD-ROM, Registrar General of India, New Delhi

The literacy rate amongst Scheduled Castes is the highest in Doaba, followed by the Majha region and lowest in the Malwa region. The literacy rate is lowest in the districts of Bathinda, Firozpur, Faridkot and Sangrur. These districts can be characterised as educationally backward and female literacy is at its lowest here. The Malwa region needs active

Table 7.2: **Population and Literacy amongst Scheduled Castes in Punjab, 1991**

District	Total Population of Scheduled Castes	Scheduled Castes as % age of total population	Percentage literacy of Scheduled Castes		
			Total	Male	Female
Amritsar	701444	28.01	33.71	42.12	23.91
Bathinda	456596	29.27	20.68	27.42	12.84
Faridkot	589898	34.08	24.27	31.59	15.77
Firozpur	350461	21.79	24.40	32.49	15.08
Gurdaspur	433827	24.69	47.60	56.89	37.10
Hoshiarpur	484876	33.32	63.82	74.48	51.90
Jalandhar	792098	39.08	56.61	65.52	46.50
Kapurthala	190484	29.46	47.82	56.84	37.63
Ludhiana	611399	24.74	50.48	59.52	39.83
Patiala	447607	23.60	38.53	48.38	27.14
Rup Nagar	224982	24.57	57.38	68.09	44.86
Sangrur	458856	26.83	27.15	35.82	17.02
Punjab	**5742528**	**28.31**	**41.09**	**49.82**	**31.03**

Source: Statistical Abstract of Punjab, 2000, Department of Economics and Statistics, Government of Punjab, Chandigarh

Table 7.3: **Literacy Rate amongst Scheduled Castes in Punjab in 1991**

Caste	All	Male	Female
Ad Dharmi	62.48	72.42	51.25
Balmiki, etc.	40.03	48.53	30.49
Bazigar	26.31	37.57	14.05
Charmakar, Jatia Charmakar, Rehgar, Raigar, Ramdasi, Ravidasi	47.93	57.71	36.44
Dumna, Mahasha, Doom	46.80	56.95	35.29
Mazhabi	26.26	33.34	18.04
Megh	46.09	54.44	36.67
Sansi, Bhedkut, Manesh	25.64	34.90	15.57

Source: Derived from Scheduled Caste tables from Census of India 1991, available on CD from Registrar General of India, New Delhi

policy intervention, particularly in the four districts mentioned above.

It is encouraging that the enrolment rate in schools (as ascertained by children registered) represents a proportional representation of Scheduled Castes and general population as per their population share in Punjab. Scheduled Caste students appear to be gaining increased access to school education, giving hope that gaps with other communities would be reduced by the time of the next census.

Enrolment data over the last 20 years from 1979 to 1999 provides interesting conclusions. Throughout the period under consideration, the number of students from Scheduled Caste communities was proportional to their share of the population. In fact, over the years their numbers in government primary education institutions has risen as a share of total children enrolled. The share of Scheduled Caste students was 28 percent in 1979, which rose to 34 percent in 1989 and stands at 44 percent in 1999. Much of this increase is due to students from other communities preferring non-government, private and other educational institutions. Along with an increase in share there is also an increase in enrolment, which rose by 33 percent from 1989 to 1999.[6]

[6] Enrolment numbers of students and SC students are from the Director, Public Instructions, Government of Punjab and different volumes of Statistical Abstract, Directorate of Economic and Statistics, Government of Punjab.

The increase in number of SC students in primary government schools, and movement of children from other communities away from government schools put increased responsibility on government schools to improve the quality of education that children of Scheduled Caste communities are receiving or will receive in Punjab.

The other significant feature is that dropout rates among Scheduled Caste girls are declining, and more are opting for higher education.

Among Scheduled Castes, the 13 Vimukta Jatis (denotified tribes) are considered the most subjugated. While at the state level, 62 percent of Scheduled Castes families live below the poverty line, 85 to 97 percent of Vimukta Jatis live below the poverty line. Their average literacy level is 20.40 percent as against 41.09 percent among general Scheduled Castes (Census 1981). From this community, child enrolment in school is very low and the incidence of child labour is very high. Nearly half of their child population is employed as child labour. Vimukta Jatis need special attention from state programmes.

Livelihoods

In a state dominated by agriculture, ownership of land is the crucial base from which emanate social status, political power and diversification of livelihoods.

In the Census of 1991, enumeration of employment showed that of all cultivators[7] (and we can assume that this categorisation of census comes closest to ownership of land holding or those with access to cultivable land), Scheduled Castes constituted only 4.3 percent. Of all Scheduled Caste main workers ascertained by the Census in 1991, 59.8 percent worked as agricultural labourers, while only 29.9 percent of non-SC workers were agricultural labourers.

In terms of ownership of land holdings, the Agriculture Census undertaken in Punjab in 1990-91 shows that while Scheduled Castes comprise 28 percent of

Table 7.4: **Sector-wise Share of Employment of SC and non-SC Community in Punjab in 1991**

(in percentage)

Sector of Employment	Share in non-SC Employment		Share in SC Employment	
	Employment of non SC main Workers	Of all workers in the sector, share of non-SC	Employment of SC main Workers	Of all workers in the sector, share of SC
Cultivators	41.8	95.7	4.8	4.3
Agriculture Labour	9.9	29.9	59.8	70.1
Agriculture Allied	0.8	71.7	0.8	28.3
Mining and Quarrying	0.0	70.6	0.0	29.4
Households Manufacturing	1.2	62.7	1.8	37.3
Non Household Manufacturing	12.0	79.3	8.1	20.7
Construction	2.4	67.1	3.0	32.9
Trade and Commerce	12.8	87.1	4.9	12.9
Transport and Communication	3.9	73.8	3.6	26.2
Other services	15.3	75.0	13.2	25.0

Source: Derived from Scheduled Caste and Economic Tables from Census of India 1991, available on CD from Registrar General of India, New Delhi

[7] Census category of cultivator states "For purposes of the Census, a person is working as a cultivator, if he or she is engaged either as employer, single worker, or family worker in cultivation of land owned or held from government, or held from private persons or institutions for payment in money, kind or share. Cultivation includes supervision, or direction of cultivation ". This does not include people who have hired out their land completely and do not supervise or direct cultivation themselves.

the state's population, they owned 4.83 percent of all operational holdings, and just 2.36 percent of the total land area owned. The average land holding of a Scheduled Caste land holder was 1.75 hectares, while the average for a non-SC was 3.7 hectares. Small changes occurred in this ownership structure between 1985-86 and 1990-91.

Manufacturing is the other dynamic economic sector in Punjab. Figures show that in some progressive growth sectors such as manufacturing (non-household), and trade and commerce, the Scheduled Caste share in employment is far less than their proportion of the population.

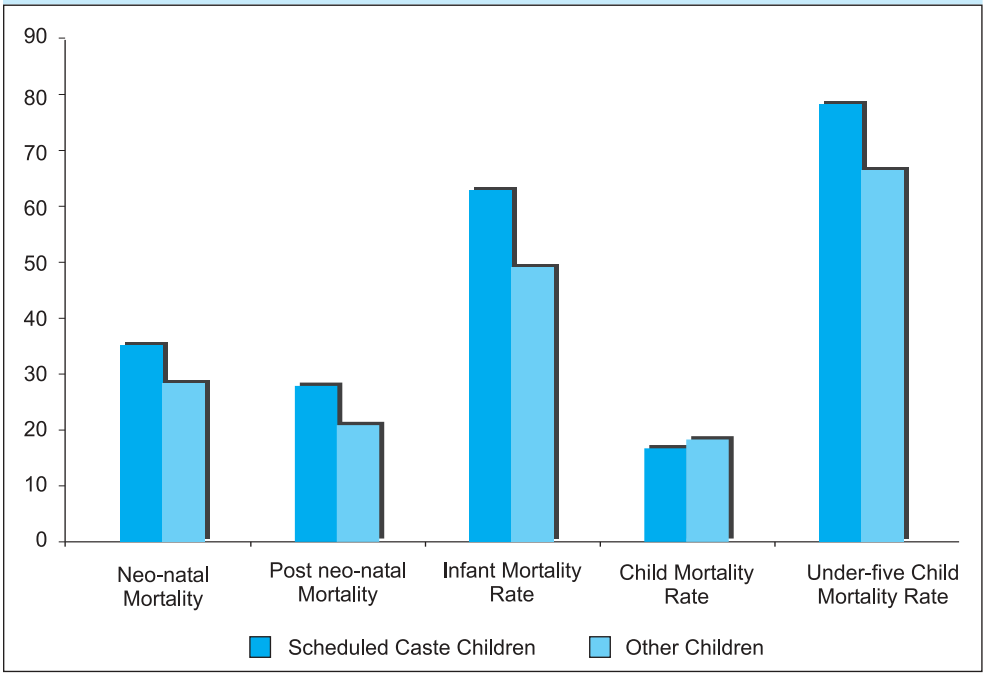
Apart from agricultural labour, three percent of Scheduled Caste 'main workers' work in the construction industry. We can safely assume that almost all would work as labourers or rise to the level of a supervisor of labour activities. Similarly, in transport and trading, most workers are employed as labourers.

Health

Socially disaggregated data is not easily available in the health sector. Information on mothers and children is available through the two National Family Health Surveys of 1993-94 and 1998-99. What little data there is indicates that in output indicators such as mortality rates, nutritional conditions, etc., Scheduled Castes do far worse than other social groups. However, in terms of access to health facilities, and impact of preventive care, Scheduled Castes, as well as non-SC communities, seem to be somewhat at the same level. The question is why, with similar access to health services, does one community fail to enjoy good health.

Infant Mortality Rate was estimated at 62.5 for Scheduled Castes in 1993-94, but was much lower, 48.9, for others. There was also a substantial difference in the number of children covered by immunisation in 1993-94—54.9 percent children among SCs were fully immunised in 1993-94, whereas 64 percent of other children were fully

Figure 7.2: **Comparison of Child Mortality Rates, 1993-94 (National Family Health Survey I)**



Box 7.1: Policy of Job Reservation: Effective since 1974

- 25% in direct recruitment in Class I, II, III & IV posts
- 14% in promotion to Class I, and II posts
- 20% in promotion to Class III and IV posts

vaccinated. That a quarter of SC children were not vaccinated at all in 1993-94 is worrying. Figure 7.2 compares different mortality rates amongst children of Scheduled Caste and other communities. There is substantial differential in these rates, which are fairly high in post- natal, neo- natal and infant mortality stages, and tend to narrow after this stage.

Nutrition levels of mothers and children is an important indicator of health. In 1998-99[8], 47 percent of mothers belonging to Scheduled Castes were either mildly, moderately or severely anaemic, while the same for non-Scheduled Caste mothers was 38 percent. Similarly, in children under four years of age, 82 percent Scheduled Caste children were anaemic, while 70 percent other children were anaemic. Differentials in this indicator are explained in terms of access to nutritious food, a direct impact of wages and control over agricultural produce.

In reproductive health, while there are differentials in the use and access of reproductive health facilities between Scheduled Caste mothers and others, these differences are much less than the differences in education or livelihood. Fifteen percent of Scheduled Caste mothers had not received any tetanus injections in 1993-94, while this percentage for mothers from other communities was 13 percent.

The NFHS survey in 1993-94 also shows that the general status of ante natal care is high, and the differential between Scheduled Caste and others is very low. About 12 percent of mothers from both groups did not go for any antenatal care. There is a marked difference in the type of antenatal care accessed—58.9 percent Scheduled Castes went to 'health professionals' other than doctors; 48.8 percent `others' went to health professionals other than doctors; 37.3 percent `others' went to doctors while only 26.4 percent Scheduled Castes went to doctors. Institutional delivery, combining both government and private was only 19 percent in the case of Scheduled Castes and 27 percent for `others'. Eighty-seven percent Scheduled Castes and 93 percent `others' went to a health facility when taken ill.

Social Status of Dalits

The social status of the Dalits in Punjab is not simply the result of poor literacy, employment and health. Rather, it grows from the centuries-old social, economic and political discrimination. Thus the

Courtesy IDC

Dalits in traditional occupations

[8] Preliminary report of National Family Health Survey 1998-99, Population Foundation of India, Mumbai

Dalit condition cannot simply be improved by administrative decrees or policies, although these can play a crucial role in providing space, dignity and some equal opportunity in government jobs and political posts.

Sikh bodies demanded reservations for untouchable Sikhs such as Mazhabis, Ramdasias, Kabirpanthis, as those given to their counterparts.[9] According to Darshan Lal, the major problem Scheduled Castes face today is that political power is not in their hands and they are dependent on dominant castes like Jat Sikhs for fodder, fuel and toilet facilities. They are also dependent on the use of *shamlat* lands for cultivation and as cremation grounds as well as the use of ponds in *shamlat* lands for discharge of polluted waters. A major problem is that `polluted' water flowing from the drains of the Scheduled Castes are not allowed to accumulate in ponds located in *Shamlat* lands or in the village panchayat lands. This is only a single instance of the many discriminations in daily life that a Dalit must still endure.

The case studies in Box 7.2-7.4 highlight the various forms of discrimination faced by the Dalits.

Box 7.2: Case Study 1: Village Langedi, District Jalandhar

In village Langedi, a 'reserved constituency'; the prominent caste groups are the Jats, Jat Sikhs, Ad Dharmis and the Balmikis. Sixty percent of the populace belongs to Scheduled Castes. The numbers not withstanding, the social structure and division of land is such that the upper caste Jat Sikhs and non-Sikhs are the dominant group. The Jat Sikh, followed by the Jat non-Sikhs, own most of the land. The Scheduled Castes in the village work as landless labourers. There is a dependence on the owners for work and for wages. In addition, the Scheduled Castes own cattle and for fodder, have to depend on the whims and fancies of the Jat owners. In the absence of basic civic facilities such as toilets, the Scheduled Castes have to go to the fields of the owners for their ablutions. In recent times, Scheduled Caste groups have been facing stiff competition from the migrant labour force, who due to their willingness to work at cheaper rates are preferred to the local Scheduled Caste labourers. The upper castes are loathe to retain the latter, with monetary and caste considerations ruling their decisions. At present there are only 4-5 households who work as landless labourers, as against 50 migrant workers.

Box 7.3: Case Study 2: Dalits in the Shivalik Region

Dalits of the Shivalik region are comparatively poorer than those living in other parts of Punjab. So they not only face caste-based problems but also poverty related difficulties. They work as agricultural labourers and also undertake forest-dependent activities like bann (rope) making. Various programmes (IWDP and JFM) have been initiated for them. However, the benefits of the programme have been hijacked by the upper caste landowners. In addition to the common discriminatory practices faced by all Dalits in the state, here they also face barriers in participating in political processes. The representation of Dalits in the VDC (Village Development Committee) and HRMS (Hills Resource Management Society) is very low, most of the members belong to the upper castes. Even where Dalit names are included they have hardly any say. Hence issues of the Dalits largely go unnoticed and unattended.

[9] Jose Kananaikul, Indian Social Institute, 1982, pp. 29-35.

Box 7.4: **Case Study 3: Caste-based Discrimination in Doaba Region**

Village Kalma

In village Kalma, block Banga, there are 1000 households which have 3000 votes. The Sainis are in majority with 1700 votes followed by the Dalits with 1200 votes. There are only 30-35 Jats, Sikhs or otherwise residing in the village who are the dominant caste group. The Dalits face a lot of discrimination in access to infrastructural facilities, but the severest form of discrimination exists in the inaccessibility to the same Gurudwara frequented by the upper castes. There are 5 different Gurudwaras in the village for the different castes. The lower castes cannot enter the Gurudwara of the upper castes. In the Scheduled Caste Gurudwara, apart from observing the anniversaries of other Gurus, they specially perform the anniversary of Guru Ravi Das, a champion of Dalit rights. The Jat Sikhs do not celebrate this occasion. The Scheduled Castes are also forced to have a signboard, the Nishan Saheb, at the instance of SGPC.

Village Jethu Majra

The village consists of 100 Scheduled Caste households, 100 Jat Sikh households and 50 Jogi households. Most of the Scheduled Caste households work in the agricultural lands of the Jats. One of the major issues in the village is related to the flow of polluted water from the drains of the Scheduled Castes, into the lands of the Jats. There are innumerable fights on this issue and recently the fights between the caste groups have resulted in firing and injuring some of the Scheduled Castes. It was reported that 14 cases were going on against Scheduled Castes in the local police station over the flow of drain water to Jat lands. This, in spite of the permission given by Scheduled Castes and Scheduled Tribes Commission permitting the flow of polluted water of the Scheduled Castes' drains to the *shamlat* land. In the year 1999, 60 persons armed with weapons fired at the Scheduled Castes. The drains constructed by the Scheduled Castes were also destroyed. In order to avoid tension a police post was established in this village on 26 December 1999.

Conclusion

It is on the labour of the Scheduled Castes that Punjab's agricultural and industrial strength has been built. Historically discriminated against, and amongst the poorest in this region, the last three centuries have witnessed many social, religious and now even political movements that have given expression to this community and brought them confidence, recognition, some measure of equality and a voice. Dalits are increasingly moving into the mainstream of Punjabi life, but still face innumerable problems.

Their poor economic and social asset base, poor education level, and lack of participation in major political and social processes requires the state to intervene in a positive and effective manner. Dalits are far more dependent than others on state-sponsored services in education and health. With the increasing privatisation of these services, better quality government schools and health centres are extremely necessary in order that the existing gaps between Dalits and those capable of accessing private schools and hospitals do not increase further.

The state has undertaken a number of efforts aimed at direct development of Dalits. The results have also been encouraging, such as increased school enrolment. A greater degree of livelihood diversification is needed among the Dalits, and landless Dalits should not have to depend so entirely on agricultural and casual labour. Dalits should be able to diversify into the service sector. Government institutions in credit such as NABARD, scheduled commercial banks, entrepreneur development programmes, health facilities and economic development agencies, have to ensure that Dalits are treated with sensitivity and provided with that one provision which they have been denied for centuries—justice.

8. Migrant Labour – Problems of the Invisible

There are two explanations for labour migration. The first centres on the rational decision of an individual. An individual makes a decision, based on free will, to migrate to centres where there is a demand for labour. Migration is thus associated with urbanisation and modernisation, as well as with development. However, rational individual choice is not the only factor which affects labour migration in India.

The second explanation emphasises the fact that capitalist development has always needed cheap labour. In this sense migration is analysed as a class phenomenon and uneven development is seen as the basic cause of labour migration.

There are two important reasons for rural labour migration: (1) migration for survival and (2) migration for subsistence. The first indicates the severe social and economic hardships faced by rural labourers, a situation where migration becomes necessary to stay alive. These communities are generally landless, illiterate and drawn largely from Scheduled Castes, Scheduled Tribes and other depressed castes. The second reason for migration is also rooted in subsistence and arises because of the need to supplement income in order to fill the gaps of seasonal employment. Such communities often migrate for shorter periods and do not ordinarily travel very far from their homes.

Migrants have been coming to Punjab ever since opportunities in agriculture were created by the state's agricultural leap forward. But even before the Green Revolution, the agricultural economy in areas of Malwa was a very dynamic one. The Green Revolution brought general prosperity and increased household incomes. The Punjabi farmer no longer had to labour on his own lands, was able to raise the level of mechanisation and hire labour. The new agriculture created a new demand for labour, which was met by states across northern and central India.

There also occurred a simultaneous growth in small manufacturing, especially in urban centres like Ludhiana. Large numbers of migrant labour poured in to meet the demand for factory hands, and to provide other services that were required in the growing and crowded industrial belt.

Over time, migrant labour became institutionalised in Punjab and regular, long-term relationships between job providers and migrant labourers were established. By now, systems of migration have become regularised and various types of contractual systems have emerged. Migrant labourers have not only become an integral part of Punjab's economy, but also important constituents of society.

The fact that the same communities of migrant workers repeatedly come to Punjab reveals that work and living conditions are perhaps a great deal better than conditions in their home states. Migrant labour may be attracted by local wage rates, labour contract systems and by the relations with employees that are in a peace in Punjab.

However, the labouring numbers who have come to play a major role in Punjab's economy, have found it relatively difficult to access the benefits of citizenship. In this chapter we look at who these migrants are and where they come from, as well as living conditions.

Since the migrant labourer is considered an 'outsider' in a cultural, linguistic and class sense, the focus is always on 'the migrant as a problem', rather than the 'problems of the migrant'. In a state from where pioneers and entrepreneurs have migrated, settled, and contributed to the economies of many countries, domestic migrant labourers deserve far better treatment.

Migration to Punjab occurs from almost all north western states, as well as from states in central and eastern India. Migration occurs from rural to urban areas, as well as between rural areas. Nearly all sectors of Punjab's economy employ migrant labour. Migrant women are employed as domestic help in cities and children are employed as domestic help in both rural and urban areas. Migrant labourers are employed in both agriculture and industry. Table 8.1 gives an estimate of the number of migrant labour in each of the industries, as well as in the agricultural sector in Punjab.

Migration to the Agricultural Sector

Migration to Punjab began strongly in the early 1970s, gained momentum in the 1980s despite militancy and reached its pinnacle in the 1990s. The proportion of migrant labourers rose from 2.19 lakh, or 7.6 percent of the total agricultural labour force in 1978-79 to 3.86 lakh or 10 percent, in 1983-84. Their number was estimated at 3.27 lakh during the lean season and 6.56 lakh during the peak season. By the 1990s, their number during the peak season stood at nearly 7.74 lakh, or 11% of agricultural labour in the state (Sidhu and Rangi).

There was a phenomenal increase in migrant labour population after the Green Revolution, especially with the introduction of labour-intensive crops like potato, sugarcane and cotton. Wheat-

Table 8.1: **Estimation of Inter-State Migrant Labour in Punjab in late 1990s**

Activity	**Migrant labour in Punjab**
1. Agriculture	7 lakh
2. Brick kiln	2 lakh
3. Manufacturing Industries :	
(i) Textile/ Hosiery Workers	4 lakh
(ii) Sports & other industries	2 lakh
(iii) Sugarcane industry	15,000
4. Service industries:	
(i) Loading/ unloading workers in Mandis (Palledars) 7.5 lakh	1.5 lakh (7.5 lakh including local and migrant)
(ii) Rickshaw pullers	1 lakh
(iii) Domestic workers	50000 (1 lakh including local and migrant)
5. Construction Industry:	
(i) Power, irrigation and multi-purpose projects	1.5 lakh
(ii) House/ building construction	1.5 lakh
(iii) Stone construction/ Road construction	50,000
Total	**21,65 lakh**

Source: Estimates drawn from diverse sources and different studies.

