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DECLINING CHILD SEX RATIO IN INDIA AND ITS IMPLICATIONS

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Abstract

The 2011 census reveals that the child sex ratio for the age group 0-6 years has declined to its lowest. The decline in child sex ratio was pronounced only in the northwestern states in 2001 but according to the 2011 census this phenomenon has spread to all the states and union territories of the country. The child sex ratio has declined to 914 in 2011, whereas it was 927 in 2001. The reasons for decline in the child sex ratio are many, but the most important are the presence of strong son preference, the existing law of inheritance, desire for a small size of family and demand for a large dowry. The paper describes some of the implications of declining child sex ratio and also suggests some policy initiatives for improving the child sex ratio in the country. Sex composition is one of the most important demographic characteristics as it directly affects the incidence of birth, death and marriage. It is used as a basis of distinction in almost every aspect of social structure. There are different tools to measure gender equity in population. Sex ratio is one such widely used tool for cross-sectional analysis to measure gender balance. Sex ratio is the number of females per 1000 males. Sex ratio is an index of the socio-economic conditions of an area and also a composite indicator of women's status in the society. An understanding of sex ratio of an area is important for different types of planning and for comprehending demographic dynamism in terms of natality, mortality, migration, marital status, economic characteristics etc. (Chandna, 1986).

Introduction

India is one of the few countries in the world where there are more males than females (Table 1). India's general sex ratio throughout the 20th century and as well as in the 21st century reflects a masculine sex ratio. In 1901, India's general sex ratio was 972. It declined steadily between 1901 and 1971 with a negligible increase of only one point in 1951 and improved marginally to 934 in 1981 from 930 in 1971. In 1991, there was again a decrease in the sex ratio (927 females per thousand males). However, a marginal increase of six females (933) was recorded in the 2001 census. There has been further improvement in the general sex ratio with 940 females per thousand males in 2011 (Table 2).

Trends

The increase in the general sex ratio during the last decade, though marginal, needs to be appreciated. This increase is due to a longer life span of females as compared to males. They tend to live longer if they are not subjected to incapacitating forms of discrimination in nutrition and health care (www.livepunjab.com/articles/only-914girls-1000males-census-2011-reports-2051303/27/2011). However, the happiness over the increase in general sex ratio will not remain for long. If not in the next decade but after two or more decades the census would show an abysmally low sex ratio. This is because of the fewer girls in 0-6 years age group now

Table - 1
Sex Ratio of Selected Countries (2011)

S. No.	Country	Sex Ratio	S. No.	Country	Sex Ratio
1.	China	926	7.	Nigeria	987
2.	India	940	8.	Russian Fed.	1167
3.	U.S.A.	1025	9.	Pakistan	943
4.	Indonesia	1004	10.	Sri Lanka	1034
5.	Brazil	1042	11.	Nepal	1014
6.	Japan	1055	12.	Myanmar	1048

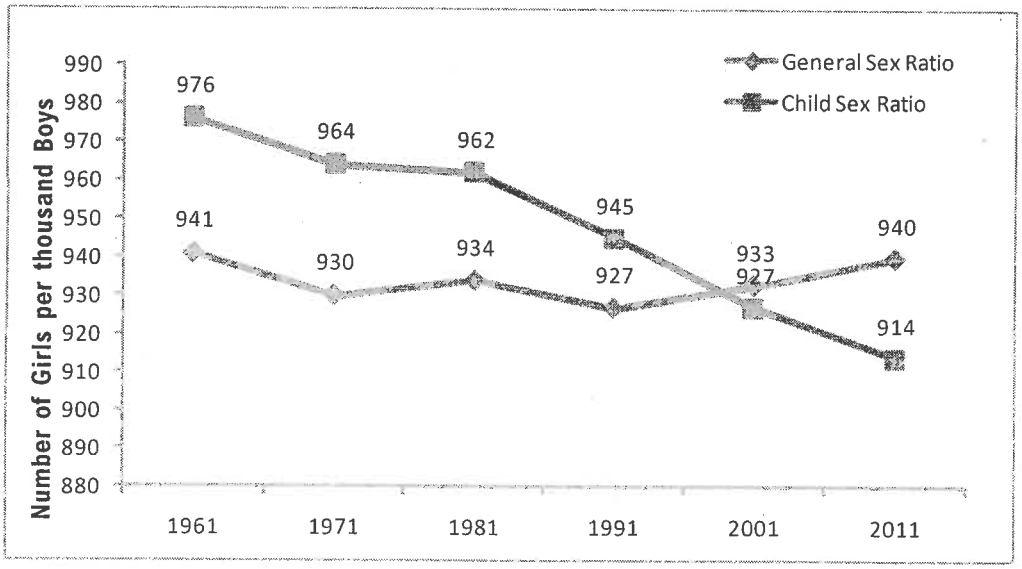
Source: World Population Prospects, 2008 Revision, UN. 2011.
Note: Rates have been worked out for India based on the provisional Census 2011 and those of Indonesia and Brazil round of Census.

Table - 2
India : General and Child Sex Ratio (1961-2011)

Year	General Sex Ratio	Change in General Sex Ratio	Child Sex Ratio	Change in Child Sex Ratio
1961	941	- -	976	
1971	930	– 11	964	– 12
1981	934	+ 4	962	– 2
1991	927	– 7	945	– 17
2001	933	+ 6	927	–18
2011	940	+ 7	914	– 13
Change 1961-2011		– 1		– 62

Source: Census of India, General Population Tables of 1961, 1971, 1981, 1991, 2001 and 2011.

Figure - 1
India: General and Child Sex Ratio (1961-2011)



and a continuous decrease in their numbers (The Hindu, 2011).

Figure 1 presents an encouraging trend in general sex ratio in India, while the same is not true in the case of female children in the age-group of 0-6 years. The child sex ratio in the country has witnessed a decline due to greater preference being given to the male child in all the states and union territories of the country. In spite of high economic growth, better literacy and globalized environment of money, attitudes and culture, India shows up to be a savage nation (Gautam, 2011). It is evident from Table 2 and Figure 1 that child sex ratio in India has declined consistently since 1961 to touch a new low of 914 in 2011 census. This has come out as a shocking revelation and shows that many Indians still do not accept a girl child willingly. The child sex ratio was 976 in 1961 and declined sharply to 945 in 1991. The reason of this sharp decline stemmed from the introduction of methods of pre-natal sex determination in the country such as amniocentesis and ultrasound technology. During the 1980's and 1990's sex determination tests became quite common in the country (Gupta and Bhat, 1987). During the 1970's, India had also enacted a new and rather liberal law on abortion which in many cases rendered the termination of an undesirable pregnancy considerably easier. This law was primarily meant to address the issue of unwanted pregnancies, as part of a comprehensive family-planning strategy (Guilmoto, 2007; Arnold et al., 2002). Unfortunately, the combination of both, i.e., pre-natal sex determination technology and a liberal law on abortion was used to reinforce cultural prejudices against girl child during this period. There were diagnostic clinics which advertised that parents could spend Rs. 500 in order to save Rs. 5 lakh, making a comparison between the costs of the abortion procedure and, presumably, the dowry that would be required for the girl at the time of her marriage (Kaur, 2011). The sex ratio favourable to boys and adverse to girls coincides with the introduction of modern prenatal sex-determination methods (Bhat, 2002).

No doubt, girl child was discriminated earlier also and a boy's birth was celebrated with greater joy while the girl child was accepted as just the will of God. However,

Table - 3
India: Trends in Child Sex Ratio (1981-2011)

Country / States	1981	1991	2001	2011
INDIA	**962**	**945**	**927**	**914**
Haryana	902	879	819	830
Himachal Pradesh	971	951	896	906
Jammu & Kashmir	964	N.A.	941	859
Punjab	908	875	798	846
Rajasthan	954	916	909	883
Gujarat	947	928	883	886
Maharashtra	956	946	913	883
Goa	965	964	938	920
Chandigarh	907	899	845	867
Delhi	926	915	868	866
Uttrakhand	N.A.	949	908	886
Uttar Pradesh	935	927	916	890
Bihar	981	953	942	933
Madhya Pradesh	977	941	932	912
Chhattisgarh	N.A.	984	975	964
Jharkhand	N.A.	979	965	943
Orissa	995	967	953	934
West Bengal	981	967	960	950
Kerala	970	958	960	959
Karnataka	975	960	946	943
Tamil Nadu	967	948	942	946
Andhra Pradesh	992	975	961	943
Assam	N.A.	975	965	957
Arunachal Pradesh	997	982	964	960
Meghalaya	991	986	973	970
Manipur	986	974	957	934
Nagaland	988	993	964	944
Sikkim	978	965	963	944
Tripura	972	967	966	953
Mizoram	986	969	964	971
Andaman & Nicobar	978	973	957	966
Dadra & Nagar Haveli	995	1013	979	924
Daman & Diu	N.A.	958	926	909
Lakshdweep	964	941	959	908
Puducherry	965	963	967	965

Source: Census of India, General Population Tables, 1981, 1991, 2001 and 2011.

Table - 4
India: Range of Child Sex Ratio (1981-2011)

Value	Number of States/ Union Territories			
	1981	1991	2001	2011
Below 900	0	3	6	11
900-950	6	9	11	14
Above 950	24	22	18	10
	30*	34**	35	35

Source: Census of India, General Population Tables of 1981, 1991, 2001 and 2011.
Note: 1. *In 1981, Uttaranchal, Jharkhand, Chhattisgarh and Daman & Diu were included in their respective states Uttar Pradesh, Bihar, Madhya Pradesh and Goa.
2. ***Census was not conducted in Assam and Jammu & Kashmir.*

with the availability of medical technology that could actually predict the sex of the unborn child, there was no longer dependence on God. People could intervene and terminate a pregnancy, when a woman was found to be pregnant with a girl child (Kaur, 2011). From the 1980s onwards, sex-selective abortion became the primary method used to alter the sex composition of child population (Gupta and Bhat, 1987). An alarming decline in the proportion of girls during 1981 - 1991 (Table 2 and Figure 1) could be observed associated with a routine abortion of female foetus (Gupta, 2005). Increasing awareness regarding this process resulted in introduction of the law banning the sex determination test in 1994. The All India Democratic Women's Association and the National Commission for Protection of Child Rights were also behind the call to enforce a ban against sex-selective abortion. The law declared sex determination as an illegal activity and anyone breaking this law could be subject to prosecution (Kaur, 2011).

However, despite the PC & PNDT Act, the Census of 2001 registered a still lower child sex ratio. During 1991-2001 the child sex ratio declined by 18 points and only in two decades (1981-2001) this decline was of 35 points. It showed that the modern techniques had set the new regime apart from the older discrimination strategies against girl child (Bora and Tyagi, 2008). In view of the declining trend in the number of girl children in the age group of 0-6 years, the Government of India again revised the PC & PNDT Act in 2003. However, the child sex ratio declined by 13 points during 2001 to 2011 also. The present figure is only 914 girls per thousand boys in the same age group (0-6 years).

Every successive census has documented a decline in the child sex ratio since 1981 (Table 3) indicating a ubiquitous trend. Figure 1 shows that during 1961-2011 India recorded a child ratio of more than 900 and it is pertinent to note that 24 states and union territories had recorded a child sex ratio of above 950 in 1981 (Table 4). After the introduction of modern pre-natal sex-determination test in 1980s, the decline in child sex ratio was observed in the states of Punjab & Haryana and the union territory of Chandigarh in the north-western parts of the country in 1991. Elsewhere in India, apparently no large scale deterioration was observed in child sex ratio which by and large remained above 900 female children per thousand male ones. However, it is important to note that the number of states having a child sex ratio of less than 950 increased during1981-1991 and there was a reduction in

Fig. 2

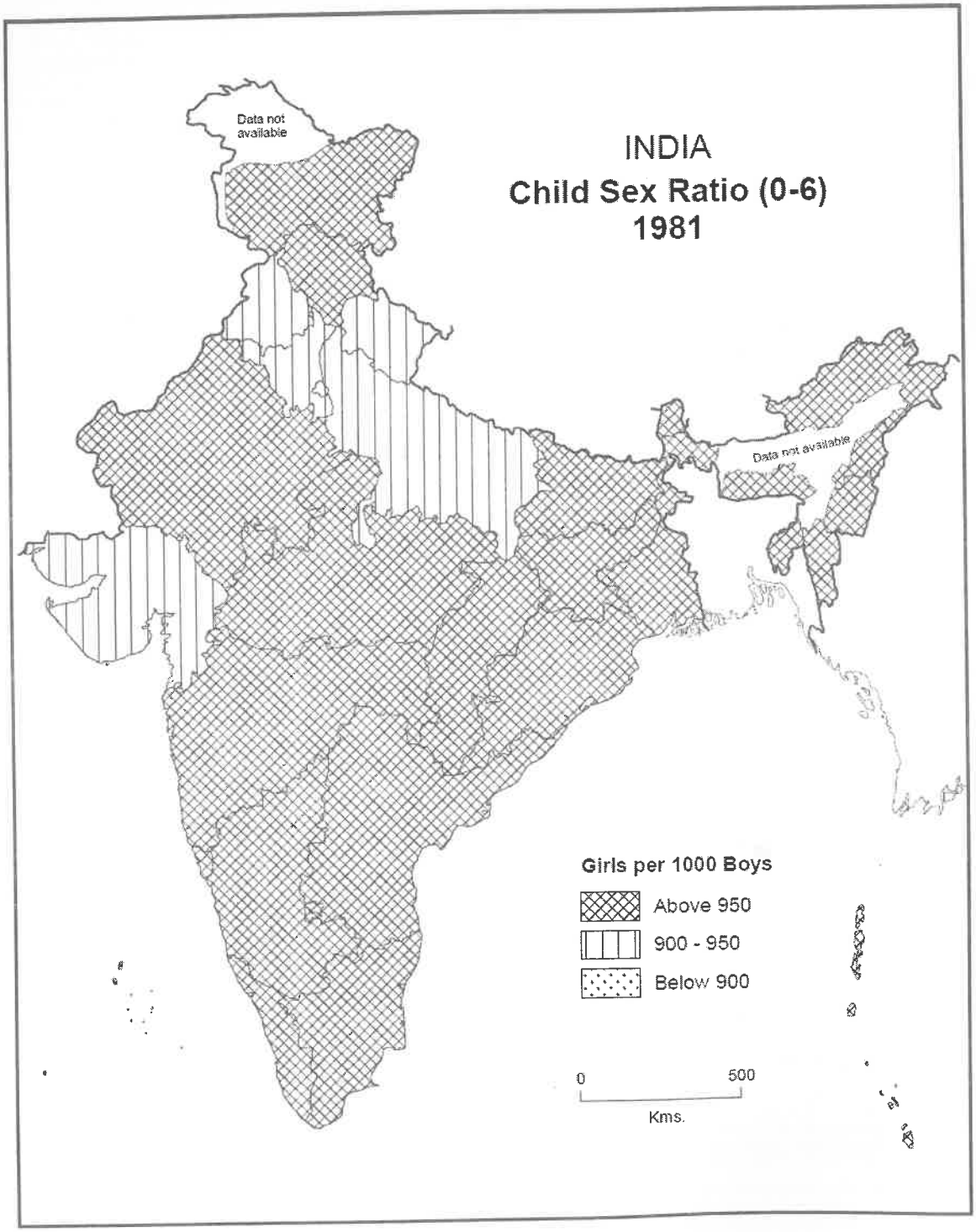

INDIA
Child Sex Ratio (0-6)
1981
Data not available
Data not available
Girls per 1000 Boys
Above 950
900 - 950
Below 900
0
500
Kms.

Fig. 3

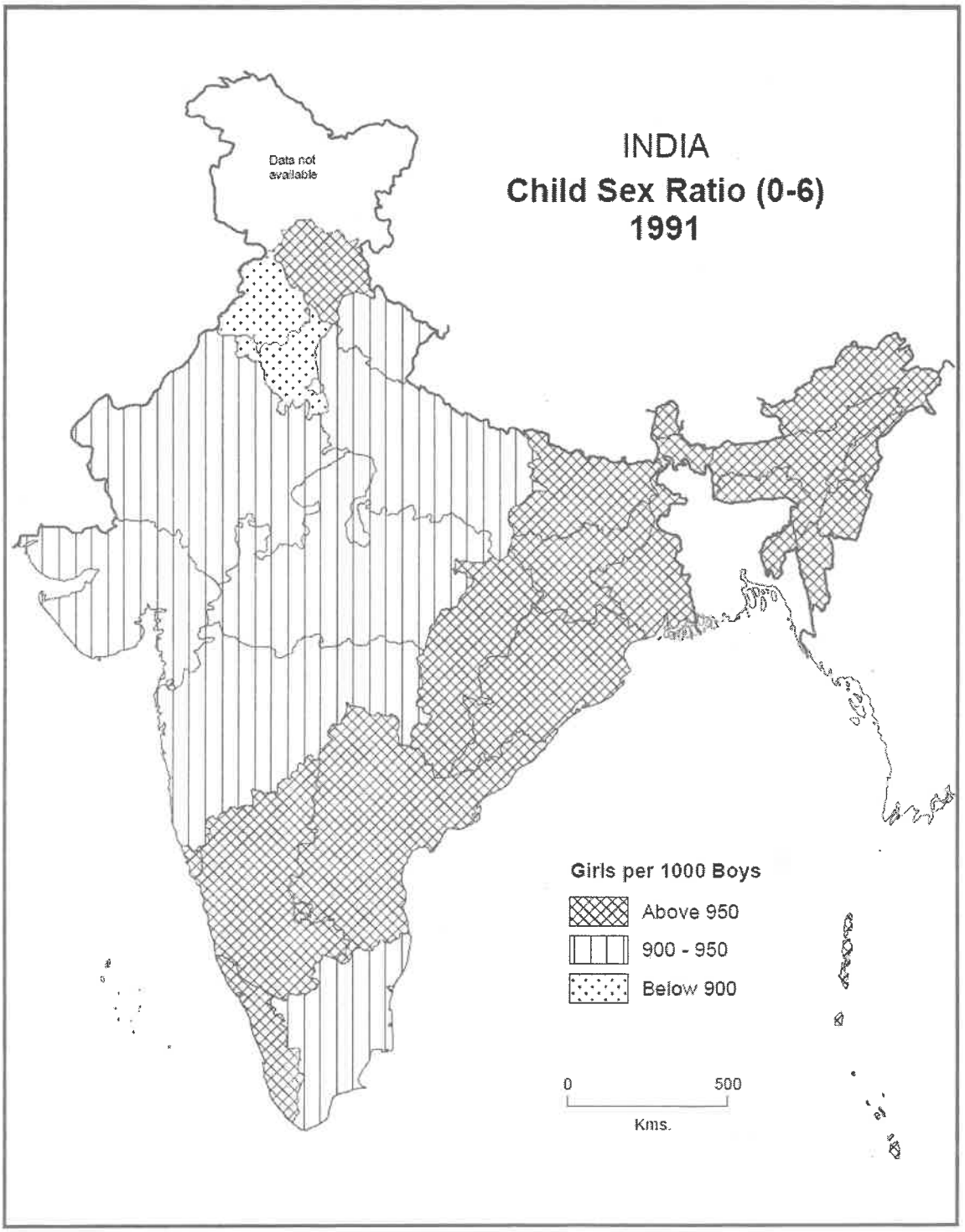

INDIA
Child Sex Ratio (0-6)
1991
Data not available
Girls per 1000 Boys
Above 950
900 - 950
Below 900
0
500
Kms.

Fig. 4

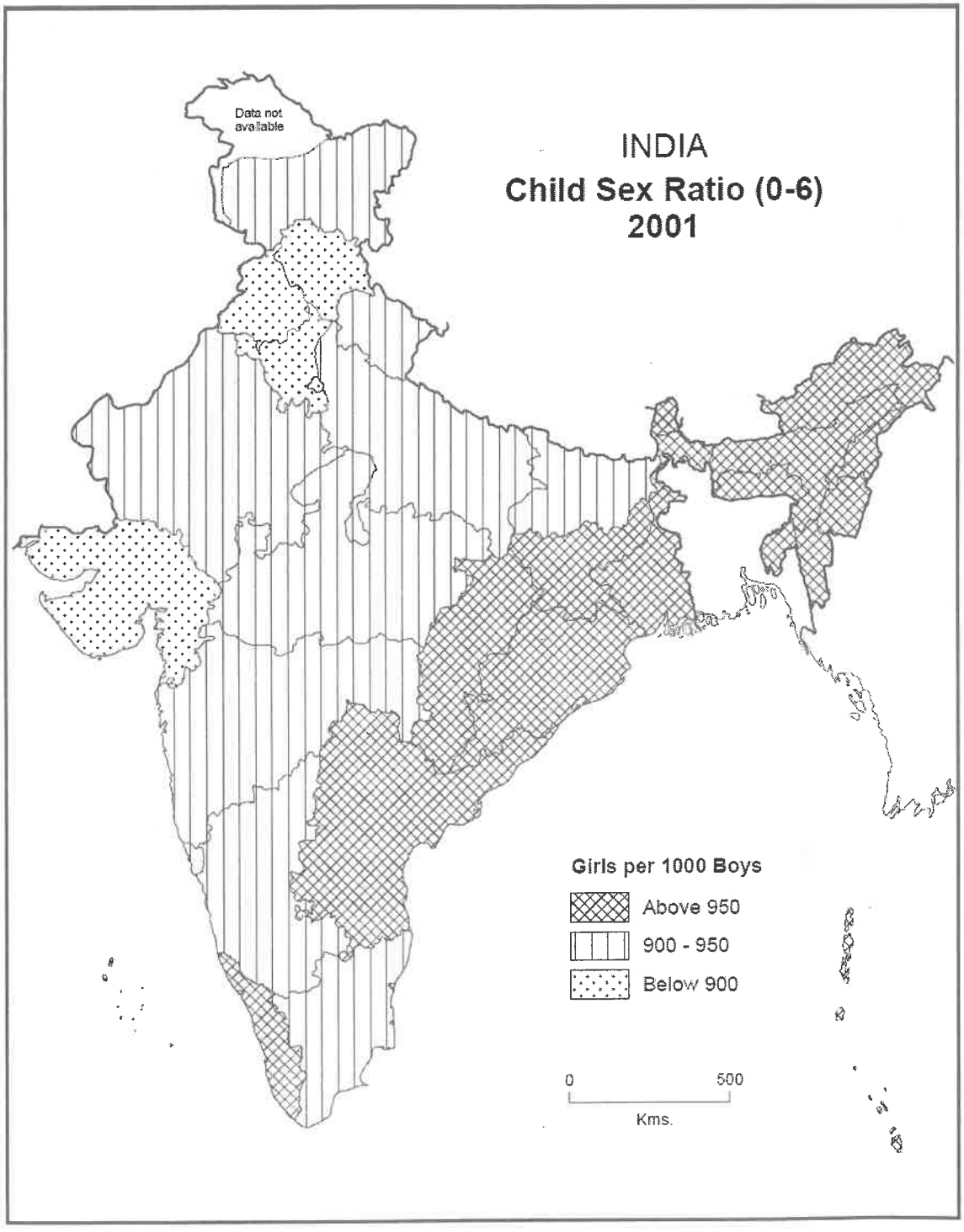

Data not available
INDIA
Child Sex Ratio (0-6)
2001
Girls per 1000 Boys
Above 950
900 - 950
Below 900
0
500
Kms.

Fig. 5

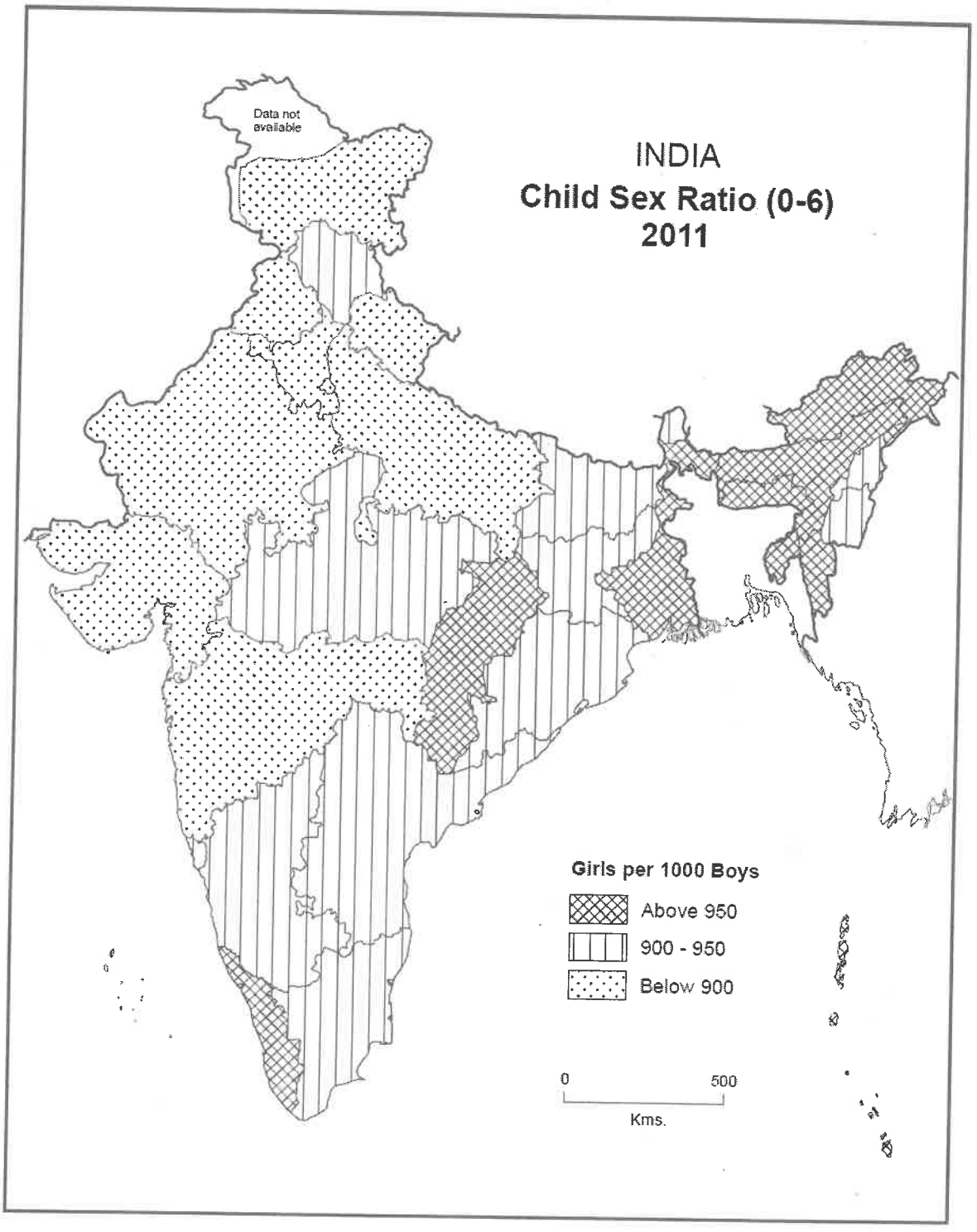

Data not available
INDIA
Child Sex Ratio (0-6)
2011
Girls per 1000 Boys
Above 950
900 - 950
Below 900
0
500
Kms.