Table 8.2: **Estimates of Total Migrant Workers in Punjab Agriculture**

S. No.	Source	Year	Estimated number
1	S.S. Johl	1974-75	1,34,590
2	Gurcharan Singh Rupal	1978-79	1,00,000
3	Time (U.S.A.)	1973-79	1,50,000
4	Sidhu and Grewal	1973-79	2,19,394
5	B.K.Chum	1983-84	4,00,000 to 5,00,000
6	Sidhu and Grewal	1983-84	4,29,000
7	Devinder Sharma	1985-86	6,00,000

Source: 1. S.S. Johl, "Gains of the Green Revolution – How they have been shared in Punjab, PAU, Ludhiana, April 1975. His estimates show that migrant labour was 5 percent of the total labour force in Punjab. 2. Gurcharan Singh Rupal, "Punjab, Canada for Bhaias", Punjabi Tribune, April 23, 1979. 3. Time, May 28, 1979. 4. M.S. Sidhu and S.S. Grewal, 'A Study on Migrant Agricultural Labour in Punjab', PAU, Ludhiana, October 1984. 5. B.K. Chum, "Violence Hits Farmers Economy", Indian Express, March 10, 1984. 6. M.S. Sidhu and S.S. Grewal, op.cit. 7. Devinder Sharma, "Migrant Labour Flow Unabated", Indian Express, April 13, 1986.

paddy rotation itself comprises 67.42 percent of the total cropped area in the state and consolidation of land holdings created conditions for capitalist development in agriculture and facilitated the use of farm machinery like tube-wells, tractors, threshers, cane crushers, combined harvesters and paddy planters. The demand for labour was met not only from local communities but there was also a massive influx from Uttar Pradesh and Bihar. Punjab had earlier been characterised by the predominance of family labour on land, but family labour was rendered quite insufficient by the huge demands of the Green Revolution. Migrant labour was initially concentrated in just a few districts but later spread to others. The districts of high concentration were Ludhiana, Patiala and Jalandhar; medium concentration districts were Amritsar, Faridkot, Firozpur and Sangrur; and the districts with low concentration were Rup Nagar, Hoshiarpur, Gurdaspur and Bathinda. In 1998, it was estimated that districts with high concentration had approximately 52 migrant labourers per village, those with moderate concentration had about 30, and villages with low concentration had about 15 labourers per village (Sidhu and Grewal).

Most migrant workers who migrate to Punjab come primarily from the states of Uttar Pradesh and Bihar and also from Madhya Pradesh, and Orissa, which suffer from severe unemployment and under-employment, low wages, low earnings and an agricultural productivity that is much lower than that of Punjab (Sidhu and Rangi 1998). A large number of migrants migrate in order to repay debts they have incurred from village moneylenders, shopkeepers and others (Sidhu and Rangi, Manmohan Sharma, and Manjit Singh). Punjab is able to offer them a wage rate double of that offered in Uttar Pradesh and Bihar.

Migrant labourers generally prefer to work in villages where they have worked earlier. Inter- village and inter-district migration in Punjab is comparatively low. Living conditions are not always satisfactory. Migrants live in small groups, in accommodation provided by the farmers near their tube wells, or in any other common village area. Over 90 percent of them do not have to pay any rent for accommodation. Migrants have not been registered as voters in Punjab, despite the fact that they have been living in the same area for many years and have returned repeatedly. They have therefore not been allowed to develop any stakes

Courtesy photo

Migrant labourers in Punjab's agriculture

in the area nor are they taken into consideration during planning and governance processes.

It may be mentioned here that there are different views on the conditions of migrant workers. Some argue that they are given fair treatment and full protection by the state and that in recruitment, wages and general treatment, the migrant labourer is on a par with the Punjabi labourer.

Migrant labourers in Punjab are both annual and seasonal. Among the total migrant labourers in agriculture, nearly one-sixth of them worked on a yearly contract i.e. on a permanent basis. Migrant labourers are now replacing local labourers who may have worked as attached or permanent labour. Of the majority of migrant labourers, nearly half of them work on a casual basis, one-third of them as seasonal migrant workers, and the rest as attached labourers. Labourers are also given food and tea in addition to cash wages. There has been considerable increase in the wage rates of migrant labourers over the last twenty years. The total annual earnings of migrant labourers range from Rs. 5, 000 to Rs.15,000 (Sidhu and Rangi).

The reasons for the influx of migrant labour can be summed up as:

- Wage rate offered by Punjab are almost double the rate offered in their native states of Bihar and Uttar Pradesh.
- Living conditions in native states are poor and migration provides better opportunities and an alternative source of employment.
- Large-scale debts also lead to migration to Punjab, although many incurred debts even in their new place of work.
- Large families (6-14 members) and few earning members also force migration.

Land owners prefer migrant populations for many reasons. These are:

- scarcity of agricultural labour during peak seasons;
- threat by local agricultural labourers to stop work during peak season unless wages are increased;
- higher wage rates demanded by local labourers;

- greater assertiveness of the local labour force;
- perception of migrant labour as honest, docile and obedient, reliable, simple and unaware of their rights.

In a study of the impact of migration, Alakh Naraina finds that agricultural practices and performance remain basically unchanged in spite of migrants.

Migration to the Industrial Sector

With increased mechanisation of agriculture, the Punjabi farmer no longer needed to work his own lands. After the Green Revolution, there was an accumulation of capital, which resulted in the development of small-scale industry. Major industries developed, all of which used migrant labour. These are the sugar industry and the textile industry. Ludhiana, as the hosiery centre of the state, attracts the largest numbers of migrant labourers after agriculture. In the early 1980s, nearly 40 percent of workers in the unorganised sector, primarily in the hosiery sector, were migrants. Migrant workers began to work in the hosiery industry at the start of the 1970s and their numbers have been increasing ever since.

Migrants are employed mostly in low-paid unskilled jobs that often carry greater health hazards than other jobs. Although there are arguments that there is little difference between local and migrant labour yet it can also be said that the daily and monthly earnings of migrants are undoubtedly lower than the earnings of local labour. Lower piece rates are fixed for migrant labourers and their average monthly earnings are almost 10-35 percent lower than that of the locals in such processes as knitting, tailoring, checking and packing and button stitching. The average number of working hours is higher when compared to the number of hours that local labourers work.

The preponderance of local labour in the more skilled processes can be attributed to the fact that they enter the trade as apprentices and are able to stay on for longer periods. They thus acquire the required expertise fairly quickly in their working lives. This is in contrast to the migrant, whose existence is mobile and who is not able to sustain a stable expertise-creating long-term career. The migrant is more linked to rural agricultural work than to urban industrial work.

The migrant labourer is also illiterate and is therefore not employed in tasks requiring skills such as the ability to handle complicated machinery. Obviously, these tasks also pay better.

The migrant labourer is at the very lowest level of the industrial class structure. They have been demarcated as a distinct and separate stratum within which they are able to stay and work. Migrant workers are often referred to as the rather derogatory `*bhaiyas'* in local parlance. Additionally, local workers tend to maintain a social distance from migrant workers at the places of work (Dr. Manjit Singh).

In certain parts such as Gobindgarh, the wages received by a worker, do not depend on the volume of work done by the person individually, but are based on the average level of work performed by a group. Work is allocated to a group attached to a *thekedar* and earnings are pooled, and distributed equally at the end of a working week. Thus risks are shared even by the lowest strata. The often methodical manner in which accounts of earnings are kept, wages are distributed and decisions taken on inclusion or exclusion of members is fairly impressive.[1]

The Sugar Industry and Migrant Labour

There is a substantial presence of migrant

[1] Amitabh Kundu and Surender Bhatia, a study on "Industrial Growth in Small and Medium Towns and Their Vertical Integration: The Case of Gobindgarh, Punjab, India".

Sugar industry

labourers in Punjab's sugar industries. At present there are 22 sugar mills in Punjab, which employ 15,000 workers. Migrant labourers from Uttar Pradesh and Bihar, constitute a substantial proportion of the labour employed in these sugarmills.[2] In fact migrant labour has become an essential component of the labour force of Punjab's sugar industry. A large proportion of these migrants were engaged in agriculture before they migrated to Punjab and were indebted to village moneylenders. Pressure of debts and low incomes meant that even when militancy was at its peak, they continued to migrate to the sugar mills of Punjab. Since work is seasonal in the sugar industry, only about half of the labour force is permanently employed. While skilled workers have permanent employment, a majority of semi-skilled and unskilled workers work on a seasonal basis. Most migrants to the sugar industry stay in Punjab for less then ten years, remit most of their earnings to families at home and maintain strong links with their native places. The majority belong to the age group of 30 to 40 years and are drawn from backward caste communities, invariably more dependent on work than local labour. In the sugar industry, the level of education was higher among local labour compared to the migrants.

Migration to the Brick Kilns

Systems of migration often differ in different industries. Within the brick kiln industry, for example, there exists a system of bonded labour, a result of accumulated debt.[3] In most cases workers decide to migrate in order to clear local debts. They do this with advance money, which is given to them by contractors in the form of *peshagi*. *Peshagi* exploits them further and traps them in further debt, this time in an alien environment. At the end of the season, the worker is allowed to return only if he/ she is able to repay the *peshagi*. If not, they are forced to stay back until they have repaid the entire amount. To do this, migrants might borrow more money, leading them into terrible and perpetual debt. Accumulated debt leads to perpetual bondage, one of the major afflictions of migrant workers in the brick-kiln industry of Punjab (Nasir, Ateeq, et al., March 2001). Labourers' debt advances can range from Rs. 20,000 to Rs. 40,000. Interest rates could range between 24 and 60 percent.

[2] This section is based entirely on study by Krishan Chand et al. (1998) on the Sugar Industry of Punjab

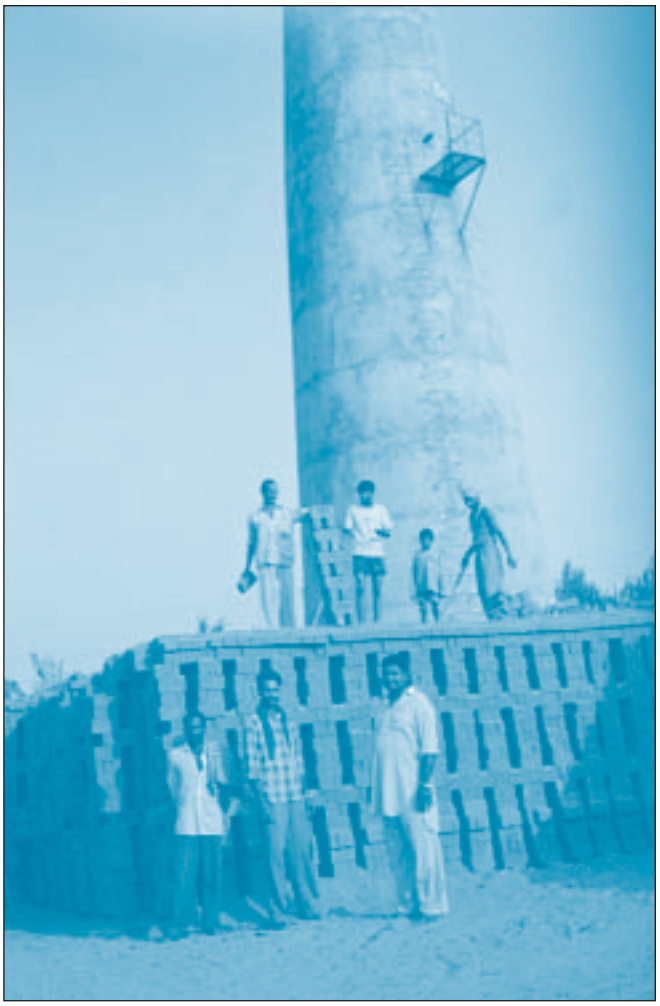
[3] Nasir Ateeq in his study "Status of Migrant Labour in Brick Industry of Punjab"

In case work stops due to, say, rain, workers do not get any wages for the work they might have done before rainfall began. In such situations, they have to rely on loans from contractors or owners. Although the law provides for a system of compensation where the employer must pay a specified amount in case of stoppage of work, this is almost never followed.

Workers in brick kilns are employed for the whole season but their wages are paid in two parts. They are given a mere subsistence wage every fortnight and are paid the remaining amount at the end of the season. It might take employers a fortnight to settle their accounts during which time they keep borrowing money to survive. This increases their debts. They are also often cheated by *munshis* as a result of their illiteracy and inability to keep accounts. In addition, workers do not get paid for cleaning the land where brickwork is supposed to take place. This takes about fifteen days to finish and labourers are forced to borrow money to sustain themselves for this period as well.

Brick kilns hire workers on a piece rate basis. As a result of this they cannot afford to take leave from work. In case of sickness or even if they need to go to the market, they need to take leave and therefore lose out on their wages. Workers engaged in loading and unloading work do not get wages for overtime. Even monthly wage workers work under similar conditions. Employers do not provide the tools and implements such as *rehri*, shovel and spade. Workers have to buy these themselves when they begin work at a site. Remuneration does not alter according to working conditions, whether high heat or cold. Brick kiln workers in Punjab are thus an impoverished.

Migrants are governed under the Inter-State Migration Workmen Act. 1979, which defines a migrant workman as one who is recruited by the contractor in the workman's home state. So far, however, no migrant worker has been registered



Migrant labourers in brick kilns

as a 'migrant workman'. It also clearly states that when workers migrate, employers should provide them equitable money for dependent family members. Employers are even required to pay travel expenses. However, these payments have been corrupted into the *peshagi* that the migrant has to repay over the next year. A combination of ignorance and helplessness prevents workers from demanding the rights given to them by the Workmen Act.

Nor is there a proper system of registering migrants either at source or destination. Harassment and extortion by police, other departments such as railways, post office and anti-social elements at the workplace, in 'workers' residential colonies and during the journey are

Box 8.1: Features of Bondage

1. Bonded labourers are forced to work without adequate pay in most cases.
2. They are given advances that carry interest rates ranging from 24 to 60 percent per annum. Thus they become indebted to the farmers till they return the debt.
3. They are neither paid any wages, nor any perquisites in the form of food, clothes, etc.
4. They are not free to leave their employers until they clear their loans.
5. They remain at the beck and call of their masters and have to work for 14 to 16 hours a day.
6. The recalcitrant are coerced and often severely beaten.
7. Most bonded labourers are male but there are also cases of some female domestic servants. The latter are sometimes subjected to sexual exploitation.
8. Nearly one-fourth are below 25 years; and the rest are mostly aged 26 to 50 years. There are a few above 50 years as well.
9. The duration of bondage, in an overwhelming number of cases is up to 5 years, and in a few cases, ranges from 6 to over 20 years
10. Cases of bondage include both local labourers and migrant labourers. There are also cases of women and child bonded labourers.
11. Labourers are not given any leave and in case of acute illness, fines are imposed on them @ Rs. 100 for absence. The amount of fine is added to the initial debt advance.

Box 8.2: Case Study: Bonded Labour, Hoshiarpur (Manjit Singh, 1995)

The presence of migrant labourers in Hoshiarpur was first noticed in the 1980s. While seasonal labourers migrated to Ludhiana voluntarily, the recruitment pattern of tribals in Hoshiarpur and its adjoining areas was regulated through intermediaries. Recruitment of tribals was made easier by the fact that there were many natives of Hoshiarpur employed in Ranchi. Agents in Punjab established contacts, and received assistance from others, who became intermediaries in the recruitment procedure. Once recruited, tribal labourers were transported to Punjab.

Tribal labourers are available at cheap rates and are reputed to be very hard working. In the early 1970s, only a few people were involved in this trade. Later, it became lucrative in the entire district. Contractors in Hoshiarpur had their agents at Ranchi, who operated through their sub-agents at the village level. Labourers were brought in from Ranchi and sold to farmers in Punjab for a sum, ranging from Rs. 200 to Rs. 400. The farmers who bought them, did not pay any wages for the initial 5-6 months and they were lodged in inhuman conditions. They were forced to go barefoot through the day, kept locked in small airless rooms to prevent escape and were allowed out only for ablutions. Sometimes, owners would just keep a container in the room where tribal labourers were supposed to relieve themselves.

This practice continues unabated in some areas. Markets are held in the town of Garhshankar, where migrant labourers, particularly tribals are bought and sold. The price for these labourers has now increased to Rs. 1500 per person, with men attracting a higher price than women. Recruiting sub-agents who used to be Punjabis in the past are now Biharis. Also, the centre of the trade has shifted from Hoshiarpur to Gurdaspur. The number of women being traded has also increased.

Of a total of Rs. 1500 paid for a labourer, approximately one-third, or Rs. 500 goes towards travel expenses. The agent and the recruiter in Bihar share the remaining amount. As said earlier, tribal-labourers do not receive payment for the first few months. After this they get around Rs. 450 to Rs. 700 per month in case of males and Rs. 400 to 500 per month for females.

serious problems faced throughout the cycle of migration. The state has started making efforts to register migrants through the district administration and police department but cruelties still remain. However, attention is also being given to see that workers are not harassed during the process of registration.

Migration in Construction

The construction industry is another sector where migrant labour is employed in great numbers. Building and road construction is mainly done by migrant labour. Women are also employed in the construction sector in great numbers. They generally begin work at an early age, as early as between five and fourteen years and their wages remain lower than those of men. Some of the families have been living in the state for as long as three decades. Despite residence in Punjab, a majority of them are illiterate, live near construction sites or in slums, with minimum facilities. The peak period for construction is during January to June. For the rest of the year, construction labourers work as daily wage labourers. A large number of migrant labourers in the construction sector are drawn from Scheduled Caste or backward class communities.

Bondage

There is a massive number of cases of bonded labour in Punjab and Haryana, in agriculture, the brick kiln industry, stone quarries and the construction industry. Many are neither identified nor reported. Only a detailed study by independent research or academic institutions can estimate the overall incidence of bondage in the northwest region. The report by Jai Singh clearly reveals that his efforts to bring social justice to these communities through the district administration, Punjab State Human Rights Commission, including the Punjab and Haryana High Court, have not yielded substantial results. An overall review of the situation suggests that interventions by the Supreme Court and National Human Rights Commission have rendered justice to bonded labourers in only a few cases. The findings of various studies suggest that the intervention by independent agencies like NHRC, Supreme Court, Scheduled Caste and Scheduled Tribes Commission have been effective, but only to a limited extent.

Punjab has taken steps towards the eradication of this inhuman and barbaric labour system. Large numbers of bonded labourers have been released from the brick kilns. Since legal safeguards are obviously not enough, campaigns to release workers have been more effective. For women, there are double burdens. Those employed in brick kilns are often sexually abused by owners as well as other labourers. Children at brick kiln sites cannot access schools or health facilities and are invariably drawn into work at young ages. Their situation is made even worse by the fact that they often do not speak the language of the state and are isolated in colonies that are invariably located at a distance from other habitations. The fact that bonded labour still exists in Punjab means that the state need to act urgently and determinedly.

It may be pertinent at this stage to refer to the role of a voluntary organisation Volunteers for Social Justice, Phillaur, which has been working against the bonded labour system in Punjab and the north-west region. It has referred 137 cases to the district administration; 580 cases to the Punjab Human Rights Commission, 269 cases to the Punjab and Haryana High Court and 121 cases to the National Human Rights Commission and 85 cases to the Scheduled Castes and Scheduled Tribes Commission between 1998 and 2000. Most of these cases of bondage have been found in the agriculture and brick-kiln industry. An overwhelming proportion were located in the districts of Mansa, Bathinda, Jalandhar and a few cases were also identified from the districts of Faridkot, Patiala, Firozpur, Ludhiana, Kapurthala and Sangrur. The highest incidence of bondage was noticed in the

Malwa region followed by the Doaba and Majha region.

Given the huge international attention that this system has received, the Government of India has formulated a new scheme for the identification, awareness and rehabilitation of bonded labour. The state of Punjab has already been sanctioned an amount of Rs. 10 lakh by the Central government for initiating identification and sensitisation programmes in bonded labour in five districts. The state is in the process of commissioning a survey on the incidence of bonded labour.

Labour Lok Adalats

On an average, Punjab receives 9000 cases for conciliation and although more than 50 percent cases are settled in conciliation, the number of pending cases is nevertheless increasing. In order to tackle this problem, the government of Punjab initiated exclusive Labour Lok Adalats in the beginning of 2001. In the four Lok Adalats that were held at Ludhiana, Patiala, Jalandhar and Amritsar, about 17, 994 cases were settled, out of which 6209 cases were at a pre-litigative stage. An amount of more than Rs. 13 crore was distributed to different categories of workers. The Government of India has in fact directed other states to replicate the Punjab experience. The experience of the Punjab labour Lok Adalats has also been applauded by the International Labour Organization (ILO).

Working Conditions of Migrant Workers

Industries in Punjab have not been able to provide higher wages to workers as agriculture has been able to do. There have been some efforts recently to organise migrant workers into trade unions. Different political parties have organised brick kiln workers, rickshaw pullers, contract workers, workers in *mandis,* or grain markets, and those in textile factories into unions. Living conditions for workers in industries are particularly gruesome. Eight or ten individuals are crammed into a tiny room. Accommodation provided by employers is often totally lacking in ventilation or sanitary facilities. Trade unions have tried to campaign on these issues but the trade union movement remains weak in Punjab. One of the main reasons for this could be that workers are totally helpless and completely at the mercy of employers.

Workers in most of the industries, especially those who have become members of trade unions, are mostly young, aged 20 to 30 years. A majority are Hindus and belong to Scheduled Caste or other backward caste groups. As compared to workers in the agriculture or construction sector, industrial workers are relatively better educated. The chances of an individual being a member of a union are higher if she or he has her own house and has been living in the state for a while. Levels of participation also increase if workers have families in Punjab. Participation levels of educated workers are higher than that of illiterate workers. Yet, on the whole, participation of migrants as well as local workers in union activities is low even on issues like wages and bonus.

The fear of victimisation is perhaps the most important reason for worker passivity. Such fears decrease if families live in the state for longer periods, however the state government must ensure that employers meet basic legal criteria of employment and provide employees with basic social security along with job security.

The one sector where unions have been moderately successful in meeting the needs of migrant labourers is in the sugar industry. As mentioned above, work in the sugar mills is seasonal. Large numbers of migrant labourers are hired during the months when sugar is produced. Mills also retain a few employees throughout the year. These are generally skilled workers who have been trained to run machines. Though workers are generally locals there are also some migrants in this category. Interaction between migrant and

local labour during their duty time was found to be limited while interaction after duty hours was even lower. While workers do not feel that the management distinguishes between local and migrant workers and wages paid to both remains the same, yet there exists a feeling that the influx of migrant labour has had a depressing effect on the wages of local labour. Presently, the major demands of the trade unions in the sugar mills are 20 percent bonus at the start of the crushing season, increase in variable dearness allowance, adjustment of grades so that they are parallel to grades of Punjab government employees, and removal of disparity between the common cadre and the mill cadre. These demands have been more or less fulfilled.

While trade unions maintain that migrant labourers in Punjab are well represented in the trade union leadership, migrant workers feel that they are not given their due either in trade unions or in the political life of the state. There are grievances that the leadership usually favours local people and that the interests of migrant labourers are often sacrificed.

The State and Migrants

Migrant labour has contributed substantially to the growth of Punjab's agriculture as well as industry. Yet these groups continue to labour under many severe problems, which rise mainly from the nature and manner of employment and economic relations that dominate migrant labour markets. Not only are they burdened with their own indebtedness and poverty but their nutritional levels are low, their bodies are weak and they are overwhelmingly illiterate. It is therefore imperative to ensure that the migrant is able to avail of the entitlements that Punjab provides for all its citizens.

The state could attempt to create awareness of migrants' rights and set up mechanisms of redressal by encouraging them to form trade unions and co-operative societies to enhance their bargaining power. They should be freed from harassment, perhaps issued temporary ration cards so that they can benefit from the public distribution system. Schools should be set up in areas where migrant workers are concentrated.

Ensuring decent working conditions and proper contract systems, providing basic health care for migrant families together with education opportunities should be primary concerns of the state.

The state of Punjab has framed elaborate rules called the Punjab Factory Rules, 1952, to further the purposes of the Factories Act of 1948. In addition to prevention and control of industrial accidents and injuries in work places, this legislation also provides for detection and control of diseases at work places. The state has also organised about 165 medical camps for industrial workers at various places in Punjab recently. Employers, trade union leaders, NGOs, and public figures have been actively involved in these camps and approximately 50,000 workers have been examined.

9. The Agriculturist in Punjab

As emphasised in the chapter on livelihoods, agriculture in Punjab is facing a crisis. The human components of the state's labour force—the agriculturist, the peasant, and the labourer—who are bearing the brunt of the crisis, are the focus of this chapter. The status and condition of the agricultural labourer and the small farmer are discussed in detail here.

Agricultural Labourers

Agricultural labour is a heterogeneous category. There are those who are 'self-employed' and those who are 'hired.' The former are workers who work on their own family farms, while the latter category includes a variety of contract labourers such as casual labourers and attached labourers. Attached labourers include annual farm servants, permanent farm servants, *naukar, siri* [1], etc. In this sector, employer-labour relations, duration of contract, frequency of payment and nature and degree of attachment deserve special attention. The duration of contract may be daily, monthly, seasonal or annual. The basis of payment could be hourly, daily or through other mechanisms such as time-wage, piece rate and/ or share of product.

Within the broad definition of hired labour, the category of 'daily labourer' is synonymous with 'casual labourer' and forms the largest category of hired labour. Typically, daily labourers are contracted on a daily basis and paid at the end of the same day. On the other hand, farm servants, also known as *naukars/ siris*, are those whose contract lasts normally for about a year or more and who receive payment in instalments spread over the year. Payment may be fixed in cash or kind, or both, accompanied by daily perquisites such as meals. Yearly perquisites such as clothes during festivals and train fare (while travelling to native places) are sometimes also given. Wages differ according to tasks, gender and age. It is important to note that the *siris* are a category of workers who meet the definition of sharecroppers and thus receive a share of the crops as their wages.

There are also bonded labourers, who work within an organised system of bondage. A 'bonded labourer'[2] is one who is subjected to forced or compulsory labour. The most typical form of bondage is 'debt' bondage. Labourers are forced to work with the same employer till

Courtesy: Janmeja Johl

The Punjabi farmer

[1] They are farm labourers who work on contract.

[2] The system of bonded labour in Punjab today is not of the severe variety found in many other parts of India. However these forms do exist in parts of the state.

they are able to repay a debt or advance that the employer may have given them. This debt could be with or without interest. They usually receive nominal or no wages and may or may not receive meals. Bonded labourers are usually paid wages lower than the market rates or at most, the absolute minimum wage.[3]

Trends in Agricultural Labour in Punjab

Historically, the number of agricultural labourers in Punjab has always been small. In 1901 the proportion of agricultural labourers compared to the entire body of agricultural workers was 8.1 percent. Even after Independence the proportion of agricultural labourers remained very small. It was only after the 1960s that there was a phenomenal rise in the number of agricultural labourers. Inter-census data from 1961 to 1991 shows that while the percentage of agricultural labourers compared to total main workers for the entire country increased from 16.70 percent to 26.15 percent, in Punjab it increased from 9.65 percent to 23.31 percent during the same period. The proportion of cultivators to total main workers during the same period declined from 52.80 percent to 38.75 percent for India. In Punjab, cultivators as compared to main workers declined from 46.24 percent[4] to 31.44 percent.

In 1991, cultivators constituted 42.81 percent and agricultural labourers constituted 30.75 percent of main rural workers in Punjab. The state also has a very low participation of female agricultural labourers. This is different from the rest of India. In Punjab, males constituted 93.78 percent of agricultural labourers, while females formed a meagre 6.22 percent.

A significant proportion of Punjab's agricultural labour force consists of migrant labour from eastern Uttar Pradesh and Bihar. In fact, one-third of the total agricultural labour in Punjab is made up of migrants from other parts of India. The share of migrant labour increases considerably during the peak agricultural season. According to some estimates there were 4.29 lakh migrant labourers in Punjab in 1983-84, and it is believed that this number stands in the range of one and a half million today.[5]

The three major categories of rural labourers are agricultural labourers, brick kiln labourers and construction workers. In Punjab, of the total rural labour population, 88.42 percent are agricultural labourers, 10.80 percent are brick kiln labourers and 0.78 percent are construction labourers.

Scheduled Caste Labourers

A large share of the agricultural labour population consists of Scheduled Castes, along with other backward castes. According to the Census of 1991, main workers constituted 29.6 percent of the total population of Scheduled Castes. Among major occupational categories of Scheduled Castes, agricultural labourers constituted 60 percent of all main and marginal workers and cultivators constituted 4.8 percent of total main workers, a decline from 6.6 percent in 1991. This distribution varies among specific Scheduled Caste communities as indicated in Table 9.1.

In 1985, only 4.5 percent (49,000) of the operational holdings were in the hands of Scheduled Castes, showing how completely marginalised these communities are from access to land. The total

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[3] Another distinctive feature of bonded labourers is rendering of customary labour service. Allotment of land and allotment of homestead are practices associated with the institution of 'bonded labour'. At times, the bonded person's entire family is also bonded in an extremely coercive relationship that restricts not just the freedom of labour of the person but of his entire family, which is then forced to work till the debt is repaid.

[4] These figures are derived from Economic Tables of the Census of India, 1961, 1971, 1981 and 1991.

[5] These estimates are drawn from number of studies undertaken to study migrant labour in Punjab. For details, please see the chapter on Migrant Labour in this report.

Table 9.1: **Occupational Distribution of Scheduled Castes, 1991**

Name of Scheduled Caste	Agricultural labourers amongst all main and marginal workers (%)	Share of agricultural labourers of each community amongst all agriculture main workers in Punjab(%)	Share of cultivators amongst total Populations (%)
All Scheduled Castes	60.6	73.5	4.8
Ad Dharmi	50.2	8.9	5.7
Balmiki	53.2	7.3	3.3
Bauria, Bawaria	77.6	1.4	12.3
Bazigar	65.4	2.1	5.9
Raigar, Ramdasi, Ravidasi	54.2	16.7	5.5
Dhanak	36.8	0.5	2.3
Dumna, Mahasha, Doom	52.6	1.6	4.2
Kabirpanthi, Julaha	32.0	0.4	6.1
Mazhabi	78.1	30.9	4.0
Megh	42.7	0.9	4.0
Sansi, Bhedkut, Manesh	64.5	1.0	5.8

Source: Derived from Tables on Scheduled Castes from Census of India 1991, available on CD-ROM, Registrar General of India, New Delhi.

operated area under their control was only 2.02 percent (83,000 hectares) of the total operated area in the state. Even where they possessed land, these were mainly marginal and small holdings.

In 1984, casual labourers formed a significant proportion of the Scheduled Caste agricultural work force. The participation of female labour from these caste groups was almost negligible. These labouring communities came almost exclusively from the Mazhabi caste. Since these communities remained unemployed for a considerable part of the year, they became indebted, both to formal and informal sources. Loans contracted from informal sources like landowners and money lenders were accompanied by high rates of interest.

Profile of Workers in Different Regions

In the Doaba region, local labourers do not get more than 100 days of employment in a year. The massive influx of migrant labour to this region has further reduced this short period of employment. In fact, migrants have begun to replace local labourers in peak agricultural operations, especially as attached labourers. Although paddy is a labour-intensive crop, the local labourer has still not been able to get more employment. This is because agricultural practices in this region have made it less labour-intensive as compared to other areas of Punjab. Besides that, the *siri* system is traditionally, not as deeply rooted in Doaba as in the Majha and Malwa regions. Mechanisation of wheat and paddy harvesting operations through combine harvesters has also decreased employment opportunities both for local and migrant labour.

A large acreage of land in the Doaba is used for potato farming. Potatoes are grown both in winter and summer, and potato farming is highly labour-intensive. A large number of cases of child labour have been found among the massive labour force working in potato farming. Approximately 35 percent of the total workers are below the age of 15 years. The other workers are mainly in the age group of 21 to 40 years. This is also the only crop in which a large number of workers are women. Approximately 69 percent of the labour force

Box 9.1: Migration to Other Countries

Over the last few years, large numbers of agricultural labourers have been migrating abroad. Many of them have lived up to seven or eight years in countries like Libya and Kuwait. In the process of migrating, these labourers have been exploited by middlemen and employers at their final destinations. These labourers, mostly belonging to Scheduled Castes and Backward Castes, are completely illiterate and take the help of professional recruiting agents to manage their trip abroad. They take loans from local agriculturists, moneylenders and local shopkeepers at rates as high as 120 percent. They are often paid the same wage that they would earn in Punjab and therefore are forced to return within three years. There have, however, been a few cases where a labourer was able to pay back the loan that he had taken. On the whole, migration abroad for better incomes has not really alleviated the conditions of these highly oppressed sections, unlike in the case of the land-owning Jat peasants, who have been able to enhance their economic status considerably by migrating abroad.

consists of women. Wage rates for women and children are far below the minimum wages fixed by the state. Child labourers get approximately Rs. 10 per day, women are paid Rs. 30-35 per day and men get wages of Rs. 35 to Rs. 45 per day.[6]

The agricultural labourers working on potato farms in the district of Jalandhar are drawn mainly from the districts of Kapurthala, Amritsar and Jalandhar. Most of them belong to the Balmiki caste, but there are some who belong to the Ad Dharmi, Ramdasia and Kabirpanthi caste communities. There are also some Christians. Rai Sikhs form the majority of other backward classes working as agricultural labourers.

Potato farming also involves maintaining cold storage facilities. A large number of *palledars*[7] are employed in these facilities through the year. A significant proportion of *palledars* are locals, particularly from the Balmiki and Gujjar castes as well as large numbers of migrant labour from Uttar Pradesh and Bihar. Most of these labourers are hired through middlemen and are kept in conditions that resemble the living conditions of bonded labour.

In the industrialised districts of Amritsar and Ludhiana[8], male and female labour participation is higher in Amritsar as compared to Ludhiana. The average number of days of employment available to casual agricultural labourers in both districts is 120 days in a year. Employment is available mainly during the peak period of wheat harvesting, paddy transplantation and paddy harvesting.

Most labourers here are deeply indebted to landowners and moneylenders. The number of permanent labourers or farm servants is much higher in Amritsar than in Ludhiana. They are paid either in cash or with a share of the crop that ranges from one-fifth to one-twelfth of the total produce. In Ludhiana, farm servants who receive a share in the crop also receive one and half times more wages than those paid in cash. However, in Amritsar, there is not much difference in the wages paid to the two types of annual farm servants. Farm servants also contract additional loans from their employers at an interest rate of 36 percent per annum. If they leave their employment without completing the full term of service, they are forced to return the entire amount. Their working

[6] Based on a study by Prof. Gopal Iyer and field work undertaken in six districts of Punjab by the HDR team.

[7] Palledars are hired labourers hired, primarily for physical labour.

[8] This section draws upon a study by Sukhbir Gill (1985) on agrarian relations in Amritsar and Ludhiana.

Box 9.2: Condition of Labourers in Malwa

- Malwa is the prime agricultural belt of Punjab. In this region agriculture is the principal source of livelihood. The role of the secondary and tertiary sector is minimal in providing alternative employment.
- The influx of migrant labour is also quite substantial in this region. It grew phenomenally during the 1980s and 1990s and has begun to cause unemployment among local agricultural labourers.
- The impact of mechanisation, particularly the role of combine harvesters in paddy and wheat harvesting, also leads to unemployment among local agriculture labourers.
- This region is different from the Majha and Doaba region. The phenomenon of *Siri* and attached labour is still strongly embedded in the agrarian structure of this region. Migrant labourers are gradually replacing locals as attached labourers. Both the *Siri* and attached labourers are deeply indebted and find it difficult to extricate themselves from the debt trap.
- Indebtedness and impoverishment lead to a high incidence of suicides both among farmers, as well as agricultural labourers.
- The number of days of employment of a casual agricultural labour is limited to 70 days in Sangrur district and 152 days in Faridkot district. In the absence of alternative sources of employment, labourers become severely dependent on local landowners and moneylenders to meet their survival needs.

conditions are particularly harsh. A typical work day includes irrigating the fields at night, bringing in fodder and feeding the animals, as well as participating in harvesting and threshing. On an average, a work day lasts 13-14 hours and even longer during peak season. As most become severely indebted to their employers, by the end of the year they must either continue with the same employer or take a loan from a new employer to pay off their debts to the old one. They are entitled to seven holidays in a year and absence from work beyond this period leads to loss in wages.

Ludhiana district attracts the maximum number of migrant labourers, who are rapidly replacing local agricultural labourers in most agricultural operations during peak season. Apart from this, the use of combine harvesters, which began in the early 1980s and accelerated during the 1990s, has reduced labour requirements. Unpredictable weather conditions have also compelled farmers in the district to use combine harvesters. A massive inflow of migrant labour, as well as increased mechanisation, has severely affected the employment potential of local agricultural labourers.[9]

In almost all districts of the Malwa region, agriculture is the main source of livelihood. In the districts of Faridkot and Sangrur, 86.28 percent and 75 percent of the total population respectively, is dependent on agriculture. Most agricultural labourers here belong to the Mazhabi, Ramdasia, Sansi, Jhiwar and potter caste and as in other parts of Punjab, most are illiterate. Female participation rates are also very low in these districts. Most workers are aged between 19 and 35 years.

Casual labourers are invariably indebted to moneylenders, landowners and relatives. Most of these debts are incurred to meet social obligations such as illness, marriage, house construction and death. Their indebtedness makes agricultural labourers further dependent on moneylenders and their local employers. The socio-economic status of agricultural labourers depends on the number

[9] Sukhbir Gill and Manjit Singh

of days they are employed and the amount of wages they earn. Casual male labour gets only 72 days of employment in a year in Sangrur and 152 days in Faridkot. Casual female labour gets only 42 days of employment in Sangrur district whereas in Faridkot district they get 110 days. The main reasons for the lower number of employment days in Sangrur are mechanisation of agriculture and the influx of migrant labourers.

Wheat harvesting, paddy transplantation and paddy harvesting involve significant numbers of casual labourers. Paddy transplantation is carried out almost exclusively by migrant labour, while harvesting is totally mechanised, except for areas that suffer from waterlogging, or are affected by excessive rain or wind. The combine harvester does one-third of the wheat harvesting. Only two-third of harvesting is carried out by human labour. Of this, about 40 percent is carried out by local labour, while the remaining work is carried out by migrant labour.

A combination of mechanisation and the influx of migrant labour has considerably affected the employment days of local labour in Sangrur district. In Faridkot a larger number of employment days is available because of the cotton crop, which is highly labour-intensive. However, in Faridkot, the effect of mechanisation and influx of migrant labour can be seen in the wheat and paddy crop. The number of days of employment during the 1980s was higher in this district as compared to the 1990s.

The condition of the attached labourer is much worse than that of the casual labourer. Annual wage rates of attached labour range from Rs. 9000 to Rs.10, 000/- in Faridkot and Rs. 12000-13000 in Sangrur. Patterns of payment differ in both districts. In Sangrur the attached labourer is paid the entire amount in advance as soon as he joins the employer. When he subsequently borrows money, the first two thousand is given free of interest, after which rates of interest rise to as high as 36 percent per annum. In Faridkot, the annual fixed wage is paid in three instalments. Money is lent at a rate of 36 percent per annum. The attached labourer in both these districts ends up deeply in debt by the end of the year. These debts are cleared by fresh loans from new employers.

Working conditions of the attached labourers are appalling. Working hours range from 14 hours during a normal day to 16 to 17 hours during the peak season. During this time many nights must be spent in the fields or in the employers' homes. The condition of attached labour in the Malwa region is much worse than in the Majha and Doaba regions.

Employment and Wages of Agricultural Labourers

The Rural Labour Enquiry Report (1974-75) shows that in 1964-65, rural labour households constituted about 17 percent of total rural households in Punjab-Haryana. In 1974-75 their strength rose to 21.52 percent. A majority of rural labour households consist of agricultural labourers and among them the percentage of landless labourers is extremely high ranging from 87.66 percent in 1964-65 to 89.50 percent in 1974-75. Agricultural labourer households consist mostly of Scheduled Caste families. While 85 percent of families belong to Scheduled Castes, only about 15 percent are from non-Scheduled Castes. Agricultural labour households are placed in the lowest position in the social and economic hierarchy of rural Punjab.

An overview of the period 1961-84 shows that the wage hikes of the early years of the Green Revolution were not sustained in the later 1970s or 1980s. In the 1960s and early 1970s there was an unprecedented demand for labour, and this was mainly for planting of labour-intensive crops like wheat, paddy, sugarcane and cotton. Local agricultural labour was provided full employment. This gradually petered out, partly due to rising

Mechanised farming

mechanisation and partly due to the impact of migrant labour from Uttar Pradesh and Bihar. Notwithstanding this fact, it is also evident that Punjab is the only state where wage rates have not declined during the period 1961-1984, which is a result of the labour absorption capacity of the Green Revolution, as well as the fact that the benefits of rising agricultural productivity did trickle down to wage earners. Wage rates were highest in the wheat and paddy areas. The Green Revolution produced a rise in the wages of male agricultural labourers although there was no rise in the wages of female agricultural labourers. Real wage rates for artisans, like blacksmiths and carpenters also showed an impressive increase. Agricultural labour households remained slightly better off than marginal-farming households.

However, from the mid-1980s there has been a gradual decline in the status of agricultural labour in Punjab. Mechanisation of farms increased, reaching its pinnacle in the 1990s. With the advent of tractors, both bullock and plough labour was displaced. With the introduction of combine harvesters there was a massive displacement of both agricultural and migrant labourers. Today nearly 40 percent of the wheat crop and 70 percent of the paddy crop is harvested through combines.

Thus the agriculture sector has reached saturation point in Punjab and its share of labour absorption has declined sharply. As a result agriculture today provides less employment days as compared to the period 1961-84. Unemployment and under-employment in agriculture have risen and there has been a fall in the total employment days of both male and female agricultural labourers.

Small Farmers in Punjab

The number of small and marginal farms rises every year due to distribution and division of land by inheritance, family partitions and other modes of transfer of rights. A disparity between ownership and operational holdings indicates that better-off farmers acquire land from small farmers under lease. This phenomenon is known as reverse tenancy and is the opposite of the trend in which a poor farmer takes land on lease from a prosperous farmer to earn his living.

Small farms of 5 acres or so are non-viable on their own. Even if it is assumed that farmers can cultivate

the best possible crops or combination of crops, the returns remain inevitably small. The Commission for Agricultural Costs and Prices has calculated that during 1997-98, returns from a single hectare of land for paddy and wheat crop in Punjab was only Rs. 7300. If the average size of small farms is taken as 1.61 hectares, the total net return was only Rs. 12000 for two crops in a year, which is well below the minimum wages necessary for survival. Thus, small farms, per se, are not viable unless they are supported with additional income from other sources.

In 1990-91, the average size of farm holdings in India was 1.57 hectares. Marginal and small farmers accounted for 78.2 percent of agricultural holdings in the country but owned only 32.4 percent of the area. Between 1970-71 and 1990-91 the share of marginal and small holdings increased to 77.65 percent, while that of large farmers decreased by 40.2 percent. Thus there is an increasing division of holdings. Holdings are becoming smaller, forcing many marginal farmers to look for alternative sources of income such as, animal husbandry and agricultural labour.[10]

Of late, many have argued for contract farming as a means to augment incomes of small farmers. The National Agricultural Policy (2000) endorsed this view. It states, "Private sector participation will be promoted through contract farming and land leasing arrangements to allow accelerated technology transfer, capital inflow and assured markets for crop production." However, such arrangements are effective only in certain areas and in certain crops. By implication this policy will boost the agro-processing industry, which, however, prefers to deal with a small number of large farmers rather than large numbers of small farmers.

The liberalisation of the economy in the 1990s has created a new set of problems for the farming community in general and the small farmer in particular. "Farmers have been pulled by the increasing demands of the market and the state, into a nexus of relationships that extend beyond the farm, to the national and international level. The interaction between small holders and more powerful economic and political organisations is not new. What characterises the contemporary situation is the variety of forces with which small farmers must deal. The size, complexity and impersonality of these organisations have resulted in a qualitative change in the nature of small holders' relationship to the outside world".[11]

Today, small and marginal farmers can simply be defined as agricultural labourers possessing small landholdings. Fruit and vegetable farming can play an important role in enhancing the incomes of these small and marginal farmers. Punjab's geographical location and other favourable climatic factors, make it fairly suitable for horticulture, which can be profitably marketed in the rest of India and can even find export markets. Yet the production and marketing of fruits and vegetables pose serious problems for small and marginal farmers. They prefer the rice-wheat rotation of crops mainly because of the assured price policy, easy market clearance, stable yield and short duration of crops. As horticultural crops lack these economical features, farmers are reluctant to bring more areas under fruit and vegetable cultivation. The relative lack of availability of quality seeds for vegetables and fruits is another reason. For example, in the case of potatoes, the main vegetable crop of Punjab, only large farmers possess the cash reserves to be able to buy quality potato seeds.

[10] Statistical Abstract, Director of Public Relations, Government of India, and various volumes of Statistical Abstract, Directorate of Economics and Statistics, Government of Punjab

[11] Glover and Kusterer (1990)

Indebtedness of Punjab Farmers

The most important reason for the indebtedness of the Punjabi farmer is the increased mechanisation of agriculture. The use of various farm inputs such as chemical fertilisers, weedicides, seeds, tubewells, tractors, combines, hired labour and rent for leased land, etc., has led to an overall increase in the cash expenditure of farmers. Yet the per capita income of farmers has not grown at the same rate as input prices and sheer cost of agricultural production. As a result, farmers have little surplus cash at their disposal and are forced to borrow huge amounts. This has led to a spurt in the growth of agricultural credit. Since the mid 1980s, there has been stagnation in the yields of main crops. In spite of modern inputs, there has been a steady decline in the net surplus generated in the production of these crops. Hence, farmers have increasingly begun to depend on loans to finance their costs of production.