Table - 5
India : Per Cent Distribution and Change in Child Population (2011)

Country / State	2011			Per cent Change (2001-2011)		
	Total	Males	Females	Total	Males	Females
INDIA	**13.12**	**13.30**	**12.93**	**-2.81**	**-2.67**	**-2.95**
Jammu & Kashmir	16.01	16.21	15.77	1.36	1.93	0.71
Nagaland	14.44	14.34	14.54	-0.12	0.25	-0.54
Mizoram	15.17	15.20	15.14	-1.01	-0.74	-1.29
Manipur	12.98	13.34	12.61	-1.25	-1.01	-1.49
Goa	9.57	9.81	9.32	-1.26	-1.15	-1.37
Meghalaya	18.75	18.91	18.60	-1.43	-1.26	-1.59
Tripura	12.10	12.15	12.04	-1.54	-1.37	-1.73
Chandigarh #	11.18	10.89	11.54	-1.66	-1.47	-1.91
Puducherry #	10.25	10.64	9.89	-1.77	-1.59	-1.93
Himachal Pradesh	11.14	11.53	10.74	-1.91	-2.02	-1.79
Kerala	9.95	10.59	9.36	-1.96	-1.92	-1.99
Tamil Nadu	9.56	9.80	9.32	-2.03	-2.06	-2.0
A & N Islands #	10.40	9.93	10.92	-2.17	-1.93	-2.5
Bihar	17.90	17.75	18.07	-2.35	-2.26	-2.44
Daman & Diu #	10.65	9.03	13.28	-2.36	-2.52	-1.78
Karnataka	11.21	11.36	11.07	-2.28	-2.36	-2.38
Punjab	10.62	10.89	10.32	-2.4	-2.69	-2.06
Assam	14.47	14.45	14.50	-2.4	-2.17	-2.65
Gujarat	12.41	12.62	12.18	-2.46	-2.54	-2.36
Jharkhand	15.89	15.92	15.85	-2.51	-2.24	-2.79
Orissa	12.00	12.28	11.73	-2.56	-2.43	-2.68
Maharashtra	11.43	11.69	11.16	-2.68	-2.49	-2.88
Haryana	13.01	13.34	12.62	-2.76	-2.8	-2.74
NCT of Delhi #	11.76	11.76	11.76	-2.8	-2.43	-3.25
Uttarakhand	13.14	13.67	12.58	-2.88	-2.81	-2.96
Chhattisgarh	14.03	14.23	13.84	-3.03	-2.96	-3.1
Andhra Pradesh	10.21	10.46	9.95	-3.14	-3.0	-3.28
West Bengal	11.07	11.05	11.09	-3.17	-3.0	-3.35
Madhya Pradesh	14.53	14.67	14.38	-3.34	-3.08	-3.62
Rajasthan	15.31	15.67	14.92	-3.54	-3.3	-3.8
D & Nagar Haveli #	14.35	13.24	15.78	-3.88	-3.45	-4.35
Lakshadweep #	11.00	11.22	10.77	-3.99	-3.69	-4.31
Arunachal Pradesh	14.66	14.36	15.00	-4.09	-3.72	-4.5
Uttar Pradesh	14.90	14.97	14.82	-4.13	-3.88	-4.4
Sikkim	10.05	9.77	10.37	-4.41	-4.04	-4.83

Source: Census of India, 2011, Provisional Population Tables.

Table - 6
India : Child Preference by State (2005-06)

Country/ State	Percentage who want more sons than daughters		Percentage who want more daughters than sons	
	Males	Females	Males	Females
INDIA	**20.0**	**22.4**	**2.0**	**2.6**
Delhi	11.7	11.7	1.5	2.1
Haryana	18.4	22.0	2.2	1.2
Himachal Pradesh	9.2	11.8	1.1	2.0
Jammu & Kashmir	23.9	23.4	2.2	3.1
Punjab	13.4	17.7	1.5	1.6
Rajasthan	24.0	34.3	1.8	1.5
Uttarakhand	13.6	20.7	1.3	2.1
Madhya Pradesh	27.9	30.8	2.4	1.8
Chhattisgarh	24.8	32.8	1.0	3.6
Uttar Pradesh	27.8	33.5	1.2	1.7
Bihar	38.5	39.2	1.7	1.2
Jharkhand	24.6	28.1	3.7	2.3
Orissa	20.3	24.2	1.6	2.4
West Bengal	16.6	16.5	2.1	3.5
Arunachal Pradesh	30.3	28.3	3.2	5.0
Assam	17.9	24.1	2.8	2.1
Manipur	34.7	28.5	3.3	4.2
Meghalaya	21.5	11.9	13.5	22.7
Mizoram	43.5	29.0	14.7	17.0
Nagaland	28.4	21.4	5.0	9.8
Sikkim	17.1	15.5	4.2	5.9
Tripura	15.2	17.7	2.2	3.4
Goa	11.4	8.7	2.1	4.1
Maharashtra	14.3	14.1	2.2	2.9
Gujarat	20.0	22.7	1.6	2.3
Andhra Pradesh	12.0	9.3	2.0	2.6
Karnataka	12.7	11.6	2.7	4.6
Kerala	11.8	11.0	3.8	5.7
Tamil Nadu	7.9	5.7	1.8	3.1

Source: National Family Health Survey, Vol. 1.

the number of states and union territories recording a child ratio of more than 950.

There has been a decline in the number of states and union territories having child sex ratio of 950 and above since 1981. According to 1981 Census, 24 states and union territories had a child sex ratio of more than 950, but their number declined to 22 in 1991, 18 in 2001 and only 10 in 2011 (Table 4 and Figs. 2 to 5).

In comparison the number of states and union territories in the other two categories has increased. In 1981 none of the states and union territories in India had a child sex ratio below 900. However, in 2011 their number increased to 11 under this category. An increase in the number of states and union territories can also be observed in the category where sex ratio ranged between 900 and 950.

The decline in child sex ratio had been limited to only some of the states and union territories during 1981-1991 viz., Punjab, Haryana and Chandigarh. This can be attributed to the fact that Punjab was the first state to start the commercial use of sex determination and sex pre-selection test as early as in 1979 (Patel, 2011). However, this phenomenon gradually widened its circle. According to the latest Census of 2011, this trend has appeared in 11 states and union territories starting from Jammu & Kashmir in the North-West to Maharashtra in the South-West and Uttar Pradesh in the East (Fig. 5). It is disappointing to note that Kerala and Meghalaya with high literacy and traditionally matrilineal society, have also recorded a decline in child sex ratio. These results point out that there has been an intensification of the girls' deficit areas in the country with each successive decade.

The indiscriminate abortion of female foetuses is the main reason for the skewed child sex ratio. If abortions had not taken place there would have been about 952 girls born per 1000 boys. The exact number of abortions done in India, for obvious reasons, is not known (The Hindu, 2011). The proportion of child population in different states in 2011 and the per cent change in it during 2001-2011 is presented in Table 5. The data on child population in the age group of 0-6 years is primarily intended for calculating the literacy rates. It also allows us to broadly analyse possible linkages with the growth of population in this age group (Census of India, 2011). On the one hand it is heartening to note that all the states (except Jammu & Kashmir) and union territories in India have recorded a decline in the growth of child population, indicating lower rates of population growth, however, on the other side of it, there has been a higher decline in the proportion of female children than male children in all the states and union territories with few exceptions. It clearly indicates that the growth of child population is controlled by the sex-selective abortions. The small size of the family is the outcome of the adoption of the darker side of family planning through the termination of female child before birth with the help of new methods and technology.

The declining child sex ratio and declining growth of girl population highlights that Indian people still prefer sons to their daughters. Education exposure and affluence have not brought the desired value change, such as gender equality, rather, it has introduced consumerism and commoditization of relationships (Vasudev, 2003).

A strong attitude towards son preference continues in the Indian society (Gupta *et al.*, 2003; Pande and Astone, 2007) due to a variety of social and economic factors which interact to make girl child less valuable to their families (Bora, 2007).

Table 6 shows data for son preference attitude among males and females in all the states of India. The table shows that more than twenty-two per cent of women prefer sons to daughters, but only 2.6 per cent have a preference for daughters. In the case of males, 20.0 per cent have a preference for sons, while only 2.0 per cent for daughters. The son preference exists among both the males and females in all the states. The son preference tends to be stronger among both males and females in most of the northern part, viz.,

Punjab and Haryana, and poverty stricken states, namely, Bihar, Uttar Pradesh, Rajasthan, Madhya Pradesh, Chhattisgarh and Jharkhand. Other states with a son preference above national average include Arunachal Pradesh, Manipur, Mizoram, Jammu & Kashmir and Gujarat. The low proportion of population for son preference is found in the states of Karnataka (11.6 per cent), Kerala (11.0 per cent), Andhra Pradesh (9.3 per cent), Goa (8.7 per cent) and Tamil Nadu (5.7 per cent).

Meghalaya and Mizoram make an exception where both the females and males have a higher preference for daughters. In all the states except Meghalaya and Mizoram, not more than 5 per cent of males prefer daughters. It is interesting to note that males in Meghalaya have lower preference for sons. In case of Punjab and Haryana, there is need to further investigate the preference for sons as both these states occupy the bottom ranks in terms of child sex ratio in 2011.

The main reason for son preference is that the son lends support to his parents in their old age; fetches a handsome amount of dowry at the time of his marriage; the amount spent on his brining up and career results in multiplication of their money and as per Hindu belief, he is required to perform the last rites of his parents.

Implications

The decline in child sex ratio is alarming in the sense that it poses a serious threat to the existence of society itself. The decline in number of female children is unbalancing the ratio between girls and boys. This deficit leads to the shortage of brides for the boys of marriageable age. This is already being observed in many pockets of Haryana and Punjab where young men face considerable difficulty in finding a bride (Kaur, 2004). In such a situation, the number of males resorting to such unusual solutions as import/purchase of brides from other areas, sharing of wife and trafficking of women is increasing. The scarcity of females has led to the re-emergence of 'bride price', the system of paying money to obtain a wife and polyandry system. The reports in the national and local media have also been highlighting the increasing incidents of 'sale of girls' in the states of Haryana and Punjab from the states of West Bengal, Assam, Orissa and even from some of the southern states of the country. The difficulties and inability in finding a female partner would lead to social tension, particularly manifested in crime against women. It would increase the incidences of rape, prostitution and violence against women. The crime against women is rising in the country as India is already ranked as the fourth most unsafe country in the world for women to live in (Thomson, 2011). Further, India ranks third in terms of rape cases in the world (Economic Times, 2008). Besides, a number of relations and festivals related with girls in our country will slowly and gradually be eliminated from the social life of the Indians and will become a part of history.

Suggestions

The decline in the child sex ratio suggests that marked improvements in the economy and literacy rates do not seem to have had much positive impact on this aspect. The following measures, based on the findings of this study, are suggested which can help in improving the child sex ratio in the country:

(i) The first and foremost need is a change in the mind set of the society toward the girl child. Unless the citizens of India themselves wake up to the evil of female foeticide these malpractices targeting the girl children shall not be done away with.

(ii) It is required that every girl child gets the right to be born and is extended the same love and affection as the boys; provided tender care and nourishment without any discrimination and given equal opportunities for education as the boys. The evil of dowry needs to be abolished from the society in order to empower women and make them independent in their decisions.

(iii) The Pre-Conception & Pre-Natal Diagnostic Techniques Act and the Dowry Prohibition Act should be implemented effectively and stringently. The doctors, nurses and others found guilty should be severely punished through such measures as cancellation of their licenses. The license for medical practice once cancelled should not be restored under any circumstances. The parents found guilty of any act leading to termination of female foetus should be given exemplary punishment. Legislation needs to be enacted to the effect that a bride shall have equal right on the property of her husband immediately after the marriage.

(iv) Free and compulsory education for the female child is required to make her self-reliant. The formulation of various schemes promoting vocational training and skill development can help to generate employment opportunities and increase the income of women.

(v) The empowerment of women through reservation of jobs in public as well as private sector institutions would improve their status in the society. This would also increase their decision-making skills and would be helpful in opposing the family's pressure for sex-selective abortion.

(vi) The couples having a single female child should be provided free medical care and a handsome old age pension. Those in government service should be given some additional annual increments for taking greater care of the female child.

Some of these measures could go a long way in removing the deeply entrenched prejudice against the female child.

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LEVELS AND DIFFERENTIALS OF MORBIDITY IN HARYANA: A PROFILE AND IMPLICATIONS BASED ON NSSO DATA

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Abstract

The health status of population is generally measured by life expectancy, infant mortality rate (IMR) and levels of living. The level and nature of ailment however, can provide a more realistic picture of health status of population which in turn may prove helpful in targeting health interventions. In this context, present paper attempts to analyse the prevalence of morbidity in rural and urban areas of Harryana in different population sub-groups, i.e. among males and females; in population of different age groups; and among different social groups. It also studies the nature and type of illnesses which are more prevalent in rural and urban areas of the state. The paper is based on NSSO Survey (60th round). The unit level data for the state of Haryana and morbidity measure is restricted to self perceived morbidity. The paper is an attempt to provide a wider understanding in spatial differentials and age specific differentials in reported ailments.

Introduction

The health status of population is generally measured either by mortality indicators such as infant and child mortality rates, life expectancy at birth, or by calories intake and anthropometric measures such as body weight, height and age. Among these, infant mortality rate (IMR), life expectancy at birth and body mass index (BMI) are being used more commonly as these are easily measurable, internationally comparable and data on these are mostly available (Ghosh and Arokiasamy, 2010). The existing literature suggests that health status of population may be better understood with the presence or absence of illness, its frequency and type of ailment in population (WHO, 1984; World Bank, 1993; NCAER, 1992; Shekhar, 1997; Baraik and Sinha, 2009). It is based on the logic that mortality is a terminal event, while morbidity relates to the burden of illness and thus provides a more realistic picture of health status. Further, in the context of National Health Policy, the study of morbidity prevalence in various sub-groups is also critical in reviewing health intervention policies.

Morbidity has been defined as "any departure, subjective or objective, from a state of physiological well being. The term has been used as an equivalent to sickness, illness, disability" (WHO, 1984)[1]. It may also be noted that in general there is an absence of studies which may reveal health status of population in terms of morbidity due to limitations of data and morbidity measurements. Researchers have argued that the quantification of 'inequality' in morbidity prevalence among different population groups may not give a true picture because of the influence of subjectivity in measurement of morbidity. The reporting of ailments depends

on the levels of awareness about health problems arising from various individual, household and community level factors in the population (Johansson, 1991; Duraisamy, 1998). Despite these well-recognised problems and difficulties of measurement, the reported information on morbidity obtained through large scale surveys would be extremely useful, especially in the absence of clinically validated surveys (Dilip, 2007). Among different surveys on morbidity, the most widely used data is of National Sample Survey Organization (NSSO), National Council for Applied Economic Research (NCAER) and National Family Health Survey (NFHS) due to their large sample universe and adopted procedures.

Objectives

In the above context the present paper attempts to obtain the following objectives:

(i) to study the levels and pattern of morbidity prevalence among various social groups of population in rural and urban Haryana.

(ii) to study the nature (chronic and acute) and type of illness among rural and population in Haryana.

Study Area

The study area is the north-western state of Haryana. It is one of the economically developed states of India. The per capita income of Rs. 63,045 at constant prices (2004-05) puts it at the second rank, next to Goa, in the country. In production and availability of cereals and milk, the state ranks second at the all India level (Government of Haryana, 2012). Demographically also, population growth has stabilized in the state due to decline in Crude Birth Rate (CBR) and Crude Death Rate (CDR). Historically, the state has experienced a high population growth rate, much above the national average, but during the last decade i. e. 2001 to 2011, population growth rate has declined substantially from 19.90 percent to 28.5 percent during 1991 to 2001 (Census, 2011). At present the state is categorized as being in the advanced phase of third stage of demographic transition. The state is also ranked among top ranking states as far as various types of amenities and infrastructural facilities such as availability of health care facilities, education, water and sanitation facilities, motorable road length and village connectivity etc. are concerned. It may, however, be noted that despite availability of all kinds of health care infrastructure and being one of the economically developed states child and women's health and nutrition does not seem encouraging (Rajeshwari and Pritika, 2011). Hence, studying health status of population in terms of illness prevalence and its type may be pertinent to assess the health need of population in the region.

Data Base and Methodology

The present study is based on secondary data for the year 2004, collected through a survey by National Sample Survey Organization through its 60th round on morbidity[2]. In the present study, morbidity prevalence is measured by two different types of population. One is proportion of ailing persons (PAP) which refers to the population who reported any kind of illness during the last 15 days from the date of survey. The other is hospitalization rate, which refers to the population who availed medical services as an indoor patient in any hospital (public or private) during the last 365 days from the survey period. The Prevalence of Morbidity or Proportion of Ailing Persons (PAP) is measured as: PAP = Persons Reporting Ailment (during last 15-days) ÷ Total Population at risk *1000. The prevalence rate presented here is estimated proportion of persons reporting ailment suffered at any time during the reference period. It is slightly different from the prevalence rate as recommended by the Expert Committee of WHO which takes into account the frequency of illnesses prevailing during the reference period. Age specific prevalence rate has been calculated for five broad age groups i.e., 0 to 14 years (children), 15 to 29 (youth), 30 to 44 (prime working age group), 45 to 59 (mature working age group) and

Table - 1
Morbidity Prevalence in India and Haryana: 2004
(Per'000 persons)

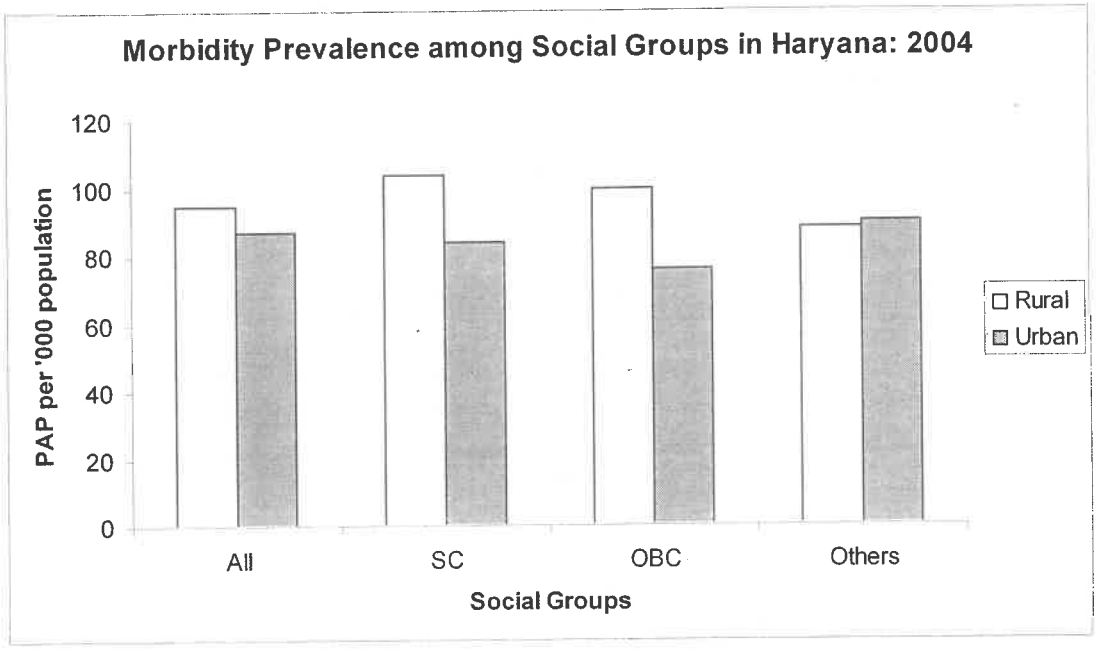
Categories	Haryana*			All India**		
	All	Rural	Urban	All	Rural	Urban
Social Groups						
ST	*	*	*	**58**	58	61
SC	**100**	104	84	**88**	88	86
OBC	**94**	100	76	**88**	87	91
Others	**89**	88	90	**106**	102	113
Age Groups						
0-14	**61**	65	47	**74**	72	79
15-29	**77**	78	74	**49**	49	50
30-44	**99**	104	84	**78**	78	79
45-59	**129**	129	129	**128**	119	149
60+	**245**	229	281	**304**	283	368
Gender						
Male	**86**	86	86	**85**	83	91
Female	**102**	106	89	**97**	93	108
MPCE Bottom30%		66	49		63	81
All	**94**	**95**	**87**	**91**	**80**	**99**

*Source: (i) * calculated from NSSO unit level data of the State.*
*(ii) ** taken from NSSO, Report 507, Morbidity and Condition of Aged, GOI,2007.*

more than 60 years (old age population). In addition to this the prevalence rate for acute and chronic illness has also been calculated. Chronic illness refers to illness persisting for a longer period i.e., more than 30 days, while acute illness implies a finite duration (here it refers to illness duration of less than 30 days).

As far as type of illness is concerned one can argue that International Classification of Diseases (ICD) should be adopted in order to have parity in comparison. However this classification is more suitable when one has clinically diagnosed illnesses. NSS has given 37 types of diseases with their easily explained symptoms which are considered to be more prevalent in various parts of India[3]. These relate to 15 major categories of ICD. These are gastro-intestinal, cardiovascular diseases, respiratory infections, disorders of joints/ bones, and diseases of kidney /urinary system, neurological disorders, eye diseases, skin diseases, diabetes, sexually transmitted diseases, febrile illness, disabilities, diseases of mouth and gums, accidents/injuries/burns/ fractures/poisoning, and cancer and other tumors. In this paper a disaggregated analysis by taking all types of diseases has been made. In order to have a more comprehensive picture all the diseases have been classified into three major groups i.e., communicable diseases, non-

Fig.1



communicable diseases, and accidents and injuries. It may be noted that even with unit level data the district level analysis has been avoided because the sample becomes too small for only a few districts. Therefore the study of spatial patterns has been restricted to NSS regions. NSS has divided Haryana into two regions – western and eastern Haryana. The Eastern Region comprises of 12 districts and the western region comprises of 7 districts of the state[4].

Levels of Morbidity Prevalence

RURAL URBAN DIFFERENTIALS: The morbidity prevalence rate in Haryana and India has been presented in Table 1. At the national level the morbidity prevalence rate is 91 per thousand persons while in case of Haryana state it is slightly higher i.e., 94. It may be noted that in Haryana it is higher for both males and females which is 86 and 103 respectively as compared to all India figures of 85 and 97 per thousand. A comparison of rural areas of Haryana with rural all India average also reveals the same pattern i.e., higher prevalence among males and females of rural Haryana as compared to rural all India males and females. However, in urban Haryana morbidity prevalence is much lower as compared to all India urban average (87 as compared to 99 per thousand persons). It may also be noted that in rural areas of the state the reported prevalence of illness is higher as compared to the urban areas.

Relevant studies have found a contrasting pattern of evidences about disease burden between rural and urban population with some reporting greater burden among rural population than in urban population (Gumber and Kulkarni, 2000; Dilip, 2002; NCAER, 1992; Shekar, 1997; NSSO, 1998). There are some other studies which suggest an opposite pattern because of better reporting in urban areas i.e., higher prevalence rate in urban areas (Sundar, 1995; Madhiwala, et al., 2000). The results of Haryana as based on NSSO data however, reveal a higher prevalence of morbidity in rural areas. Some studies also indicate that reported morbidity prevalence is negatively associated with educational

Table - 2
Haryana: Morbidity Prevalence (PAP) among Social Groups (2004)
(Per '000 population)

Social Groups	All Haryana			Eastern Haryana			Western Haryana		
	Rural	Urban	Total	Rural	Urban	Total	Rural	Urban	Total
SC	105	84	100	131	90	123	63	79	67
OBC	99	76	94	120	90	113	60	38	56
Others	88	90	89	117	113	116	51	44	49
All	**95**	**87**	**94**	**121**	**103**	**116**	**56**	**60**	**57**

Source: Calculated from NSSO unit level data, 60th round for the state of Haryana.

Table - 3
Haryana: Age and Gender Specific Morbidity Prevalence
(PAP Per'000 population)

Age-groups	Rural			Urban			Haryana Regions (R+U)		
	Male	Female	All	Male	Female	All	R+U All	Eastern Region	Western Region
0-14	67	61	65	52	41	47	61	82	38
15-29	63	96	78	82	64	74	77	86	52
30-44	76	132	104	63	109	84	98	187	60
45-59	119	140	129	125	134	129	129	240	78
60+	245	213	229	320	252	281	241	429	154
All	**86**	**106**	**95**	**86**	**89**	**87**	**93**	**151**	**59**

Source – NSS report number 507, National Sample Survey Organization, New Delhi

Table - 4
Haryana: Age-specific Acute and Chronic Ailment
(Per '000 population)

Age-groups	Acute	Chronic	Any ailment
0-14	49	11	60
15-29	63	13	76
30-44	59	44	102
45-59	79	56	135
60+	107	164	272
All	**62**	**34**	**96**

Source: Calculated from NSSO unit level data, 60th round for the state of Haryana.

attainment (Duraisamy, 1998; Navaneetham, et. al., 2006). It is argued that the better educated take more precautions against diseases which in turn reduces their morbidity. However, the nature of relationship between economic status of household and the possibility of reporting morbidity is far from clear. In the case of Haryana its association with monthly per capita expenditure (MPCE) classes reveals that it is low (66 per thousand population) among the bottom 30 percent population. This may mean that either the poor are less prone to sickness than the rich, or that the reporting of morbidity improves with improvement in the level of living. Of the two hypotheses, the second seems to be the more plausible. It may also be noted that reported morbidity and its prevalence is higher among females in both rural and urban areas as compared to their male counterparts.

MORBIDITY DIFFERENTIALS BY SOCIAL GROUPS, AGE GROUPS AND GENDER: Age specific PAP shows an increase in its prevalence with age in both rural and urban areas. It may also be inferred from data that females are at a greater risk of ill health than males as its prevalence among females is significantly higher. The data at the national level reveals a much higher morbidity for females in both rural and urban areas, while in case of Haryana, the difference is marginal in urban areas but quite significant in rural areas. Some earlier studies (Iyer and Sen, 2000; Madhiwala et al., 2000) have reported lower levels of morbidity among women than men in India, which might be due to underreporting of ailments. More recent studies on Kerala and West Bengal, however, reveal a higher female morbidity (Dilip, 2007; Krishnasamy, 2004; Ghosh and Arokiasamay, 2010).

The PAP among different social groups of population in the state has been presented in terms of four broad categories. These are: (i) Scheduled Tribes (STs); (ii) Scheduled Castes (SCs); (iii) Other Backward Classes (OBCs); and (iv) Others. The 'Others' refers to population belonging to top layer in the social hierarchy, characterized by historical advantage in terms of social and economic status in comparison to OBC and SC population. It may also be noted that with respect to any indicator of human development and relative social positioning, SCs and STs continue to be located at the periphery of the society (Baraik and Kulkarni, 2006).

The proportion of ailing persons (PAP) among various social groups of population in the country as presented in Table 1 shows that its prevalence is found to be lowest among the STs followed by SCs. The NSS data for India shows that it is highest among the 'Others' category in both rural and urban areas. The regional studies however show an opposite pattern , where STs have very high morbidity prevalence as compared to OBCs and 'Others' (Baraik and Sinha, 2009). In case of Haryana, however, PAP is higher among SCs and OBCs as compared to the 'Others' category of social groups. The rural urban difference in morbidity prevalence in various social groups in Haryana is presented in Fig.1. It shows that among SCs and OBCs, rural population is at a higher risk of ailments and reported more ailments as compared to their urban counterparts. In case of 'Others' social group, rural urban difference is marginal.