A study[12] has shown that small farmers are more inclined to borrowing money. The proportion of farmers taking short-term loans is very high (86 percent) in all size categories. Yet the dependence of small farmers on short-term borrowing is much higher compared to large farmers. The highest amount of loan per acre is taken from commission agents (except in the case of medium farmers whose per acre borrowing is more from co-operative credit societies). The number of farmers who could not repay the entire amount was very high among small farmers (70 percent); followed by semi-medium and medium farmers (40-47 percent). The study also points out that even among big farmers, 28 percent were unable to repay the entire amount. The study also shows that almost the entire amount of unpaid short-term loans was due to commission agents. Only a very small amount was due to formal sector credit agencies.

Another study by Shergill (1998) reveals that of Rs. 1448 crore of long-term loans, around 17 percent of the total amount was outstanding towards Punjab farmers. Out of these 24.68 percent was outstanding against small farmers, 37 and 14 percent against semi-medium and medium farmers and 25 percent against large farmers. Nearly 54.2 percent of the total amount borrowed for long-term productive purposes was outstanding against farmers as a whole. Around 27.19 percent of long-term loans borrowed for non-productive purposes were for small farms, 22 percent for semi-medium; 18 percent for medium and 10.71 percent for large farms. Out of a total mortgaged debt of Rs. 406 crore, 60 percent is taken by small farmers and another 30 percent is taken by large farmers. The total estimated debt of Punjab farmers is Rs. 5,701 crore.

The severe indebtedness of small farmers as compared to large farmers is revealed even more clearly when we compare debt per operated acre among the two categories of farms. Small farms owed Rs. 10,105 per operated acre compared to Rs. 4230 owed by big farms. The annual interest burden per acre worked out to Rs. 1897 in the case of small farms. About 70 percent of small farms failed to completely clear their short-term loans. About 14 percent of small farms were forced to take the extreme step of mortgaging their land.

Cash expenditure per acre of small farms on farm operations was also 23 percent higher compared to that of large farms. Small farms' cash expenditure per acre on current consumption was also more than double that of big farms. So according to Shergill (1986), excessive cash expenditure per acre on farm operations and current consumption by small farmers seem to be the root causes of the chronic deficit in cash flow and results in their heavier indebtedness.

[12] Shergill (1999)

This tendency of small farmer families to imitate the consumption standards of big farmer families to maintain themselves at the same social level seems to be one of the reasons for their chronic and excessive cash deficit and results in their deep and constant indebtedness. Malcolm Darling mentions this 'demonstration pressure' as one of the major causes of indebtedness of the peasantry in Punjab. The proportion of farmers trapped in a hopeless debt situation is higher among the small farmers – a sort of debt trap that has resulted in about one-tenth of small farming families mortgaging some of their land. The heavier indebtedness of small farmers seems to be the result of their disproportionate cash expenditure on farm operations and domestic consumption.

Agriculture: Recent Trends

The main economic factors contributing to an agrarian crisis at the macro level are: the declining proportion of cultivators and increase in agricultural labourers, pauperisation and proletarianisation of the lower strata of the peasantry, continuing decline in the net income of farmers, the wheat-paddy rotation trap, crop loss, declining economic status of agricultural labourers and rise in rural unemployment.

The decline in the percentage of cultivators and increase in the percentage of agricultural labourers is an important feature of the agricultural crisis of Punjab. Cultivators constituted 42.56 percent of the total workers in Punjab during 1970-71. This proportion declined to 32.83 percent by 1990-91. During the same period, the percentage of agricultural labourers increased from 20.11 percent to 23.31 percent. These are depressing figures, which indicate a dual processes of pauperisation and proletarianisation.

Further, the operational holdings of marginal farmers during the same period declined from 37.63 percent to 26.50 percent, which also reinforced the process of pauperisation and proletarianisation of the peasantry. Many studies in Punjab have reflected the robust health of Punjab's agriculture and the sound position of small farmers in the 1970s and 1980s giving way to the subsequent decline in the 1990s. Shergill (1986) has studied the positive impact of the Green Revolution on the small peasantry. Increase in land prices and farm incomes had a stabilising impact and arrested the process of pauperisation and proletarianisation. The studies of Baldev Singh (1982), Sukhpal Singh (1983), Chatha et. al (1985) and Gill (1986 and 1994) indicate that while land transactions continued, these transactions were not accompanied by pauperisation and proletarianisation. Nonetheless, it was found that 24 percent of small farmers and 31 percent of marginal farmers were living below the poverty line in 1979-80. The proportion of marginal farmers below the poverty line increased to 34.07 percent by 1990-91. The agrarian situation toward the later part of 1980s and the entire period of 1990s showed evidence of a steady deterioration in the situation of small and marginal farmers. A study by Manick (1997) of two villages of Sangrur district and two villages of Faridkot district during 1995 clearly showed that marginal and small farmers were forced into distress sale of their lands, which were then purchased by medium and large farmers.

This showed that while marginal and small farmers became pauperised, land was becoming concentrated in the hands of medium and large farmers. Shergill's latest study (1998) also reinforces the picture of the deteriorating economic condition of marginal and small farmers. The study shows that 70 percent of small farmers are unable to repay crop loans taken from commission agents for productive and non-productive purposes and the debt burden among them is oppressive. There is also evidence that the lower strata of the peasantry is being forced to sell lands and tractors at throwaway prices. Sadly,

in a large number of cases there are simply no takers.[13]

The declining trend is seen in the latest Shergill study as well (1998). Data from the last 10 years shows that while the yield of wheat has grown at a very slow rate, the yield of rice has remained stagnant and the yield of cotton (American and Desi) has actually declined. Similarly, the yields of sugarcane, maize and potato have remained stagnant. The net value of all crops per acre (at constant 1980-81 prices) has remained stagnant over this decade. However, expenditure on modern farm inputs has been growing steadily, resulting in a continuous decline in the net surplus generated from the production of these crops. This has resulted in an increased dependence on borrowed funds to finance the purchase of modern farm inputs. About one-third of surveyed farmers reported an actual decline in paddy yield during the last three years.

The Punjab farmer is entrapped by the wheat-paddy rotation pattern from which he finds it difficult to extricate himself. Even the Johl Committee Report (May 1986) had observed that the overdependence of farmers on wheat and paddy has created an uncertain market situation due to the delayed announcement of procurement prices and decreasing demand for Punjab's foodgrains. Over the last 13 years, this position has worsened. Also, the wheat-paddy rotation pattern has adversely affected the groundwater table.

Punjab experienced a consistent and substantial crop loss in cotton during the 1990s. There has been other crop loss as well, as acknowledged by the Punjab government (Department of Agriculture) in its report submitted to the Central government for compensation to Punjab farmers for the crop loss for Kharif 1998, due to rains. Huge losses have been reported in cotton and other crops. In fact the cotton crop has seen the third successive bad year. According to the estimates of the Punjab government, the total loss suffered by the farmers in the state was Rs. 847,200,000.[14]

The economic condition of local agricultural labourers deteriorated sharply during the 1990s, in particular. The mechanisation of wheat and paddy harvesting considerably displaced both local and migrant labour. This reduced the number of effective days of employment for local agricultural labourers. As a result of a massive influx of migrant labour, both the number of days of employment and wage rates of local agricultural labourers have fallen sharply over the last 20 years.[15]

Gill (1994) observes that the unemployment rate for males with a secondary education and females with a graduate degree was higher in rural Punjab and above the all-India level. The rural unemployment rate for males was 10.71 percent for those with a secondary education and 9.1 percent for graduates and above. Educated youth from the poor peasantry finding that the landholdings of their parents are non-viable, are in severe need of employment outside agriculture. A large percentage of youth is thus unemployed and their number is increasing every year.

Conclusion

The crisis in agriculture and its subsequent impact on labour, small and marginal farmers is a crucial priority for the state. Atomisation of landholdings, increasing number of migrants offering cheap labour, mechanisation and a fall in the overall price situation of the principal produce of Punjab––

[13] Punjabi Tribune, dated January 21, 1999, Indian Express, dated January 12 & 24, 1999.

[14] Analysis of Agricultural Production, Rainfall and its Adverse Effects, Agriculture Department, Government of Punjab, 1998

[15] Manjit Singh, 1995; Sidhu, 1991; Sidhu M.S. *et al* 1998

wheat and paddy—have been the main causes of Punjab's agricultural crisis.

The problem needs to be tackled on many fronts. The State government has already begun work on trying to break the wheat-paddy pattern and negotiating with the government of India for better support prices. Similarly, the water crisis, the problems of declining water tables, coupled with increasing bad lands, need urgent attention. The change from the wheat-paddy cycle to alternative high return crops is just one aspect of the strategy. It is equally important to ensure an increase in productivity and a decrease in the costs of production.

10. An Agenda for Human Development

The chapters in this report have discussed various aspects of human development in Punjab, giving a contemporary picture, as well as projections for the future. Though the state has a strong economic base and abundant talent, some areas lag behind others in terms of development. Sustained and determined efforts are required to bring these areas at par with the rest of the state.

As discussed at the start of this report, to identify human development concerns of the state and match them with policy and institutional efforts is an urgent need. Through the report, many such concerns have been identified, as have many backward areas and communities requiring sensitive and focused action. A brief overview will now be attempted and strategy options will be stated.

To attain the objective of human development, three institutions are significant—the State (the government and its agencies), people's institutions and agencies and civil society institutions. We will concentrate on the State government because it is the State government which bears the prime responsibility for human development. The government is the largest player in education, in macro issues of the economy, in ensuring that marginal and small communities are provided equal opportunities, in ensuring basic amenities to all, in ensuring an administration which is responsive and respectful of citizens and one which involves them in their own governance, and the government is a major actor in health. Thus, only the government can lead the effort towards greater human development in Punjab.

Framework for Human Development

In order to foster human development, it is not sufficient simply to identify the deficiencies in education, health care and economic growth. It is equally important to create a framework that makes sure that recommended development strategies are sustainable.

Governance and Institutions in Punjab

Bringing people into direct governance is one of the most powerful mechanisms to ensure sustainable development. Punjab has responded to the 73rd and 74th amendments to the Indian Constitution by its State Acts, but both Panchayati Raj in rural Punjab and local self-government institutions in urban Punjab have not matured to the level of those in Kerala, Madhya Pradesh or West Bengal.

From the 1970s, Punjab's co-operative network has been an example in other parts of India. Today, there are buoyant and financially large co-operatives, managed by farmers and members and run professionally by administrators. However, the Panchayati Raj system has not developed significantly.

Local self-government and Panchayati Raj Institutions (PRIs) bring distinct advantages to any development process.

- They bring people directly into their own governance and deepen democracy.
- Local priorities and local concerns are expressed and acted upon, which ensures that development action is based on demand and not simply on officially set targets.
- Since local people become involved in planning and implementation of development, better quality is ensured, costs are lowered and it becomes easier to maintain physical and social assets. Experiences in states where PRIs are strong have shown that development initiatives under strong panchayats have been of better quality as there is strong community ownership of them.
- Local government builds leadership and takes democracy to the people's doorstep. Panchayats build leadership capabilities in society and strengthen negotiating capabilities vis-à-vis the state and other societies and economies.
- They reduce the distance between people and their government, leading to local solutions. They reduce dependence on government and gradually create a self-reliant and self-confident community.

Strengthening of democracy and governance will not be achieved simply by strengthening local bodies. Other measures need to be taken simultaneously. Many projects across India have shown that involving people's collectives in implementation has led to better cost management, better quality and greater all round satisfaction.

While involving local people should become a necessary strategy for all development schemes, it must be noted that there is sometimes conflict between village leaders and Panchayati Raj representatives. Constant efforts must therefore be made to reassure local groups so that they co-operate with Panchayati Raj officials.

Regional Growth

This report has already shown that there is a great deal of regional disparity in Punjab. There are evident disparities in literacy, infant mortality, child mortality and other areas.

The most effective means to reduce disparities is to invest greater resources in backward areas and ensure that these resources are effectively used. Investment in infrastructure creates jobs and brings buoyancy to non-farm employment.

The State Government has already formulated area development programmes in order to remove

Box 10.1: Programmes with People's Involvement

West Bengal carried out an experiment of involving local people in the management and protection of forests. This project has become one of India's most successful programmes and ensures that the forest is protected, that the use of the forest if sustainable and has also created a better relationship between people and forest officials. The Joint Forest Management programme emanating from this is now spread across India.

In Madhya Pradesh, the State government started a Watershed Management programme, involving people in Watershed Committees. Local communities were involved in every sphere of the programme from planning to construction work and then in maintenance. This programme has been hailed as one of the most successful programmes in India in watershed management.

these disparities, but they need to be given a fresh infusion of life.

Educating People

The details of education in Punjab have already been discussed. Yet further suggestions can be made on what sort of intervention is required by the State.

- Specific efforts are needed to upgrade the management and quality of the public education system. Public schools are associated with poor quality education and thus children of relatively affluent backgrounds are turning away from government schools. A dual education system is emerging between a poor quality public education system and a far better private education system. The quality of government schools, teaching conditions and teaching inputs must be improved to enable all children to receive quality education in the critical years of their growth.
- Teachers accountability and attendance must be improved. Teachers must be provided with better working conditions.
- Since, as noted earlier, PRIs are not yet very vibrant in Punjab, user committees of parents and other community leaders must be given a role in school management. Stakeholder involvement is critical to ensure accountability of both teachers and school managers. It has been seen across India, that wherever parental involvement has increased and teachers have become accountable to the community, teachers' attendance and quality of education have improved.
- Curriculum and the quality of textbooks need to be changed. School curriculum must meet the changing socio-economic needs of the 21st century. Textbooks must be made more interesting and absorbing for children. Innovative teaching methods and curriculum changes have produced impressive results in education in Rajasthan and Madhya Pradesh[1].
- The student-teacher ratio is high. The quality of teaching undoubtedly suffers if the number of students in a class rises beyond 30 or 40 students. Increasing the number of teachers would of course raise costs but there are ways around this constraint. Not only could postings of teachers be rationalised but innovative mechanisms of acquiring additional teachers as are in place in other states, could also be adopted.

Sustainable Livelihoods

The overall economic profile of a state naturally influences individual livelihoods.

- Punjab has witnessed a 'slowdown' in its economic growth, with a consequent decline in per capita incomes. Simultaneously, many sectors are facing growth constraints or have become saturated at current levels of investment, technology, entrepreneurship and markets. Certain suggestions can be made to alleviate some of these problems.
  - Public and private investment must increase, and the credit-deposit ratio of commercial banks must rise to the all India average. The Punjab State Financial Corporation must play a more productive role.
  - Punjab needs to formulate a long term adjustment plan for its economy. The plan has to work out the direction and level of changes in economic activities in various sectors. These changes need to be meticulously worked through in agriculture and industry.
  - The potential of the service sector needs to be tapped in order to generate employment. The growth in services has

[1] Both states undertook innovative changes in teaching, in teachers' training and curriculum under different efforts, such as the Shiksha Karmies, and Lok Jumbish programmes in Rajasthan, and the Education Guarantee Scheme and DPEP in Madhya Pradesh.

led to economic growth in many states that have progressed from primary sector dominance to service sector-led growth. This model needs to be adopted even for Punjab, since economic growth through manufacturing is a long term process and appears to be relatively difficult to achieve in the short term.

- The government must make massive investments in various activities to encourage private investment. It is up to the government to create investor confidence in Punjab.

- Industrial development in Punjab has so far been dominated by the small-scale manufacturer and unregistered units. Compared to agriculture, industry contributes less value and employs fewer numbers. In order to boost industrial development, a greater number of agro-industries need to be set up, with the public role restricted to that of a promoter.
- The promotion of industry can be dovetailed with greater participation from farmer entrepreneurs as well as from labour. Links between agriculture and industry are weak at the moment.
  - The survival and growth of the industrial sector in Punjab depends on greater efficiency in resource use, upgradation of technology and promotion of the skills of those engaged in the production and development process, such as scientists and engineers.
  - Co-operatives can be involved to ensure the participation of rich/ capitalist farmers in industrial development. Such participation could also encourage peasant-based co-operative processing activities.
- There has been a decline in the labour absorption capacity of industry, particularly in the absorption capacity of local labour.
  - Systems need to be developed which could ensure the employment of at least 50 percent of local labour. In order to achieve this, local labour needs to develop skills that make them employable. It is also necessary to ensure that proper wages are paid in order to attract local Punjabi labour to such jobs.
  - Labour legislation, particularly in wages and hours of work must be strictly observed.
  - Massive manpower planning through planned educational restructuring, industrial planning and planning of crop diversification has to be taken up simultaneously.
- The utilisation of the workforce in the state is less than the all India average and there is a high rate of unemployment and underemployment.
  - There is a need to increase the labour participation rate, particularly among women. This requires an expansion of economic activities and job creation. Planned incentives must be put in places which improve the quality of jobs. These will induce those staying away from work.
  - The government must shoulder the role of becoming a catalyst job creator, particularly in infrastructure development, health and education. Employment will be generated by increasing investments and encouraging private sector participation in infrastructure, as well as increasing social sector jobs through innovative community-based initiatives.
  - The government must also create conditions for the private sector to undertake agro-processing and related activities.
  - The government has to ensure minimum labour standards in the private sector.
- Measures are needed to secure sustainable agriculture development.
  - High investment in Research and Development (R & D) is required to ensure the introduction of new technology, which could introduce new viable crops that would deliver returns comparable to those from wheat and paddy.

- The sustainability of the irrigation system must be strengthened, particularly through the replacement of water-intensive crops by less water-intensive crops, encouraging water economising technologies, conjunctive use of ground and surface water, lining of water channels, undergrounding of water courses and enacting legislation to check over-exploitation of groundwater resources.
- Alternative crops have to be such that they put minimum strain on the water and soil.
- A minimum support price along with a system of procurement should be ensured.
- Investments will have to be made in agro-processing of the proposed new crops. To achieve this, farmers need to be supported materially, through human resource development and above all through the creation of an environment which ameliorates the uncertainties created by liberalisation and globalisation.
- Involvement of the state government in creation of infrastructure and facilities remains crucial.

- Small and marginal farmers face several problems. These include, non- viability of marginal and small holdings, lack of job opportunities in other economic sectors, lack of skills other than farming, lack of capital resources, indebtedness and a high rate of suicides.
  - A massive programme of human resource development through education and training for small and poor cultivators is required, accompanied by financial investment in setting up enterprises in the chosen areas of training or their deployment in assured areas of employment.
  - Across India, self-help groups have provided small consumption loans for poor small and marginal farmer families. Could self-help begin to lend on a large scale? The experience of mature self-help groups has shown that such groups are able to handle agricultural credit once they have established links with banks. These groups have managed to reduce indebtedness, ensured timely formal credit at reasonable rates, and have a much better repayment record than previous credit based programmes.

Towards diversification of agriculture

- Commercialisation of the Punjab Dairy sector:
  - Dairying in Punjab must be transformed from subsistence to a commercial activity by providing small/ marginal farmers the necessary financial support, technical training and quality infrastructure in veterinary services.
  - This effort needs to be supplemented by improving marketing services and guaranteeing quality by reducing malpractices such as adulteration of milk and milk products.
  - In this regard the recommendation of Johal Committee reports may be given due attention.
- Problems of agricultural labourers:
  - There is an urgent need to devise special programmes for the economic upliftment and social mobility of agricultural labourers.
  - Agricultural labour needs to be organised so that they can participate in decision-

making on their life and livelihood and are placed in a position where they can ensure that these decisions are implemented. The empowerment of agricultural labour, through unionisation, backed by implementation of statutory provisions, can help it to rise out of its present degradation.

Health

The public health sector in Punjab is of great importance, although Punjab also has a rapidly growing private sector. Little is known about private health services. The lack of information is mostly due to the fact that this sector remains unregulated, mostly informal and there is little accountability, either on quality or on data. The government must intervene to ensure that the quality and service of government health centres improves. A stringent control structure for the private health sector must be put in place.

- Required funds have not been allocated to the health sector in the state budget.
  - There must be greater financial allocations to health. Health investment must be sensitively planned and better distributed. Charging for services is another means of infusing funds into the health system, for example, charging user fee in government hospitals. Pooling resources between public and private health sectors may also help in improving the finances of the health sector.
  - User charges have been successfully introduced at the secondary level of health care. They could be introduced at the primary level as well.
- Reducing Infant and Child Mortality Rates:
  - The strategy must be a two-pronged one. First, immunisation services must be improved, proper medical care must be provided during delivery and parents must be encouraged to bring children for proper paediatric check- ups. Second, primary care centres and hospitals must be equipped with timely and adequate facilities.
- Inter-sectoral coordination:
  - The excessive compartmentalisation within health departments is unnecessary and reduces the capacity of the health sector to act as an integrated whole.
  - A separate public health cadre is required for effective implementation of various national public health programmes. In many states, a separate cadre of para-medical personnel, community-based health workers for essential services such as immunisation and basic care have been highly effective. Such initiatives could be adopted in Punjab.
- Better institutional care in rural areas:
  - The private sector should be encouraged to meet the growing demand for advanced health care in rural areas.
  - A systematic referral system should be developed whereby a patient moves from one level of health care to another level of care according to medical needs rather than going to a higher level directly. This implies that the role of primary, secondary and tertiary levels of health care should be properly defined.
  - Personnel and infrastructure should be used to its maximum potential. Training of health personnel is essential. Also, facilities such as drinking water, and drainage must be looked after by health personnel.
  - Infrastructure for new developing fields such as bio-informatics should be created.
  - Training institutes for health personnel at all levels should be standardised.
  - The personnel requirement in a health institution must be restructured. At the moment, employees of various schemes work and draw salaries under many separate schemes. Integration of these and consolidation in form of the service

they provide needs to be undertaken. Personnel must get directly associated with the institution they work in.

- Absenteeism of doctors, especially in rural areas, not only makes the vast health system ineffective, but also forces patients towards private practitioners.
  - Making 3-5 years of rural service compulsory for every doctor is an effective way of ensuring the presence of doctors in rural areas. However, experience in most states has shown that doctors have effectively lobbied and forced governments to overturn such initiatives. Since most rural areas of Punjab are already semi-urban in character, doctors have far better work conditions than in other states. It is, therefore, easier to enforce such regulations, although at the same time it is necessary to make rural service more attractive.
  - Community participation and involvement of panchayats can become an effective means of keeping a check on doctors/ paramedical staff. Until now, medical personnel have been fairly unaccountable to people or local representatives. Unless local leaders and citizens play an active role, problems such as absenteeism and unresponsive health services are likely to continue.
- Public health – ensuring quality of drinking water and improving sanitation facilities:
  - Much improvement is required in the condition of slums dwellers in Punjab, particularly in the areas of drainage and sanitation.
  - A dual water supply system must be introduced.
  - Environmental pollution must be checked.
- Services of the private health sector:
  - A framework of norms, service delivery systems and standards that promote ethical medical practices is needed.
  - To improve the quality of service provided by the private sector, a Nursing Home Registration Act must be enacted.
- Drug abuse:
  - Stringent laws are necessary. Anti-drug education programmes, rehabilitation, support mechanisms and de-addiction centres must be established and maintained.

Special Groups and Communities

In Punjab, women continue to suffer from serious disadvantages in education and health, as well as from the effects of poor juvenile sex ratios. It is a matter of great concern that in a progressive and forward-looking state like Punjab, half its population faces such terrible discrimination and deprivation. Stringent action is required to reform this situation.

- A gender balance sheet must be created to objectively assess specific successes and failures in women's development. Such an assessment must naturally be made within the socio-economic context of Punjab.
- The sex ratio in Punjab is poor and the state has the worst child sex ratio in the country. There is a high rate of female infanticide and foeticide.
  - Stringent laws are necessary. Strict punishment must be handed out if the Pre Natal Diagnostic Test Act is violated. State representatives need to be sensitive to women's concerns and raise the visibility of women beyond the private domain.
  - NGOs, religious bodies and other organisations must be pressed into service to tackle the problem of declining sex ratios because the government alone cannot provide solutions to this terribly disturbing social trend.
  - The religious spirit must be awakened among the public so there is an awareness that even to contemplate foeticide or female infanticide is immoral.

- Health care for adolescent girls:
  - A woman worker from the community can be attached to the *anganwadi* to help adolescent girls in their transition to womanhood. The worker should be able to work at all levels: with girls, parents and the community. On a macro scale, the state should become the protector of the right of girls to lead a healthy and safe life.
- A low worker participation rate among women is an important reason for their poor status. Womens' collectives should become the starting point for delivery of all women-oriented programmes. Women's self-help groups should be used to promote economic activities among women.
- Low political participation of women:
  - The 73rd and 74th Amendments provided the basis for empowering women at the grass roots, essentially by providing for 33 percent reservation for women in assemblies and panchayats. If panchayats are strengthened and given greater centrality, women leaders will gradually start to emerge across the state.
- In order to attend to the needs of physically and mentally challenged children, legislative as well as rehabilitative support mechanisms are required.
- Migrants have come to Punjab because of better wages and work conditions available as compared to their home states. However, working conditions of migrants need to be improved.
  - Rules and regulations under the Inter State Migration Workmen Act 1979 need to be followed seriously.
  - The Central government should create an enforcement machinery to inspect and investigate cases of exploitation of migrant workers.
- In several instances, migrants work on deferred wages and collect full wage payment only when they return or visit their homes.
  - Migrants should be made aware of their rights and also made aware of the various ways their grievances can be redressed by the government.
  - Awareness-cum-Registration stalls should be set up at stations of origin. Briefing and de-briefing of migrant workers should be organised by both home and host states.
- Migrant workers are not able to avail of social security as many return to their homes after spending their prime working years in Punjab. They neither claim old age pension nor do they avail of any medical services.
  - Vigilance committees, on the pattern of bonded labour committees, should be set up in the host state. The committee should include representatives from migrant labourers and their trade unions.
  - Mechanisms should be created to register migrants in their host state and free them from harassment.
  - Temporary ration cards should be given to them so that they can benefit from the public distribution system
  - Schools providing full time education should be set up in areas where migrant workers are concentrated.

The Way Ahead

Punjab must invest in its people by ensuring basic needs such as good schools, effective primary health care and an environment that strengthens and sustains livelihoods.

People are always the best resource of human development and the State should create opportunities for the public to participate in its own governance. The people of Punjab have demonstrated time and again their hardiness in the face of adversity and their capacity for hard work. These energies should be harnessed so that Punjab can once again leap forward to the future.

Technical Notes

Human Development Index

The Human Development Index (HDI) is a composite index 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 left to travel.

The index is calculated by the following formula:

$$HDI_{ij}\ (\text{Index}) = \frac{\text{Target}_j - \text{Value}_{ij}}{\text{Target}_j - \text{Min}_j}$$

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 percent 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)

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, 2001, and these figures were used for the index on literacy. Literacy rate for the population was calculated as percentage share of all literates in a district over the total population of people above 6 years in the district.

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

The second component of education is the combined school level enrolment. Enrolment rates have been derived from data on enrolled children from the Directorate of Public Instruction (Schools) and estimated number of children in school going ages from population projections and age group based on Census of India 1991 and 2001.

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 percent 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.

Health

Life expectancy is the single criteria used by the UNDP to assess health status. The Census of India has released fertility tables and estimates for infant mortality rates for 1991. The Census fertility tables for 1991 permit us to arrive at indirect estimates of life expectancy at birth for districts for 1991. The indirect estimates have been arrived at using the methodology applied by Census for calculating mortality tables for 1981.[1] 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 is 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 the 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 become modified, but for the purpose of comparative analysis, and a fairly accurate picture of the status of longevity, the figures are very useful. Estimates are also provided for rural and urban and males and females. Estimates of male and female life expectancy were also calculated using widow techniques.

Estimates of life expectancy for districts from 1981 and 1991 were projected, and then sensitised to regional and state life expectancies projected by SRS to get estimates of life expectancy for 2001.

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

Income

The UNDP HDI uses 'adjusted per capita income for countries' to calculate the index of income. For the Punjab income index the same criteria has been used. For district level incomes latest estimates have been calculated and provided by the Directorate of Economics and Statistics, Government of Punjab.

Adjusted Incomes

Estimates of per capita incomes alone do not give an idea of the distortions in distribution or the levels of poverty in the districts or the depth of deprivation of the poor. UNDP for their income component of the HDI, used 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 districts more comparable to each other to assess relative levels of achievement in incomes.

[1] 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.

However, the problem with this method is 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 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, we took the minimum per capita income required to be above the poverty line.

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

Gender Development Index[2]

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 males and females. This is based on the GDI developed by UNDP, used first in the Human Development Report in 1995.

For a gender sensitive adjustment, we use a weighting formula that expresses a moderate aversion to inequality, setting the weighting parameter ε 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 female and male achievement levels (which are themselves expressed in reciprocal form). Although this may sound complicated, the principle is fairly straightforward. The harmonic mean will be less than the arithmetic mean to the degree that there is disparity between male and female achievement.

Longevity

The first step in the calculation of 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 and projected to 2001, as explained earlier in this chapter. Although the range for life expectancy is the same for 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.

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] 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

Incomes

The calculation of the index for income is more complicated. In calculating 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 female to male was assumed to average at 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 a possible underestimation of the male-female wage differential, the figure of 67 percent also does not account for the fact that the numbers of women are greater 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 the economically active population aged 15 and above. Because of the lack of data on employment of gender, this procedure makes the 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 consider the workforce participation ratio (WPR), which includes main and marginal workers, and the second is to consider 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 ratios 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 average female wage to the overall average wage of the female share of the economically active population. The male share of income can be calculated in the same way or by subtracting female share from 1.

The third step in estimating disparities in 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 into 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 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 to apply the gender-equity-sensitive indicators (GESI) methodology of (1- ε) 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 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.

Statistical Tables

Table 1: Human Development Index 2001 - Punjab

DISTRICT	EDUCATION					HEALTH		INCOME		INDEX
	Literacy	Literacy DI	Children's Enrolment in Schools	Children's Enrolment in Schools DI	Education Index	Life Expectancy at birth	Health Index	Adjusted per capita Income DI	Income Index	Human Develop-ment Index
	A	B	C	D	E	F	G	H	I	J
Amritsar	67.9%	0.679	68.6%	0.686	0.681	72.0	0.784	0.635	0.635	0.700
Bathinda	61.5%	0.615	73.4%	0.734	0.655	68.3	0.722	0.646	0.646	0.674
Fatehgarh Sahib	74.1%	0.741	71.9%	0.719	0.734	69.6	0.744	0.742	0.742	0.740
Faridkot	63.3%	0.633	74.0%	0.740	0.669	70.1	0.752	0.673	0.673	0.698
Firozpur	61.4%	0.614	65.3%	0.653	0.627	71.0	0.767	0.671	0.671	0.689
Gurdaspur	74.2%	0.742	79.9%	0.799	0.761	74.2	0.820	0.589	0.589	0.723
Hoshiarpur	81.4%	0.814	77.5%	0.775	0.801	68.1	0.719	0.635	0.635	0.718
Jalandhar	77.9%	0.779	73.6%	0.736	0.765	66.1	0.685	0.674	0.674	0.708
Kapurthala	73.6%	0.736	64.4%	0.644	0.705	68.7	0.728	0.688	0.688	0.707
Ludhiana	76.5%	0.765	54.4%	0.544	0.692	76.8	0.863	0.728	0.728	0.761
Mansa	52.5%	0.525	67.7%	0.677	0.576	68.3	0.722	0.602	0.602	0.633
Moga	63.9%	0.639	66.3%	0.663	0.647	70.2	0.753	0.648	0.648	0.683
Muktsar	58.7%	0.587	68.0%	0.680	0.618	70.2	0.753	0.582	0.582	0.651
Nawanshehar	76.9%	0.769	67.8%	0.678	0.738	66.7	0.695	0.686	0.686	0.707
Patiala	70.0%	0.700	64.0%	0.640	0.680	69.5	0.741	0.670	0.670	0.697
Rup Nagar	78.5%	0.785	69.0%	0.690	0.753	70.7	0.762	0.737	0.737	0.751
Sangrur	60.0%	0.600	60.3%	0.603	0.601	65.2	0.669	0.690	0.690	0.654

Source : Derived from the date computed

Table 2: **Gender-related Development Index 2001**

DISTRICT	EDUCATION					HEALTH			INCOME			
	Literacy Rate		Child Enrolment		Education Index	Expectancy of Life		Health Index	Adjusted per capita Income		Income Index	Gender-related Development Index
	Male	Female	Male	Female		Male	Female		Male	Female		
Amritsar	73.6%	61.4%	61.5%	67.3%	0.665	71.5	72.5	0.784	32413	1077	0.182	0.544
Bathinda	68.3%	53.8%	75.7%	69.8%	0.648	69.1	66.7	0.714	33542	2903	0.512	0.625
Fatehgarh Sahib	78.9%	68.6%	65.5%	70.0%	0.719	66.6	72.8	0.744	43727	1128	0.205	0.556
Faridkot	68.9%	57.1%	74.8%	72.1%	0.665	71.7	68.1	0.746	36101	2961	0.518	0.643
Firozpur	69.6%	52.3%	69.2%	64.2%	0.626	68.5	73.9	0.769	36959	3152	0.535	0.643
Gurdaspur	80.4%	67.3%	74.9%	80.3%	0.752	69.6	79.4	0.821	30456	942	0.123	0.565
Hoshiarpur	87.0%	75.6%	78.1%	78.7%	0.803	65.1	70.7	0.715	35044	2144	0.419	0.645
Jalandhar	82.4%	72.9%	71.6%	73.4%	0.760	65.3	69.6	0.708	36632	2144	0.427	0.632
Kapurthala	78.7%	67.9%	63.8%	65.9%	0.705	73.5	67.5	0.752	38181	2734	0.498	0.652
Ludhiana	80.2%	72.1%	57.0%	58.7%	0.702	71.7	82.9	0.864	44297	1386	0.291	0.619
Mansa	59.1%	45.1%	67.4%	64.9%	0.567	69.1	66.7	0.714	29987	2601	0.477	0.586
Moga	68.4%	59.0%	66.8%	67.6%	0.649	71.4	68.7	0.749	35242	2123	0.423	0.607
Muktsar	65.9%	50.6%	70.1%	65.2%	0.612	71.4	68.7	0.749	29475	2440	0.458	0.606
Nawanshehar	83.7%	69.5%	69.1%	74.0%	0.749	65.3	69.9	0.710	41005	2039	0.410	0.623
Patiala	76.1%	62.9%	63.5%	63.9%	0.676	66.1	71.8	0.732	36547	1903	0.393	0.600
Rup Nagar	84.4%	71.7%	68.7%	71.6%	0.755	70.1	71.7	0.766	43297	2553	0.485	0.669
Sangrur	66.0%	53.3%	61.9%	61.7%	0.604	63.1	69.9	0.690	38752	2157	0.433	0.575
Punjab	**75.6%**	**63.6%**	**67.0%**	**68.1%**	**0.689**	**67.9**	**71.4**	**0.745**	**36592**	**1997**	**0.406**	**0.614**

Source : Derived from the date computed

Table 3: District Information

District	Blocks		Towns		Inhabited Villages	
	1991	2001	1991	2001	1991	2001
Amritsar	15	16	10	13	1204	1198
Bathinda	9	7	8	9	282	282
Faridkot	10	2	3	3	163	437
Fatehgarh Sahib	..	5	5	5	452	164
Firozpur	9	10	9	9	965	960
Gurdaspur	13	14	12	14	1546	1540
Hoshiarpur	11	10	9	12	1396	1393
Jalandhar	12	10	11	14	958	945
Kapurthala	4	5	3	7	633	625
Ludhiana	10	11	10	12	913	900
Mansa	..	5	4	5	240	239
Moga	..	5	4	4	322	324
Muktsar	..	4	3	4	235	234
Nawanshehar	..	5	4	4	462	463
Patiala	9	9	9	14	1067	1069
Rup Nagar	6	7	8	11	879	867
Sangrur	10	13	13	17	696	689
Total	**118**	**138**	**125**	**157**	**12413**	**12329**

Source : Statistical Abstract

Table 4: Demography

S.No.	District	Total Population		Share in State Population		Decadal Growth in Population		Urban Population (%)	
		1991	2001(P)	1991	2001(P)	1981-91	1991-2001(P)	1991	2001(P)
1	Amritsar	2,505,034	3,074,207	12.35	12.66	14.46	22.72	34.08	40.00
2	Bathinda	985,301	1,181,236	4.86	4.86	20.48	19.89	26.98	29.78
3	Faridkot	455,005	552,466	2.24	2.28	22.90	21.42	33.21	33.89
4	Fatehgarh Sahib	454,919	539,751	2.24	2.22	17.03	18.65	23.27	28.08
5	Firozpur	1,448,903	1,744,753	7.14	7.18	24.38	20.42	25.56	25.81
6	Gurdaspur	1,757,281	2,096,889	8.66	8.63	16.07	19.33	21.98	25.46
7	Hoshiarpur	1,298,712	1,478,045	6.40	6.09	16.42	13.81	17.11	19.66
8	Jalandhar	1,649,909	1,953,508	8.14	8.04	17.25	18.40	40.65	47.45
9	Kapurthala	646,647	752,287	3.19	3.10	19.25	16.34	25.76	32.59
10	Ludhiana	2,428,382	3,030,352	11.97	12.48	36.44	24.79	51.22	55.80
11	Mansa	574,662	688,630	2.83	2.84	18.04	19.83	16.64	20.68
12	Moga	777,922	886,313	3.84	3.65	17.41	13.93	19.23	20.04
13	Muktsar	654,434	776,702	3.23	3.18	20.23	18.68	23.40	25.52
14	Nawanshehar	531,253	586,637	2.62	2.42	18.60	10.43	13.35	13.80
15	Patiala	1,528,569	1,839,056	7.54	7.57	21.56	20.31	31.00	34.98
16	Rup Nagar	899,587	1,110,000	4.44	4.57	26.89	23.39	25.77	32.46
17	Sangrur	1,685,449	1,998,464	8.31	8.23	21.36	18.57	25.43	29.26
	Total	**20,281,969**	**24,289,296**	**100.00**	**100.00**	**20.81**	**19.76**	**29.77**	**33.95**

Source : Statistical Abstract

Table 5: Sex Ratio

S.No.	District	Sex Ratio					
		Total		Rural		Urban	
		1991	2001(P)	1991	2001(P)	1991	2001(P)
1	Amritsar	873	874	871	885	876	859
2	Bathinda	884	865	888	868	873	860
3	Faridkot	883	881	882	876	884	892
4	Fatehgarh Sahib	871	851	870	859	873	832
5	Firozpur	895	883	898	893	887	857
6	Gurdaspur	903	888	905	895	895	868
7	Hoshiarpur	924	935	932	947	890	888
8	Jalandhar	897	882	907	904	883	859
9	Kapurthala	896	886	910	907	857	843
10	Ludhiana	844	824	880	877	812	784
11	Mansa	873	875	871	875	881	878
12	Moga	884	883	883	885	889	873
13	Muktsar	880	886	877	888	888	883
14	Nawanshehar	900	913	898	914	914	911
15	Patiala	882	864	875	862	899	868
16	Rup Nagar	870	870	870	869	870	871
17	Sangrur	870	868	866	869	881	864
	Total	**882**	**874**	**888**	**887**	**868**	**849**

Source : Statistical Abstract

Table 6: Sex Ratio (Children below 6 years)

State/Districts	Sex Ratio in 0-6 age group – 1991 Census			Sex Ratio in 0-6 age group – 2001 Census		
	Total	Rural	Urban	Total	Rural	Urban
Punjab	**875**	**878**	**866**	**793**	**795**	**789**
Amritsar	861	864	856	783	789	772
Bathinda	860	866	844	779	789	756
Faridkot	865	867	861	805	805	806
Fatehgarh Sahib	874	872	881	754	747	774
Firozpur	887	894	864	819	824	804
Gurdaspur	878	881	868	775	789	729
Hoshiarpur	884	887	873	810	813	800
Jalandhar	886	891	879	797	806	786
Kapurthala	879	875	891	775	773	779
Ludhiana	877	886	869	814	812	816
Mansa	873	883	814	779	780	775
Moga	867	867	866	819	820	811
Muktsar	858	864	839	807	810	798
Nawanshehar	900	898	913	810	811	805
Patiala	871	870	872	770	764	786
Rup Nagar	884	883	886	791	787	800
Sangrur	873	877	863	784	779	798

Source: Provisional Series, Paper 2 of Punjab, Census of India 2001.

Table 7: Work Participation Rate

S.No.	District	Work Participation Rate		Female Work Participation Rate		Male Work Participation Rate	
		1991	2001	1991	2001	1991	2001
1	Amritsar	30.7	36	2.7	16.3	55	53.2
2	Bathinda	32.8	42.2	7.1	27	55.5	55.4
3	Faridkot	32.8	42.4	6.8	23	55.7	59.5
4	Fatehgarh Sahib	30.2	38.2	2.1	18.3	54.7	55.1
5	Firozpur	32.3	37.1	7.4	18.5	54.5	53.6
6	Gurdaspur	28.1	33.4	2.4	12.7	51.3	51.9
7	Hoshiarpur	28.6	34.7	4.7	17.3	50.6	51
8	Jalandhar	30.1	34.5	4.6	12.3	53	54.1
9	Kapurthala	31.2	35	5.8	14.4	54	53.4
10	Ludhiana	31.3	37.8	2.6	15.7	55.5	55.9
11	Mansa	34.3	40.7	7.5	25.1	54.4	57.6
12	Moga	31.4	40.1	4.5	24.2	55.1	54.3
13	Muktsar	33.5	39.7	7.1	22.3	56.8	55.2
14	Nawanshehar	29.8	44.9	4	33	53	55.6
15	Patiala	30.2	37.2	4.1	17.6	53.2	54.1
16	Rup Nagar	30.1	39.3	4.6	23.8	52.2	52.8
17	Sangrur	32.3	40.6	4.7	24.1	56.3	54.9
	Punjab	**30.9**	**37.6**	**4.4**	**18.7**	**54.2**	**54.1**

Source: Series-4, Provisional Population Totals, Paper-3 of 2001, Census of India, 2001

Table 8: Land Use

S.No.	District	Net area sown (000 Hect.)		Cropping Intensity (%)		Percentage of Net Area Irrigated to net area sown		Per Capita Forest Area (Hect.)	
		1991	2001	1991	2001	1991	2001	1991	2001
1	Amritsar	437	446	178	184	98.6	98.5	0.006	0.004
2	Bathinda	491	299	171	188	92	98.6	0.006	0.006
3	Faridkot	517	132	176	187	95.8	97.6	0.006	0.004
4	Fatehgarh Sahib	..	103	..	188	..	99.6	..	0.002
5	Firozpur	506	475	183	190	97.8	99.1	0.004	0.007
6	Gurdaspur	299	292	156	169	88.4	74.5	0.01	0.018
7	Hoshiarpur	247	218	160	168	60.1	86.4	0.066	0.074
8	Jalandhar	293	238	177	174	98.4	99.5	0.001	0.002
9	Kapurthala	141	135	177	194	99.9	99.8	0.003	0.003
10	Ludhiana	325	304	185	199	99.5	100	0.004	0.003
11	Mansa	..	203	..	181	..	98	..	0.004
12	Moga	..	198	..	198	..	99.7	..	0.002
13	Muktsar	..	234	..	184	..	92.9	..	0.005
14	Nawanshehar	..	101	..	171	..	82.6	..	0.002
15	Patiala	390	304	186	196	94	95.3	0.006	0.008
16	Rup Nagar	112	126	179	167	63.1	73.9	0.043	0.047
17	Sangrur	459	456	193	198	99.6	92.7	0.002	0.003
	Total	**4217**	**4264**	**178**	**186**	**93**	**94**	**0.011**	**0.011**

Source: Statistical Abstract

Table 9: Percentage Distribution of Net State Domestic Product at Factor Cost by Sectors in Punjab at Constant 93-94 Prices

(in percent)

Sector	1993-94	1994-95	1995-96	1996-97	1997-98	1998-99	1999-2000	2000-2001	2001-2002
Agriculture	47.89	47.67	45.74	45.66	42.09	41.12	42.15	41.93	40.87
(i) Agricultural Proper	33.72	33.17	31.10	31.19	26.92	26.59	27.65	27.67	26.80
(ii) Livestock	14.17	14.50	14.64	14.47	15.17	14.53	14.50	14.26	14.07
Forestry & Logging	0.14	0.14	0.14	0.13	0.15	0.13	0.15	0.16	0.18
Mining and Quarying	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fishing	0.19	0.23	0.25	0.28	0.32	0.38	0.38	0.40	0.43
Sub Total Primary	48.23	48.04	46.13	46.07	42.56	41.63	42.68	42.49	41.48
Manufacturing Registered	10.01	10.05	9.77	9.35	9.56	9.94	9.73	9.86	9.91
Manufacturing Unregistered	4.39	4.76	5.22	5.22	5.26	5.18	5.18	5.25	5.32
Construction	4.48	4.49	5.10	4.34	5.82	6.82	5.13	5.41	5.72
Electricity & Water supply	0.94	0.89	0.89	0.93	0.95	1.08	1.05	1.03	1.02
Sub Total Secondary	19.82	20.19	20.98	19.84	21.59	23.02	21.09	21.55	21.97
Transport, Storage and communication	2.45	2.54	2.90	3.15	3.44	3.60	4.17	4.37	4.79
Trade Hotels & Restaurants	13.10	12.95	13.20	13.22	13.62	13.42	13.68	13.70	13.94
Banking & Insurance	3.49	3.75	4.23	5.49	6.04	5.29	5.63	5.32	5.39
Real Estate and ownership of dwellings	4.27	4.17	4.17	3.95	3.90	3.74	3.58	3.54	3.48
Public Administration	3.87	3.72	3.65	3.76	4.24	4.73	4.72	4.66	4.66
Other services	4.77	4.64	4.74	4.52	4.61	4.57	4.45	4.37	4.29
Sub-Total Tertiary	31.95	31.77	32.89	34.09	35.85	35.35	36.23	35.96	36.55
Total SDP	**100.00**	**100.00**	**100.00**	**100.00**	**100.00**	**100.00**	**100.00**	**100.00**	**100.00**

Source: Statistical Abstracts of Punjab, various issues

Table 10: Percentage Distribution of Net State Domestic Product at Constant Prices (1980-81) for Punjab State

(in percent)

Sector	1960-61	1970-71	1980-81	1990-91
Agriculture	53.71	54.25	48.46	47.63
(i) Agricultural Proper	42.73	38.50	32.22	30.69
(ii) Livestock	10.98	15.75	16.24	16.94
Forestry & Logging	0.70	0.77	0.99	0.59
Fishing	0.05	0.04	0.03	0.09
Mining &Quarrying	0.02	0.05	0.02	0.02
Sub Total Primary	54.48	55.11	49.50	48.33
Manufacturing	7.29	8.04	11.01	16.27
(i) Registered	3.44	4.17	5.91	9.41
(ii) Unregistered	3.85	3.87	5.10	6.86
Electricity, Gas & Water supply	0.52	0.84	1.31	2.45
Construction	9.74	9.22	6.15	3.82
Sub Total Secondary	17.55	18.10	18.47	22.54
Trade Hotels & Restaurants	9.92	10.97	14.59	11.33
Transport, Storage &communication	1.82	1.73	2.05	2.32
Banking & Insurance	1.59	1.80	2.55	4.67
Real Estate, ownership of dwellings and Business services	7.30	4.79	4.26	3.21
Public Administration	1.36	1.78	2.82	3.28
Other services	5.98	5.72	5.76	4.32
Sub-Total Tertiary	27.97	26.79	32.03	29.13
Total SDP	**100**	**100**	**100**	**100**

Source: Statistical Abstracts of Punjab, various issues

Table 11: Per Hectare Yield of Wheat and Rice in Punjab (kg.)