The region wise pattern shows that in eastern Haryana, reported morbidity prevalence is higher as compared to western region (Table 2). It may be noted that the districts comprising eastern Haryana have higher literacy rates as compared to the western region districts. Thus it may be hypothesized that self perceived morbidity is high in this region. So far as its differentials among different social groups are concerned, all social groups of eastern region reported high morbidity prevalence as compared to western region. But within eastern region, it may be noted that SC have a much higher level of morbidity as compared to OBCs and 'Others'. In western region also, SCs population has higher morbidity as compared to "Others" and OBCs. Further, SC population living in rural areas is at a greater risk of ailments in eastern Haryana while in western Haryana high morbidity rate was found among SCs living in urban areas. Again among OBCs in eastern

Table - 5
Haryana: Distribution of Ailing Persons by Type of Disease and Location (Percent reported during last 15 days of survey)

Nature of ailment	Rural	Urban	All
I Communicable, Maternal & Nutritional	**52.5**	**39.7**	**49.5**
Diarrhoea/ dysentery	6.0	3.0	5.3
Gastritis/gastric or peptic ulcer	5.1	1.3	4.2
Hepatitis/Jaundice	0.6	3.3	1.2
Respiratory including ear/nose/throat ailments	10.5	13.2	11.1
Tuberculosis	1.7	1.4	1.7
Diseases of skin	3.7	2.1	3.3
Anaemia	1.2	0.7	1.1
Malaria	0.9	1.2	1.0
Fever of unknown origin	17.6	9.0	15.6
Gynaecological disorder	2.1	2.0	2.1
Other communicable ailments	3.1	2.5	3.0
II Non-communicable	**29.2**	**33.7**	**30.1**
Heart disease	3.3	3.4	3.4
Hypertension	3.7	6.9	4.4
Bronchial asthma	4.9	2.7	4.4
Disorders of joints and bones	5.3	7.7	5.9
Diseases of kidney/urinary system	3.2	2.6	3.0
Neurological disorders	2.9	1.8	2.6
Psychiatric disorders	1.0	1.1	1.0
Diabetes mellitus	0.6	2.7	1.1
Diseases of Mouth/Teeth/Gum	2.1	1.7	2.0
Other non-communicable ailments	2.2	3.1	2.4
III Injury	**3.9**	**5.1**	**4.2**
IV Others	**14.5**	**21.5**	**16.1**

Source: Calculated from NSSO unit level data, 60th round for the state of Haryana.

Haryana the rural population is at greater risk than the urban OBCs. The same is true in western region of Haryana. So far as the 'Others' social group is concerned, there is not much difference in morbidity prevalence in rural and urban areas for this section of population. In Western Haryana both OBCs and 'Others' are better in urban areas in terms of ailment per thousand persons.

Age specific morbidity has been presented in Table 3. The data shows that its prevalence increases with age. The age disaggregated morbidity prevalence in India, however, showed a 'J' shaped relationship between age and morbidity meaning thereby that elders and children are more susceptible to higher prevalence of illness (Kanan, 1991; Shariff, 1995; Gumber and Berman, 1997; NSSO, 1998). The present pattern for the state of Haryana, however, does not conform to this and shows more episodes of illness among aged population i.e., in the age of 60 years plus population as compared to the population of all other ages. The pattern remains the same for rural and urban areas.

Table - 6
Haryana: Type of Disease and Hospitalization by Geographic Location (Percent hospitalized during 365 days)

Nature of ailment	Rural	Urban	All
I Communicable, Maternal & Nutritional	**37.3**	**27.5**	**35.1**
Diarrhoea/ dysentery	4.1	6.9	4.7
Gastritis/gastric or peptic ulcer	2.8	2.0	2.6
Hepatitis/Jaundice	1.5	1.6	1.5
Respiratory including ear/nose/throat ailments	12.0	5.1	10.4
Tuberculosis	1.6	0.9	1.4
Diseases of skin	1.5	0.0	1.2
Anaemia	1.2	2.3	1.4
Fever of unknown origin	8.3	4.6	7.5
Gynaecological disorder	4.4	4.2	4.4
Other communicable ailments	3.2	5.5	3.7
II Non-communicable ailments	**30.0**	**35.9**	**31.3**
Heart disease	5.8	8.5	6.4
Hypertension	1.4	3.5	1.9
Bronchial asthma	2.9	3.5	3.0
Disorders of joints and bones	2.0	2.9	2.2
Diseases of kidney/urinary system	5.1	6.7	5.5
Neurological disorders	5.4	3.4	4.9
Psychiatric disorders	1.7	1.4	1.6
Cataract	4.2	2.8	3.9
Cancer and other tumours	1.6	3.2	2.0
Other non-communicable ailments	1.1	0.3	1.0
III Injury	**9.6**	**12.4**	**10.3**
IV Others	**18.7**	**18.4**	**18.6**

Source: Tabulated from NSS Unit record data of 60th round

Age and gender specific morbidity, however, reveals that in both rural and urban areas women are more vulnerable as compared to their male counterparts. It shows more vulnerability to illness among women which starts with the early working age group, is highest in late working age group and declines in older age group. During 0 to 14 years of age and in 60 + population, the males reported a slightly higher morbidity than females in both rural and urban locations. It may be inferred from this data that health in females deteriorates earlier than males. It also point towards the necessity of more care for females

at all stages of life.

ACUTE AND CHRONIC AILMENTS: Ailments reported during the surveys have been classified as acute and chronic on the basis of their duration. A person suffering from any disease which is less than 20 days duration is considered as 'acute' and if the duration is more than 20 days as 'chronic'. The prevalence of acute ailment was 62 per thousand persons while it was 34 in case of chronic ailments. The age specific prevalence of acute and chronic illness has been presented in Table 4. It shows a clear association with age, i.e., the disease composition of higher prevalence of acute ailments in younger age groups and of chronic ailments in the older age group. Though the prevalence of acute ailments increases with age and its incidence is high in old age also but episodes of chronic ailments get concentrated in old age population. The age–group disaggregated analysis is essential for identification of differential morbidity in order to set priorities for health care.

Disease Pattern in Haryana

TYPES OF DISEASES: As stated in the methodology, NSSO has collected data on 37 types of diseases which broadly relate to 15 major categories. In the present paper, these are further grouped into 4 major heads viz., communicable diseases, non-communicable, injuries/ accidents/poisoning and other non-specified diseases. An attempt has been made to present a disaggregated as well as a comprehensive picture of the disease type in the state.

DISEASES BY TYPE OF RESIDENCE: The most common diseases in the state by type of residence have been presented in Table 5. At the state level fever of any type is the most common disease followed by respiratory infection. Among other major diseases, diarrhea and disorder of joints and bones figure prominently. It may also be noted that about 16 percent ailing population reported some diseases which were uncommon diseases and hence clubbed in the category of other diagnosed diseases. There are significant variations in the type of diseases experienced by rural and urban population. In rural areas, about 53 percent diseases were communicable in nature and a major proportion of this is related to viral fever and respiratory diseases. Another common disease in this category is diarrhea which was experienced by about 6 percent ailing population in rural areas. In urban locations of the state, communicable nature of diseases was lower as compared to rural areas (39 percent of total diseases). It may be noted that another one- third diseases in urban Haryana were of non-communicable type. Further, in communicable category of diseases, respiratory infections, viral fever, hepatitis/jaundice and diarrhea were most common diseases. In the category of non-communicable diseases, disorder of bones and joints, hypertension are prominent diseases followed by heart diseases, asthma and diseases of kidney/ urinary system. In urban locations, injuries/accidents were higher as compared to rural areas. It may also be noted that the proportion of 'others' diseases (other than the ones listed by NSS in their structured questionnaire) was about 21 percent in urban areas while this was 14 percent in rural locations.

The distribution of hospitalized population for both rural and urban areas has been presented in Table 6. It shows that in rural areas, hospitalistion was high largely for communicable diseases while in urban areas non-communicable diseases were the major cause for hospitalized treatment. About one tenth of total hospitalization was for accidents and injuries in rural areas, in case of urban areas this was slightly higher i.e., 12 percent cases were hospitalized for this reason.

DISEASES BY AGE-GROUP: The age group wise nature of diseases, presented in Table 7, shows that among children (0 to 14 years) 26 percent suffered from fever of various types, followed by respiratory infection and diarrhea. Among the prime working age group of population (15 to 29 years) the most common disease was fever followed by gynecological diseases, suggesting that women are at greater risk as the latter are gender specific. The other

Table - 7
Haryana: Age Group and Type of Disease
(Percent of total ailing during last 15 days of survey)

Nature of ailment	0-14	15-29	30-44	45-59	60 & above	Total
I Communicable, Maternal & Nutritional	**73.2**	**66.1**	**40.6**	**32.0**	**28.7**	**49.5**
Diarrhoea/ dysentery	14.0	3.2	4.3	0.9	2.6	5.3
Gastritis/gastric or peptic ulcer	2.7	6.8	6.0	0.3	4.1	4.2
Hepatitis/Jaundice	2.0	3.4	0.0	0.3	0.0	1.2
Respiratory including ear/nose/throat ailments	21.8	5.8	11.8	13.8	3.4	11.1
Tuberculosis	2.0	1.2	1.1	0.0	3.6	1.7
Diseases of skin	1.5	6.1	1.9	5.3	2.2	3.3
Anaemia	0.2	4.2	0.0	1.0	0.0	1.1
Malaria	1.3	2.6	0.5	0.0	0.0	1.0
Fever of unknown origin	26.0	21.1	12.5	9.6	6.1	15.6
Gynaecological disorder	0.0	8.1	1.2	0.0	0.0	2.1
Other communicable ailments	1.8	3.6	1.2	0.9	6.8	3.0
II Non-communicable ailments	**6.0**	**13.0**	**30.7**	**51.8**	**58.1**	**29.2**
Heart disease	0.0	1.9	3.6	8.4	4.7	3.4
Hypertension	0.0	0.0	3.9	12.7	8.4	4.4
Bronchial asthma	1.4	0.0	1.7	10.6	10.5	4.4
Disorders of joints and bones	0.5	3.4	5.9	3.4	15.5	5.9
Diseases of kidney/urinary system	1.3	1.6	5.0	1.5	5.4	3.0
Neurological disorders	2.4	2.1	4.6	1.7	2.2	2.6
Psychiatric disorders	0.4	0.6	0.3	3.0	1.6	1.0
Diabetes mellitus	0.0	0.1	0.2	4.8	1.8	1.1
Diseases of Mouth/Teeth/Gum	0.0	2.7	3.9	3.7	0.1	2.0
Other non-communicable ailments	0.0	0.7	1.5	1.9	7.8	2.4
III Injury	**3.4**	**3.5**	**9.1**	**2.4**	**1.9**	**4.2**
IV Others	**17.4**	**17.5**	**19.7**	**13.9**	**11.3**	**16.1**

Source: Tabulated from NSS Unit record data of 60th round

common diseases recorded for this age group are peptic ulcer and skin diseases. Among the 30 to 44 years age group the common diseases are fever, respiratory infection and accident, fractures/ injuries which account for 12 to 9 percent each out of the total ailments. Among the age group of 44 to 59 years population, it may be noted that heart disease and hypertension both account for 20 percent of total ailments. Another common disease in this age group is respiratory infections and bronchial asthma which was reported by 13 and 10 percent of total sufferers respectively. Other diagnosed ailments account for 10 percent of total ailing persons. Among the aged population (60+ years) disorder of joints

and bones is the major disease reported by 15.5 per cent of total ailing persons in this age group. Another most common disease was bronchial asthma and hypertension accounting for 10 percent each of the total population in this age group. Among other diseases are the diseases of kidney/ urinary system, heart diseases and peptic ulcers. It may be said that in this age-group, non-communicable diseases are most common.

Conclusions

The analysis reveals that morbidity prevalence is higher in Haryana as compared to the national figures. Within Haryana as a whole its prevalence is (i) higher among women than men; (ii) higher in rural than urban areas; (iii) higher in eastern region of the state as compared to western region. Morbidity prevalence and levels are higher among the SCs as compared to other social groups of population in the state. In rural Haryana, SCs seem to be at a greater risk of any type of ailment a compared to other social groups of population. The age wise prevalence of morbidity shows that children, women in prime age group and, ageing population have high levels. This calls for a targeted attention to this section of population.

A high prevalence of morbidity is related to risk factors governing exposure to diseases like housing, water supply, sanitation and nutritional status. The findings call for a targeted emphasis on better nutrition, environmental sanitation and preventive health care and an awareness towards preventive care.

The analysis on type of diseases at the state level shows that in urban areas major diseases are the ones associated more with life style and not with deprivation. In comparison in rural areas both types of diseases are being experienced by the population. The most common diseases in rural Haryana continue to be communicable in nature. Though hospitalization or in-patient treatment in the state is higher than all India average, yet hospitalization for preventable and communicable diseases in rural areas draws attention towards the fact that productive losses can be minimized as well as resources on illness can be saved from such illness with targeted efforts for preventive care. The findings call for an emphasis on enhanced role of public sector in provision of targeted health care for the children, women and aging population.

Generally, the emphasis on health is based on welfare considerations, but illness suggests that emphasis on health is necessary from the perspective of 'human capital as a factor of production'. Good health or absence of illness would enhance growth by (i) reducing productive losses due to illness; (ii) savings on resources required for treatment of illness; (iii) enhancing enrollment of children; and (iv) creating an enabling environment for total development.

Notes:

1. WHO Expert Committee on Health Statistics noted in its 6th Report that morbidity could be measured in terms of three units viz., (i) persons who were ill, (ii) the illnesses that these persons experienced (spells of illness),and (iii) the duration (days, weeks etc.) of these illnesses.

2. The National Sample Survey Organisation (NSSO) collects nation-wide data on morbidity through its various rounds. In the 60th round (2004) data on morbidity and treatment of ailments were collected. During this period, the survey was conducted in two sub-rounds of three months each during the period, January-June 2004. In case of Haryana, 176 villages and 112 urban blocks were surveyed. The morbidity estimates relate to total population as NSSO provides weights.

3. The diseases for which data were collected are: 1. Diarrhoea/ dysentery; 2. Gastritis/gastric or peptic ulcer; 3. Worm infestation; 4. Amoebiosis; 5.

Hepatitis/Jaundice; 6. Heart disease; 7. Hypertension; 8. Respiratory including ear/nose/throat ailments; 9. Tuberculosis; 10. Bronchial asthma; 11. Disorders of joints and bones; 12. Diseases of kidney/urinary system; 13. Prostatic disorders; 14. Gynaecological disorder; 15. Neurological disorders; 16. Psychiatric disorders; 17. Conjunctivitis; 18. Glaucoma 19. Cataract; 20. Diseases of skin; 21. Goitre; 22. Diabetes mellitus; 23. Under-nutrition; 24. Anaemia; 25. Sexually transmitted diseases; 26. Malaria; 27. Eruptive; 28. Mumps; 29.Whooping cough; 31. Fever of unknown origin; 34. Locomotor; 35. Visual including blindness (excluding cataract); 36. Speech; 37. Hearing; 38. Diseases of Mouth/Teeth/Gums; 39. Fractures/ Poisoning; 40. Cancer and other tumours; 41. Other diagnosed ailments; 99. Other undiagnosed ailments.

4. The Eastern Region consists of Panchkula, Ambala, Yamunanagar, Kurukshetra, Kaithal, Karnal, Panipat, Sonipat, Rohtak, Jhajjar, Gurgaon and Faridabad districts. Western Haryana comprises the districts of Jind, Fatehabad, Sirsa, Hisar, Bhiwani, Mahendragarh and Rewari.

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QUALITY OF LIFE AMONG SCHEDULED TRIBES OF HIMACHAL PRADESH, INDIA: A MICRO LEVEL SPATIO-TEMPORAL ANALYSIS

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Abstract

The notified tribal area of Himachal Pradesh constituting Kinnaur and Lahaul & Spiti districts and Pangi and Bharmaur blocks of Chamba district is inhabited by such famous scheduled tribes as Gaddis, Gujjars, Pangwalas, Lahaulas, Kinnauras and Bhots. The tribal sub-plan, introduced in 1974, is aimed at social and economic development in tribal areas of the state. The present study aims at analyzing the status of quality of life in the tribal areas of Himachal Pradesh state of India in spatio-temporal perspective. The study is based on primary data collected from 1132 households spread in 21 sample villages in the tribal region. The household survey was carried out during mid May-to early August, 2008. The villages have been selected using purposive sampling for studying the change in quality of life. The quality of life has been examined in terms of a set of 4 main indicators viz., housing and sanitation; health and education; energy consumption and exposure to media and communication and 23 sub-indicators thereof. The study reveals that there has been a significant improvement in quality of life at the household level during last three decades. However, there are significant spatial variations in the overall quality of life of tribal people and there is still a wide scope for further improvement.

Introduction

Himachal Pradesh state of India, though anthropologically can hardly be called a tribal state, is inhabited by popular tribes as Gaddi, Kinnaura, Lahaula, Pangwal and Lamba to name a few. The total tribal population of Himachal Pradesh was 2,44,587 persons which hardly constituted about 4 per cent of the total population of the state in 2001. Thus, the population ratio of tribes and non-tribes in Himachal Pradesh is about 1:25 (Census of India, 2001). Having unfavourable geographic environs, extreme cold and dry agro-climatic conditions, non-industrialization and limited basic infrastructure facilities, the notified tribal areas of Himachal Pradesh continue to be backward. The tribals of Himachal Pradesh, inhabiting strategically important areas bordering Tibet (China) mainly depend upon agriculture and pastoralism. Agriculture including horticulture is the mainstay in the tribal areas in the state. It is generally characterized as being at the subsistence level with low land productivity. Unlike many parts of the country where the tribals are struggling to protect their land resources from encroachments, in Himachal Pradesh, legal measures have been strengthened to protect the land rights of the people living in tribal areas. The scheduled tribes of Himachal Pradesh have a distinctive life style and cultural ethos. They are experiencing geographical and political isolation along

with socio-economic inequalities (Thakur, 2010, p. 30).

Since independence, efforts are being made through successive plans to improve the socio-economic conditions of tribal people (Joshi, 1983, pp. 35-36). But, the tribal areas didn't get due attention for about two and half decades (1/4th of a century). The Fifth Five-Year Plan could be termed as a landmark in the development planning for the tribal people of the country. In this plan, a new approach (tribal sub-plan) was envisaged for tribal development with number of objectives. One of the objectives of the tribal sub plan was also to improve the quality of life of tribal people (Hasnain, 2001, pp. 370-71).

Quality of life is a holistic concept which includes economic, social, demographic and cultural dimensions of human life. A variety of life domains such as housing, health or social relation are included to measure the quality of life (Walfgang and Hans, 1987). It is a multi dimensional concept and influenced by several inter-related variables. World Health Organization (WHO) has defined it as the condition of life resulting from the combination of effects of a range of factors such as those determining health, happiness, education, social and intellectual attainments, freedom of action, justice and freedom from oppression (Krishnakumar, 2001, p.7). Quality of life may be defined as satisfaction of human needs, the organic needs, the special needs and the individual needs for self realization (Mahapatra and Pati, 1987).

The study of quality of life is the outcome of social relevance paradigm (Smith, 1973, 1977, and 1983). United Nations Development Programme (UNDP) has devised a composite index called Human Development Index (HDI) to measure quality of life by using three indicators i.e. life expectancy, literacy and income (Thakur and Jaglan, 2006). Human development by UNDP is a process of enlarging the choices for all people not just for one part of society. The purpose of development is to enlarge all human choices not just income (Bhagat and Sharma, 2001). The present study has been carried out to assess the overall quality of life in terms of 4 main indicators viz. housing and sanitation; health and education; energy consumption and media exposure and access to modern communication and 23 sub-indices thereof.

The study of housing and sanitation in tribal areas of India has been of marginal interest to the planners. The housing and sanitation conditions are considered as important indicators of quality of life being pursued by a community. The housing conditions acquire more importance in tribal region of Himachal Pradesh because of extreme cold climatic conditions.

Health is an important attribute of human resource and a healthy human population is the most desired national asset (Qureshi, et al, 1996, p. 81). Health is man's natural condition, therefore, it is always a major concern of community development, and problems of health are the problems of national importance (Yadav and Sharma, 2002, p. 431). On health front, immunization is considered one of the most cost-effective public health interventions that not only prevents disease but also leads to its eradication (Singh, 2009). Himachal Government has ensured health services for effective prevention and treatment intervention are accessible to people efficiently (Department of Economics and Statistics, 2008).

The literacy exposure of Indian tribals is only recent. By and large, the response to programmes of literacy and of formal education has varied significantly across different regions and social groups. These responses depend on their socio-cultural, economic and demographic characteristics and on the magnitude and direction of the forces of modernization, i.e. urbanization and industrialization (Bose, 1970). The efforts made by government and non-governmental organizations with the objective of educating tribals through programmes of special education and literacy drives have also contributed significantly towards the modernization of tribal communities. However, these forces have not operated with equal

vigour in all the tribal areas of the country, thus giving rise to significant variations in the regional pattern of literacy (Shrikant, 1966). Literacy rate forms an important demographic element, which is a good measure of human development (Naseer, 2005). Among the various demographic attributes, the level of education is probably the best indicator of the level of socio-economic development. Due to its bi-fold functions as cause and effect of modernization, it serves as a sensitive barometric indicator of the level of development which a society possesses for its future progress. It is education which prepares the individual for full participation in a rapidly changing social and economic order. Hence, education affords an effective expression of the socio-economic attainments by societies in transition (Dube and Mishra, 1981). Education provides many indirect benefits which might be considered more important as compared with the direct financial benefits as these benefits are perpetuated from generation to generation (Samanta, 2003). Therefore, educational development among tribes is not only necessary but is essential for all round development of their society (Gupta and Sharma, 1998, p. 110).

Level of literacy is undoubtedly one of the most important indicators of social and cultural development among the tribal communities. The various dimensions of socio-cultural change in a tribal society can be understood in the light of the levels of literacy and education (Raza and Ahmad, 1990, p. 258). Literacy and education together are considered the basic ingredients of socio-economic development and transformation of any society. Because, the quality of human population of any society can be judged through its educational attainment (Kar and Sharma, 1997, p. 36).

Energy plays a vital role in human development as all the important economic activities of modern society are dependent on availability and level of consumption of energy (Rajgopal and Mishra, 1994, p. 65). The rural household energy demand pattern is assumed to be a function of factors such as level of development of an area, household size, income level, educational and occupational status, size of land holdings, cropping pattern, type of fuel available, number of cooking sessions, cooking practices, fuel preferences etc. The influence of these factors on rural household energy demand varies from region to region and from time to time (P. Jose, 2003, p. 109). Energy is an important component of ecosystem and household is the major consumer of this component for various activities like cooking, water heating and lighting (Hasalkar, et al. 2002, p. 437). The consumption pattern of energy and access to means of communication and exposure to mass media in geographically inaccessible tribal areas of Himachal Pradesh are other important indices of quality of life of the tribal people.

After independence and especially the Fifth Five-Year Plan a number of governmental and non-governmental programmes, policies and projects have been introduced and implemented to improve the quality of life of the tribal people and to bring them at par with other areas.

Objectives

The present study has the following objectives:

i) To study the spatio-temporal variations in the quality of life expressed in terms of housing and sanitation; health and education; energy consumption; media exposure and access to modern communication at the household level;

ii) To study the regional pattern of quality of life of different tribal communities in the study area.

Data Base, Sample Design and Methodology

The present study is based on primary data collected through interview schedules. Some relevant information has also been collected from concerned departments at tehsil and district headquarters. The study area falls in the list of restricted areas of Survey of

Table - 1
Study Area: Sample Villages, Sample Households and Sampling Method

Area	CD Block	Sample Village	Sample Households
Kinnaur (District)	Poo	Poo*	36
		Leo**	32
		Lippa Khas***	43
	Kalpa	Reckongpeo*	167
		Sangla**	95
		Sapni Khas***	45
	Nichar	Sungra(Bhawanagar) *	126
		Tapri**	48
		Yangpa ***	51
	Total	**9**	**643**
Lahaul (CD Block)	Lahaul	Keylong*	108
		Udaipur**	52
		Margaon***	23
	Total	**3**	**183**
Spiti (CD Block)	Spiti	Kaja Khas (Spiti) *	39
		Tabo**	32
		Poh *** (As per criteria- Sangam)	19
	Total	**3**	**90**
Pangi (CD Block)	Pangi	Kilar (Mahliat) *	37
		Purthi ** (As per criteria- Dharwas)	25
		Rei***	27
	Total	**3**	**89**
Bharmaur (CD Block)	Bharmaur	Bharmaur*	58
		Suai**	45
		PalanPulan***	24
	Total	**3**	**127**
Grand Total		**21**	**1132**
Sampling Criteria		* **CD Block Headquarter** ** **Largest Populous and Accessible Village in CD Block as per 2001 Census** *** **Largest Populous but Inaccessible Village in CD Block as per 2001 Census**	


Himachal Pradesh
Location of
Notified Tribal Area
JAMMU & KASHMIR
KILAR
Pangi
(Chamba)
REI
PURTHI
MARGAON
UDAIPUR
Chamba
Lahaul
KEYLONG
PALAN PULAN
SUAI
BHARMAUR
Bharmaur
(Chamba)
(Lahaul and Spiti)
Spiti
KAJA KHAS
CHINA
(Tibet)
TABO
POH
Kangra
Kullu
LEO
POO
Kinnaur
Hamirpur
Una
Mandi
YANGPA
LIPPA KHAS
TAPRI
RECKONGPEO
SUNGRA
SAPNI KHAS
SANGLA
PUNJAB
Bilaspur
Shimla
Solan
UTTARAKHAND
Sirmaur
HARYANA
U.P.
Boundaries
International
State
District
Block
Sample villages
Notified tribal area /study area
0
50
Kms.

Fig. 1

India, and topographical sheets are not easily available. Hence, the topographical sheets prepared by Army Map Service (LU), Corps of Engineers, U.S. Army Washington have been procured from University of Texas website (www.lib.utexas.edu/maps/ams/india) for studying the relief and drainage of the study area. To give a fair representation and comparative picture of quality of life, the community development blocks in each tribal area has been taken for sampling at the village level. Purposive sampling has been used for selecting the sample villages and collection of primary data. In total, 1132 households from 21 sample villages (Table 1) have been surveyed for the present study. The detail of sample villages, sample households and sampling criteria are enumerated in Table 1.

These villages have been selected purposively and households randomly from each community development block as per the criteria given in Table 1. In two blocks, namely Spiti and Pangi, two sample villages as shown in table have not been surveyed due to land sliding problem. Hence, two other villages close to sampling criteria have been surveyed. The accessibility of villages has been taken in terms of availability of motorable surfaced road.

The relief and drainage map has been prepared from the topographical sheets which were scanned and georeferenced with appropriate projection parameters (Projection-Lambert Conformal Conic, False Easting-20,00000, False Northing-20,00000, Central Meridian-77^{0}E, Standard Parallel-I: 32^{0}N, Standard Parallel-II: 33^{0}N, Latitude of Origin-31^{0}N, Spheroid-Everest 1956 and Datum-India Nepal). All the contours at an interval of 500 feet and drainage network of the study area have been digitized using Arc GIS 9.2 software.

Since some of the indicators of quality of life applicable in mainstream society cannot be directly applied in tribal areas a socially relevant set of 4 main and 23 sub indicators has been adopted to examine the quality of life. Housing and sanitation conditions have been analysed in terms of construction material of houses, provision of kitchen, number of rooms in a house, wastewater disposal facility, toilet provision and drinking water. The degree of overcrowding has been examined as a ratio between the number of persons in the household to the available number of rooms in the house. While calculating overcrowding children in 0-14 years age group have been counted as half a unit. The health condition and health seeking behaviour of tribal communities have been examined in terms of immunization of children, belief in different medicinal systems, access to allopathic medicine and, body and oral hygiene. Considering the importance of level of literacy as an important indicator of quality of life among the tribal communities, literacy rate at the household level has been computed by excluding the 0-6 years age-group population. The percentage of literates to the total literate population has been classified as literates without educational level. Five levels of educational attainment *viz.*, primary, middle, high, intermediate and higher have been used to identify level of education among the sample households. Modified Sopher's index, developed by Kundu and Rao (1985), has been used to compute gender disparity in literacy using the following formula:

$$DS = \text{Log}\ (X_2 \backslash X_1) + \text{Log}\ (200\text{-}X_1 \backslash 200\text{-}X_2)$$

where, DS is gender disparity index, X_1 is percentage of literate females to total female population and X_2 is percentage of literate males to total male population.

Energy Consumption has been studied with reference to electrification, modes of fuel and exposure to LPG. Media exposure and use of modern communication have been evaluated in the context of access to television, newspaper, telephone, cell phone and internet connection. Simple percentages have been tabulated for describing the temporal and spatial variations in the quality of life at the household level.

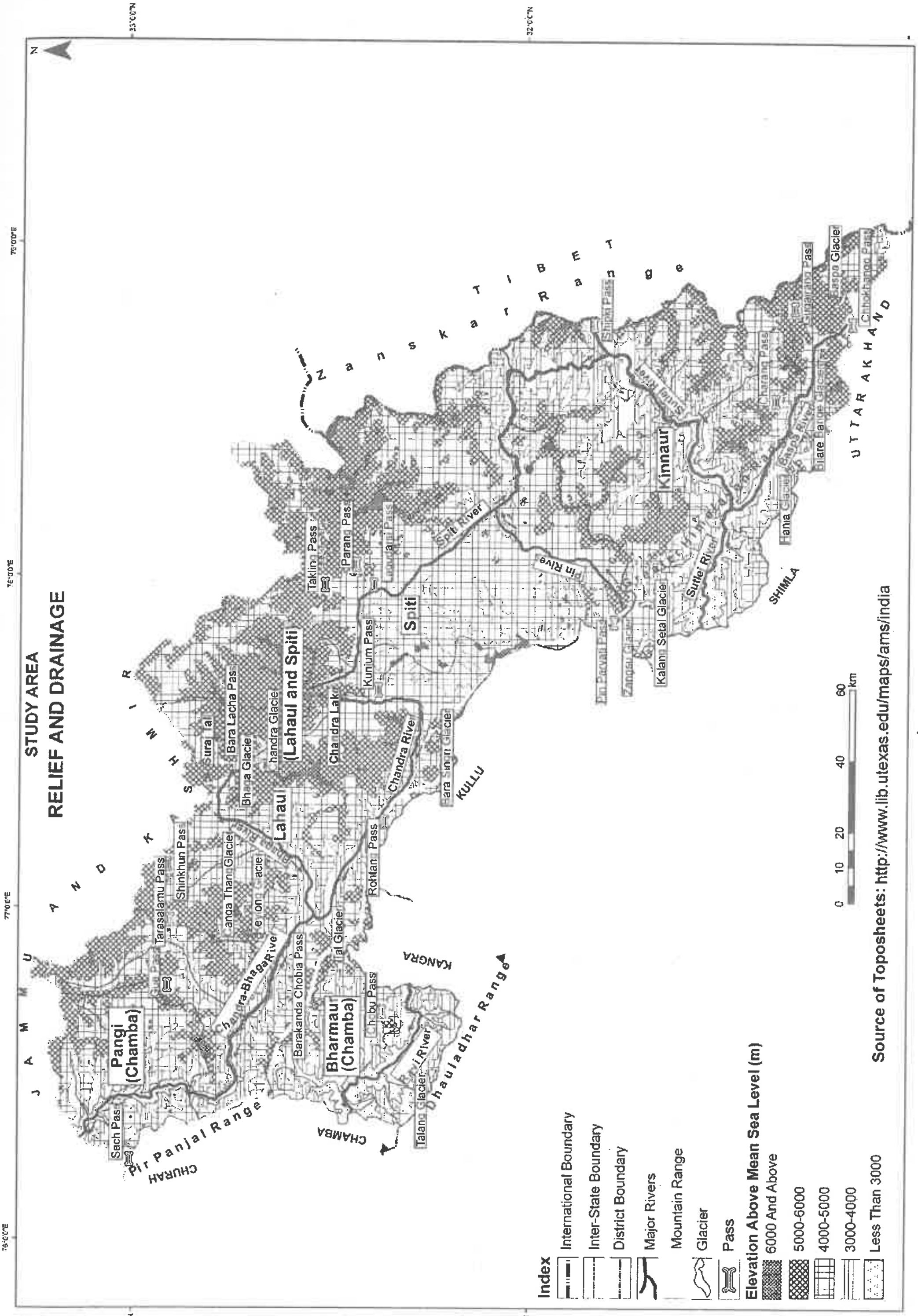
STUDY AREA
RELIEF AND DRAINAGE
N
J A M M U A N D K A S H M I R
Z a n s k a r R a n g e
T I B E T
U T T A R A K H A N D
Pir Panjal Range
Dhauladhar Range
CHURAH
CHAMBA
KANGRA
KULLU
SHIMLA
Pangi (Chamba)
Bharmaur (Chamba)
Lahaul
(Lahaul and Spiti)
Spiti
Kinnaur
Sach Pass
Tarasalamu Pass
Shinkhun Pass
Barakanda Chobia Pass
Chobu Pass
Rohtang Pass
Kunjum Pass
Bara Lacha Pass
Takling Pass
Parang Pass
Shipki Pass
Charang Pass
Chhokhango Pass
Tal Glacier
Bhaga Glacier
Bara Shigri Glacier
Kalang Setal Glacier
Hania Glacier
Baspa Glacier
Talang Glacier
Chandra-Bhaga River
Chandra River
Ravi River
Spiti River
Pin River
Satluj River
Baspa River
Surai Tal
Chandra Lake
Index
International Boundary
Inter-State Boundary
District Boundary
Major Rivers
Mountain Range
Glacier
Pass
Elevation Above Mean Sea Level (m)
6000 And Above
5000-6000
4000-5000
3000-4000
Less Than 3000
0 10 20 40 60 km
Source of Toposheets: http://www.lib.utexas.edu/maps/ams/india

Fig. 2

Ecological Setting of the Study Area

LOCATION

The Kinnaur and Lahaul-Spiti districts and Pangi and Bharmaur blocks of Chamba district constitute the scheduled tribal area in the state having the minimum criterion of 50 per cent scheduled tribe population in a Community Development Block. The study area is situated in the north and north-east of the state forming a contiguous belt and is amongst the relatively inaccessible areas in the state. The study area is located between 31°6' 15"N and 33°15' 55"N and 76°13'47"E and 79°1'25"E (Fig. 1). Its eastern part shares the international boundary with Tibet (China) for about 201 km., the western boundary is formed by Chamba and Churah tehsils of district Chamba. To its north Jammu and Kashmir state and in the south Kangra and Kullu districts of Himachal Pradesh are located. Spreading over the area of approximately 23,655 sq km, the tribal region has 681 inhabited villages spread across five integrated tribal development projects (ITDPs). The study area constitutes about 42.49 per cent of the state's geographical area (55673 sq km) and 2.74 per cent of the total population (60.78 lacs) of the state (Census of India, 2001).

PHYSIOGRAPHY AND DRAINAGE

Large glaciers, high altitudes and highly rugged terrain criss-crossed by fast flowing rivers and their tributaries, passes, ridges, peaks, spurs, valleys and natural lakes are the peculiar topographic features of the study area. The altitudinal variation in the study area is between 1550m to 7030m above mean sea level. The study area has Dhaula Dhar Range on the southwest, the Great Himalayan Range in the north, an extension of Pir Panjal Range in the south which ultimately meets the Greater Himalayan range in the southeast. The Zanskar Range which is located in the east also divides Spiti and Kinnaur from Tibet. Study area is home to Zanskar, Kunzum and Pir Panjal, Dhauladhar and Great Himalayan ranges. This physical setting makes the tribal region isolated, largely accessible only along the course of rivers and mountain passes. The following five altitudinal zones based on elevation can be identified in the study area (Fig. 2): (i) More than 6000 meters above mean sea level : This zone comprises of higher peaks and ridges covered with massive sheets of snow and ice throughout the year. It constituties about 2.12 per cent of the study area and houses many large glaciers such as Bara Singri. Among the major geomorphic features are U-shaped valleys, hanging valleys, small cirques, and waterfalls. The entire tract is devoid of vegetation cover; (ii) Between 5000 to 6000 meters above mean sea level: This zone covers about 29.87 per cent of the study area. A large part of it resembles the Alpine regions and is covered with snow for most part of the year. Pir Panjal Range is the most prominent mountain range spreading from Kashmir to Kinnaur district. It covers the study area from northwest to southeast direction; (iii) Between 4000 to 5000 meters above mean sea level : This zone comprises 46 per cent of area and is the largest of all the altitudinal zones in the study area. Due to this reason it is sparsely populated. Because of the high elevation and rugged terrain only certain parts of the area are suitable for farming. This zone is accessible mainly in summer through mountain passes e.g. Kunzum La which links Lahaul with Spiti; Baralacha La which links Lahaul with Ladakh; and Sach pass which links Churah (Chamba) with Pangi. Other major passes in the study region are Shipki, Rohtang, Barakanda Chobia, Chobu, Parang, Lagudarsi and Charang; (iv) Between 3000 to 4000 meters above mean sea level: This zone constitutes about 17 per cent of the study area. Most of its terrain lies in river banks, valleys and flat agricultural areas surrounded by high mountains. Some of the larger village settlements of the study area are situated in this zone. Kaza village situated at 3660 meters above mean sea level in the heart of Spiti valley is a perfect example of such a settlement; (v) Less than 3000 meters above mean sea level: This zone constitutes merely

Table - 2
Study Area: Households Having Kitchen Provision

Area	Households Having Separate Kitchen	Total Sample Households
Kinnaur (District)	365(56.77)	643
Lahaul (Block)	108(59.02)	183
Spiti (Block)	57(63.33)	90
Pangi (Block)	30(33.71)	89
Bharmaur (Block)	38(29.92)	127
Total	598(56.77)	1132

Source: Primary Survey-2008; Figures in parentheses show percentage to total households

Table-3
Study Area: Households by Year of Separate Kitchen
(N=598)

Area	Before 1975	1975-1985	1986-1996	1997-2008	Comments Declined	Households Having Kitchen
Kinnaur (District)	12 (3.29)	19 (5.21)	85 (23.29)	221 (60.55)	28 (7.67)	365 (100.00)
Lahaul (Block)	7 (6.48)	9 (8.33)	20 (18.52)	52 (48.15)	20 (18.52)	108 (100.00)
Spiti (Block)	3 (5.26)	4 (7.02)	14 (24.56)	35 (61.40)	1 (1.75)	57 (100.00)
Pangi (Block)	2 (6.67)	0 (0.00)	7 (23.33)	12 (40.00)	9 (30.00)	30 (100.00)
Bharmaur (Block)	2 (5.26)	3 (7.89)	17 (44.74)	16 (42.11)	0 (0.00)	38 (100.00)
Total	26 (4.35)	35 (5.85)	143 (23.91)	336 (56.19)	58 (9.70)	598 (100.00)

Source: Primary Survey-2008; Figures in parentheses show the percentage to households having kitchen

5.4 per cent of the study area and covers lower Baspa valley; Satluj below the confluence with Spiti river and Chandra Bhaga (Chenab) below Tandi (Fig. 2). Most of the land in this zone comprises of river valleys which are virtually gorges. The only sizable valleys suitable for human habitation are those of the Ravi river and its tributaries in Bharmaur block of Chamba district. Fig. 2 also shows that the tribal area, surrounded on all sides by lofty mountain ranges, is broken only at a couple of places by narrow gorges of prominent Himalayan rivers namely Satluj, Spiti, Pin, Chandra, Bhaga (Chenab) and Ravi and their tributaries. These rivers originate in the higher elevations covered with snow throughout the year and drain into the Indus river system.

Table-4
Study Area: Distribution of Houses by Construction Material

Area	*Katcha* (Unmetalled)	Semi-*Pucca* (Semi-metalled)	*Pucca* (Metalled)	Total Sample Households
Kinnaur (District)	382 (59.41)	101 (15.71)	160 (24.88)	643 (100)
Lahaul (Block)	89 (48.63)	19 (10.38)	75 (40.98)	183 (100)
Spiti (Block)	65 (72.22)	11 (12.22)	14 (15.56)	90 (100)
Pangi (Block)	80 (89.89)	7 (7.87)	2 (2.25)	89 (100)
Bharmaur (Block)	101 (79.53)	11 (8.66)	15 (11.81)	127 (100)
Total	717 (63.34)	149 (13.16)	266 (23.50)	1132 (100)

Source: Primary Survey-2008; Figures in parentheses show percentage to total households

Table-5
Study Area: Households by Year of Living in *Pucca* Houses (N=266)

Area	Before 1975	1975-1985	1986-1996	1997-2008	Period Not Known	Households Residing in *Pacca* Houses
Kinnaur (District)	8 (5.00)	2 (1.25)	20 (12.50)	99 (61.88)	31 (19.38)	160 (100.00)
Lahaul (Block)	5 (6.67)	2 (2.67)	18 (24.00)	37 (49.33)	13 (17.33)	75 (100.00)
Spiti (Block)	1 (7.14)	0 (0.00)	1 (7.14)	11 (78.57)	1 (7.14)	14 (100.00)
Pangi (Block)	0 (0.00)	0 (0.00)	0 (0.00)	0 (0.00)	2 (100.00)	2 (100.00)
Bharmaur (Block)	0 (0.00)	0 (0.00)	7 (46.67)	7 (46.67)	1 (6.67)	15 (100.00)
Total Tribal Area	14 (5.26)	4 (1.50)	46 (17.29)	154 (57.89)	48 (18.05)	266 (100.00)

Source: Primary Survey-2008; Figures in parentheses show percentage to households residing in pacca houses

CLIMATE

The climate of the tribal region varies from dry temperate to semi-arctic. During summer, the climatic conditions are moderate and pleasant. Despite being located in the subtropics, the region experiences severe winters and receives snowfall from December to March. At higher altitudes the snowfall begins much earlier. The winter snowfall is so heavy that at times one cannot find even a small patch of bare land. The climatic conditions in the study region are greatly influenced by altitudes and configuration of relief features. The altitudinal effect on temperature restricts the cultivation in the

Table-6
Study Area: Households by Number of Rooms in the Present House

Area	Rooms				Total Sample Households
	1.0	2-3	4-6	7-0 and Above	
Kinnaur (District)	60 (9.33)	267 (41.52)	215 (33.44)	101 (15.71)	643 (100)
Lahaul (Block)	1 (0.55)	11 (6.01)	70 (38.25)	101 (55.19)	183 (100)
Spiti (Block)	2 (2.22)	12 (13.33)	43 (47.78)	33 (36.67)	90 (100)
Pangi (Block)	18 (20.22)	47 (52.81)	22 (24.72)	2 (2.25)	89 (100)
Bharmaur (Block)	2 (1.57)	60 (47.24)	54 (42.52)	11 (8.66)	127 (100)
Total	83 (7.33)	397 (35.07)	404 (35.69)	248 (21.91)	1132 (100)

Source: Primary Survey-2008; Figures in parentheses show percentage to total households

Table-7
Study Area: Houses Having Separate Cattleshed

Area	Households Having Separate Cattleshed	Total Sample Households
Kinnaur (District)	234(36.39)	643
Lahaul (Block)	103(56.28)	183
Spiti (Block)	23(25.56)	90
Pangi (Block)	23(25.84)	89
Bharmaur (Block)	29(22.83)	127
Total	**412 (36.39)**	**1132**

Source: Primary Survey-2008; Figures in parentheses show percentage to total households

tribal region mainly up to 4700 meters above mean sea level. There are climatic variations within the tribal region (Thakur, 2010).

Results and Discussion

I. HOUSING AND SANITATION: Table 2 shows that 56.77 per cent of the total sample households have a separate kitchen in the house, while the remaining households prepare food in their living rooms. Three areas, namely, Spiti (63.33 per cent) followed by Lahaul block and Kinnaur district have better kitchen provisions. In comparison the tribal areas of Chamba district only 33.71 per cent in Pangi block and 29.92 per cent of households in Bharmaur block have a separate kitchen.

Table 3 reveals that only about one-tenth of the households had a detached kitchen before mid 1980s. The share of such households was highest in Lahaul block and lowest in Pangi block. A little less than one-fourth of the households had separate kitchen between 1986-1996. The proportion of such households was highest in Bharmaur (44.74 per cent) and lowest in Lahaul block (18.52 per cent). Majority of the households (56.19 per cent) started using a separate kitchen during 1997-2008 (Table 3). The share of such households is highest in Spiti (61.40 per cent) closely followed by Kinnaur (60.55 per cent). It is lowest in Bharmaur block (42.11 per cent).

'Katcha' house is a common feature in the whole of tribal area because its construction is simple and cheap due to the use of local material. Nearly 63 per cent of the total sample houses belong to this category. Pucca houses constitute about one-fourth of the houses (Table 4). Pangi block has 89.89 per cent katcha houses. The people living in earthen/katcha houses use a wood made appliance known as kiranu / kashi for removing the snow from their earthen roofs tops during winters. After Pangi block, Bharmaur block (79.53 per cent) has a dominance of katcha houses. The highest share of pacca houses in Lahaul (40.98 per cent) followed by Kinnaur district (24.88 per cent) can be attributed to the growing economic prosperity and increasing accessibility of these areas. The construction cost of pucca houses is about 6-7 times higher than katcha houses and can be afforded only by well off families. The poor road connectivity to remote areas of Pangi, Bharmaur and Spiti blocks is also responsible for mass construction of katcha houses in these areas.

Table 5 shows that only about 7 per cent of households were residing in Pucca houses before mid 1980s with the highest percentage in Lahaul block and practically nil in Pangi block (Table 5). Only 17.29 per cent of the households started living in Pucca houses during mid 1980s and mid 1990s with highest proportion in Bharmaur block (46.67 per cent). The study shows that majority of the Pucca houses have come-up during the recent decade (1997 to 2008). The maximum construction and use of these houses took place in Spiti (78.57 per cent) followed by Kinnaur district (61.88 per cent).

Table 6 shows the four types of houses according to the number of rooms identified in the study area. Only 7.33 per cent of households are living in single room houses. As many as 35.07 per cent households live in 2-3 room houses and an additional 35.69 per cent in 4-6 room houses. Only a little more than one-fifth (21.91 per cent) of households enjoy large size of houses having more than seven rooms.

From the spatial point of view Table 6 shows that the highest proportion (20.22 per cent) of households in Pangi block live in one room houses which are very small in size, poorly ventilated, low roofed and overcrowded. The rearing of animals further worsens the situation. The proportion of such houses is very low in other areas except Kinnaur district (9.33 per cent). Houses with 2-3 rooms have been identified in every part of the study area in varying proportions. The proportion of 4-6 room houses varies from the highest (47.78 per cent) in Spiti to the lowest 24.72 per cent in Pangi block. The houses having seven or more rooms are also found across all areas of the region. Their highest

Table-8
Study Area: Households by Persons Per Room (Degree of Crowding)

Area	No. of Persons Per Room					Total Sample Households
	Less Than 1	1-2	2-3	3 -4	Above 4	
Kinnaur (District)	186 (28.93)	316 (49.14)	97 (15.09)	25 (3.89)	19 (2.95)	643 (100.00)
Lahaul (Block)	112 (61.20)	60 (32.79)	6 (3.28)	2 (1.09)	3 (1.64)	183 (100.00)
Spiti (Block)	55 (61.11)	34 (37.78)	1 (1.11)	0	0	90 (100.00)
Pangi (Block)	13 (14.61)	36 (40.45)	21 (23.60)	13 (14.61)	6 (6.74)	89 (100.00)
Bharmaur (Block)	37 (29.13)	62 (48.82)	23 (18.11)	4 (3.15)	1 (0.79)	127 (100.00)
Total	**403 (35.60)**	**508 (44.88)**	**148 (13.07)**	**44 (3.89)**	**29 (2.56)**	**1132 (100.00)**

Source: Primary Survey-2008; Figures in parentheses show percentage to total households

Table-9
Study Area: Houses by Toilet Provision and its Type

Area	Type			Households Having Toilet	Total Sample Households
	Pucca (RCC)	Semi- *Pucca*	*Katcha*		
Kinnaur (District)	218 (33.90)	2 (0.31)	15 (2.33)	235 (36.55)	643
Lahaul (Block)	69 (37.70)	5 (2.73)	46 (25.14)	120 (65.57)	183
Spiti (Block)	27 (30.00)	1 (1.11)	12 (13.33)	40 (44.44)	90
Pangi (Block)	7 (7.87)	2 (2.25)	23 (25.84)	32 (35.95)	89
Bharmaur (Block)	29 (22.83)	0 (0.00)	27 (21.26)	56 (44.09)	127
Total	**350 (30.92)**	**10 (0.88)**	**123 (10.87)**	**483 (42.67)**	**1132**

Source: Primary Survey-2008; Figures in parentheses show percentage to total households

proportion (55.19 per cent) is in Lahaul block followed by 36.67 per cent in Spiti block. The share of such houses is very low in tribal areas of Chamba district with 8.66 per cent in Bharmaur and merely 2.25 per cent in Pangi block. These houses are generally owned by economically better off households in all the tribal areas of the state.

The provision of having a separate cattleshed may be taken as an indicator of improvement in quality of life in tribal society in Himachal Pradesh. About 36 per cent households have separate cattlesheds in the study area (Table 7). The highest proportion (56.28 per cent) of households having separate cattlesheds has been is in Lahaul block followed by Kinnaur district (36.39 per cent) and the lowest in Bharmaur (22.83 per cent). The higher proportion of separate cattlesheds in Lahaul block and Kinnaur district can be attributed to economic prosperity and awareness among the inhabitants.

II. RESIDENTIAL CROWDING: The distribution of households by persons per room shows that about 80 per cent of households do not face an acute problem of residential overcrowding. These households have only upto 2 persons per room. The number of persons per room is less than 1 person in 35.60 per cent of the households (Table 8).

About 13 per cent households are slightly overcrowded and have 2-3 persons per room. The share of such households is highest (23.60 per cent) in Pangi block followed by 18.11 per cent in Bharmaur block. The Lahaul and Spiti blocks have comparatively large-size houses (Table 6) and hence are less overcrowded. Only 3.89 per cent households have 3-4 persons per room in the entire study area. Such houses have the highest percentage in Pangi block (14.61). In the study area only 2.56 per cent households have more than 4 persons per room. In Pangi block 6.74 per cent household are overcrowded because more than 4 persons live in a room. The study reveals that overcrowding problem is acute in Pangi and Bharmaur blocks which have small houses having fewer rooms.

In the study area only 42.67 per cent of households have a separate toilet (Table 9). The highest proportion of houses having a separate toilet is in Lahaul block (65.57 per cent) followed by Spiti (44.44 per cent) and Bharmaur blocks (44.09 per cent). With in the study area the lowest percentage of such households (35.95 per cent) is in Pangi block. The study reveals that open defecation is still in practice in all the tribal areas of Himachal Pradesh with the highest proportion, about 64 per cent, households in Pangi block and about 63 per cent in Kinnaur district. The mass open defecation is attributed to the open life style and lack of attention given to sanitation.

Three types of toilets have been identified in the study area (Table 9). Among these the highest proportion is of pucca toilets (30.92 per cent) followed by katcha (10.87 per cent) and semi-pucca (0.88 per cent). Within the tribal area Lahaul block has the highest share of pucca toilets (37.70 per cent) followed by Kinnaur district (33.90 per cent). It has been observed that relatively well-off families have constructed separate pucca toilets in their houses in the study area.

Table 10 reveals that only a total of 1.24 per cent households, with the highest proportion (6.01 per cent) in Lahaul were using a separate toilet before 1975. In Pangi block, there was no provision for a separate toilet before 1975. It clearly indicates that before mid 1970s, open defecation was highly prevalent in the study area. Between mid 1970s to mid 1980s only 2.21 per cent households and during the next decade, about 7.42 per cent households had provision for a separate toilet. The share of households using a separate toilet increased to 19.43 per cent of the total surveyed households during 1997-2008. With in the study area the proportion of such households varies from 21.77 per cent households in Kinnaur district followed by 20.77 per cent households in Lahaul block. Thus both in Kinnaur and Lahaul there has been highest increase in the proportion of households with a separate toilet during the last decade while in other areas the increase has been in varying proportions during the last three decades.

Table-10
Study Area: Households by Year of Toilet Provision

Area	Before 1975	1975-1985	1986-1996	1997-2008	Comments Declined	Total Sample Households
Kinnaur (District)	1 (0.16)	5 (0.78)	48 (7.47)	140 (21.77)	41 (6.38)	643
Lahaul (Block)	11 (6.01)	9 (4.92)	19 (10.38)	38 (20.77)	43 (23.50)	183
Spiti (Block)	1 (1.11)	6 (6.67)	4 (4.44)	13 (14.44)	16 (17.78)	90
Pangi (Block)	0 (0.00)	2 (2.25)	1 (1.12)	9 (10.11)	20 (22.47)	89
Bharmaur (Block)	1 (0.79)	3 (2.36)	12 (9.45)	20 (15.75)	20 (15.75)	127
Total	**14 (1.24)**	**25 (2.21)**	**84 (7.42)**	**220 (19.43**	**140 (12.37)**	**1132**

Source: Primary Survey-2008; Figures in parentheses show percentage to total households

Table-11
Study Area: Houses Having Waste Water Disposal Facility

Area	Open	Paved Sink /Piped Outlet	Comments Declined	Total Sample Households
Kinnaur (District)	390 (60.65)	239 (37.17)	14 (2.18)	643
Lahaul (Block)	84 (45.90)	91 (49.73)	8 (1.24)	183
Spiti (Block)	44 (48.89)	36 (40.00)	10 (11.11)	90
Pangi (Block)	77 (86.52)	12 (13.48)	0 (0.00)	89
Bharmaur (Block)	72 (56.69)	52 (40.94)	3 (2.37)	127
Total	**667 (58.92)**	**430 (37.99)**	**35 (3.09)**	**1132**

Source: Primary Survey-2008; Figures in parentheses show percentage to total households

Table-12
Study Area: Houses by Year of Using Proper Disposal of Waste Water

Area	Before 1975	1975-1985	1986-1996	1997-2008	Comments Declined	Total Sample Households
Kinnaur (District)	0 (0.00)	20 (3.11)	85 (13.22)	105 (16.33)	29 (4.51)	643
Lahaul (Block)	3 (1.64)	5 (2.73)	17 (9.29)	28 (15.30)	38 (20.77)	183
Spiti (Block)	0 (0.00)	0 (0.00)	9 (10.00)	8 (8.89)	19 (21.11)	90
Pangi (Block)	0 (0.00)	1 (1.12)	3 (3.37)	8 (8.99)	0 (0.00)	89
Bharmaur (Block)	0 (0.00)	1 (0.79)	5 (3.94)	39 (30.71)	7 (5.51)	127
Total	**4 (0.35)**	**26 (2.30)**	**119 (10.51)**	**188 (16.61)**	**93 (8.22)**	**1132**

Source: Primary Survey-2008; Figures in parentheses show percentage to total households

Table-13
Study Area: Households by Source and Distance of Drinking Water

Area	Tap				Streams/Nallas		Total Sample Households
	Within House	Within 1 km	Above 1km	Total	Within 1 km	1-2 km	
Kinnaur (District)	372 (57.85)	195 (30.33)	48 (7.47)	615 (95.65)	24 (3.73)	4 (0.62)	643 (100.00)
Lahaul (Block)	54 (29.51)	126 (68.85)	0 (0.00)	180 (98.36)	3 (1.64)	0 (0.00)	183 (100.00)
Spiti (Block)	56 (62.22)	34 (37.78)	0 (0.00)	90 (100.00)	0 (0.00)	0 (0.00)	90 (100.00)
Pangi (Block)	22 (24.72)	66 (74.16)	1 (1.12)	89 (100.00)	0 (0.00)	0 (0.00)	89 (100.00)
Bharmaur (Block)	77 (60.63)	49 (38.58)	1 (0.79)	127 (100.00)	0 (0.00)	0 (0.00)	127 (100.00)
Total	**581 (51.33)**	**470 (41.52)**	**50 (4.42)**	**1101 (97.26)**	**27 (2.39)**	**4 (0.35)**	**1132 (100.00)**

Source: Primary Survey-2008; Figures in parentheses show percentage to total households

Table-14
Study Area: Houses by Year of Installing Tap Within House (N =581)

Area	Before 1975	1975-1985	1986-1996	1997-2008	Households Having Tap Within House
Kinnaur (District)	3 (0.81)	10 (2.42)	56 (15.05)	304 (81.72)	372 (100.00)
Lahaul (Block)	1 (1.85)	0 (0.00)	5 (9.26)	48 (88.89)	54 (100.00)
Spiti (Block)	0 (0.00)	0 (0.00)	1 (1.79)	55 (98.21)	56 (100.00)
Pangi (Block)	0 (0.00)	2 (9.09)	4 (18.18)	16 (72.73)	22 (100.00)
Bharmaur (Block)	1 (1.30)	0 (0.00)	34 (44.16)	42 (54.55)	77 (100.00)
Total	**5 (0.86)**	**11 (1.89)**	**100 (17.21)**	**465 (80.03)**	**581 (100.00)**

Source: Primary Survey-2008; Figures in parentheses show percentage to households having tap within house

Table-15
Study Area: Households by Year of Immunizing the Infants and Children

Area	Period				Households Covered Under Immunization	Total Sample Households
	Before 1975	1975-1985	1986-1996	1997-2008		
Kinnaur (District)	1 (0.16)	18(2.80)	115(17.88)	98(15.24)	232 (36.08)	643
Lahaul (Block)	0 (0.00)	21 (11.48)	44 (24.04)	21 (11.48)	86 (46.99)	183
Spiti (Block)	0 (0.00)	4 (4.44)	33 (36.67)	17 (18.89)	54 (60.00)	90
Pangi (Block)	0 (0.00)	2 (2.25)	12 (13.48)	19 (21.35)	33 (37.08)	89
Bharmaur (Block)	0 (0.00)	0 (0.00)	34 (26.77)	58 (45.67)	92 (72.44)	127
Total	**1 (0.09)**	**45 (3.98)**	**238 (21.02)**	**213 (18.82)**	**497 (43.90)**	**1132**

Source: Primary Survey-2008; Figures in parentheses show percentage to total households

Table 11 reveals that in the tribal area 58.92 per cent households dispose waste water with the help of a plastic tub locally known as *khailnu* and *chilmichi* in Pangi block and *baatti* in Bharmaur block in the open or on the street. In comparison, 37.99 per cent of households have a separate space for washing utensils either in the kitchen or outside. Within the tribal area the highest proportion of households (49.73 per cent) in Lahaul block and lowest proportion of households (13.48 per cent) in Pangi block dispose of waste water through piped outlets. The proportion of households disposing waste water in the open or on the street is highest in Pangi block (86.52 per cent) followed by Kinnaur district (60.65 per cent). This indicates a poor awareness about keeping immediate environment clean among the inhabitants.