Years	Actual		Three Years' Moving Average (*)	
	Wheat	Rice	Wheat	Rice
1970-71	2238	1765		
1971-72	2406	2045	2292	1939
1972-73	2233	2007	2285	2113
1973-74	2216	2287	2281	2122
1974-75	2395	2071	2381	2304
1975-76	2373	2553	2399	2412
1976-77	2430	2611	2477	2691
1977-78	2538	2910	2561	2819
1978-79	2716	2937	2684	2817
1979-80	2797	2604	2748	2758
1980-81	2730	2733	2820	2765
1981-82	2932	2955	2889	2945
1982-83	3004	3144	2984	3055
1983-84	3015	3063	3103	3093
1984-85	3289	3073	3278	3112
1985-86	3531	3200	3262	3201
1986-87	2966	3331	3346	3232
1987-88	3540	3164	3391	3088
1988-89	3667	2770	3600	3148
1989-90	3593	3510	3658	3170
1990-91	3715	3229	3704	3332
1991-92	3803	3257	3763	3292
1992-93	3770	3391	3861	3385
1993-94	4011	3507	3957	3426
1994-95	4089	3381	3995	3340
1995-96	3884	3132	4071	3303
1996-97	4234	3397	3390	3331
1997-98	3853	3465	4140	3338
1998-99	4332	3152	4294	3321
1999-2000	4696	3347	4530	3335
2000-01	4563	3506		

* : Moving averages are taken as average of the previous year, the current year and the succeeding year, hence the moving average for the year 1992-93, would be an average for years 1991-92, 1992-93 and 1993-94

Source: Statistical Abstract of Punjab, various issues

Table 12: Per Hectare Yield of Cotton in Punjab (kg.)

Year	American	Desi
1970-71	399	338
1971-72	407	326
1972-73	407	322
1973-74	430	303
1974-75	416	301
1975-76	404	292
1976-77	379	282
1977-78	374	263
1978-79	387	263
1979-80	357	241
1980-81	329	241
1981-82	334	246
1982-83	313	177
1983-84	193	136
1984-85	471	287
1985-86	452	288
1986-87	533	326
1987-88	531	297
1988-89	492	266
1989-90	591	354
1990-91	481	285
1991-92	636	334
1992-93	591	369
1993-94	460	270
1994-95	521	325
1995-96	463	292
1996-97	467	300
1997-98	213	264
1998-99	179	185
1999-2000	337	352
2000-01	437	408

Source: Statistical Abstract of Punjab, various issues

Table 13: Number of Non-Agricultural Own Account Enterprises by Major Activity Groups, 1998

Major Activity Groups	Rural		Urban		Total	
	Numbers	Percent	Numbers	Percent	Numbers	Percent
Mining and quarrying	14	0.01	19	0.01	33	0.01
Manufacturing	32474	15.77	33250	12.44	65724	13.89
Electricity gas and water	86	0.04	102	0.04	188	0.04
Construction	1106	0.54	1649	0.62	2755	0.58
Wholesale trade	3025	1.47	9168	3.43	12193	2.58
Retail Trade	92075	44.70	131941	49.39	224016	47.35
Restaurants and Hotels	4719	2.29	10181	3.81	14900	3.15
Transport	1972	0.96	4993	1.87	6965	1.47
Storage and Warehousing	247	0.12	852	0.32	1099	0.23
Communications	1577	0.77	5029	1.88	6606	1.40
Financing Insurance real estate and business services	2119	1.03	7236	2.71	9355	1.98
Community Social and Personal Services	66494	32.28	62328	23.33	128822	27.22
Others	35	0.02	392	0.15	427	0.09
All activities	**205943**	**100.00**	**267140**	**100.00**	**473083**	**100.00**

Source: Economic Census, 1998

Table 14: Transfer of Resources from Centre to Punjab (Rs. Crore)

Year	Share in Central Taxes	Grants from Centre	Net Loans from Centre	Total Transfer	Net Transfer from Centre to Punjab
	1	2	3	4 = 1+2+3	5
1990-91	248.2	181.1	745.2	1,174.5	-
1991-92	293.3	233.9	875.4	1,402.6	-
1992-93	349.0	350.4	1,127.1	1,826.5	-
1993-94	378.8	334.1	987.4	1,700.3	-
1994-95	424.3	273.9	822.2	1,520.4	528.70
1995-96	441.8	314.6	408.8	1,165.2	832.50
1996-97	528.4	360.8	1,096.4	1,985.6	803.85
1997-98	657.0	293.1	930.1	1,880.2	1,036.06
1998-99	587.2	398.7	1,077.8	2,063.7	569.19
1999-2000	671.1	968.0	1,579.9	3,219.0	1,530.78
2000-2001	671.1	907.6	1,719.8	3,298.5	1,451.77

Source: Livelihood in Punjab, Department of Economics, Punjab University, Patiala, September, 2001.

Table 15: Advance-Deposit Ratio of Public Sector Banks

State	Decadal Average	Decadal Average	Year								
	(1971-1980)	(1981-1990)	1991	1992	1993	1994	1995	1996	1997	1998	1999
Gujarat	57.0	54.48	54.64	54.17	47.20	47.52	51.66	49.88	47.86	48.07	48.55
Haryana	62.54	67.10	56.58	55.55	49.93	51.02	46.75	42.10	40.55	41.25	39.56
Karnataka	87.8	85.20	79.57	75.10	72.52	72.01	72.60	73.09	68.43	64.93	63.34
Kerala	67.4	63.68	51.34	48.65	45.15	46.19	45.13	44.84	41.55	40.48	41.25
Maharashtra	80.86	82.40	61.92	56.38	62.89	62.92	73.71	69.94	68.74	69.49	77.67
Punjab	39.76	43.96	41.89	39.95	40.20	41.22	39.24	39.00	37.07	37.85	37.77
Rajasthan	60.20	65.94	55.36	53.59	50.15	47.32	46.31	44.16	44.88	45.31	46.75
Tamil Nadu	101.40	94.62	95.68	88.98	85.31	87.42	100.72	99.41	92.26	89.95	90.19
West Bengal	71.2	52.44	51.61	53.05	28.68	40.60	54.12	49.32	44.65	42.88	43.57
All India	**70.82**	**64.16**	**60.92**	**58.59**	**57.96**	**46.01**	**61.59**	**58.21**	**55.46**	**53.89**	**55.82**

Source : Statistical Abstract of Punjab, various issues.

Table 16: Distribution of Registered Working Factories and Workforce Employed by Size-Groups

Size in average number of workers	Number of Registered Working Factories				Number of Workers Employed			
	1971	1981	1991	1999	1971	1981	1991	1999
Less than 10	979 (35.20)	799 (28.92)	398 (28.92)	907 (39.81)	5736 (7.02)	4570 (4.13)	3339 (2.89)	5022 (4.05)
10-20	1011 (36.36)	978 (36.44)	437 (31.76)	656 (28.80)	13048 (15.97)	13025 (11.76)	7774 (6.73)	8895 (7.17)
20-50	495 (17.80)	593 (22.09)	263 (19.11)	389 (17.08)	15127 (18.52)	18384 (16.59)	10466 (9.07)	12038 (9.71)
50-100	192 (6.90)	158 (5.89)	107 (7.78)	141 (6.19)	13021 (15.94)	10538 (9.51)	9089 (7.87)	9768 (7.88)
100-150	91 (3.27)	130 (4.84)	122 (8.87)	137 (6.01)	18185 (22.26)	29329 (26.47)	27723 (24.01)	28765 (23.20)
500-1000	7 (0.25)	12 (0.45)	32 (2.33)	25 (1.10)	5239 (6.41)	8394 (7.58)	24437 (21.16)	17408 (14.04)
1000-5000	6 (0.22)	13 (0.48)	16 (1.16)	23 (1.01)	11338 (13.88)	21462 (19.37)	27178 (23.54)	42078 (33.94)
5000 and more	-	1 (0.04)	1 (0.07)	-	-	5085 (4.59)	5457 (4.73)	-
Total	**2781 (100)**	**2684 (100)**	**1376 (100)**	**2278 (100)**	**81,694 (100)**	**1,10,787 (100)**	**1,15,463 95**	**1,23,974 200**

Source: Statistical Abstract of Punjab, Various Issues.

Note: Only factories which submitted returns

Table 17: Share of Manufacturing Sector Output of Registered and Unregistered Sectors in Punjab

Year	Registered	Unregistered
1970-71	49.33	50.67
1975-76	47.36	52.69
1980-81	53.72	46.28
1985-86	56.11	43.89
1990-91	57.19	42.81
1995-96	64.79	35.21
1998-99	63.37	36.63

Source: Computed from Statistical Abstract of Punjab, various issues.

Table 18: Growth of Registered & Working Factories and Workers Employed in Punjab–1971-1999

Year	Number of Factories		Average number of Workers employed	Average number of Workers per factory
	Registered	Working		
1971	4933	4553	118,503	26
1981	7663	7316	208,732	29
1991	11966	11705	383,798	33
1995	13344	13002	431,729	33
1999	13724	13382	446,953	34
Growth Rate per annum (Simple)				
1971-81	5.53	6.07	7.61	
1981-91	5.62	6.00	8.39	
1991-99	1.84	1.79	2.06	

Source: Computed from Statistical Abstract of Punjab, various issues.

Table 19: Growth Pattern of Small and Medium/Large Industries in Punjab, 1970-71 to 1998-99

Year	Number of Units		Employment (number)		Output (Rs. Crores)		Fixed Capital (Rs. Crores)		Capital intensity		
	Small Scale	Medium/ Large	Small Scale	Medium/ Large	Small Scale	Medium/ Large	Small Scale	Medium/ Large	Small Scale	Medium/ Large	Total
1970-71	257 (61.78)	159 (38.22)	-	-	257 (61.78)	159 (38.22)	-	-	-	-	-
1974-75	18,114 (99.28)	132 (0.72)	122,162 (67.85)	57,891 (32.15)	484 (61.11)	308 (38.39)	134 (55.14)	109 (44.86)	0.110	0.188	0.135
1980-81	43,338 (99.48)	228 (0.52)	264,869 (71.08)	109767 (28.92)	1118 (49.49)	1141 (50.51)	332 (31.35)	727 (68.65)	0.125	0.675	0.284
1985-86	97,517 (99.70)	292 (0.30)	464,809 (77.86)	132,174 (22.14)	2151 (45.90)	2535 (54.10)	739 (33.15)	1490 (66.85)	0.159	0.127	0.373
1990-91	160368 (99.77)	373 (0.23)	668,845 (78.12)	187,311 (21.88)	4050 (36.12)	7164 (63.88)	1349 (25.21)	4003 (74.79)	0.202	2.137	0.625
1994-95	188187 (99.75)	476 (0.25)	777070 (78.98)	199340 (21.02)	8738 (39.29)	13668 (60.71)	1981 (23.51)	6420 (76.49)	0.254	3.106	0.853
1998-99	197344 (99.70)	602 (0.30)	864,592 (79.14)	227,929 (20.86)	14444 (36.27)	25376 (63.73)	3361 (19.32)	14039 (80.68)	0.368	6.159	1.593

Source: (i) Department of Industries, Punjab.

(ii) Statistical Abstract of Punjab, Various issues

Note: Figures in brackets are percentage share.

Table 20: Structure of Output and Workforce Employed in the Manufacturing Sector of Punjab

Code	Industry-Group	Industrial Output in Percentage				Workforce Employed in percentage			
		1974-75	1980-81	1990-91	1998-99	1974-75	1980-81	1990-91	1998-99
20, 21, 22	Food, beverages and tobacco products	23.39 (1)	23.98 (1)	20.78 (1)	20.07 (1)	6.52 (5)	10.61 (4)	13.14 (3)	13.38 (3)
23	Cotton textile	22.44 (2)	6.72 (7)	9.15 (6)	9.30 (7)	11.51 (4)	8.18 (5)	5.27 (7)	5.53 (7)
24-26	Woollen, silk, synthetic including art silk hosiery	11.66 (3)	15.66 (2)	9.39 (5)	9.65 (6)	25.35 (1)	19.98 (2)	18.81 (1)	18.12 (1)
27	Wood and wooden products	0.19 (14)	1.10 (13)	0.88 (15)	0.64 (15)	0.54 (12)	2.36 (10)	3.62 (9)	3.54 (9)
28	Paper, products, printing and allied activities	0.34 (12)	0.86 (14)	1.86 (10)	1.79 (11)	0.20 (14)	1.53 (14)	1.94 (15)	2.06 (15)
29	Leather and leather Products	0.94 (11)	2.19 (9)	1.24 (11)	0.82 (14)	3.16 (9)	2.28 (11)	3.88 (8)	3.52 (10)
30	Rubber, plastic petroleum and coal products	1.19 (10)	2.02 (10)	3.81 (9)	4.18 (9)	1.86 (11)	2.75 (8)	3.40 (10)	3.74 (8)
31	Chemical and Chemical products	5.06 (7)	7.86 (6)	14.37 (2)	12.24 (2)	3.30 (8)	3.43 (7)	3.37 (11)	3.35 (11)
32	Non-metalic mineral products	0.27 (13)	1.18 (12)	1.01 (14)	1.92 (10)	0.29 (13)	2.26 (12)	2.74 (13)	2.86 (13)
33	Basic metals and alloys	9.20 (6)	10.90 (5)	12.55 (3)	11.10 (3)	4.54 (7)	7.59 (6)	5.63 (6)	6.30 (6)
34-35	Metal products, machinery and parts	9.67 (5)	12.57 (3)	7.49 (7)	10.21 (5)	19.48 (2)	20.61 (1)	16.47 (2)	15.59 (2)
36	Electrical Machinery	3.02 (8)	3.49 (8)	4.92 (8)	5.12 (8)	2.86 (10)	2.65 (9)	3.11 (12)	3.01 (12)
37	Transport equipment and parts	10.66 (4)	9.65 (4)	10.32 (4)	11.01 (4)	15.36 (3)	13.09 (3)	9.89 (4)	9.39 (4)
38	Other Industries	1.95 (9)	1.59 (11)	1.02 (13)	1.02 (12)	4.89 (6)	1.53 (13)	2.00 (14)	2.08 (14)
96-97	Repair & personal services	0.02 (15)	0.22 (15)	1.21 (12)	0.93 (13)	0.14 (15)	1.15 (15)	6.72 (5)	7.53 (5)
	Total	**100.00**	**100.00**	**100.00**	**100.00**	**100.00**	**100.00**	**100.00**	**100.00**

Source: Calculated from the data given in Statistical Abstract of Punjab, various issues

Note: Figures in brackets are showing ranks.

Table 21: Life Expectancy at Birth

Districts	Life Expectancy in 1981	Rank in 1981	Life Expectancy in 1991	Rank in 1991	Increase in the decade
Amritsar	62.4	3	67.2	3	4.8
Bathinda	61.1	13	64.7	11	3.6
Faridkot	61.6	8	65.8	8	4.2
Fatehgarh Sahib	61.7	7	65.6	9	3.9
Firozpur	62.1	5	66.6	5	4.5
Gurdaspur	61.4	11	67.8	2	6.4
Hoshiarpur	60.9	15	64.5	13	3.6
Jalandhar	62.3	4	64.2	16	1.9
Kapurthala	60.4	16	64.5	13	4.1
Ludhiana	64.2	1	70.5	1	6.3
Mansa	61.1	13	64.7	11	3.6
Moga	61.6	8	65.9	6	4.3
Muktsar	61.6	8	65.9	6	4.3
Nawanshehar	61.8	6	64.3	15	2.5
Patiala	61.4	11	65.4	10	4.0
Rup Nagar	62.9	2	66.8	4	3.9
Sangrur	60.4	16	62.8	17	2.4
Punjab	**61.7**		**65.6**		**3.9**
Highest	64.2		70.5		
Lowest	60.4		62.8		

Source: 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.

Table 22: Infant and Child Mortality

Districts	Infant Mortality						Under-5 Mortality Rate					
	Total		Male		Female		Total		Male		Female	
	1981	1991	1981	1991	1981	1991	1981	1991	1981	1991	1981	1991
Amritsar	74	49	@	48	78	50	103	61	73	65	115	60
Bathinda	80	72	@	69	83	74	114	87	107	84	121	91
Faridkot	78	53	77	54	78	51	112	67	109	68	117	65
Firozpur	75	61	74	58	76	63	108	77	103	76	114	79
Gurdaspur	78	75	75	75	82	74	116	99	107	96	126	101
Hoshiarpur	81	76	76	68	@	85	118	100	110	101	127	99
Jalandhar	75	53	70	56	80	51	109	69	101	70	118	69
Kapurthala	92	86	77	73	@	94	106	112	107	101	105	121
Ludhiana	66	45	66	42	69	47	94	60	88	59	100	61
Patiala	78	64	76	69	@	59	114	80	109	81	119	73
Rup Nagar	73	60	71	59	75	60	103	76	98	77	109	74
Sangrur	87	53	89	54	@	51	129	79	123	78	135	80
Punjab	**77**	**56**	**74**	**62**	**79**	**53**	**111**	**92**	**104**	**97**	**118**	**82**

Source: 1.Occasional Paper No. 10 of 1998, Fertility & Child Mortality Estimates of Punjab. Table 2.1 q (1), q (5) Page 41-44, Census of India, 1981, 2 .Punjab State District Profile-1991, Table no.14, (q1), (q5) page 26, Census of India,1991. Note: @ Not Available

Table 23: Population Served per Medical Institution, per Bed, per Medical and Paramedical Personnel in Punjab

District	Population served per Medical Institution	Population serviced per Bed in Medical Institutions	Doctor	Midwife	Nurse	Rural Population %
	1	2	3	4	5	6
Punjab	**10786**	**947**	**1485**	**1015**	**1696**	
Amritsar	10494	617	873	840	1454	40
Bathinda	10006	1172	1421	1253	8351	30
Faridkot	13228	709	1219	817	1529	34
Fatehgarh Sahib	10404	1343	26530	6471	10011	28
Firozpur	11899	1068	3511	1324	1640	26
Gurdaspur	10235	1273	2382	579	973	25
Hoshiarpur	8842	998	1845	669	2057	20
Jalandhar	11172	878	946	1084	1559	47
Kapurthala	9044	971	1867	1463	3910	32
Ludhiana	14827	934	1174	674	892	56
Mansa	10895	1393	27691	7467	16209	21
Moga	10712	1331	21687	2137	2887	20
Muktsar	10541	1257	26534	17488	36062	26
Nawanshehar	8133	1266	38635	4683	5569	14
Patiala	11102	743	724	1532	1696	35
Rup Nagar	9455	1141	2468	1198	2983	32
Sangrur	10822	1275	2518	1794	4469	29

Source: Statistical Abstract of Punjab, 2000

Note: Information given in column 1 and 2 is for the year 2000, and the information given in column 3, 4 and 5 is for the year 1999.