Table 12 shows that only 2.65 per cent households in the tribal area, with highest proportion in Kinnaur and Lahaul, had waste water disposal provision before mid 1980s suggesting that till that time the practice was open disposal of waste water. During mid-1980s to mid-1990s, about 10.51 per cent of the households, and in the following decade, about 16.61 per cent of households had piped outlets in the study area. The proportion of households having waste water disposal provision during 1997-2008 varies from the highest 30.71 per cent in Bharmaur block to 8.89 per cent households in Spiti block. Thus with the passage of time the share of households with waste water disposal provision has increased in all the tribal areas.

To get potable water in high mountainous areas is a problem. Tap water is a major source of drinking water for 97.26 per cent of households (Table 13). Little more than half of households (51.33 per cent) have got water tap connections within their house or in the courtyard. Within the tribal area the highest proportion of water-tap connections are in Spiti block (62.22 per cent) closely followed by Bharmaur block (60.63 per cent). About three-fourth of households (74.16 per cent) in Pangi block fetch drinking water from within 1 km distance. In the tribal area as whole 41.52 per cent households fetch the tap water from within a distance of one km. and an additional 4.42 per cent fetch water from a distance of more than one km. The remaining 2.74 per cent of households depend on natural streams/nallas and springs for drinking water which have difficult accessibility and are seasonal. In Kinnaur and Lahaul 4.35 per cent and 1.64 per cent households, respectively, are dependent on this source of drinking water.

Table 14 shows that upto mid 1980s, the proportion of households having a water tap within the house was almost negligible (2.75 per cent). During mid 1980s to mid 1990s, the proportion of houses having tap connection increased to 17.21 per cent. Within the tribal area the highest proportion was in Bharmaur (44.16 per cent) followed by Pangi (18.18 per cent). In Spiti block only 1.79 per cent of households had a water-tap connection. Thus during last one decade there has been a substantial expansion in installation of in-house water tap connections (80.03 per cent) in the study area. The percentage of such houses is highest in Spiti (98.21 per cent) followed by Lahaul (88.89 per cent), Kinnaur (81.72 per cent) and the lowest in Bharmaur (54.55 per cent). This indicates that the efforts of public health department and acceptance of this source of water by the inhabitants has resulted in an increasing use of safe drinking water in the study area especially after mid 1980s.

III. HEALTH AND HYGIENE: The major vaccines available for infants and children in tribal areas of Himachal Pradesh under immunization programmes include D.P.T., B.C.G., Polio and a first dose of D.T. and T.T. to name a few. Table 15 shows that only 43.90 per cent households are covered under immunization programme with notable spatial variations. Further, there has been a continuous increase in immunization coverage in last two decades in all the tribal areas.

Table 16 shows that 85.34 per cent of sample households still believe in traditional medicinal system (i.e. the treatment of diseases by herbs and plants by local 'Vaids'(i.e. self styled medical practitioner). More than 70 per

Table-16
Study Area: Households Having Faith in Different Systems of Healings

Area	Traditional	Allopathy	Magic Healing	Total
Kinnaur (District)	515 (80.09)	557 (86.63)	249 (38.72)	643
Lahaul (Block)	170 (92.90)	162 (88.52)	99 (54.10)	183
Spiti (Block)	90 (100.00)	80 88.89)	61 (67.78)	90
Pangi (Block)	64 (71.91)	88 (56.18)	71 (79.78)	89
Bharmaur (Block)	127 (100.00)	81 (63.78)	117 (92.13)	127
Total	**966 (85.34)**	**930 (82.16)**	**597 (52.74)**	**1132**

Source: Primary Survey-2008; Figures in parentheses show percentage to total households

Table-17
Study Area: Households using same Bathing Detergent as Grandparents

Area	Households using Same Bathing Detergents	Total Sample Households
Kinnaur (District)	20(3.11)	643
Lahaul (Block)	15(8.20)	183
Spiti (Block)	0(0.00)	90
Pangi (Block)	34(38.20)	89
Bharmaur (Block)	1(0.79)	127
Total	**70(6.18)**	**1132**

Source: Primary Survey-2008; Figures in parentheses show percentage to total households

cent of households in all the tribal areas rely on traditional medicinal system. In Spiti and Pangi blocks all the surveyed households reposed faith in the traditional medicinal system. These traditional methods of medicine, which have sustained the rural folk over centuries, need to be scientifically investigated and tested so that those with proven values can be put to use for wider public health. The study further reveals that 82.16 per cent of households also believe in modern (allopathic) medical care. In Lahaul and Spiti blocks more than 88 per cent of households followed by 86.63 per cent households in Kinnaur district and only 56.18 per cent households in Pangi block utilize allopathic system.

Magic healing, which is unscientific, is resorted to by 52.74 per cent households in the study area. The highest percentage of the

Table-18
Study Area: Households by Year of Using Modern Bathing Soaps

Area	Period				Period not Known	Comments Declined	Total Sample Households
	Before 1975	1975-1985	1986-1996	1997-2008			
Kinnaur (District)	74 (11.51)	177 (27.53)	24 (3.73)	15 (2.33)	326 (50.70)	27 (4.20)	643 (100.00)
Lahaul (Block)	81 (44.26)	15 (8.20)	2 (1.09)	2 (1.09)	68 (37.16)	15 (8.20)	183 (100.00)
Spiti (Block)	2 (2.22)	63 (70.00)	10 (11.11)	0 (0.00)	15 (16.67)	0 (0.00)	90 (100.00)
Pangi (Block)	9 (10.11)	12 (13.48)	16 (17.98)	15 (16.85)	25 (28.09)	12 (13.48)	89 (100.00)
Bharmaur (Block)	61 (48.03)	34 (26.77)	19 (14.96)	0 (0.00)	13 (10.24)	0 (0.00)	127 (100.00)
Total	**227 (20.05)**	**301 (26.59)**	**71 (6.27)**	**32 (2.83)**	**447 (39.49)**	**54 (4.77)**	**1132 (100.00)**

Source: Primary Survey-2008; Figures in parentheses show percentage to total households

Table-19
Study Area: Households by Type and Frequency of Oral Care

Area	Type			Comments Declined	Frequency	Total Sample Households
	Local *Datun*	Tooth Paste	Both		Daily	
Kinnaur (District)	14 (2.18)	341 (53.03)	276 (42.92)	0 (0.00)	631 (98.13)	643 (100.00)
Lahaul (Block)	8 (4.37)	72 (39.34)	91 (49.73)	3 (1.64)	174 (95.08)	183 (100.00)
Spiti (Block)	0 (0.00)	29 (32.22)	61 (67.78)	0 (0.00)	90 (100.00)	90 (100.00)
Pangi (Block)	25 (28.09)	31 (34.83)	25 (28.09)	8 (8.99)	81 (91.01)	89 (100.00)
Bharmaur (Block)	1 (0.79)	28 (22.05)	96 (75.59)	2 (1.57)	126 (99.21)	127 (100.00)
Total	**48 (4.24)**	**501 (44.26)**	**549 (48.50)**	**13 (1.15)**	**1102 (97.35)**	**1132 (100.00)**

Source: Primary Survey-2008; Figures in parentheses show percentage to total households

households believing in this system has been recorded in Bharmaur (92.13 per cent) and Pangi (79.78 per cent) blocks. These figures are much higher than those for Lahaul block and Kinnaur district. The difference could be associated with variations in educational awareness and the dominant prevalent religion in these areas (Table 21). The areas believing more in magic healing are Hindu dominated rather than Buddhists. Thus the study reveals multiple choices regarding the different systems of health protection.

In order to examine the changes in personal hygiene, inhabitants were asked about the bathing detergents used by their grandparents and by themselves at present. The inhabitants in Kinnaur district revealed that for bathing, cow-urine locally called *grunting*, was used when soap was not available about 30-35 years ago. Cow urine has been the main source of body wash even in the recent past in all the tribal areas. Notably, cow urine stored for at least six months to one year is considered best for body wash. Even at present it is used for bathing the kids some times in the belief that it has medicinal properties. Respondents also stated that cow-urine also sharpens/increases the eyesight.

The residual (locally called *bacha* in Kinnaur) of a dry temperate fruit, after extracting the edible oil, locally called *chulli* in Kinnaur district and *chir* in Pangi and Bharmaur was also used for body wash before the introduction of factory manufactured soap. The *chulli* edible oil is locally known as *rakchamar* in Kinnaur district. About 6 per cent of the households informed that they, particularly the old age people still use cow-urine for bathing (Table 17). The proportion of such households is very high in Pangi block (38.20 per cent) followed by Lahaul block (8.20 per cent). In Bharmaur and Spiti blocks, the use of such traditional body wash detergents is very low and shows that modern industrial toilet products are more popular.

The use of modern soap was restricted to only 20.05 per cent of the households before mid 1970s in the study area. The highest proportion (48.3 per cent) of such households was in Bharmaur block followed by 44.26 per cent households in Lahaul block (Table 18). The table shows that more than half of the households had started using the factory manufactured soap by mid 1990s. The highest spatial diffusion in use of soaps has taken place during mid 1970s and mid 1980s (26.59 per cent). The tribal people have shown perceptible changes in their personal hygiene by adopting factory made soaps which are hygienic and body friendly.

Oral hygiene constitutes one of the most important components of personal hygiene. Table 19 shows that 97.35 per cent of households take care of dental hygiene and brush their teeth daily. It is evident from the table that a little less than one-tenth of households in Pangi and about 5 per cent in Lahaul blocks do not take care of their oral hygiene daily. The study indicates that still there is a need to make people aware about their oral hygiene. Respondents stated that twigs, *datun,* of some local plants had been used for brushing teeth when modern toothpaste was not available. In lower Kinnaur (Sangla village) the branch of *vaimi* (local name) a wild plant similar to peach, timber and the bark of walnut are used for cleaning the teeth.

The twigs of a small thorny plant, locally called timber, are considered good, effective, refreshing and hygienic than *vaimi.* The women prefer the bark of walnut for cleaning their teeth *wich* also reddens their lips and gums. In upper Kinnaur (Leo village), *changma* tree branch is used for brushing teeth. Similarly, *beli* tree is also used for brushing teeth by the aged people even today in Lahaul and Spiti district. The *beli* tree is called *shaina* by Hindus in their dialect in Udaipur sub-tehsil whereas Budhist people call it *changma.* Table 19 shows that 4.24 per cent of sample households use the above mentioned local *datun* for oral hygiene. The highest use of this method (28.09 per cent) is in Pangi block.

The use of toothpaste is prevalent in 44.26 per cent households in the study area. The share of such households varies from

Table-20
Study Area: Households by Year of Using Toothpaste

Area	Period					Total Sample Households
	Before 1975	1975-1985	1986-1996	1997-2008	Comments Declined	
Kinnaur (District)	1 (0.16)	49 (7.62)	210 (32.66)	318 (49.46)	39 (6.07)	643
Lahaul (Block)	20 (10.93)	39 (21.31)	57 (31.15)	28 (15.30)	19 (10.38)	183
Spiti (Block)	0 (0.00)	2 (2.22)	26 (28.89)	58 (64.44)	4 (4.44)	90
Pangi (Block)	1 (1.12)	17 (19.10)	13 (14.61)	17 (19.10)	8 (8.99)	89
Bharmaur (Block)	0 (0.00)	1 (0.79)	37 (29.13)	82 (64.57)	4 (3.15)	127
Total	**22 (1.94)**	**108 (9.54)**	**343 (30.30)**	**503 (44.43)**	**74 (6.54)**	**1132**

Source: Primary Survey-2008; Figures in parentheses show percentage to total households

Table-21
Study Area: Literacy Rate and Gender Disparity

Area	Literacy Rate			Disparity Index	Total Population (0-6 age Group Excluded)		
	Male	Female	Total		Male	Female	Total
Kinnaur (District)	1434 (87.28)	1147 (73.67)	2581 (80.66)	0.12	1643	1557	3200
Lahaul (Block)	553 (86.00)	383 (66.72)	936 (76.91)	0.17	643	574	1217
Spiti (Block)	186 (87.74)	168 (76.02)	354 (81.76)	0.10	212	221	433
Pangi (Block)	161 (70.31)	103 (50.74)	264 (61.11)	0.20	229	203	432
Bharmaur (Block)	279 (82.54)	211 (68.06)	490 (75.62)	0.13	338	310	648
Total	**2613 (85.25)**	**2012 (70.23)**	**4625 (77.99)**	**0.13**	**3065**	**2865**	**5930**

Source: Primary Survey-2008; Figures in parentheses are percentage to total population excluding 0-6 age group

Table-22

Study Area: Persons by Educational Attainment (upto Middle Class) and Disparity

Area	Level of Education											
	Literate Without Educational Level			Disparity Index	Primary			Disparity Index	Middle			Disparity Index
	M	F	T		M	F	T		M	F	T	
Kinnaur	187 (13.04)	216 (18.83)	403 (15.61)	- 0.18	317 (22.11)	278 (24.24)	595 (23.05)	- 0.05	205 (14.30)	197 (17.18)	402 (15.58)	-0.09
Lahaul	54 (9.76)	50 (13.05)	104 (11.11)	- 0.14	75 (13.56)	68 (17.75)	143 (15.28)	- 0.13	71 (12.84)	53 (13.84)	124 (13.25)	-0.06
Spiti	25 (13.44)	25 (14.88)	50 (14.12)	- 0.05	47 (25.27)	38 (22.62)	85 (24.01)	0.05	18 (9.68)	24 (14.29)	42 (11.86)	-0.19
Pangi	19 (11.80)	16 (15.53)	35 (13.26)	- 0.12	60 (37.27)	29 (28.16)	89 (33.71)	0.14	26 (16.15)	22 (21.36)	48 (18.18)	-0.14
Bharmaur	34 (12.19)	42 (19.91)	76 (15.51)	- 0.24	62 (22.22)	60 (28.44)	122 (24.90)	- 0.13	45 (16.13)	28 (13.27)	73 (14.90)	0.09
Total	319 (12.21)	349 (17.35)	668 (14.44)	- 0.17	561 (21.47)	473 (23.51)	1034 (22.36)	- 0.05	365 (13.97)	324 (16.10)	689 (14.90)	-0.07

Table- 23 Study Area: Persons by Educational Attainment (above Middle Class) and Disparity

Area	Level of Education														
	High			Disparity Index	Higher Secondary			Disparity Index	Higher			Disparity Index	Total Educational Attainment Score		
	M	F	T		M	F	T		M	F	T		M	F	T
Kinnaur	313 (21.83)	203 (17.70)	516 (19.99)	0.10	217 (15.13)	174 (15.17)	391 (15.15)	- 0.00	195 (13.60)	79 (6.89)	274 (10.62)	0.31	1434 (100.00)	1147 (100.00)	2581 (100.00)
Lahaul	127 (22.97)	68 (17.75)	195 (20.83)	0.12	85 (15.37)	77 (20.10)	162 (17.31)	- 0.13	141 (25.50)	67 (17.49)	208 (22.22)	0.18	553 (100.00)	383 (100.00)	936 (100.00)
Spiti	50 (26.88)	28 (16.67)	78 (22.03)	0.23	34 (18.28)	40 (23.81)	74 (20.90)	- 0.13	12 (6.45)	13 (7.74)	25 (7.06)	- 0.08	186 (100.00)	168 (100.00)	354 (100.00)
Pangi	31 (19.25)	19 (18.45)	50 (18.94)	0.02	18 (11.18)	14 (13.59)	32 (12.12)	- 0.09	7 (4.35)	3 (2.91)	10 (3.79)	0.18	161 (100.00)	103 (100.00)	264 (100.00)
Bharmaur	63 (22.58)	50 (23.70)	113 (23.06)	- 0.03	50 (17.92)	25 (11.85)	75 (15.31)	0.19	25 (8.96)	6 (2.84)	31 (6.33)	0.51	279 (100.00)	211 (100.00)	490 (100.00)
Total	584 (22.35)	368 (18.29)	952 (20.58)	0.10	404 (15.46)	330 (16.40)	734 (15.87)	- 0.03	380 (14.54)	168 (8.35)	548 (11.85)	0.25	2613 (100.00)	2012 (100.00)	4625 (100.00)

highest 53.03 per cent in Kinnaur to only 22.05 per cent in Bharmaur block. More than 48 per cent households use both toothpaste as well as local *datun*. Broadly, the inhabitants of economically prosperous and geographically accessible areas of Kinnaur and Lahaul use toothpaste whereas in Spiti, Pangi and Bharmaur blocks a mix of both traditional and modern dental care practices is in vogue.

Table 20 shows that before mid 1980s only about one-tenth of total sample households used toothpaste with significant spatial variations in the study area. The highest share (little less than one-third) of households had started using toothpaste in Lahaul block before mid 1980s followed by about one-fifth households in Pangi block.

About 30 per cent households started using toothpaste during mid 1980s to mid 1990s and 44 per cent households during the last decade. The Bharmaur and Spiti blocks have witnessed highest increase in the use of toothpaste during 1997 to 2008 (Table 20). It may be inferred from the study that the share of the households towards modern dental care has increased with the passage of time. It clearly indicates the growing awareness of the people towards their oral and personal hygiene.

IV. LEVEL OF EDUCATIONAL ATTAINMENT: Table 21 presents the gender and area-wise literacy and gender disparity in the sample population. It shows that 77.99 per cent of sampled persons are literate. It also reveals that there is still a significant difference between literacy rates among males and females. The literacy rate among males is as high as 85.25 per cent, whereas 70.23 per cent of females are literate. Literacy rate of both males and females is high in Spiti block. Kinnaur district also has high literacy rate both among males (87.28 per cent) and females (73.67 per cent). It could be attributed to better facilities of schools and transportation in these two areas. The lowest literacy rate is in Pangi and Lahaul blocks. These blocks also have high gender disparity in the level of literacy.

So far as distribution of persons by educational attainments is concerned (Tables 22 and 23), 14.44 per cent of literates are without any educational level. The highest proportion in this regard is highest in Kinnaur district (15.61 per cent) followed by Bharmaur block (15.51 per cent) and lowest in Lahaul block (11.11 per cent). The proportion of literates without educational level is higher among females in all the five areas. Thus there is a need to increase the level of education of women. About 22 per cent of total literates have received education upto primary standard. The female literacy rate is higher at the primary level in areas other than Pangi and Spiti blocks. The proportion of total literate persons upto middle level is 14.90 per cent. Interestingly, the proportion of females up to middle level education is higher than males in all areas except Bharmaur block.

A little more than one tenth of total literates have attained higher education (Table 23). There is a significant gender disparity in the attainment of education at higher levels. At the primary and middle level, females have higher proportion than males in almost all the areas. The proportion of the persons having acquired higher secondary and higher education is higher in better accessible Lahaul block and Kinnaur district. The gender inequity in attainment of education increases with the increase in the level of education. It is quite significant in the Bharmaur block and Kinnaur district.

V. ENERGY CONSUMPTION PATTERN: The consumption pattern of energy in geographically inaccessible and tribal areas of Himachal Pradesh is a very important indicator of quality of life. Table 24 shows that 99.38 per cent of the households have electricity connection. Almost all the households are electrified in tribal areas except Pangi block where about 2 per cent households are yet to get electricity connection. Table 24 also shows that only 14.22 per cent of households had electricity provision before mid 1970s. The highest proportion of electrified households (43.71 per cent) were in Lahaul block followed by Spiti block (33.33

Table-24
Study Area: Electrified Households and Year of Electricity Connection

Area	Period				Period not Known	Electrified Households	Total Sample Households
	Before 1975	1975-1985	1986-1996	1997-2008			
Kinnaur (District)	43 (6.69)	190 (29.55)	283 (44.01)	111 (17.26)	14 (2.18)	641 (99.69)	643
Lahaul (Block)	80 (43.71)	41 (22.40)	26 (14.21)	7 (3.82)	26 (14.21)	180 (98.36)	183
Spiti (Block)	30 (33.33)	40 (44.44)	13 (14.44)	5 (5.56)	2 (2.22)	90 (100.00)	90
Pangi (Block)	0 (0.00)	0 (0.00)	30 (33.71)	48 (53.93)	9 (10.11)	87 (97.75)	89
Bharmaur (Block)	8 (6.30)	47 (37.01)	7 (5.51)	60 (47.24)	5 (3.94)	127 (100.00)	127
Total	**161 (14.22)**	**318 (28.09)**	**359 (31.71)**	**231 (20.40)**	**56 (4.95)**	**1125 (99.38)**	**1132**

Source: Primary Survey-2008; Figures in parentheses show percentage to electrified households

Table-25
Study Area: Households Using Different Types of Fuel and Distance of Availability

Area	Mode of Fuel							Total Sample Households
	Fire wood with Distance(km)				Kerosene	LPG	Electricity	
	Within 3	3-5	5-10	Total				
Kinnaur (District)	150 (25.58)	116 (18.04)	370 (57.54)	636 (98.91)	60 (9.33)	561 (87.25)	65 (10.11)	643
Lahaul (Block)	140 (80.00)	17 (9.29)	18 (9.84)	175 (95.63)	107 (58.47)	172 (93.99)	67 (36.61)	183
Spiti (Block)	31 (32.23)	40 (44.44)	19 (21.11)	90 (100.00)	68 (75.56)	88 (97.78)	56 (62.22)	90
Pangi (Block)	30 (34.09)	21 (23.60)	37 (41.57)	88 (98.88)	40 (44.94)	40 (44.94)	7 (7.87)	89
Bharmaur (Block)	24 (19.20)	55 (43.31)	46 (36.22)	125 (98.43)	72 (56.69)	67 (52.76)	13 (10.24)	127
Total	**375 (33.66)**	**249 (22.00)**	**490 (43.29)**	**1114 (98.41)**	**347 (30.65)**	**928 (81.98)**	**208 (18.37)**	**1132**

Source: Primary Survey-2008; Figures in parentheses show percentage to total households

per cent). During mid 1970s and mid 1980s, the proportion of electrified households increased to 28.09 per cent. From mid 1980s to mid 1990s the proportion of electrified houses further increased to about 32 per cent. During the period 1997 to 2008, about one-fifth of the households got electricity. The highest increase in electricity connections (53.93 per cent) has been in Pangi block between 1997 to 2008 which was not electrified till mid 1980s.

Table 25 shows different types of fuel and the distance at which it is available. It is evident that firewood is a major source of domestic fuel in tribal areas of Himachal Pradesh since 98.41 per cent of households use firewood for both cooking and heating the houses. There are not much spatial variations in the use of firewood in the study area. However, firewood is also not easily available. About one-third of the households travel up

Table-26
Study Area: Households by Access to TV, Newspapers, Magazines, Telephone and Internet Connection

Area	TV	Mobile Phone	Land Line Phone	Inter net	News Papers and Medium				Magazines and Medium				Total Sample House-holds
					Hindi	English	Both (Hindi & Eng.)	Total	Hindi	English	Both (Hindi & Eng.)	Total	
Kinnaur (District)	506 (78.69)	430 (66.87)	178 (27.68)	13 (2.02)	170 (26.44)	14 (2.18)	26 (4.04)	210 (32.66)	13 (2.02)	12 (1.87)	30 (4.67)	55 (8.55)	643
Lahaul (Block)	163 (89.07)	146 (79.78)	96 (52.46)	6 (3.28)	81 (44.26)	1 (0.55)	3 (1.64)	85 (46.45)	0 (0.00)	0 (0.00)	9 (4.92)	9 (4.92)	183
Spiti (Block)	71 (78.89)	50 (55.56)	49 (54.44)	0 (0.00)	7 (7.78)	6 (6.67)	2 (2.22)	15 (16.67)	1 (1.11)	1 (1.11)	0 (0.00)	2 (2.22)	90
Pangi (Block)	39 (43.82)	18 (20.22)	10 (11.24)	0 (0.00)	7 (7.87)	0 (0.00)	0 (0.00)	7 (7.87)	3 (3.37)	2 (2.25)	3 (3.37)	8 (8.99)	89
Bharmaur (Block)	97 (76.38)	91 (71.65)	31 (24.41)	0 (0.00)	16 (12.60)	2 (1.57)	2 (1.57)	16 (15.75)	3 (2.36)	0 (0.00)	1 (0.79)	4 (3.15)	127
Total	876 (77.39)	735 (64.93)	364 (32.16)	19 (1.68)	281 (2.03)	23 (1.86)	33 (2.91)	337 (29.77)	20 (1.77)	15 (1.33)	43 (3.80)	78 (6.89)	1132

Table-27
Study Area: Households by Year of LPG Connection (N=928)

Area	Period				Period not Known	LPG Having Households
	Before 1975	1975-1985	1986-1996	1997-2008		
Kinnaur (District)	0 (0.00)	8 (1.43)	150 (26.74)	352 (62.75)	51 (9.09)	561 (100.00)
Lahaul (Block)	2 (1.16)	3 (1.74)	34 (19.77)	119 (69.19)	14 (8.14)	172 (100.00)
Spiti (Block)	0 (0.00)	0 (0.00)	12 (13.64)	69 (78.41)	7 (7.95)	88 (100.00)
Pangi (Block)	0 (0.00)	0 (0.00)	2 (5.00)	35 (87.50)	3 (7.50)	40 (100.00)
Bharmaur (Block)	0 (0.00)	1 (1.49)	1 (1.49)	53 (79.10)	12 (17.91)	67 (100.00)
Total	**2 (0.22)**	**12 (1.29)**	**199 (21.44)**	**628 (67.67)**	**88 (9.38)**	**928 (100.00)**

Source: Primary Survey-2008; Figures in parentheses show percentage to LPG having households

to 3 km. to gather firewood. Another 22 per cent households trek between 3-5 km to for collecting it and 43.29 per cent households travel 5-10 km for firewood collection. The proportion of households travelling between 5-10 km. is highest (57.54 per cent) in Kinnaur followed by Pangi (41.57 per cent) and Bharmaur (36.22 per cent) blocks. After firewood, LPG is the modern fuel used (81.98 per cent). Its use is most prevalent in Spiti (97.78 per cent) closely followed by 93.99 per cent households in Lahaul block. The lowest use of LPG is in Pangi block (44.94 per cent). About 30 per cent households use kerosene oil and 18.37 per cent electricity as a fuel. The lowest use of electricity as a fuel is in Pangi block (7.87 per cent).

The trend of growth of use of LPG indicates that before mid 1970s only two households in Lahaul block in the entire tribal area had access to LPG (Table 26). Between mid 1970s and 1980s, a negligible share of households (1.29 per cent) started using LPG in three areas namely Lahaul, Bharmaur and Kinnaur. During the following decade (1986-1996) this proportion increased to 21.44 per cent. The highest proportion of such households was in Kinnaur (26.74 per cent) followed by Lahaul block (19.77 per cent). The data shows that majority of the households (67.67 per cent) got LPG connection during 1997-2008. The proportion of households getting LPG connection during the last decade varies from highest 87.50 per cent in Pangi, followed by 79.10 per cent in Bharmaur and lowest (62.75 per cent) in Kinnaur district. The expansion of use of LPG as domestic fuel both in time and space is a clear indication of an improvement in the quality of life of the tribal people.

VI. MEDIA EXPOSURE AND ACCESS TO MODERN COMMUNICATION: Access to means of communication and exposure to mass media are important indicators of quality of life. Table 27 shows that 77.39 per cent of the sample households have access to television network. The lowest proportion (43.82 per cent) of such households is in Pangi block. In remaining areas, more than three-fourth of households have access to television. Access to telephone facility has been recorded for 32.16 per cent of the sample households in the study area. The highest proportion (54.44 per cent) of households enjoying telephone facility is in Spiti block followed by 52.46 per cent households in Lahaul block. Only 11.24 per cent of the households have access to telephone in Pangi block. The data shows that a majority of households (64.93 per cent) have got mobile connections in the study area. The highest proportion of households using cell phone is in Lahaul block (79.78 per cent) followed by Bharmaur block (71.65 per cent) and Kinnaur district (66.67 per cent). The lowest proportion of such households (20.22 per cent) is in Pangi block. The data also shows that internet facility has also become available in the far flung tribal areas of the state, although only 1.68 per cent households in the entire study area, and only in Lahaul and Kinnaur have started using this facility.

At least one member out of only 29.77 per cent households in study area reads a newspaper. The majority of the people read Hindi newspapers. The newspaper readership in Hindi and English is highest in Lahaul block (46.25 per cent) and Kinnaur district (32.66 per cent) and lowest in Pangi block (7.97 per cent). The entire readership in this block is restricted to Hindi newspapers. Only 6.89 per cent of the sample households also read magazines, mostly in Hindi. The magazine readership is almost negligible in Spiti and Bharmaur blocks (Table 27).

The data shows that TV was a rare gadget before 1975 and only two households in the entire study area (0.23 per cent), in Lahaul block only had a TV set (Table 28). Between mid 1970s-1980s access to TV increased to 1.37 per cent households. The highest proportion of such households was again in Lahaul block (3.68 per cent). None of the sample households in Pangi and Bharmaur blocks had a TV set till mid 1980s. During 1986-1996, this source of entertainment and information was owned by 27.97 per cent households. The highest proportion of such

Table-28
Study Area: Households by Year of Purchase of TV (N=876)

Area	Before 1975	1975-1985	1986-1996	1997-2008	Period not Known	TV Having Households
Kinnaur (District)	0 (0.00)	5 (0.99)	150 (29.64)	347 (68.58)	4 (0.79)	506 (100.00)
Lahaul (Block)	2 (1.23)	6 (3.68)	54 (33.13)	98 (60.12)	3 (1.84)	163 (100.00)
Spiti (Block)	0 (0.00)	1 (1.41)	8 (11.27)	62 (87.32)	0 (0.00)	71 (100.00)
Pangi (Block)	0 (0.00)	0 (0.00)	3 (7.69)	36 (92.31)	0 (0.00)	39 (100.00)
Bharmaur (Block)	0 (0.00)	0 (0.00)	30 (30.93)	67 (69.07)	0 (0.00)	97 (100.00)
Total	**2 (0.23)**	**12 (1.37)**	**245 (27.97)**	**610 (69.63)**	**7 (0.80)**	**876 (100.00)**

Source: Primary Survey-2008; Figures in parentheses show percentage to TV having households

Table-29
Study Area: Households by Year of Subscribing Newspapers

Area	Before 1975	1975-1985	1986-1996	1997-2008	Period not Known	Total Sample Households
Kinnaur (District)	0 (0.00)	0 (0.00)	22 (3.42)	8 (1.24)	10 (1.56)	643 (6.22)
Lahaul (Block)	0 (0.00)	0 (0.00)	3 (1.64)	4 (2.19)	1 (0.55)	183 (4.37)
Spiti (Block)	0 (0.00)	0 (0.00)	0 (0.00)	1 (1.11)	0 (0.00)	90 (1.11)
Pangi (Block)	0 (0.00)	0 (0.00)	0 (0.00)	1 (1.12)	0 (0.00)	89 (1.12)
Bharmaur (Block)	0 (0.000	0 (0.00)	0 (0.00)	0 (0.00)	0 (0.00)	127 (0.00)
Total	**0 (0.00)**	**0 (0.00)**	**25 (2.21)**	**14 (1.24)**	**11 (0.97)**	**1132 (4.42)**

Source: Primary Survey-2008; Figures in parentheses show percentage to total households

Table-30
Study Area: Households by Year of Installing Telephone Connection (N=364)

Area	Before 1975	1975-1985	1986-1996	1997-2008	Period not Known	Telephone Having Households
Kinnaur (District)	0 (0.00)	0 (0.00)	53 (29.78)	119 (66.85)	6 (3.37)	178 (100.00)
Lahaul (Block)	2 (2.08)	1 (1.04)	21 (21.88)	71 (73.96)	1 (1.04)	96 (100.00)
Spiti (Block)	0 (0.00)	0 (0.00)	5 (10.20)	44 (89.80)	0 (0.00)	49 (100.00)
Pangi (Block)	0 (0.00)	0 (0.00)	1 (10.00)	9 (90.00)	0 (0.00)	10 (100.00)
Bharmaur (Block)	0 (0.00)	0 (0.00)	1 (3.23)	30 (96.77)	0 (0.00)	31 (100.00)
Total	**2 (0.55)**	**1 (0.27)**	**81 (22.25)**	**273 (75.00)**	**7 (1.92)**	**364 (100.00)**

Source: Primary Survey-2008; Figures in parentheses show percentage to telephone having households

Table-31
Study Area: Households by Year of Using Cell Phone (N=735)

Area	Before 1975	1975-1985	1986-1996	1997-2008	Period not Known	Cell Phone Having Households
Kinnaur (District)	0 (0.00)	0 (0.00)	11 (2.56)	419 (97.44)	0 (0.00)	430 (100.00)
Lahaul (Block)	0 (0.00)	0 (0.00)	4 (2.74)	141 (96.58)	1 (0.68)	146 (100.00)
Spiti (Block)	0 (0.00)	0 (0.00)	1 (2.00)	49 (98.00)	0 (0.00)	50 (100.00)
Pangi (Block)	0 (0.00)	0 (0.00)	0 (0.00)	18 (100.00)	0 (0.00)	18 (100.00)
Bharmaur (Block)	0 (0.00)	0 (0.00)	0 (0.00)	90 (98.90)	1 (1.10)	91 (100.00)
Total	**0 (0.00)**	**0 (0.00)**	**16 (2.18)**	**717 (97.55)**	**2 (0.27)**	**735 (100.00)**

Source: Primary Survey-2008; Figures in parentheses show percentage to cell l phone having households

households was again in Lahaul block (33.13 per cent). During the last decade the proportion of households owning a TV increased to 69.63 per cent. The highest proportion of such households was in Pangi (92.31 per cent) followed by Spiti block (87.32 per cent). Broadly, the households in economically prosperous areas of Lahaul and Kinnaur were the first to own a TV set. Subsequently the ownership of a TV set spread to other areas also, particularly after 1986.

Table 29 shows that sample households in the study area started subscribing to a newspaper for the first time after 1985. During 1986-1996 only 2.21 per cent of the sample households, only in Kinnaur and Lahaul, had subscribed to a newspaper. Although subscription to a newspaper spread to other areas also during 1997-2008 the proportion of total households was lower (1.24 per cent) as compared to the previous decade. Through the study period the highest proportion of households subscribing to a newspaper was in Kinnaur and Lahaul areas. Only one sample household each in Spiti, and Pangi started subscribing to a newspaper during the last decade. There is still no subscriber to a newspaper in Bharmaur block. The low subscription to a newspaper may be associated with the poor state of transportation during mid 1970s to mid 1990s and the availability of TV facility in the tribal areas after 1997.

Table 30 shows that only two sample households, both in Lahaul block, in the entire study area had a telephone connection before 1975. An additional household acquired a telephone connection in the same area during 1975-1985. Compared to this the proportion of households having telephone connection during 1986-1996 increased to 22.25 per cent. During this period the highest proportion of households having telephone connections were in Kinnaur district (29.78 per cent) followed by Lahaul block (21.88 per cent). The lowest proportion (3.23 per cent) was in Bharmaur block. The data shows that there has been a phenomenal increase, from 22.25 per cent during 1986-1996 to 75 per cent during 1997-2008, in the proportion of sample households having telephone connections. The proportion of households having a telephone connection varies from the highest 96.77 per cent in Bharmaur block followed by 90 per cent in Pangi and Spiti (89.80 per cent) blocks. The lowest proportion has been recorded in Kinnaur district (66.85 per cent).

Cell phone plays a very important role in connecting people and in their economic and social life. Nowadays people can collect information within a very short time by using mobile phones (Akmam, *et al.*, 2008). Cell phone facility became available in the study area after 1985 (Table 31). With introduction of the mobile phone in other parts of the state also, only 2.18 per cent of households availed cell phone services during 1986-1996 only in Lahaul, Kinnaur and Spiti. The inhabitants of Pangi and Bharmaur areas started using this facility only during 1997-2008.

The study area experienced a remarkable increase in cell phone subscribers during 1997-2008 when an overwhelming majority of households (97.55 per cent) started using this facility. The proportion of households having a cell phone is more than 90 per cent in all parts of the study area indicating that cell phone technology has prompted a revolutionary improvement in exchange of information and communication in the remote tribal areas of Himachal Pradesh. It also indicates improving economic conditions and change in quality of life of the tribals and a reduction in communication gap between the tribals and the rest of the world.

Internet, the fastest and cheapest mode of communication, was introduced for the first time in Kinnaur district only during 1986-1996 (Table 32). Only one household, 5.26 per cent of the total sample households in the study area reported having this facility. During 1997-2008 the proportion of total households having this facility increased to 89.47 per cent. Only Kinnaur and Lahaul had this facility and three blocks namely Spiti, Pangi and Bharmaur still do not have internet facility.

Table-32
Study Area: Households by Year of Having Internet Connection (N=19)

Area	Before 1975	1975-1985	1986-1996	1997-2008	Period not Known	Internet Having Households
Kinnaur (District)	0 (0.00)	0 (0.00)	1 (7.69)	11 (84.62)	1 (7.69)	13 (100.00)
Lahaul (Block)	0 (0.00)	0 (0.00)	0 (0.00)	6 100.00	0 (0.00)	6 (100.00)
Spiti (Block)	0 (0.00)	0 (0.00)	0 (0.00)	0 (0.00)	0 (0.00)	0 (100.00)
Pangi (Block)	0 (0.00)	0 (0.00)	0 (0.00)	0 (0.00)	0 (0.00)	0 (100.00)
Bharmaur (Block)	0 (0.00)	0 (0.00)	0 (0.00)	0 (0.00)	0 (0.00)	0 (100.00)
Total	**0 (0.00)**	**0 (0.00)**	**1 (5.26)**	**17 (89.47)**	**1 (5.26)**	**19 (100.00)**

Source: Primary Survey-2008; Figures in parentheses show percentage to internet having households

Summary

The present study reveals that housing and sanitation conditions have undoubtedly improved during last three decades at the micro level in tribal region of Himachal Pradesh. However, there is still further scope for improvement. Only 57 per cent of houses have provision for a separate kitchen so far. The proportion of houses having separate kitchen is relatively quite low in Pangi and Bharmaur blocks. The proportion of pucca houses is relatively high in Lahaul block and Kinnaur district. The inhabitants of Pangi block largely reside in katcha houses. Only some inhabitants of Kinnaur, Lahaul and Spiti areas were residing in pucca houses before mid 1970s. The large size houses (more than seven rooms) are owned by about half of the sample households in Lahaul and a little more than one-third households in Spiti. The share of such houses is very low in Bharmaur and Pangi blocks signifying economic variations within the tribal belt. The highest share of houses having a separate cattleshed has also been registered in Lahaul block and Kinnaur district.

The study shows that residential overcrowding is acute in Pangi and Bharmaur blocks due to small houses having fewer rooms. It has been observed that only 42 per cent houses have a separate toilet provision indicating that open defecation attributable to open life style or poor attention given to sanitation in the study area. However, there are signs of gradual increase in households having a separate provision for toilet in the study area. About 60 per cent households dispose of waste water in the open or in the street. The proportion of such households is very high in Pangi block. The information on drinking water reveals that a little more than half of households have in-house water-tap connections with highest incidence in Spiti and lowest in Pangi blocks. However, installation of in-house tap connection has registered an increase from almost negligible in 1970s to 80 per cent during 1997-2008. The overall quality of living environment is still very poor in Pangi and Bharmaur blocks which suffer due to lack of surfaced roads connecting remote villages, support infrastructure and mass unawareness among the inhabitants.

In case of health seeking behaviour, it is observed that nearly 43 per cent households have been covered under the immunization programmes with highest share in Bharmaur and Spiti blocks. Despite a deep belief in

traditional medicinal system and magic healing, more than 80 per cent of sample households also utilize allopathic medicines. So far as personal hygiene is concerned 6 per cent households, particularly old age persons, still use cow-urine for body wash. The proportion of households using this method is highest in Pangi block. The residue of an edible temperate fruit found across the entire tribal belt was used for bathing when soap was not available. The study shows that, at present, 95 per cent households use factory manufactured soap for bathing. This practice became popular in the entire tribal region during mid 1970s to 1980s. The study shows that 97 per cent of sample households take care of their oral hygiene daily. However, one-tenth of households in Pangi block do not clean teeth regularly. About 44 per cent households use toothpaste. This product is more commonly used in Kinnaur district and Lahaul block which are economically prosperous and geographically more accessible whereas in the remaining three areas both traditional and modern oral care practices are followed.

The gender inequity in literacy and education increases with an increase in level of education. It is quite significant in Bharmaur block and Kinnaur district. The educational system is still in the infancy stage as only about 30 per cent of educated persons have attained higher secondary and higher educational level. The proportion of such persons is higher in Lahaul, Kinnaur and Spiti areas. The proportion of persons educated at matric and above levels is low in Pangi and Bharmaur blocks and shows a declining trend. It is associated with lack of secondary educational institutions in the nearby villages, poor road transport and economic backwardness of the people in these two blocks.

It is observed that 99 per cent households have an electricity connection in the study area. There has been an increase in number of electricity connections between 1970s to mid 1990s. Only Pangi block got electricity facility between 1980s and 1990s. The energy consumption pattern shows that firewood is the major source of domestic fuel. However it is not easily available. After firewood, LPG is the second most popular fuel used by about 81 per cent of sample households. More than 85 per cent households in Spiti and Lahaul blocks and Kinnaur district and only 44 per cent households in Pangi block have access to LPG. Kerosene and electricity are also used as domestic fuel in the study area. The growth of LPG connection reveals that more than two-third of the households got LPG connections during 1997-2008. The energy consumption pattern in tribal areas has undergone significant change from traditional use of wood to modern fuel LPG and electricity. The expansion of LPG as domestic fuel both in space and time perspective is a clear indication of improving quality of life in the tribal region.

The study reveals that more people are exposed to communication and media facilities in Lahaul, Kinnaur and Spiti areas as compared to Bharmaur and Pangi blocks. The study shows that economically prosperous areas of Lahaul and Kinnaur not only had early access to TV but also witnessed a sharp rise in purchase of TV sets during the last two decades. Only a few households have started subscribing to a newspaper during the last decade. This period has also witnessed a phenomenal rise both in landline telephone connections and cell phone subscribers. The internet facility has also been extended in the study area but only in Kinnaur district and Lahaul block. However, the development of communication facilities is urgently needed in the whole region in general and Bharmaur and Pangi blocks in particular. The study finds that development of modern media and communication is largely determined by development of transport. The development programmes introduced and implemented at different time periods have not been equally effective in all the tribal areas of the state giving rise to significant variations in the spatial pattern of quality of life in the study region. It is true that spatial variations in quality of life are largely related to geographical accessibility and thereby availability and use of physical and social infrastructural amenities and services.

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REGIONAL AND SOCIAL INEQUALITIES IN CHILD UNDERNUTRITION IN INDIA : A POLICY PERSPECTIVE

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Abstract

Child undernutrition has remained distressingly high for decades in India. The wide socio-economic and regional inequalities in the country are posing some serious questions before the government and policy makers. The backward states are bearing the immense burden of child malnutrition and the disadvantaged social groups (especially the Scheduled Castes and Scheduled Tribes) are the most marginalized in the phenomenon of child undernourishment. The main focus of this paper is to address the key issues of child malnutrition in the country within the broader framework of socio-economic and regional disparities. The pervasive poverty, poor access to healthcare and basic amenities are the underlying causes for such disparities. The paper suggests that universalisation of Integrated Child Development Services (ICDS) with quality, increased spending in social sector, expansion of access to basic healthcare and household amenities are indispensable for reduction of social and regional inequalities of child undernutrition in India.

Introduction

One of the main objectives of the United Nation's Millennium Development Goals is to bring about significant reduction in the levels of child undernutrition. According to the latest report of UNICEF (2009), the level of malnourished children in India is one of the highest and even worse than some of the poor Sub-Saharan African countries. India has the largest share of undernourished (31 per cent stunted and 42 per cent wasted) and low birth weight children (LBW) i.e. 39 per cent within the LDCs (Less Developed Countries). The National Family and Health Survey 2005-06 (NFHS-3) suggests that about half of the children below 5 years of age were stunted (48 per cent), one-fifth of them were wasted (19.2 per cent) and four out of every ten children were underweight (42.5 per cent) in the country. The root cause of child malnutrition for developing countries is attributed to poverty (Smith & Haddad, 2000). Ramachandran (2007) has opined that in the Indian context the linkages between undernutrition and poverty and its various aspects, e.g. food and nutritional security, access to basic health care facilities, household amenities etc., are very strong. According to Shivakumar (2007) provision of universal health care services facilities to children, newborns and mothers are important for reduction of child undernutrition in the country.

Child malnutrition in India is simultaneously coupled with extensive socio-economic and regional inequalities. The rural poor population, slum dwellers and the socially disadvantaged Scheduled population (both

SCs/STs) have substantive proportion of undernourished children. It has been documented that the growth profile and nutritional status of rural children is much lower than their urban counterparts (Bharti *et al.,* 2009). A cross-sectional study suggests that urban in comparison to rural population has a lower proportion of undernourished children (Smith *et al.,* 2000). In India, given the nature of social hierarchy, the socially disadvantaged scheduled castes population are the vulnerable section affected by multidimensional poverty and deprivation. On the other hand, the Scheduled Tribes (ST) who largely remained outside of the process of social and economic development are at the lower rung of all measures of well being. Their deprivation is also attributed to their geographical location as they have been living in inaccessible areas of the country, where the fruits of development seldom reach. Baraik and Kulkarni (2005) found that the level of infant mortality among the scheduled (SC and ST) population was considerably higher than the non-Scheduled population. Another study has established that the scheduled (SC & ST) population has poor access to health care facilities and therefore their overall nutritional status is much lower (Roy *et al.*, 2004). Social inequality in child undernutrition between the SC, ST and the non-Scheduled population has also been studied by Sinha (2005) and Mishra (2006). The former has raised some key policy issues, while the latter has focused mainly on the social dynamics of deprivation leading to higher level of undernutrition among the Scheduled population.

In addition to social inequality another aspect which is important from policy point of view is the widespread regional inequality. Child malnutrition is found to be more persistent in a few specific states in the country. It is not only the poorer states like Bihar, Orissa, and M.P. but a few higher income states also, e.g. Maharashtra, Gujarat, which have high levels of child undernutrition in the country. The lowest levels of undernutrition have been found in a few middle income states like Kerala and Tamil Nadu (Radhakrishna *et al.*, 2004). According to Nair (2007) other than poverty several socio-demographic factors are also associated with the regional patterns of child undernutrition in India. According to Shivakumar (2007) state level variations in health care services and access to health may be a possible explanation for it.

Data Sources and Methodology

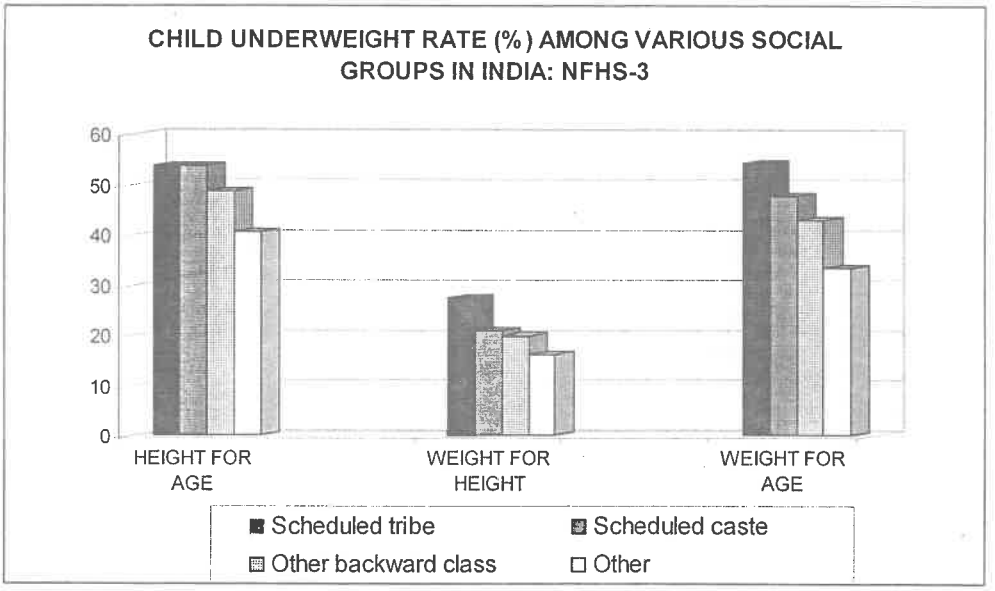
Data obtained from the National Family Health Surveys (NFHS-2 & 3) have been primarily used in this study. NFHS-2 provides information on child undernutrition for the age below 3 years; while the NFHS-3 provides it for children up to 5 years of age. The NFHS dataset is useful because it is cross sectional and covers wide range of information related to different socio-economic aspects of the households like wealth, standard of living, amenities etc, along with the health and nutritional status of the mothers. Additional data from various other sources like; Census of India: 2001, Reserve Bank's data, Ministry of Women and Child Development (Govt. of India), and data on ICDS expenditure have also been used. The Census of India provides the projected population for the child age group 0-5 for the year 2006, which were used to calculate the per-capita expenditure on ICDS for the financial years 2006-07. The "State Finances: A Study of Budgets of 2009-10 : Reserve Bank of India" is a Government of India's annual publication, which provides information on government expenditure on health and other social sectors. The ICDS being one of the key projects of child health and nutrition in India, the per capita financial expenditure on it may be a crucial indicator for its effective functioning. The Ministry of Women and Child Development (GOI) provides information on the financial expenditure of ICDS in the country. In order to capture the reasons associated with the prevalent social and regional inequalities of child undernourishment at the state level a correlation matrix has been computed.

Table – 1
India : Child Undernutrition among Major Social Groups
NFHS-3 (2005-06)

Social Groups	Height For Age (%)		Weight For Height (%)		Weight For Age (%)	
	<-3 S.D.	<-2 S.D.	<-3 S.D.	<-2 S.D.	<-3 S.D.	<-2 S.D.
Scheduled Caste	27.6	53.9	6.6	21	19	47.9
Scheduled Tribe	29.1	53.9	9.3	27.6	25	54.5
Other Backward Class	24.5	48.8.	6.6	20	15.7	43.2
Other	17.8	40.7	5.2	16.3	11.1	33.7

Source: Calculated from NFHS-3 (<-3 S.D.=below minus three standard deviation from median value, <-2 S.D. =below minus two standard deviation from median value.)

Fig. 1



Source: Calculated from the NFHS-3 dataset

Social Inequities of Child Malnutrition in India

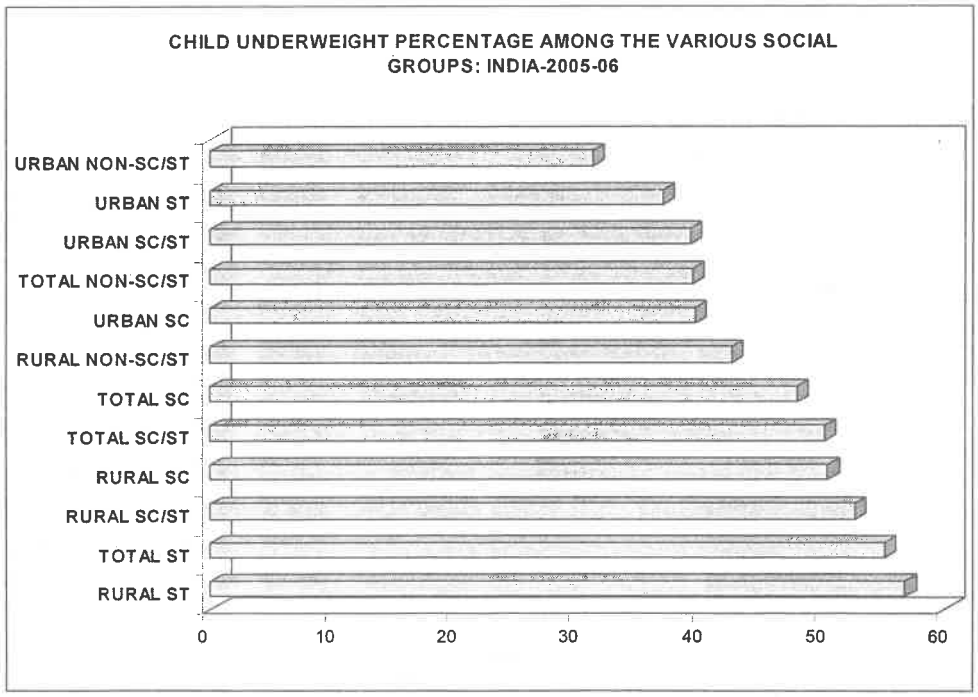
National Family and Health Survey (NFHS -3) provides information about the nutritional status of the children in terms of three widely used anthropometric indicators: weight for age, weight for height and height for age. These three anthropometric indicators respectively suggests the prevalence of underweight, wasting and stunting rate among children in 0-5 years of age group. Considering these three anthropometric indices the highest levels of undernutrition at the aggregate level are found among socially disadvantaged ST and SC population followed by the other

Table – 2
India : Levels of Underweight Children among various Social Groups (2005-06)

Social Groups	Underweight (%)
Urban Non-SC/ST	31.26
Urban ST	36.94
Urban SC/ST	39.21
Total Non-SC/ST	39.43
Urban SC	39.59
Rural Non-SC/ST	42.59
Total SC	47.88
Total SC/ST	50.11
Rural SC	50.36
Rural SC/ST	52.57
Total ST	54.99
Rural ST	56.66

Source: Calculated from NFHS-3 (<-2 S.D., Below minus two standard deviation from median value.)