Table 24: Health – District-wise Number of Institutions

Sr.	District	Hospital		Primary Health Centres		Dispensaries		Hospital CHC/PHC		Ayurvedic		Unani		Homoeopathic	
		1991	2001	1991	2001	1991	2001	1991	2001	1991	2001	1991	2001	1991	2001
1	Gurdaspur	16	13	47	46	127	127	6	10	51	52	4	3	8	7
2	Amritsar	33	33	49	48	178	175	6	13	43	44	4	4	7	7
3	Kapurthala	7	8	10	11	60	59	5	5	26	26	2	2	7	7
4	Jalandhar	25	22	36	27	161	114	6	7	45	32	5	4	10	9
5	Nawanshehar	-	3	..	15	..	55	..	3	..	24	..	1	..	2
6	Hoshiarpur	16	13	41	36	122	110	6	8	57	46	2	2	8	7
7	Rup Nagar	8	8	23	23	78	82	5	5	35	37	2	2	12	12
8	Ludhiana	27	27	35	33	156	147	6	10	37	36	5	4	11	11
9	Firozpur	17	16	38	35	100	87	6	11	39	38	3	3	9	8
10	Faridkot	17	6	40	9	118	24	6	2	26	9	2	..	6	4
11	Muktsar	..	6	..	14	..	48	..	5	..	11	..	2	..	2
12	Moga	..	4	..	16	..	59	..	4	..	7	..	..	..	1
13	Bathinda	15	10	38	23	116	78	6	6	39	27	2	1	9	7
14	Mansa	..	5	..	14	..	38	..	4	..	12	..	1	..	2
15	Sangrur	18	17	41	41	117	117	6	10	43	43	3	3	8	8
16	Patiala	19	11	44	35	132	106	6	11	51	40	1	..	8	8
17	Fatehgarh sahib	..	4	..	14	..	31	..	3	..	10	..	2	..	..
	Outside Punjab	1	1	..	..	8	8	..	0	1	1			3	4
	Total	**219**	**207**	**442**	**440**	**1473**	**1465**	**70**	**117**	**493**	**495**	**35**	**34**	**106**	**106**

Source – Statistical Abstract 2002

Table 25: District-wise Male and Female Literacy in Urban and Rural Areas, Punjab, 2001

(in percent)

Districts	Punjab		Rural Punjab		Urban Punjab	
	Male	Female	Male	Female	Male	Female
Amritsar	73.58	61.41	67.83	52.69	81.84	74.39
Bathinda	68.31	53.76	62.46	47.16	81.88	69.19
Faridkot	68.92	57.09	64.18	52.27	78.35	66.49
Fatehgarh Sahib	78.85	68.60	76.86	65.83	83.87	75.87
Firozpur	69.55	52.33	64.78	45.78	82.58	71.03
Gurdaspur	80.44	67.31	77.70	63.58	88.16	78.11
Hoshiarpur	86.97	75.56	86.11	73.87	90.30	82.62
Jalandhar	82.37	72.93	80.14	68.17	84.73	78.29
Kapurthala	78.66	67.90	76.27	64.41	83.30	75.33
Ludhiana	80.19	72.11	78.32	66.73	81.58	76.66
Mansa	59.12	45.07	54.27	40.03	77.56	64.14
Moga	68.40	58.96	65.93	55.87	78.05	71.20
Muktsar	65.94	50.59	61.84	45.49	77.78	65.40
Nawanshehar	83.67	69.52	83.15	68.27	86.84	77.30
Patiala	76.13	62.94	70.40	55.29	86.52	76.84
Rup Nagar	84.43	71.74	81.39	66.71	90.63	82.01
Sangrur	65.97	53.29	61.93	48.98	75.67	63.76
Punjab	**75.63**	**63.55**	**71.70**	**57.91**	**82.97**	**74.63**

Source – Paper 1, Punjab, Census of India 2001, Registrar General of India

Table 26: Infrastructure

District	Total roads @ (km.)(P)	Roads per 100sq. Km. of area (km.)	Roads per lakh of population (km.)	Percent of villages linked with roads	Percent of villages electrified
	1	2	3	4	5
Amritsar	4,492	88	159	98.7	100
Bathinda	2,472	73	213	99.6	100
Faridkot	1,295	88	239	100	100
Fatehgarh Sahib	1,471	125	277	100	100
Firozpur	4,331	81	244	98.2	100
Gurdaspur	3,507	98	175	98.1	100
Hoshiarpur	3,666	111	247	99.6	100
Jalandhar	4,198	159	221	100	100
Kapurthala	1,592	97	212	100	100
Ludhiana	5,779	154	180	99.8	100
Mansa	1,838	85	276	100	100
Moga	1,589	72	179	100	100
Muktsar	2,234	86	290	100	100
Nawanshehar	1,793	143	290	100	100
Patiala	4,225	116	233	99	100
Rup Nagar	3,186	150	285	99	100
Sangrur	4,519	90	226	99.9	100
Total	**52,187**	**104**	**217**	**99.2**	**100**

(P) : Provisional

@ : Roads maintained by PWD (B&R), Punjab

Source : Statistical Abstract of Punjab, 2000

Note: Information given in column 1 to 4 is for the year 1999-2000, and the information given in column 5 is for the year 2001.

District Profiles

Amritsar

Indices	2001
Human Development Index (HDI)	0.700
HDI rank (out of 17 districts)	9
Gender Related Development Index (GDI)	0.544
GDI rank (out of 17 districts)	17

Demography	1991	2001
Total population	2,505,034	3,074,207
Share in State's population	12.35	12.66
Urban population (%)	34.08	40.00
	1981	1991
Decadal growth of population	14.46	22.72

Livelihoods	1991	2001
Work participation rate	30.7	36.0
Female work participation rate	2.7	16.3
Male work participation rate	55.0	53.2
Net sown area (000 hect.)	437	446
Cropping intensity	178	184
Per capita forest area (hect.)	0.006	0.004

Health	1991	2001
Life expectancy	67.2	..
Infant mortality rate	49	..
Under five mortality rate	61	..
Number of hospitals	33	33
Number of PHCs	49	48
Rural population per PHC	36,616	40,992
Number of dispensaries	178	175
Number of beds per lakh population	177	150

District Information	1991	2001
Number of blocks	15	16
Number of towns	10	13
Number of inhabited villages	1204	1198

Education	1991	2001
Literacy rate	58.08	67.85
Rural literacy rate	49.73	60.65
Urban literacy rate	73.94	78.37
Number of primary schools	..	1452

Gender		1991	2001
Sex ratio		873	874
	Rural	871	885
	Urban	876	859
Juvenile sex ratio		861	783
	Rural	864	789
	Urban	856	772
Female infant mortality rate		50	..
Male infant mortality rate		48	..
Female under 5 mortality rate		60	..
Male under five mortality rate		65	..
Female literacy rate		..	61.41
Male literacy rate		..	73.58
Female rural literacy rate		..	52.69
Male rural literacy rate		..	67.83
Female urban literacy rate		..	74.39
Male urban literacy rate		..	81.84

Infrastructure	1991	2001
Road length per 100 sq.km.	78	94
% electrified villages	100	100

Bathinda

Indices	2001
Human Development Index (HDI)	0.674
HDI rank (out of 17 districts)	14
Gender Related Development Index (GDI)	0.625
GDI rank (out of 17 districts)	7

Demography	1991	2001
Total population	985,301	1,181,236
Share in State's population	4.86	4.86
Urban population (%)	26.98	29.78
	1981	1991
Decadal growth of population	20.48	19.89

Livelihoods	1991	2001
Work participation rate	32.8	42.2
Female work participation rate	7.1	27.0
Male work participation rate	55.5	55.4
Net sown area (000 hect.)	491	299
Cropping intensity	171	188
Per capita forest area (hect.)	0.006	0.006

Health	1991	2001
Life expectancy	64.7	..
Infant mortality rate	72	..
Under five mortality rate	87	..
Number of hospitals	15	10
Number of PHCs	38	23
Rural pop. Per PHC	34,394	32,063
Number of dispensaries	116	78
Number of beds per lakh population	90	84

District Information	1991	2001
Number of blocks	9	7
Number of towns	8	9
Number of inhabited villages	282	282

Education	1991	2001
Literacy rate	46.48	61.51
Rural literacy rate	38.97	55.3
Urban literacy rate	66.62	75.96
Number of primary schools	..	483

Gender		1991	2001
Sex ratio		884	865
	Rural	888	868
	Urban	873	860
Juvenile sex ratio		860	779
	Rural	866	789
	Urban	844	756
Female infant mortality rate		74	..
Male infant mortality rate		69	..
Female under 5 mortality rate		91	..
Male under five mortality rate		84	..
Female literacy rate		38.04	53.76
Male literacy rate		53.98	68.31
Female rural literacy rate		..	47.16
Male rural literacy rate		..	62.46
Female urban literacy rate		..	69.19
Male urban literacy rate		..	81.88

Infrastructure	1991	2001
Road length per 100 sq.km.	59	77
% electrified villages	100	100

Fatehgarh Sahib

Indices	2001
Human Development Index (HDI)	0.740
HDI rank (out of 17 districts)	3
Gender Related Development Index (GDI)	0.556
GDI rank (out of 17 districts)	16

Demography	1991	2001
Total population	454,919	539,751
Share in State's population	2.24	2.22
Urban population (%)	23.27	28.08
	1981	1991
Decadal growth of population	17.03	18.65

Livelihoods	1991	2001
Work participation rate	30.2	38.2
Female work participation rate	2.1	18.3
Male work participation rate	54.7	55.1
Net sown area (000 hect.)	..	103
Cropping intensity	..	188
Per capita forest area (hect.)	..	0.002

Health	1991	2001
Life expectancy	65.6	..
Infant mortality rate	..	..
Under five mortality rate	..	..
Number of hospitals	..	4
Number of PHCs	..	14
Rural pop. Per PHC	..	27,727
Number of dispensaries	..	31
Number of beds per lakh population	..	77

District Information	1991	2001
Number of blocks	..	5
Number of towns	5	5
Number of inhabited villages	452	437

Education	1991	2001
Literacy rate	63.25	74.1
Rural literacy rate	60.07	71.71
Urban literacy rate	73.86	80.22
Number of primary schools	..	406

Gender		1991	2001
Sex ratio		871	851
	Rural	871	859
	Urban	872	832
Juvenile sex ratio		874	754
	Rural	..	747
	Urban	..	774
Female infant mortality rate		..	..
Male infant mortality rate		..	..
Female under 5 mortality rate		..	..
Male under five mortality rate		..	..
Female literacy rate		56.13	68.6
Male literacy rate		69.45	78.85
Female rural literacy rate		..	65.83
Male rural literacy rate		..	76.86
Female urban literacy rate		..	75.87
Male urban literacy rate		..	83.87

Infrastructure	1991	2001
Road length per 100 sq.km.	..	135
% electrified villages	100	100

Faridkot

Indices	2001
Human Development Index (HDI)	0.698
HDI rank (out of 17 districts)	10
Gender Related Development Index (GDI)	0.643
GDI rank (out of 17 districts)	4

Demography	1991	2001
Total population	455,005	552,466
Share in State's population	2.24	2.28
Urban population (%)	33.21	33.89
	1981	1991
Decadal growth of population	22.90	21.42

Livelihoods	1991	2001
Work participation rate	32.8	42.4
Female work participation rate	6.8	23
Male work participation rate	55.7	59.5
Net sown area (000 hect.)	517	132
Cropping intensity	176	187
Per capita forest area (hect.)	0.006	0.004

Health	1991	2001
Life expectancy	65.8	..
Infant mortality rate	53	..
Under five mortality rate	67	..
Number of hospitals	17	6
Number of PHCs	40	9
Rural pop. Per PHC	32,195	40,580
Number of dispensaries	118	24
Number of beds per lakh population	116	143

District Information	1991	2001
Number of blocks	10	2
Number of towns	3	3
Number of inhabited villages	163	164

Education	1991	2001
Literacy rate	49.97	63.34
Rural literacy rate	42.33	58.58
Urban literacy rate	65.45	72.71
Number of primary schools	..	224

Gender		1991	2001
Sex ratio		883	881
	Rural	882	876
	Urban	884	892
Juvenile sex ratio		865	805
	Rural	..	805
	Urban	..	806
Female infant mortality rate		51	..
Male infant mortality rate		54	..
Female under 5 mortality rate		65	..
Male under five mortality rate		68	..
Female literacy rate		41.88	57.09
Male literacy rate		57.13	68.92
Female rural literacy rate		..	52.27
Male rural literacy rate		..	64.18
Female urban literacy rate		..	66.49
Male urban literacy rate		..	78.35

Infrastructure	1991	2001
Road length per 100 sq.km.	76	92
% electrified villages	100	100

Firozpur

Indices	2001
Human Development Index (HDI)	0.689
HDI rank (out of 17 districts)	12
Gender Related Development Index (GDI)	0.643
GDI rank (out of 17 districts)	4

Demography	1991	2001
Total population	1,448,903	1,744,753
Share in State's population	7.14	7.18
Urban population (%)	25.56	25.81
	1981	1991
Decadal growth of population	24.38	20.42

Livelihoods	1991	2001
Work participation rate	32.3	37.1
Female work participation rate	7.4	18.5
Male work participation rate	54.5	53.6
Net sown area (000 hect.)	506	475
Cropping intensity	183	190
Per capita forest area (hect.)	0.004	0.007

Health	1991	2001
Life expectancy	66.6	..
Infant mortality rate	61	..
Under five mortality rate	77	..
Number of hospitals	17	16
Number of PHCs	38	35
Rural pop. Per PHC	34,759	39,223
Number of dispensaries	100	87
Number of beds per lakh population	99	94

District Information	1991	2001
Number of blocks	9	10
Number of towns	9	9
Number of inhabited villages	965	960

Education	1991	2001
Literacy rate	48.03	61.42
Rural literacy rate	40.94	55.75
Urban literacy rate	68.36	77.22
Number of primary schools	..	1060

Gender		1991	2001
Sex ratio		895	883
	Rural	898	893
	Urban	887	857
Juvenile sex ratio		887	819
	Rural	894	824
	Urban	864	804
Female infant mortality rate		63	..
Male infant mortality rate		58	..
Female under 5 mortality rate		79	..
Male under five mortality rate		76	..
Female literacy rate		38.02	52.33
Male literacy rate		57.14	69.55
Female rural literacy rate		..	45.78
Male rural literacy rate		..	64.78
Female urban literacy rate		..	71.03
Male urban literacy rate		..	82.58

Infrastructure	1991	2001
Road length per 100 sq.km.	67	78
% electrified villages	100	100

Gurdaspur

Indices	2001
Human Development Index (HDI)	0.723
HDI rank (out of 17 districts)	4
Gender Related Development Index (GDI)	0.565
GDI rank (out of 17 districts)	15

Demography	1991	2001
Total population	1,757,281	2,096,889
Share in State's population	8.66	8.63
Urban population (%)	21.98	25.46
	1981	1991
Decadal growth of population	16.07	19.33

Livelihoods	1991	2001
Work participation rate	28.1	33.4
Female work participation rate	2.4	12.7
Male work participation rate	51.3	51.9
Net sown area (000 hect.)	299	292
Cropping intensity	156	169
Per capita forest area (hect.)	0.01	0.018

Health	1991	2001
Life expectancy	67.8	..
Infant mortality rate	75	..
Under five mortality rate	99	..
Number of hospitals	16	13
Number of PHCs	47	46
Rural pop. Per PHC	29,522	34,735
Number of dispensaries	127	127
Number of beds per lakh population	88	75

District Information	1991	2001
Number of blocks	13	14
Number of towns	12	14
Number of inhabited villages	1546	1540

Education	1991	2001
Literacy rate	61.84	74.19
Rural literacy rate	58.44	70.96
Urban literacy rate	73.69	83.43
Number of primary schools	..	1736

Gender		1991	2001
Sex ratio		903	888
	Rural	905	895
	Urban	895	868
Juvenile sex ratio		878	775
	Rural	881	789
	Urban	868	729
Female infant mortality rate		74	..
Male infant mortality rate		75	..
Female under 5 mortality rate		101	..
Male under five mortality rate		96	..
Female literacy rate		..	67.31
Male literacy rate		..	80.44
Female rural literacy rate		..	63.58
Male rural literacy rate		..	77.7
Female urban literacy rate		..	78.11
Male urban literacy rate		..	88.16

Infrastructure	1991	2001
Road length per 100 sq.km.	92	104
% electrified villages	100	100

Hoshiarpur

Indices	2001
Human Development Index (HDI)	0.718
HDI rank (out of 17 districts)	5
Gender Related Development Index (GDI)	0.645
GDI rank (out of 17 districts)	3

Demography	1991	2001
Total population	1,298,712	1,478,045
Share in State's population	6.4	6.09
Urban population (%)	17.11	19.66
	1981	1991
Decadal growth of population	16.42	13.81

Livelihoods	1991	2001
Work participation rate	28.6	34.7
Female work participation rate	4.7	17.3
Male work participation rate	50.6	51
Net sown area (000 hect.)	247	218
Cropping intensity	160	168
Per capita forest area (hect.)	0.066	0.074

Health	1991	2001
Life expectancy	64.5	..
Infant mortality rate	76	..
Under five mortality rate	100	..
Number of hospitals	16	13
Number of PHCs	41	36
Rural pop. Per PHC	30,986	34,924
Number of dispensaries	122	110
Number of beds per lakh population	107	101

District Information	1991	2001
Number of blocks	11	10
Number of towns	9	12
Number of inhabited villages	1396	1393

Education	1991	2001
Literacy rate	72.08	81.4
Rural literacy rate	70.61	80.09
Urban literacy rate	79.16	86.66
Number of primary schools	..	1259

Gender		1991	2001
Sex ratio		924	935
	Rural	932	947
	Urban	890	888
Juvenile sex ratio		884	810
	Rural	887	813
	Urban	873	800
Female infant mortality rate		85	..
Male infant mortality rate		68	..
Female under 5 mortality rate		99	..
Male under five mortality rate		101	..
Female literacy rate		..	75.56
Male literacy rate		..	86.97
Female rural literacy rate		..	73.87
Male rural literacy rate		..	86.11
Female urban literacy rate		..	82.62
Male urban literacy rate		..	90.3

Infrastructure	1991	2001
Road length per 100 sq.km.	93	114
% electrified villages	100	100

Jalandhar

Indices	2001
Human Development Index (HDI)	0.708
HDI rank (out of 17 districts)	6
Gender Related Development Index (GDI)	0.632
GDI rank (out of 17 districts)	6.000

Demography	1991	2001
Total population	1,649,909	1,953,508
Share in State's population	8.14	8.04
Urban population (%)	40.65	47.45
	1981	1991
Decadal growth of population	17.25	18.4

Livelihoods	1991	2001
Work participation rate	30.1	34.5
Female work participation rate	4.6	12.3
Male work participation rate	53	54.1
Net sown area (000 hect.)	293	238
Cropping intensity	177	174
Per capita forest area (hect.)	0.001	0.002

Health	1991	2001
Life expectancy	64.2	..
Infant mortality rate	53	..
Under five mortality rate	69	..
Number of hospitals	25	22
Number of PHCs	36	27
Rural pop. Per PHC	38,104	41,061
Number of dispensaries	161	114
Number of beds per lakh population	122	120

District Information	1991	2001
Number of blocks	12	10
Number of towns	11	14
Number of inhabited villages	958	945

Education	1991	2001
Literacy rate	68.93	77.91
Rural literacy rate	61.48	74.41
Urban literacy rate	76.54	81.74
Number of primary schools	..	914

Gender		1991	2001
Sex ratio		897	882
	Rural	907	904
	Urban	883	859
Juvenile sex ratio		886	797
	Rural	891	806
	Urban	879	786
Female infant mortality rate		51	..
Male infant mortality rate		56	..
Female under 5 mortality rate		69	..
Male under five mortality rate		70	..
Female literacy rate		..	72.93
Male literacy rate		..	82.37
Female rural literacy rate		..	68.17
Male rural literacy rate		..	80.14
Female urban literacy rate		..	78.29
Male urban literacy rate		..	84.73

Infrastructure	1991	2001
Road length per 100 sq.km.	118	166
% electrified villages	100	100

Kapurthala

Indices	2001
Human Development Index (HDI)	0.707
HDI rank (out of 17 districts)	7
Gender Related Development Index (GDI)	0.652
GDI rank (out of 17 districts)	2

Demography	1991	2001
Total population	646,647	752,287
Share in State's population	3.19	3.1
Urban population (%)	25.76	32.59
	1981	1991
Decadal growth of population	19.25	16.34

Livelihoods	1991	2001
Work participation rate	31.2	35
Female work participation rate	5.8	14.4
Male work participation rate	54	53.4
Net sown area (000 hect.)	141	135
Cropping intensity	177	194
Per capita forest area (hect.)	0.003	0.003

Health	1991	2001
Life expectancy	64.5	..
Infant mortality rate	86	..
Under five mortality rate	112	..
Number of hospitals	7	8
Number of PHCs	10	11
Rural pop. Per PHC	47,637	56,349
Number of dispensaries	60	59
Number of beds per lakh population	113	103

District Information	1991	2001
Number of blocks	4	5
Number of towns	3	7
Number of inhabited villages	633	625

Education	1991	2001
Literacy rate	63.31	73.56
Rural literacy rate	58.9	70.57
Urban literacy rate	75.84	79.63
Number of primary schools	..	485

Gender		1991	2001
Sex ratio		896	886
	Urban	857	843
Juvenile sex ratio		879	775
	Rural	875	773
	Urban	891	779
Female infant mortality rate		94	..
Male infant mortality rate		73	..
Female under 5 mortality rate		121	..
Male under five mortality rate		101	..
Female literacy rate		..	67.9
Male literacy rate		..	78.66
Female rural literacy rate		..	64.41
Male rural literacy rate		..	76.27
Female urban literacy rate		..	75.33
Male urban literacy rate		..	83.3

Infrastructure	1991	2001
Road length per 100 sq.km.	96	107
% electrified villages	100	100

Ludhiana

Indices	2001
Human Development Index (HDI)	0.761
HDI rank (out of 17 districts)	1
Gender Related Development Index (GDI)	0.619
GDI rank (out of 17 districts)	9

Demography	1991	2001
Total population	2,428,382	3,030,352
Share in State's population	11.97	12.48
Urban population (%)	51.22	55.8
	1981	1991
Decadal growth of population	36.44	24.79

Livelihoods	1991	2001
Work participation rate	31.3	37.8
Female work participation rate	2.6	15.7
Male work participation rate	55.5	55.9
Net sown area (000 hect.)	325	304
Cropping intensity	185	199
Per capita forest area (hect.)	0.004	0.003

Health	1991	2001
Life expectancy	70.5	..
Infant mortality rate	45	..
Under five mortality rate	60	..
Number of hospitals	27	27
Number of PHCs	35	33
Rural pop. Per PHC	37,939	44,652
Number of dispensaries	156	147
Number of beds per lakh population	138	113

District Information	1991	2001
Number of blocks	10	11
Number of towns	10	12
Number of inhabited villages	913	900

Education	1991	2001
Literacy rate	67.34	76.54
Rural literacy rate	62.28	72.88
Urban literacy rate	71.71	79.42
Number of primary schools	..	1027

Gender		1991	2001
Sex ratio		844	824
	Rural	880	877
	Urban	812	784
Juvenile sex ratio		877	814
	Rural	886	812
	Urban	869	816
Female infant mortality rate		47	..
Male infant mortality rate		42	..
Female under 5 mortality rate		61	..
Male under five mortality rate		59	..
Female literacy rate		91.25	72.11
Male literacy rate		72.45	80.19
Female rural literacy rate		..	66.73
Male rural literacy rate		..	78.32
Female urban literacy rate		..	76.66
Male urban literacy rate		..	81.58

Infrastructure	1991	2001
Road length per 100 sq.km.	155	159
% electrified villages	100	100

Mansa

Indices	2001
Human Development Index (HDI)	0.633
HDI rank (out of 17 districts)	17
Gender Related Development Index (GDI)	0.586
GDI rank (out of 17 districts)	13