Fig. 2



Source: Calculated from NFHS-3 (<-2SD.,Below minus two Standard Deviation from median value).

Table – 3

India : State wise Per Cent share of 0-5 Underweight Child Population (2005-06)

States	Under Weight Percentage Share (0-5 YRS AGE)
Uttar Pradesh	20.81
Bihar	12.98
Madhya Pradesh	10.01
Maharashtra	7.49
Rajasthan	6.21
West Bengal	6.00
Gujarat	4.99
Andhra Pradesh	4.82
Karnataka	3.92
Jharkhand	3.86
Tamil Nadu	3.24
Orissa	3.09
Chhattisgarh	2.54
Assam	2.31
Haryana	1.97
Kerala	1.24
Punjab	1.17
Uttarakhand	0.81
North East (Excluding-Assam)	0.78
Delhi	0.73
Jammu And Kashmir	0.60
Himachal Pradesh	0.43

Source: Calculated from the estimated underweight child population

backward castes (OBC's) (Table 1 & Fig.1). The non-scheduled component of population has the lowest level of child undernourishment compared to the all other social groups. Out of the three anthropometric indicators only 'underweight' measure has been considered for the present study.

Table 2 and Fig.2 broadly suggest that at the national level the most vulnerable social group affected by child undernutrition in India is the rural ST population, followed by total ST, rural SC-ST, and rural SC population respectively. Among the disadvantaged social groups more than half of the children are found to be underweight. The social groups having the lowest prevalence of undernutrition are the urban non SC/ST, and urban ST and urban SC/ST population.

Regional Pattern and Disparity of Child Undernutrition in India

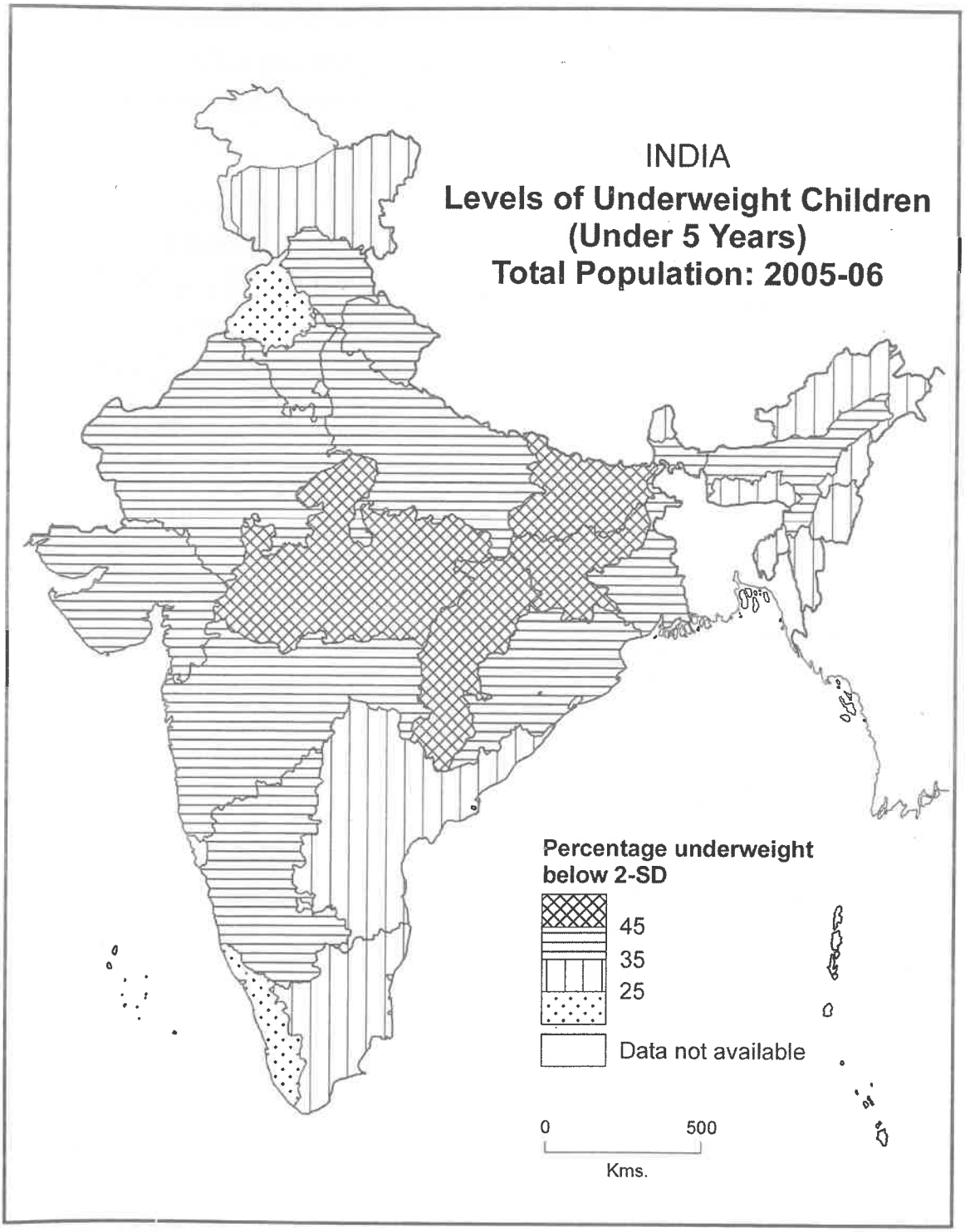
The regional pattern of undernourished children in the country can be understood both in terms of the regional share and their respective levels. The underweight children in the country are mostly from the three major states of Uttar Pradesh, Bihar and Madhya Pradesh. The highest proportion of underweight child population is in UP (20.81 per cent), followed by Bihar (13 per cent) and Madhya Pradesh (10 per cent in) (Table 3). The six larger states namely U.P., Bihar, M.P., Maharashtra, Rajasthan and West Bengal together have about 65 per cent of underweight children in India.

Table – 4
India : State wise Per Cent Level of Underweight Children (below 5 years of age)

STATES	TOTAL	RURAL	URBAN	RURAL-URBAN GAP	SC&ST	NON SC&ST	SC&ST-NON SC&ST GAP
J & k	25.74	27.96	15.71	12.25	41.3	24.06	17.24
H. Pradesh	36.32	37.50	25.00	12.5	40.63	34.46	6.17
Punjab	24.61	26.58	21.43	5.15	34.08	18.13	15.94
Uttaranchal	38.11	42.32	24.39	17.93	45.65	35.41	10.24
Haryana	39.71	41.08	35.27	5.81	48.16	36.61	11.55
Delhi	26.89	22.58	27.37	-4.79	30.26	25.88	4.39
Rajasthan	40.39	42.77	31.15	11.62	45.56	37.46	8.1
U Pradesh	42.31	44.07	34.95	9.12	48.86	40	8.86
Bihar	56.1	57.12	48.31	8.82	68.5	52.98	15.53
North-east	33.21	35.75	23.93	11.82	33.63	32.64	0.99
Assam	36.37	37.64	25.98	11.66	31.6	33.27	-1.67
W.B.	38.56	42.01	24.86	17.15	44.19	35.98	8.21
Jharkhand	57	61.07	39.65	21.42	62.78	52.99	9.79
Orissa	40.88	42.53	30.3	12.23	50.59	32.29	18.3
Chhattisgarh	47.61	50.69	31.98	18.71	50.82	44.7	6.12
M. Pradesh	59.86	62.5	51.25	11.25	67.34	54.28	13.06
Gujarat	44.67	48.17	39.02	9.15	53.98	41.21	12.77
Maharashtra	36.76	41.52	30.69	10.82	46.71	32.24	14.47
Andhra	32.71	35.1	28.32	6.78	39.49	30.24	9.25
Karnataka	37.62	41.11	31.22	9.89	40.82	37.08	3.74
Kerala	22.72	26.22	15.14	11.08	37.84	21.63	16.21
Tamil Nadu	29.96	32.63	26.82	5.81	40.76	25.84	14.93
India	**42.49**	**45.66**	**32.82**	**12.85**	**50.12**	**39.43**	**10.69**

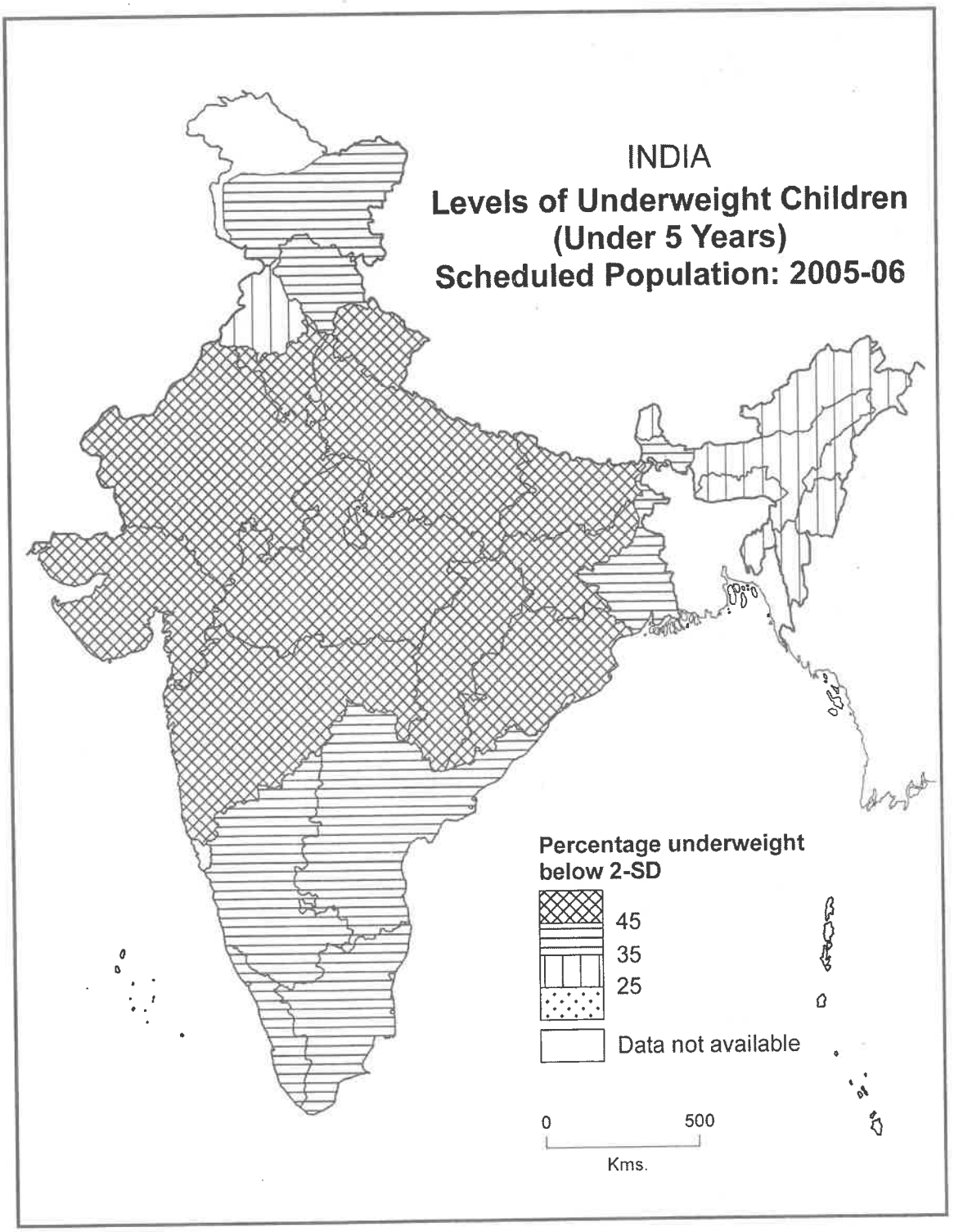
Source : NFHS-3 (2005-06)

Table 4 shows that the highest level of underweight children is in Madhya Pradesh (59.86 per cent), where every 6th child is undernourished. It is followed by Jharkhand (57 per cent), Bihar (56.1 per cent), Chhattisgarh (47.61 per cent), Gujarat (44.67 per cent), Uttar Pradesh (42 per cent), Orissa (40.88 per cent) and Rajasthan (40.39 per cent). In these backward states where child undernutrition is high, the proportion of scheduled population is also high. The lowest proportion of undernourished children is found in Jammu & Kashmir (25.73 per cent), Goa (25.58 per cent), Punjab (24.61 per cent) and Kerala (22.72 per cent). Geographically, the southern states have relatively lower proportion of underweight children for total, scheduled and non-Scheduled population as compared to the other states in the country (Figs.3, 4, and 5).



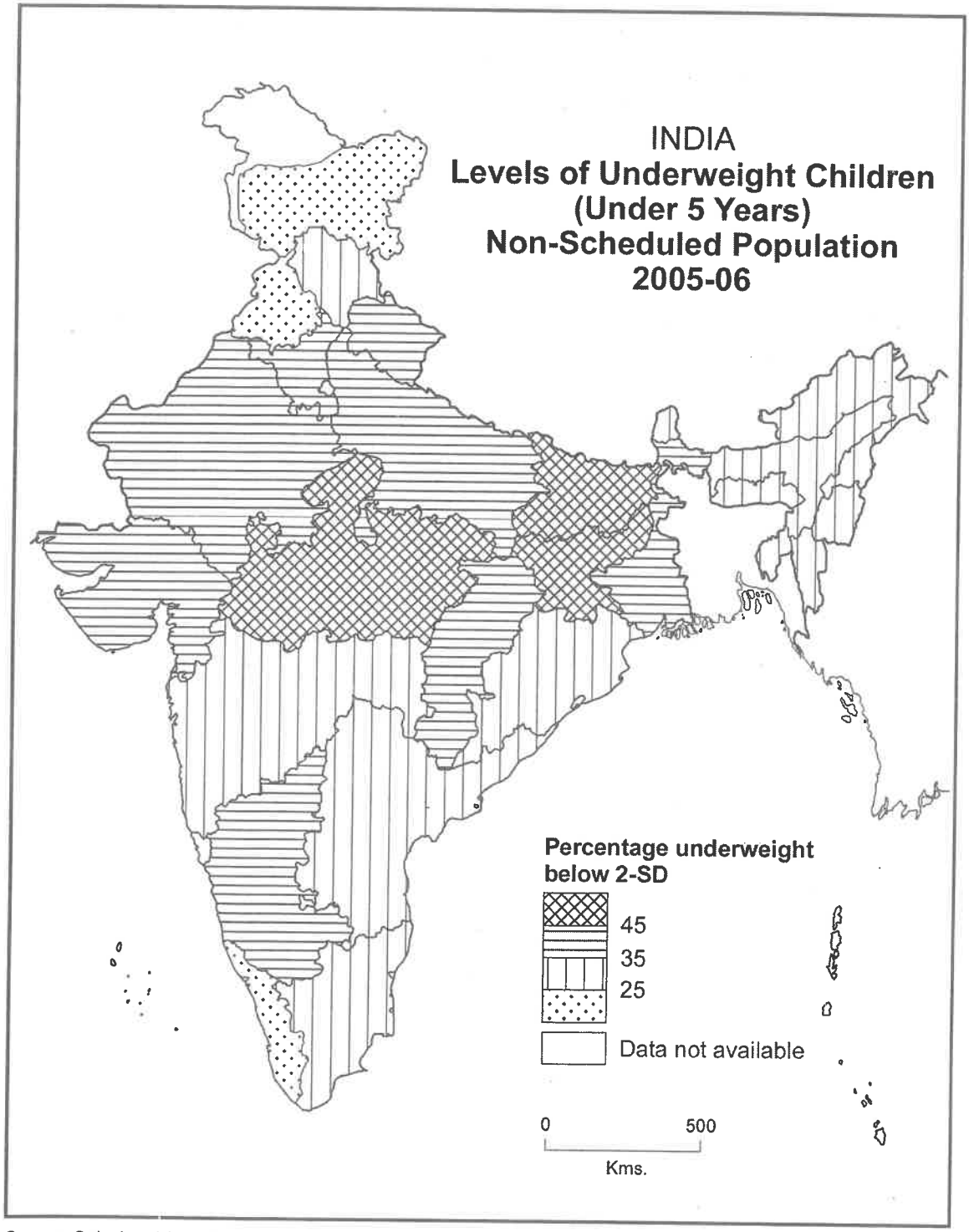
Source: Calculated from the NFHS-3 dataset

Fig. 3



Source: Calculated from the NFHS-3 dataset

Fig. 4



Source: Calculated from the NFHS-3 dataset

Fig. 5

Table – 5

India : Per Cent Change in Underweight Children between NFHS-2 & 3

States	Total	Urban	Rural	SCHD	NSCHD
Andhra Pradesh	-7.55	-4.33	-7.59	-7.09	-7.64
Assam	0.06	2.33	0.36	6.09	-8.46
Bihar	1.11	-3.37	2.10	7.09	-0.77
Delhi	-8.89	-6.70	-28.85	-9.58	-8.12
Gujarat	-3.82	-2.32	-5.10	-0.28	-3.80
Haryana	4.04	6.00	3.37	9.08	2.29
Himachal	-11.57	0.03	-12.72	-16.51	-11.02
J & K	-10.08	-6.59	-10.12	-11.10	-6.76
Karnataka	-9.93	-11.61	-8.75	-16.60	-7.31
Kerala	-5.36	-6.50	-3.72	-10.54	-3.02
Maharashtra	-16.62	-16.41	-16.04	-11.45	-19.82
M. Pradesh	0.30	3.41	-0.64	-0.08	-0.07
North East	-2.15	-9.23	-0.27	-1.28	-3.77
Orissa	-14.87	-16.65	-14.21	-9.42	-19.58
Punjab	-4.98	1.17	-6.03	-6.56	-5.37
Rajasthan	-13.41	-19.35	-12.01	-14.23	-13.23
Tamil Nadu	-10.43	-10.67	-9.21	-11.99	-10.53
Uttar Pradesh	-9.83	-11.54	-9.28	-11.69	-9.37
West Bengal	-11.26	-7.31	-11.80	-12.61	-11.04
India	**-5.90**	**-7.86**	**-5.21**	**-5.26**	**-6.03**

*[*Uttar Pradesh, Bihar and Madhya Pradesh represent the previous undivided state; North East region is excluding the Assam]*

Source: Calculated from the NFHS-2 &3 dataset

Gaps in Child Undernourishment Levels among Rural-Urban and Scheduled and non-Scheduled Population

An important aspect of the child undernutrition in India is the extensive disparity between the rural-urban and scheduled-non scheduled population on a regional scale (Table 4). Across all the states the rural population has higher levels of underweight children as compared to its urban counterpart. The only exception in this regard is Delhi. In states like J&K, H.P., Rajasthan, Assam, North Eastern Region (excluding Assam), Orissa, M.P., Maharashtra and Kerala, the gap is of more than 10 per cent points. In three other states, *viz.*, Uttarakhand, Jharkhand and West Bengal the gap exceeds 15 per cent points. The rural-urban divide in child undernutrition leads to further disparities between the major social groups in India since most of the socially backward SC's, ST's reside mainly in rural areas. According to 2001Census, 79.8 per cent of S.C's and 91.7 per cent of ST's were rural inhabitants.

The state level gaps in the proportion of underweight children of scheduled and non-scheduled population provide an important understanding of the nature of social inequities in the country. It has been observed that in all the states (except Assam) the scheduled population has higher proportion of underweight children. In states where the overall undernutrition levels are quite high, the scheduled population is also found to be far more vulnerable e.g. Bihar (68.55 per cent), Madhya Pradesh (67.34 per cent), Jharkhand (62.78 per cent), U.P (48 per cent), Orissa (50.59 per cent) (Table 4). In Bihar and

Madhya Pradesh about seven out of every ten children from scheduled background are undernourished. In some of the states like Punjab and Himachal Pradesh where the underweight rates for the non-scheduled group are 18.13 per cent and 34.46 per cent respectively the comparative figures for scheduled population are as high as 34.08 per cent and 40.63 per cent respectively. Even in developed states such as Kerala and Tamil Nadu which have an overall lower level of underweight children, the figures for scheduled population are quite high. The North-East states form a much more equitable region in terms of lower social inequalities in the levels of undernutrition amongst children. The factors associated with such gaps are diverse and include higher levels of urbanization, education, etiological, environmental factors and importantly a lower concentration of non-scheduled component of population, among others.

Comparison of Levels of Child Undernutrition between NFHS-2 & 3

The change in the proportion of underweight children between NFHS-2 & 3 has been used to draw a comprehensive picture of the prevailing trends at the state level. At the national level the proportion of underweight children has declined by 5.9 per cent (Table 5). The highest reduction in the proportion of underweight children has been in Maharashtra (over 16 per cent), followed by Orissa, Rajasthan, Himachal Pradesh, West Bengal, Tamil Nadu and J&K. Lower levels of reduction have been in the North-Eastern states (excluding Assam), Gujarat, Punjab and Kerala. In comparison there has been an increase in the proportion of underweight children in the states of Haryana, Bihar, Madhya Pradesh and Assam indicating that the problem has been further accentuated.

At the national level reduction in the proportion of underweight children in urban areas has been relatively higher (7.8 per cent) as compared to the rural areas (5.2 per cent) (Table 5). The highest decline in underweight children in urban areas has taken place in Rajasthan (19 per cent) followed by Orissa and Maharashtra. The lowest decline has been in Gujarat, Bihar and Andhra Pradesh. In Haryana, Madhya Pradesh, Assam, Punjab and Himachal Pradesh the proportion of urban underweight children has increased during NFHS-2 and NFHS-3. For the rural areas higher level of decline was in Delhi (28 per cent), Maharashtra and Orissa. The state of Madhya Pradesh and North-East region witnessed only a marginal change, while in Assam, Bihar and Haryana the underweight children percentages have increased. Among the scheduled population there has been a substantial decline in the proportion of underweight children in Karnataka, Himachal Pradesh and Rajasthan. In other states like West Bengal, Uttar Pradesh, Maharashtra, J&K, Kerala, Delhi and Orissa the decline in the proportion of underweight children among the scheduled population has been high. In North-East region and Gujarat the change has been marginal. In comparison Haryana, Bihar, Assam and Madhya Pradesh have witnessed an increased in the proportion of underweight children among the scheduled population. In terms of non-scheduled population the highest decline in the proportion of underweight children has been in Maharashtra and Orissa. In Kerala, North-East region, Gujarat and Punjab the decline was relatively low while in Madhya Pradesh and Bihar the decline was only marginal. Haryana recorded and increase of 2.29 per cent in the underweight children among non-scheduled population.

Causes for the Regional and Social Inequalities in Child Undernutrition in India: A State Level Analysis

CHOICE OF INDICATORS: In order to identify different reasons associated with the regional and social inequalities in child undernutrition at the state level a correlation matrix has been computed. For this purpose different types of indicators have been selected which can be

broadly grouped into the following four categories:

A. *Economic Indicators:*

a. Per capita net state domestic product (NSDP) at current prices for 2004-05 and 2006-07

b. Percentage of population living in the lowest two quintiles (poorest and poorer) of the Wealth Index in the NFHS-3 data set.

c. Per capita expenditure in social sector for 2000-05 at current prices.

B. *Health Status and Health Access Indicators:*

a. Low Birth Weight (LBW) rate.

b. Percentage of children who are anaemic.

c. Percentage of women who are anaemic.

d. Percentage of children (12-23 months age) who received all the basic vaccination.

C. *Social Wellbeing Indicators:*

a. Percentage of population having access to safe drinking water.

b. Percentage of women engaged in manual work.

D. *ICDS Indicators:*

a. The ICDS coverage.

b. Percentage of children who received nutrition supplementats from ICDS

c. Per capita child expenditure under the ICDS for the year 2005-06.

d. Number of ICDS centres per 10000 child population (0-5 years).