Demography	1991	2001
Total population	574,662	688,630
Share in State's population	2.83	2.84
Urban population (%)	16.64	20.68
	1981	1991
Decadal growth of population	18.04	19.83

Livelihoods	1991	2001
Work participation rate	34.3	40.7
Female work participation rate	7.5	25.1
Male work participation rate	54.4	57.6
Net sown area (000 hect.)	..	203
Cropping intensity	..	181
Per capita forest area (hect.)	..	0.0045

Health	1991	2001
Life expectancy	64.7	..
Infant mortality rate	..	..
Under five mortality rate	..	..
Number of hospitals	..	5
Number of PHCs	..	14
Rural pop. Per PHC	..	42,019
Number of dispensaries	..	38
Number of beds per lakh population	..	73

District Information	1991	2001
Number of blocks	..	5
Number of towns	4	5
Number of inhabited villages	240	239

Education	1991	2001
Literacy rate	37.21	52.5
Rural literacy rate	32.22	47.56
Urban literacy rate	62.56	71.23
Number of primary schools	..	295

Gender		1991	2001
Sex ratio		873	875
	Rural	871	875
	Urban	878	878
Juvenile sex ratio		873	779
	Rural	883	780
	Urban	814	775
Female infant mortality rate		..	..
Male infant mortality rate		..	..
Female under 5 mortality rate		..	..
Male under five mortality rate		..	..
Female literacy rate		28.5	45.07
Male literacy rate		44.81	59.12
Female rural literacy rate		..	40.03
Male rural literacy rate		..	54.27
Female urban literacy rate		..	64.14
Male urban literacy rate		..	77.56

Infrastructure	1991	2001
Road length per 100 sq.km.	..	85
% electrified villages	100	100

Moga

Indices	2001
Human Development Index (HDI)	0.683
HDI rank (out of 17 districts)	13
Gender Related Development Index (GDI)	0.607
GDI rank (out of 17 districts)	10

Demography	1991	2001
Total population	777,922	886,313
Share in State's population	3.84	3.65
Urban population (%)	19.23	20.04
	1981	1991
Decadal growth of population	17.41	13.93

Livelihoods	1991	2001
Work participation rate	31.4	40.1
Female work participation rate	4.5	24.2
Male work participation rate	55.1	54.3
Net sown area (000 hect.)	..	198
Cropping intensity	..	198
Per capita forest area (hect.)	..	0.002

Health	1991	2001
Life expectancy	65.9	..
Infant mortality rate	..	..
Under five mortality rate	..	..
Number of hospitals	..	4
Number of PHCs	..	16
Rural pop. Per PHC	..	44,293
Number of dispensaries	..	59
Number of beds per lakh population	..	81

District Information	1991	2001
Number of blocks	..	5
Number of towns	4	4
Number of inhabited villages	322	324

Education	1991	2001
Literacy rate	51.48	63.94
Rural literacy rate	47.7	61.18
Urban literacy rate	67.39	74.84
Number of primary schools	..	361

Gender		1991	2001
Sex ratio		884	883
	Rural	883	885
	Urban	889	873
Juvenile sex ratio		867	819
	Rural	867	820
	Urban	866	811
Female infant mortality rate		..	..
Male infant mortality rate		..	..
Female under 5 mortality rate		..	..
Male under five mortality rate		..	..
Female literacy rate		44.87	58.96
Male literacy rate		57.37	68.4
Female rural literacy rate		..	55.87
Male rural literacy rate		..	65.93
Female urban literacy rate		..	71.2
Male urban literacy rate		..	78.05

Infrastructure	1991	2001
Road length per 100 sq.km.	..	98
% electrified villages	100	100

Muktsar

Indices	2001
Human Development Index (HDI)	0.651
HDI rank (out of 17 districts)	16
Gender Related Development Index (GDI)	0.606
GDI rank (out of 17 districts)	11

Demography	1991	2001
Total population	654,434	776,702
Share in State's population	3.23	3.18
Urban population (%)	23.4	25.52
	1981	1991
Decadal growth of population	20.23	18.68

Livelihoods	1991	2001
Work participation rate	33.5	39.7
Female work participation rate	7.1	22.3
Male work participation rate	56.8	55.2
Net sown area (000 hect.)	..	234
Cropping intensity	..	184
Per capita forest area (hect.)	..	0.005

Health	1991	2001
Life expectancy	65.9	..
Infant mortality rate	..	..
Under five mortality rate	..	..
Number of hospitals	..	6
Number of PHCs	..	14
Rural pop. Per PHC	..	41,322
Number of dispensaries	..	48
Number of beds per lakh population	..	78

District Information	1991	2001
Number of blocks	..	4
Number of towns	3	4
Number of inhabited villages	235	234

Education	1991	2001
Literacy rate	46.18	58.67
Rural literacy rate	40.24	54.1
Urban literacy rate	66.34	71.93
Number of primary schools	..	360

Gender		1991	2001
Sex ratio		880	886
	Rural	877	888
	Urban	888	883
Juvenile sex ratio		858	807
	Rural	864	810
	Urban	839	798
Female infant mortality rate		..	..
Male infant mortality rate		..	..
Female under 5 mortality rate		..	..
Male under five mortality rate		..	..
Female literacy rate		37.05	50.59
Male literacy rate		54.25	65.94
Female rural literacy rate		..	45.49
Male rural literacy rate		..	61.84
Female urban literacy rate		..	65.4
Male urban literacy rate		..	77.78

Infrastructure	1991	2001
Road length per 100 sq.km.	..	90
% electrified villages	100	100

Nawanshehar

Indices	2001
Human Development Index (HDI)	0.707
HDI rank (out of 17 districts)	7
Gender Related Development Index (GDI)	0.623
GDI rank (out of 17 districts)	8

Demography	1991	2001
Total population	531,253	586,637
Share in State's population	2.62	2.42
Urban population (%)	13.35	13.8
	1981	1991
Decadal growth of population	18.6	10.43

Livelihoods	1991	2001
Work participation rate	29.8	44.9
Female work participation rate	4	33
Male work participation rate	53	55.6
Net sown area (000 hect.)	..	101
Cropping intensity	..	171
Per capita forest area (hect.)	..	0.002

Health	1991	2001
Life expectancy	64.3	..
Infant mortality rate	..	..
Under five mortality rate	..	..
Number of hospitals	..	3
Number of PHCs	..	15
Rural pop. Per PHC	..	33,712
Number of dispensaries	..	55
Number of beds per lakh population	..	83

District Information	1991	2001
Number of blocks	..	5
Number of towns	4	4
Number of inhabited villages	462	463

Education	1991	2001
Literacy rate	64.42	76.86
Rural literacy rate	62.9	75.99
Urban literacy rate	71.31	82.26
Number of primary schools	..	425

Gender		1991	2001
Sex ratio		900	913
	Rural	898	914
	Urban	911	911
Juvenile sex ratio		900	810
	Rural	898	811
	Urban	913	805
Female infant mortality rate		..	..
Male infant mortality rate		..	..
Female under 5 mortality rate		..	..
Male under five mortality rate		..	..
Female literacy rate		..	69.52
Male literacy rate		..	83.67
Female rural literacy rate		..	68.27
Male rural literacy rate		..	83.15
Female urban literacy rate		..	77.3
Male urban literacy rate		..	86.84

Infrastructure	1991	2001
Road length per 100 sq.km.	..	153
% electrified villages	100	100

Patiala

Indices	2001
Human Development Index (HDI)	0.697
HDI rank (out of 17 districts)	11
Gender Related Development Index (GDI)	0.600
GDI rank (out of 17 districts)	12

Demography	1991	2001
Total population	1,528,569	1,839,056
Share in State's population	7.54	7.57
Urban population (%)	31	34.98
	1981	1991
Decadal growth of population	21.56	20.31

Livelihoods	1991	2001
Work participation rate	30.2	37.2
Female work participation rate	4.1	17.6
Male work participation rate	53.2	54.1
Net sown area (000 hect.)	390	304
Cropping intensity	186	196
Per capita forest area (hect.)	0.006	0.008

Health	1991	2001
Life expectancy	65.4	..
Infant mortality rate	64	..
Under five mortality rate	80	..
Number of hospitals	19	11
Number of PHCs	44	35
Rural pop. Per PHC	30,786	35,168
Number of dispensaries	132	106
Number of beds per lakh population	140	134

District Information	1991	2001
Number of blocks	9	9
Number of towns	9	14
Number of inhabited villages	1067	1069

Education	1991	2001
Literacy rate	57.51	69.96
Rural literacy rate	49.41	63.34
Urban literacy rate	75.13	81.99
Number of primary schools	..	947

Gender		1991	2001
Sex ratio		882	864
	Rural	875	862
	Urban	899	868
Juvenile sex ratio		871	770
	Rural	870	764
	Urban	872	786
Female infant mortality rate		59	..
Male infant mortality rate		69	..
Female under 5 mortality rate		73	..
Male under five mortality rate		81	..
Female literacy rate		48.94	62.94
Male literacy rate		65.1	76.13
Female rural literacy rate		..	55.29
Male rural literacy rate		..	70.4
Female urban literacy rate		..	76.84
Male urban literacy rate		..	86.52

Infrastructure	1991	2001
Road length per 100 sq.km.	113	119
% electrified villages	100	100

Rup Nagar

Indices	2001
Human Development Index (HDI)	0.751
HDI rank (out of 17 districts)	2
Gender Related Development Index (GDI)	0.669
GDI rank (out of 17 districts)	1

Demography	1991	2001
Total population	899,587	1,110,000
Share in State's population	4.44	4.57
Urban population (%)	25.77	32.46
	1981	1991
Decadal growth of population	26.89	23.39

Livelihoods	1991	2001
Work participation rate	30.1	39.3
Female work participation rate	4.6	23.8
Male work participation rate	52.2	52.8
Net sown area (000 hect.)	112	126
Cropping intensity	179	167
Per capita forest area (hect.)	0.043	0.047

Health	1991	2001
Life expectancy	66.8	..
Infant mortality rate	60	..
Under five mortality rate	76	..
Number of hospitals	8	8
Number of PHCs	23	23
Rural pop. Per PHC	30,637	34,076
Number of dispensaries	78	82
Number of beds per lakh population	100	88

District Information	1991	2001
Number of blocks	6	7
Number of towns	8	11
Number of inhabited villages	879	867

Education	1991	2001
Literacy rate	68.15	78.49
Rural literacy rate	63.58	74.51
Urban literacy rate	81.15	86.6
Number of primary schools	..	823

Gender		1991	2001
Sex ratio		870	870
	Rural	870	869
	Urban	870	871
Juvenile sex ratio		884	791
	Rural	..	787
	Urban	..	800
Female infant mortality rate		60	..
Male infant mortality rate		59	..
Female under 5 mortality rate		74	..
Male under five mortality rate		77	..
Female literacy rate		58.52	71.74
Male literacy rate		76.49	84.43
Female rural literacy rate		..	66.71
Male rural literacy rate		..	81.39
Female urban literacy rate		..	82.01
Male urban literacy rate		..	90.63

Infrastructure	1991	2001
Road length per 100 sq.km.	157	159
% electrified villages	100	100

Sangrur

Indices	2001
Human Development Index (HDI)	0.654
HDI rank (out of 17 districts)	15
Gender Related Development Index (GDI)	0.575
GDI rank (out of 17 districts)	14

Demography	1991	2001
Total population	1,685,449	1,998,464
Share in State's population	8.31	8.23
Urban population (%)	25.43	29.26
	1981	1991
Decadal growth of population	21.36	18.57

Livelihoods	1991	2001
Work participation rate	32.3	40.6
Female work participation rate	4.7	24.1
Male work participation rate	56.3	54.9
Net sown area (000 hect.)	459	456
Cropping intensity	193	198
Per capita forest area (hect.)	0.002	0.003

Health	1991	2001
Life expectancy	62.8	..
Infant mortality rate	53	..
Under five mortality rate	79	..
Number of hospitals	18	17
Number of PHCs	41	41
Rural pop. Per PHC	33,784	38,207
Number of dispensaries	117	117
Number of beds per lakh population	92	79

District Information	1991	2001
Number of blocks	10	13
Number of towns	13	17
Number of inhabited villages	696	689

Education	1991	2001
Literacy rate	45.99	60.04
Rural literacy rate	41.23	55.86
Urban literacy rate	60.01	70.12
Number of primary schools	..	817

Gender		1991	2001
Sex ratio		870	868
	Rural	867	869
	Urban	880	864
Juvenile sex ratio		873	784
	Rural	..	779
	Urban	..	798
Female infant mortality rate		51	..
Male infant mortality rate		54	..
Female under 5 mortality rate		80	..
Male under five mortality rate		78	..
Female literacy rate		37.67	53.29
Male literacy rate		56.21	65.97
Female rural literacy rate		..	48.98
Male rural literacy rate		..	61.93
Female urban literacy rate		..	63.76
Male urban literacy rate		..	75.67

Infrastructure	1991	2001
Road length per 100 sq.km.	70	96
% electrified villages	100	100

Glossary

Akal Takht	Highest temporal seat of the Sikhs
Anand Karaj	A ritual followed in Sikh marriages
Abad Kars	Agricultural labourer
Anganwadi	An early child care centre
Ashram	Shelter
Bajjar Kurahit	An unpardonable sin
Bann	Rope
Begana Puut	Not one's own son, said in the context of son-in-law
Bhaiyas	Name given to the immigrants from Bihar and Uttar Pradesh
Bigha	Measure of land
Bahujan Sukhaay	Well being of all
Bahujan Hitaaya	Welfare of all
Chadar Pauna	Practice of marrying off a widow to her younger brother-in-law
Chak	A measure of land
Chamar	Member of Schedules Caste engaged in leather work
Chandal	Member of a socially low caste group who works in the cremation ground, and is considered as on outcast
Chaudhuri	Person dealing in money matters, also collected revenue
Charmakar	Person dealing with leather profession
Choe	Seasonal rivulet
Daridra Narayan	Poorest of the poor
Dalit	Member of underprivileged sections, especially Scheduled Caste
Dai	Midwife
Desi	Native
Doab	Region between two rivers

Gurudwara	Place of worship of the Sikh community
Girdawari	Assessment of crops, etc., by village level revenue official (Patwari)
Hakim	Traditional doctor
Inquilab zindabad	Victory of revolution
Jajmani System	A Traditional barter based system between the owner and service provider
Jaziya	Tax imposed on non-Muslims by the Muslim emperors
Kesh	Uncut hair
Khariff	Summer crop
Khanda	Double edged sword
Khalsa	Pure
Kshatriya	Warrior class
Kuccha	Made of mud, straw, sticks, etc.
Langar	Common meal, a practice initiated by the Sikh gurus in order to establish norms of equality
Lok Adalat	People's court
Malik	Owner
Mandi	Wholesale market for fruits, vegetables, grains, etc.
Morcha	Organised protest and rally held around a common issue
Munshi	Account keeper
Naukar	Servant
Nullah	Drain
Palledar	Loader in markets
Peshagi	Initial amount paid to a labourer, usually considered a loan
Prasad	Offering to God
Pucca	Concrete
Punj Aab	Five rivers
Quazi	Muslim clergyman
Rabi	Winter crop
Rehri	A tool used in the brick kilns
Sangat	A congregation
Sarpanch	Head of the Panchayat at the village level
Sewadar	Helper to the priest in a Gurudwara
Sati	Practice of self-immolation by a wife on the funeral pyre of her husband
Satsang	A congregation of persons gathered for a religious discourse
Siri	Type of agricultural labourer
Shamlat	Common land
Swadeshi	Anything that has to do with one's own country
Tehsil	Unit of administration
Thekedar	Contractor
Vaid	Traditional doctor
Varnas	Caste groups, usually organised on the basis of profession
Vimukt Jati	One of the poorest Schedule Caste groups found in Punjab

Abbreviations

ASDR	Age-Specific Death Rate
AIDS	Acquired Immuno-deficiency Syndrome
AISSF	All India Sikh Students Federation
ARI	Acute Respiratory Infection
B.A.	Bachelor of Arts
B.E.	Budget Estimates
BCG	A vaccine (Tuberculosis)
BIMARO	An acronym for Bihar, Madhya Pradesh, Rajasthan and Orissa
BKU	Bharatiya Kisan Union
BSP	Bahujan Samaj Party
CEDAW	Convention on the Elimination of All Forms of Discrimination Against Women
CHC	Community Health Centre
CMR	Child Mortality Rate
CPI	Communist Party of India
CPI-ML	Communist Party of India-Marxist-Leninist
CPM	Communist Party, Marxist
DIET	District Institute of Education and Training
DPI	Directorate of Public Instructions
DPT	A vaccine (Diptheria, Pertussis and Tetanus)
DS-4	Dalit Shoshit Samaj Samiti

EPW	Economic and Political Weekly
ESO	Economical and Statistical Organisation
ETT	Elementary Teachers' Training
FGS	Fateh Garh Sahib
GATT	General Agreement on Trade and Tariffs
GDI	Gender Development Index
GEM	Gender Empowerment Index
GNP	Gross National Product
HDI	Human Development Index
HIV	Human Immunodeficiency Virus
HPMS	Hill Resource Management Society
HSRA	Hindustan Socialist Republican Association
ICDS	Integrated Child Development Scheme
IEC	Information, Education and Communication
IFA	Iron Folic Acid
ILO	International Labour Organisation
IMR	Infant Mortality Rate
INA	Indian National Army
IWDP	Integrated Watershed Development Programme
JBT	Junior Basic training
JFM	Joint Forest Management
KKU	Kirti Kisan Union
M.A.	Master of Arts
MSP	Minimum Support Price
NBS	Naujawan Bharat Sabha
NCERT	National Council of Education Research and Training
NCLP	National Child Labour Project
NDPS	Narcotics, Drugs and Psychotropic Substances
NEP	National Education Policy

NFHS	National Family Health Survey
NGO	Non-Government Organisation
NHRC	National Human Rights Commission
NNM	Neo-Natal Mortality
NRR	Net Replacement Rate
NSDP	Net State Domestic Product
NSS	National Sample Survey
OPV	Oral Polio Vaccine
ORS	Oral Rehydration Salt
ORT	Oral Rehydration Therapy
OUP	Oxford University Press
PAP	Persons Ailing per 1000
PAU	Punjab Agriculture University
PDS	Public Distribution System
PEPSU	Patiala and East Punjab State Union
PHC	Primary Health Centre
PPC	Persons reporting commencement of any ailment
PRI	Panchayati Raj Institution
PWD	Public Works Department
R&D	Research and Development
SCERT	State Council of Education, Research & Training
SC	Scheduled Castes
SGPC	Shiromani Gurudwara Prabhandak Committee
SHC	Secondary Health Centre
SMAM	Singulate Mean Age at Marriage
SRS	Sample Registration System
ST	Scheduled Tribe
STD	Sexually Transmitted Disease
TB	Tuberculosis
TBA	Trained Birth Attendant

TFR	Total Fertility Rate
UIP	Universal Immunisation Programme
UNDCP	United Nations Drug Control Programme.
UNDP	United Nations Development Programme
UNICEF	United Nations Children's Fund
UT	Union Territory
VDC	Village Development Committee
WHO	World Health Organization
WTO	World Trade Organisation

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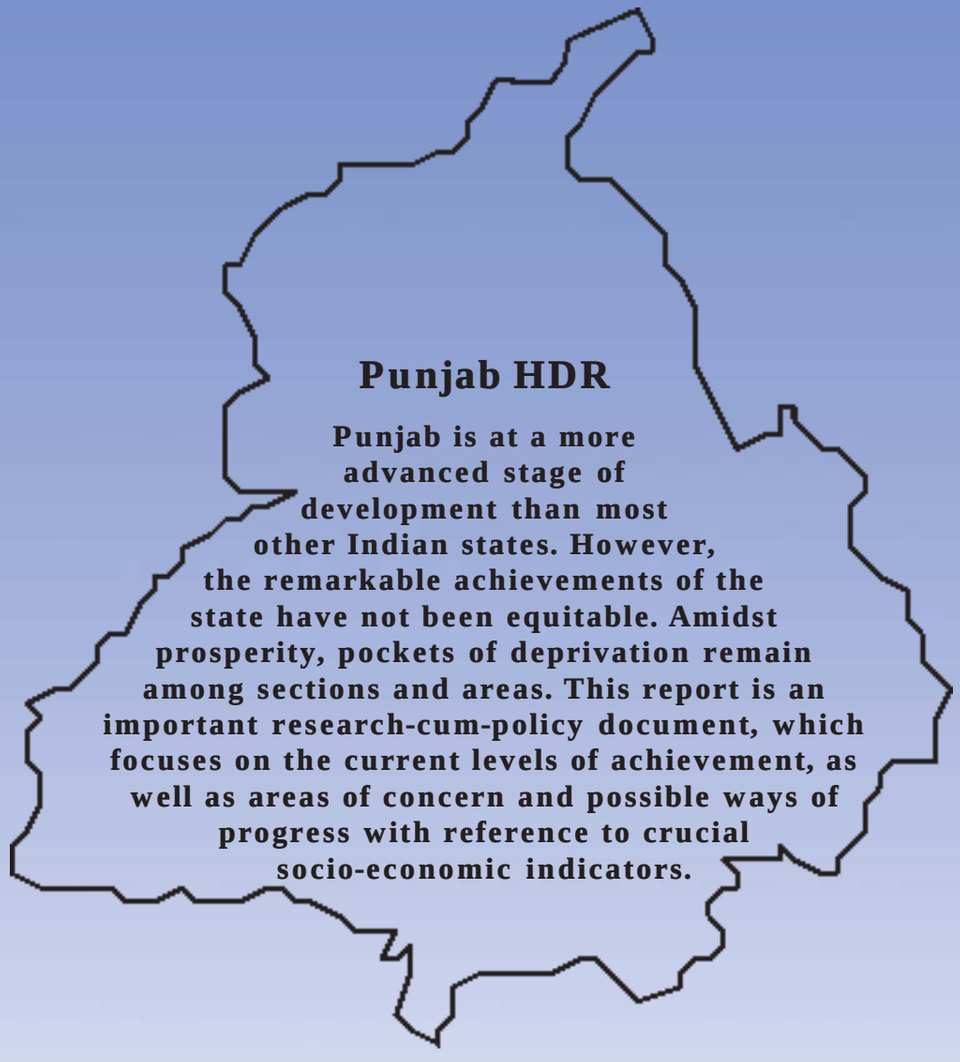

Punjab HDR

Punjab is at a more advanced stage of development than most other Indian states. However, the remarkable achievements of the state have not been equitable. Amidst prosperity, pockets of deprivation remain among sections and areas. This report is an important research-cum-policy document, which focuses on the current levels of achievement, as well as areas of concern and possible ways of progress with reference to crucial socio-economic indicators.