RATIONALE FOR SELECTION OF INDICATORS: At the state level per capita net state domestic product at current prices (for the year 2004-05 and 2006-07) has been analysed to examine whether a correlation exists between the state income and the level of child undernutrition. Behrman and Rosenzweig (2004) have found that cross-country variation in per capita GDP was inversely related to the low birth weight rate (LBW, <2.5 kg). Klasen (2006) has observed an 'interregional puzzle' where persistent child malnutrition was not declining inspite of growth in income. The cross country analysis by Gabriele *et al.*, (2007) showed that child undernutrition and mortality indicators are negatively correlated with per capita GDP. In India, Deolalaikar (2005) observed that though the variation in undernutrition at the state level has an inverse relationship with per capita gross domestic product but this association is by no means perfect. Certain states, in spite of a high income, had higher underweight children suggesting that socio-cultural factors also influence undernutrition levels. Radhakrishna (2004) found that in India some of the middle income states have a lower level of undernutrition compared to the high income group states. This may be related to the efficiency of the access to basic health and child care services in these middle income states (Shivakumar, 2005). Poverty is one of the basic underlying causes for child undernutrition. Nandy *et al.*, (2005) have concluded that child undernutrition is highly correlated with mean standard of living, calculated from the NFHS-2 dataset. Nair (2007) also found that state level variations in child undernutrition and the percentage of population living 'below poverty line', as determined through official data by Government of India, were highly correlated. For the present study instead of 'below poverty line' at the state level, percentage of population living within the lowest two quintiles of wealth index (poorest and poor) from the NFHS-3 dataset has been used. The Low Birth Weight Infants have a higher possibility of remaining undernourished throughout their early life (Gopalan, 1994). The higher level of LBW is mostly attributed to foetal undernutrition and pre-term birth; and the major background factor for it is a higher proportion of pregnant mothers suffering from anaemia. A low nutritional status among the women during pregnancy or anaemia may lead to intrauterine or foetal growth retardation, preterm birth and low birth weight (Allen,

TABLE – 6 CORRELATION MATRIX

TABLE – 6
CORRELATION MATRIX

INDICATORS		UNDER WEIGHT		L.B.W.		ICDS COVER	NUTRITION ICDS		MOTHER THIN		MOTHER ANAEMIA		CHILDREN ANAEMIA		VACCINATION		DRINKING WATER		MANUAL WORK MOTHER		WEALTH INDEX		NSDP	ICDS EXP.	SOCIAL EXP	ICDS NO.
		TOT	SCH	TOT	SCH	TOT	TOT	SCH	TOT	SCH	TOT	SCH	TOT	SCH	TOT	SCH	TOT	SCH	TOT	SCH	TOT	SCH	TOT	TOT	TOT	TOT
UNDER WEIGHT	TOT	1																								
	SCH	.90#	1																							
L.B.W.	TOT	.20	.21	1																						
	SCH	.00	.17	.55*	1																					
ICDS COVERAGE	TOT	-.15	-.10	-.58#	-.30	1																				
NUTRITION ICDS	TOT	.10	.00	-.58#	-.62#	.34	1																			
	SCH	.06	.00	-.65#	-.66#	.39	.97#	1																		
MOTHER THIN	TOT	.78#	.59#	.08	-.09	-.16	.16	.12	1																	
	SCH	.61#	.59#	.13	.16	-.28	.07	.05	.82#	1																
MOTHER ANAEMIA	TOT	.58#	.43	.10	-.02	.12	-.12	-.13	.74#	.44	1															
	SCH	.64#	.47*	.05	-.10	.08	-.01	-.02	.76#	.44	.97#	1														
CHILDREN ANAEMIA	TOT	0.62#	.48*	.38	.02	-.09	-.08	-.11	.57#	.33	.61#	.56*	1													
	SCH	.62#	.47*	.31	-.07	.08	-.02	-.06	.54*	.27	.70#	.67#	.94#	1												
VACCINATION	TOT	-.62#	-.44	-.20	-.03	.28	.30	.30	-.56#	-.32	-.54*	-.52*	-.69#	-.60#	1											
	SCH	-.59#	-.47*	-.18	-.03	.34	.31	.30	-.50*	-.34	-.52*	-.50*	0.69#	-0.60#	0.96#	1										
DRINKING WATER	TOT	.01	.04	.51*	.20	-.34	-.01	-.08	.05	.23	.00	-.06	.40	.33	.12	.05	1									
	SCH	.07	.09	.49*	.18	-.33	.03	-.04	.09	.26	.04	-.02	.44	.38	.08	.00	.99#	1								
MANUAL WORK MOTHER	TOT	.66#	.57#	-.15	-.28	-.11	.39	.39	.62#	.49*	.40	.48	.48*	.43	-.45*	-.50*	-.05	.01	1							
	SCH	.77#	.70#	-.17	-.16	-.06	.35	.38	.66#	.53*	.42	.48*	.51*	.45*	-.57#	-.58#	-.10	-.04	.90#	1						
WEALTH INDEX	TOT	.76#	.58#	-.10	-.22	.00	.18	.18	.81#	.55*	.70#	.73#	.57#	.60#	-.70#	-.67#	-.20	-.15	.58#	.73#	1					
	SCH	.77#	.66#	-.13	-.17	.02	.16	.16	.78#	.60#	.64#	.66#	.55*	.57#	-.69#	-.70#	-.20	-.15	.61#	.77#	.97#	1				
NSDP	TOT	-.57#	-.50*	.14	.01	.09	.08	.10	-.48*	-.40	-.51*	-.51*	-.38	-.38	.71#	.76#	.25	.20	-.45*	-.59#	-.80#	-.83#	1			
ICDS EXP.	TOT	.35	.24	-.28	-.46*	.14	.38	.36	.37	.23	.16	.22	.02	.02	-.16	-.13	-.42	-.37	.38	.33	.33	.33	-.21	1		
SOCIAL EXP.	TOT	-.39	-.36	-.17	-.06	-.05	.23	.18	-.19	-.07	-.26	-.23	-.50*	-.50*	.61#	.58#	.03	.01	-.03	-.28	-.56#	-.56#	.55*	.25	1	
ICDS NO.	TOT	-.47*	-.42	-.51*	-.14	.15	.37	.31	-.27	-.10	-.37	-.30	-.62#	-.59#	.61#	.55*	-.25	-.24	-.13	-.32	-.36	-.34	.20	.23	.63#	1

**Correlation significant at 1% level, # correlation significant at 5% level*

2001). Therefore, the nutritional status of mothers also has been considered in this study. The children at an early age are more prone to different kinds of infectious diseases; vaccination therefore is an important indicator for showing children's susceptibility to certain infections and as well as access to health care facilities. The water borne diseases, e.g. diarrhoea, are important contributing factors for child mortality and undernutrition in developing countries. According to Dasgupta (1997) and Ramachandran (2007) undernutrition in Indian scenario can also be explained with respect to nature of workload for women. The percentages of mothers engaged in low paid manual work have been included in this study. According to NFHS-3 the categories are agricultural employee, household and domestic workers, services, those engage in skilled and unskilled manual work. Almost every scholar has considered Integrated Child Development Service (ICDS) as a major intervention for reducing child undernutrition level in India. This is the reason for selecting the four ICDS indicators mentioned above. A correlation matrix for all the indicators separately for the total population and scheduled population has been computed for the state level analysis (Table 6).

From the correlation matrix it is found that levels of child undernutrition (both for the Total and Scheduled Population) are very much related to mother's nutritional status (BMI) and anaemia level, level of anaemia among the children, basic vaccination coverage, mothers work status (percentage engaged in manual work), poverty level (measured through wealth index), per capita N.S.D.P. and number of ICDS per 10000 child population of 0-5 years of age. Interestingly it is found that though ICDS coverage, social sector expenditure (2000-05) are not correlated with the state wise variations in proportion of underweight children, but these indicators are found to be correlated with some of the other important health indicators like LBW., mothers BMI and anaemia level, child anaemia level and vaccination coverage. Among the ICDS related indicators though the actual availability of such centres per 10000 child population is found to be correlated but the physical coverage of such centres is not correlated with the state level variation in child undernutrition. This broadly suggests that adequate numbers of *anganwari* centres are required in most of the states where child undernutrition levels are relatively high. Further, it is observed that the functioning of ICDS i.e. access to the supplementary nutrition from ICDS across the states are found to be negatively correlated. The observation indicates the wide gaps which exist between the physical presence of ICDS and their actual functional accessibility.

Discussion

Child undernutrition is all pervasive in India with striking inequalities at the social and regional scale. In the Asian context the percentage of decline of undernutrition is nearly half of the economic growth (Alderman, 2005). It has also been observed that even rapid economic growth does not lead to a reduction the level of child undernutrition in India. Thus 'Asian enigma' (Ramalingaswami, 1997) in terms of high level of undernutrition is also true for India. The reduction of child undernutrition in India essentially requires implementation of multifaceted programmes and approaches, as the causes are multidimensional in nature. The extensive poverty, though important, is not the single most reason for undernutrition in the country. There are certain other aspects which are also vital such as breast feeding and child care practices (Shivakumar, 2007; Nair, 2007). There are some other issues such as gender disparity in allocation of food and access to health for women of reproductive age-group etc. But from policy point of view the most important issue is importance of 'universalisation of ICDS with quality'[1] centres, enhancement of public health care facilities both for the mothers and children and most importantly the eradication of poverty in the country.

The ICDS launched in 1975 is the world's largest supplementary nutrition programme for children with the objective of providing supplementary food for children and pregnant and lactating mothers. Further, providing basic vaccination and pre-school education to the young children is an additional task taken up by the ICDS. Though ICDS project was launched in India more than three decades ago, studies have pointed out that it has a very poor functioning in many backward districts and the areas inhabited by the scheduled population in the country. According to the Focus[2] survey (2004) in most of the backward states in India ICDS and especially the supplementary nutrition programmes are not only irregular but is also suffer from serious accountability problems. As per Supreme court order of 2001[3] every settlement in India should have an *anganwari* centre and every child, mother and adolescent girl should be covered under it, but such universalisation not yet been achieved in reality. The strengthening of ICDS would mean its proper functioning with universal access. Besides, the basic health care services are also required to be strengthened. Currently the Govt. of India has launched National Rural Health Mission (NRHM-2005). Under the NRHM, ASHA health workers have been inducted to improve the rural health care facilities in the country. If these programmes are implemented properly, these can also be helpful in reducing levels of child undernourishment. Lastly the reduction of social and regional inequalities in child

End Notes

(1) Phrase used by Jean Dreze (2006) in 'Universalisation with Quality: ICDS in a Right Based Perspective'; *Economic and Political Weekly*. Earlier it was used by him in 2004, in a report to National Advisory Council, *Universalisation with Quality: An agenda for ICDS*. The report is available at *www.righttofoodindia.*

(2) 'Focus on Children Under Six' was a survey conducted in six states in India in 2004. For more information on the survey visit *www.righttofoodindia*

(3) In a Public Interest Litigation (WP No. 196/2001) filed by PUCL, the Supreme Court has given the directions (Order dated 28-11-2001) with regard to the ICDS Scheme that every settlement must have an ICDS centre and that every child aged 0-6, every pregnant and nursing mother and every adolescent girl would be covered under the ICDS. For more information visit *www.righttofoodindia.*

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SELF HELP GROUPS AND POVERTY ALLEVIATION : A CASE STUDY OF BAWANI KHERA BLOCK (DISTRICT BHIWANI), HARYANA

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Siwani (District Bhiwani, Haryana), India

Abstract

Various steps have been taken by the Government of India in the last few decades to gear up rural development through self employment schemes. The earlier poverty alleviation programmes were conceived as integrated programmes with the objective of supplementing each other's efforts to ensure synergy. However, each programme was implemented as a separate and independent one focusing more on the achievements of individual programme targets. In comparison *Swarnjayanti Gram Swarozgar Yojana* (SGSY) strives for a concerted and collective approach for poverty alleviation through self-employment opportunities. The main focus of SGSY is on group approach i.e. organization of the poor into Self Help Groups (SHGs) through social mobilization. The success of any such programme depends largely upon the manner in which it is implemented. The present study is an attempt to investigate the performance of SGSY with regards to SHGs in Bawani Khera Block of Bhiwani district in Haryana. Out of the total 35 SHGs, the members of 20 groups have been interviewed through structured schedules. The data has been analyzed using simple statistical techniques. The officials involved in the implementation of the scheme were also interviewed. Missing links have been underlined and remedial steps to improve the performance of SGSY in the study area have been suggested.

Introduction

India has travelled a long distance on the road to development since independence and has made significant progress in various sectors. In spite of development in various fields the problems of poverty and unemployment have become serious with time. These problems are main hurdles in the overall development of the economy. Since India is a country of villages, the crux of the problem lies in the rural areas. Government of India stands committed to wipe out poverty and hunger from the face of our villages. Various steps have been taken in the last few decades to gear up rural development. Anti-Poverty Programmes have been a dominant feature of government initiatives in this regard.

Such earlier programmes as Integrated Rural Development Programme (IRDP), Development of Women and Children in Rural Areas (DWCRA), Training of Rural Youth for Self Employment (TRYSEM), Supply of Improved Tool kits to Rural Artisans (SITRA), and Ganga Kalyan Yojna (GKY) were conceived as integrated programmes with the objective of supplementing each other's achievements to ensure synergy. However, each programme was implemented as an independent programme and focused more on the achievement of that particular programme

targets only. The overall impact of these programmes in poverty alleviation, therefore, was less than what was expected. In terms of percentage rural poverty has declined from 56.44 per cent of the country's population in 1973-74 to 27.09 per cent in 1999-2000. However, the cause of concern is that the estimated number of rural poor is still about 193 million. This has led to a review and restructuring of anti-poverty programmes.

In compliance with the demand of time and to match economic liberalization the earlier programmes were reviewed and the *Swarn Jayanti Gram Swarozgar Yojana* (henceforth SGSY) was launched from 1st April 1999 as a single self-employment programme in their place. The scheme seems by far the most viable, comprehensive and a bold initiative. Taking stock of the loopholes of earlier programmes, this strategy strives for a concerted and collective inroad into poverty through generating self-employment opportunities.

The emphasis of earlier programmes on individual benefits with one time credit without capacity building, infrastructure and marketing support is replaced by group benefit approach in SGSY. The group approach has the potential to overcome most of the observed weaknesses of earlier programmes. This scheme has a few distinct advantages and when these are harnessed the imminent substantial tangible results on poverty eradication will become apparent. In this scheme the emphasis on small savings, thrift and inter-loaning is expected to give a sense of ownership to the group. The inter-loaning from accumulated funds will meet the emergent personal or family contingencies. Since bank credit will be made available after the self-help groups (henceforth SHG) imbibe collectivity and achieve group strength there is little possibility for the credit amount to be misused in the manner as was the case in earlier programmes. Moreover, the credit will be according to the maturity and absorptive capacity of each group. The group approach is also expected in resolving individual or collective problems of almost every conceivable type without depending on outside intervention. It is also perceived that the group formation process will lead to a higher level of awareness which in turn will demand delivery of services being undertaken by the government including better supervision and determination to safeguard own resources.

Objectives of SGSY

The main focus of SGSY is on group approach- organization of the poor into Self-Help Groups through social mobilization. This is a single cell self-employment programme for rural poor aimed at establishment of a large number of micro-enterprises.

Study Area

The area selected for the study is Bawani Khera Block of Bhiwani District in Haryana. The importance of the selected area lies in the fact that it is a backward area as declared by Government of Haryana. Some villages in the block have a high concentration of Scheduled Caste population, which is the target group of SGSY.

Objectives

The objectives of the study are as follows:

1. To review the physical and financial progress under SGSY since its inception in India as well as in Bawani Khera block.
2. To investigate the performance of SGSY with regard to SHGs in the study area.
3. To investigate the role of implementing agencies, line departments, bankers and NGOs/facilitators in SGSY.
4. To find out the 'missing links' and to suggest remedial steps to improve the performance of SGSY.

Data Base and Methodology

Data regarding physical and financial progress under SGSY in India has been taken

Table - 1
Trends of Financial Progress under SGSY in India, Haryana, and Study Area

	Investment on SHGs (Rs. In Lakh)				Investment on Individual *Swarozgaris* (Rs. In Lakh)			
	Credit	**Subsidy**	**Total Investment**	**Per cent Investment**	**Credit**	**Subsidy**	**Total Investment**	**Per cent Investment**
Bawani Khera								
2001-02	0.00	0.00	0.00	0.00	33.97	9.82	43.79	100.00
2004-05	10.66	4.20	14.86	18.31	45.14	21.14	66.28	81.69
Haryana								
2001-02	137.85	108.10	245.95	8.16	2068.79	698.80	2767.59	91.84
2004-05	977.86	487.84	1465.70	72.82	396.92	150.02	546.94	27.18
India								
2001-02	13811.67	9628.83	23440.50	23.97	51270.79	23098.26	74369.05	76.03
2004-05	46491.21	28083.75	74574.96	63.89	27297.68	14859.00	42156.68	36.11

Source: Annual Reports, Ministry of Rural Development and DRDA Bhiwani.

Table - 2
Physical Progress under SGSY during 2004-05 in India, Haryana, and Study Area

Items	India	Haryana	Bawani Khera
SHGs formed since 1.4.99	1900894	7519	35
Groups formed during the year	159977	580	10
No. of SHGs passed Grade I	126765	757	15
No. of SHGs passed Grade II	93022	495	5
Women SHGs formed	122306	306	28
No. of women SHGs taking up economic activity	20049	270	Nil
Total SHGs taking up economic activity	32216	477	Nil
Members of SHGs trained	914761	16736	Nil
No. of individual *swarozgaris* assisted & trained	70754	1181	Nil
Total *swarozgaris* assisted & trained	985515	17917	Nil

Source: Annual Reports, Ministry of Rural Development and DRDA, Bhiwani

from the Annual Reports of Ministry of Rural Development, Govt. of India. The corresponding data for the district has been obtained from the office of the DRDA, Bhiwani. Data regarding the performance of SHGs has been collected through a structured schedule.

The Bawani Khera Block comprises of 34 villages. Out of these, in 15 villages 35 Self-Help Groups had been formed till May-June, 2004 when the primary survey was conducted. Since as per the SGSY policy guidelines a group can take one year to engage in income generating activity the groups selected as sample were the one which had been formed up to March 2002. The duration of more than two years was considered to be quite adequate to evaluate the performance of a group. Out of the total 35 SHGs distributed in 15 villages, 20 groups in 9 villages have been studied. In this way, more than 57 per cent of the total Self-Help Groups and 60 per cent of the total villages have been covered in the field survey. The data has been presented in the form of tables.

Progress under SGSY: An Overview

FINANCIAL PROGRESS: Although SGSY lays emphasis on group approach, the major share of the funds had been allocated to individual *swarozgaris* in the initial years. However, the trend has been changing significantly in the course of time in favour of groups (Table 1). In 2004-05, near about two third of the funds were utilized for self-help group *swarozgaris* at national level. A similar trend can be observed in the case of Haryana where nearly 92 per cent of the SGSY funds were utilized for individual *swarozgaris* in 2001-02. For policy expectations, drastic changes took place during the following three years and as a result, the major chunk of funds (72.82 per cent) was given to self-help groups.

A similarity of trends in financial progress as observed at the national and state level is quite obvious. Since the implementation of SGSY is process oriented the SHGs require initial preparatory work i.e. identification of poor, formation of groups, their capacity building and grading over a period of time. However, the situation is totally different in the study area where all the funds were utilized by individual *swarozgaris* in 2001-02 and there was little change in the subsequent years also. This indicates the poor performance of self-help groups in Bawani Khera block.

PHYSICAL PROGRESS: Self-help group formation process is in an evolutionary phase in India. Under SGSY more than 1.9 million groups had been formed up to December 2004 and 32216 SHGs have taken up economic activities so far. During 2004-05 a total of 985515 *swarozgaris* were trained out of which 93 per cent *swarozgaris* were SHG members (Table 2)

The process of self-help group formation is quite slow in Haryana. Till December 2004, only 7519 SHGs (0.4 per cent of India) had been formed in the state. The number of *swarozgaris* who had been provided training under the SGSY training fund was 17917 out of which 93.41 per cent were SHG members.

The progress of SGSY in Bawani Khera block cannot be considered satisfactory since only 35 SHGs have been formed, including 10 groups which were formed only during the last year, since the inception of the scheme. Also the quality of these groups is not up to the mark. The number of groups that have qualified Grade I is 15, out of which only 5 groups could pass Grade II. All these groups were sanctioned a loan by March 2005 but could not take up economic activities till June 2005. None of the *swarozgaris* (SHGs or individuals) have been provided any training. The above facts very clearly reflect the poor progress of SGSY in the study area.

Attributes of Self Help Groups

SOCIO-ECONOMIC COMPOSITION: Majority (61.34 per cent) of the *swarozgaris* are below 35 years of age and an additional 32.44 per cent belong to '35-50' age group. In this way,

about 94 per cent of the *swarozgaris* are below the age of 50. Majority of the *swarozgaris* (62.22 per cent) are illiterate. Illiteracy is more prevalent among females (more than 69 per cent). The corresponding figure for male *swarozgaris* is below 15 per cent. In terms of caste wise distribution majority (62.67 per cent) of the sample *swarozgaris* belong to scheduled castes followed by backward class *swarozgaris* (28 per cent). The *swarozgaris* belonging to the general population comprise less than 10 per cent of the sample. Occupationally most of the *swarozgaris* (71.11 per cent) are agricultural labourers. As per SGSY guidelines all the members of a group should belong to families below the poverty line. However, a maximum of 20 per cent and in exceptional case 30 per cent of the group members can be from families marginally above poverty line. In the study area these norms have been followed.

ROLE OF MOTIVATORS: It is a well-established fact that nothing can be achieved without proper motivation. It is more so in the case of SHG development since the target group is illiterate, unorganized, and unaware of the scheme and has a passive attitude. The role of government officials and the persons who have already become members of SHGs is quite influential in the study area. There is an absence of an active NGO in the study area.

FORMATION AND FUNCTIONING: A Self Help Group is a group of the rural poor who have volunteered to organize themselves into a group with the objective of eradication of poverty among the members by engaging in economically gainful activities. Under SGSY a self-help group may consist of 10-20 members. The most common group size in the study area is of 10 and 12 members.

Under SGSY policy guidelines, the group needs to devise a code of conduct (Group Management Norms) to bind itself. These should be in the form of regular meetings (weekly or fortnightly) and participation of the members in the decision making process. But weekly or fortnightly meetings are not held in the study area, instead monthly meetings are organized regularly by majority of the groups. The presence of members in the group meeting ranges from 58 per cent to 91 per cent depending upon the functioning of the group.

Active participation of group members in group meetings is one of the basic requirements of a quality group. In the study area only 100 members out of the total 225 actively participate in group meetings. On an average 50 members attend the meetings only for the sake of attending it. In other words 125 out of 225 members know nothing about the latest group activities. Furthermore, they are indifferent about knowing the developments of their groups except for the sanctioning of loan and subsidy. This is more so in the case of female members.

The primary survey revealed the following main reasons behind the tendency of absenteeism: (i) nearly one third of the respondents had little interest in the scheme due to its 'process oriented' nature, (ii) more than 20 per cent of the respondents complained that they were not properly informed about the date and time of the meeting, (iii) a significant number of members did not attend the meetings for other reasons such as out migration, interference of male family members, lack of information about the scheme, undemocratic environment at the meetings etc.

SGSY requires that the members of SHG should build their financial corpus through regular savings. The quantum of savings has to be decided by the members themselves. The group should be able to collect the minimum voluntary saving amount from all the members regularly. The savings so collected will be the group corpus fund. This fund should be used to advance loans to the members. In the study area the saving record of the group members is quite good and members of 80 per cent SHGs have been contributing to the group corpus fund.

Out of the total 20 SHGs loans have been advanced by 18 SHGs. The rate of interest on loans has been fixed at 24 per cent p.a. by all the groups. More than 60 per cent of the members have availed loans from the group corpus fund. Most of them have expended the amount for domestic purposes and only about 3 per cent of the members have utilized the amount for income generating activities.

A fixed repayment schedule has not been followed by any of the groups. The members repay the loan in one or more installments according to their convenience. Only about 45 per cent of the members are regular in repayment of loans and the remaining 55 per cent of the members are defaulters.

The credit relationships of SHG *swarozgaris* with local banks reveals that 37 members belonging to 13 groups had taken loans from different local banks. Out of the 37 who availed a loan, 14 have not cleared their loan account and hence have been declared defaulters. This is a great hurdle for the SHGs to pass the grading process as the banks deny credit facility to such groups.

The SHG formation stage generally lasts for six months. At the end of six months each SHG is subjected to a test to determine whether it has evolved into a good group and is ready to go into the next stage of evolution. This is done through a grading exercise. In the study area even after completion of quite a long formation period, 75 per cent of the groups have not undergone the grading process. Since the performance of the majority of the groups is poor, as it is evident from earlier discussion, they need more attention and follow up from the grading officials to qualify as a good group. The remaining 25 per cent (5 groups) have been graded and qualified for the second stage and a 'Revolving Fund' has been disbursed to them for their capacity building. It is interesting to note that 2 out of these 5 groups were not allowed to withdraw the revolving fund amount from the bank account by the bank manager of the concerned branch because some of the members of the groups were defaulters.

According to the primary survey the reasons for not being considered for first grading are: (i) out of these 15 groups six take the responsibility of their fate since they failed to manage the groups properly, (ii) the remaining 9 groups have shown resentment against the officials responsible for the grading process.

Reasons of Poor Performance of SHGs

A number of reasons responsible for the slow progress of SHGs have been observed in the field. These are discussed below:

Illiteracy among *swarozgaris*, particularly with respect to females, has proved a major hurdle in the development of SHGs. In the present sample there are a few groups in which all the group members, including office bearers, are illiterate. As a result the members find themselves unable to manage the group accounts on their own. They can be easily misguided by anyone within or outside the group.

The knowledge level of the *swarozgaris* about the scheme is very low. They are just informed by the facilitators that the group will be provided with a loan and a subsidy within six months if they contribute regularly to the group corpus fund. The inefficiency on the part of the facilitators is also responsible for the poor performance of SHGs because: (a) they do not monitor the meetings regularly; (b) they are not available to the group members as and when needed; (c) they usually misguide the people at the time of group formation that they would be given loan and subsidy at the end of six months period; (d) they are unable to coordinate with the DRDAs and bank officials; (e) sometimes they form a group with the consultation of a person without taking into confidence and motivating all the persons who are to be included in the group; (f) they rarely discuss about the key economic

activity which the members might wish to take up in near future.

Lack of motivation and confidence among SHG members is yet another factor responsible for premature disintegration of groups. Since an SHG is a volunteer organization of 10 to 20 members, all of them should be committed, trustworthy and having common interests. In the study area most of the members do not possess all these qualities since; (a) they are defaulters of the banks; (b) they are not really 'poor' but have got their names entered in the BPL list and are least interested in the smooth functioning of the group but only wish to somehow receive the subsidy amount; (c) they do not require loan for daily uses from the group corpus fund and are impatient to get government loan; (d) since their habitats are dispersed in distant localities they are not able to attend the meetings regularly; (e) lack of homogeneity with respect to social and financial status creates intra-group differences.

The SHG proceedings are financial in nature. These proceedings should be up to date and in the knowledge of each and every group member to instill confidence among the group members. Some irregularities in this respect have been noticed in the study area e.g.: (a) individual passbooks are incomplete; (b) individual passbooks are not handed over to group members; (c) in some cases the members are forced to take loan from the group corpus fund and in some other cases loan is not given even after repeated requests; (d) the members are not made aware of the latest status of the group account at the time of group meetings; (e) after the disbursal of loan from group corpus fund, the *pradhans* keep the surplus amount with them instead of depositing it in the group savings account in the banks.

At the end of six months of formation period, it is necessary to evaluate each SHG to determine whether it has evolved into a good group or it requires feedback and assistance to become a good group. Unfortunately these practices are not prevalent in the study area. Out of the 20 groups, only 5 had been tested before the completion of the field survey. Out of these 5 groups, 3 have received revolving fund as the bank managers denied to release the revolving fund to the remaining two groups because some of the members of these groups were defaulters of the banks. The remaining 15 groups, which had completed 3-4 years of their formation, have not yet been tested for grading. Some of these groups are functioning very well and urgently need assistance in the form of revolving fund for capacity building.

A sense of entrepreneurship must be developed in the *swarozgaris* so that they mentally prepare themselves to take up the economic activity in near future. The bank officials, the DRDA officials or line departments can play vital role in this regard by interacting with the *swarozgaris* in group meetings and discuss at length about the specific economic activity to develop a sense of entrepreneurship among the members. It is disheartening to note that these practices are not followed in the study area.

Since SGSY is a credit-cum-subsidy programme the bankers play a very crucial role in its implementation. The missing link between the *swarozgaris* and the bankers results in the failure of the group. The behaviour of bank officials reflects two extremes- either they are least interested in the functioning of a group or they unnecessarily interfere in group activities.

Though the facilitators appointed by DRDAs in the block organize the SHGs, they show little interest for their capacity building. The DRDA officials seldom visit the groups to monitor their progress.

The BPL list approved by the government contains a number of irregularities since a considerable number of persons with a fairly high-income level are also included in it. When such persons become members of an SHG they create an atmosphere of heterogeneity, which is undesirable.

SGSY focuses on the vulnerable groups among the rural poor and 40 per cent of the groups are reserved for women. Though more than 40 per cent of the groups in the study area are comprised exclusively of women yet these groups do not serve the purpose as envisaged in SGSY. A great deal of interference by male guardians was noticed in these groups and women *swarozgaris* acted like a puppet in the hands of males. This practice results in the disintegration of a group.

Responses of Implementing Agencies

Although the knowledge level of the bank officials is satisfactory they are not familiar with each and every aspect of the scheme. They refute the charges levelled against them with respect to delay in grading SHGs and hold DRDA responsible for it and point out that due to the dearth of employees it is not possible for them to visit the SHGs. The bank officials do take part in Block Level SGSY quarterly meetings but conceive it as a futile exercise and were of the opinion that the prospects of SGSY are not bright in the study area because although it has covered the loopholes of the earlier programmes yet practically it is not very different from the earlier programmes.

DRDA appoints facilitators for SHG formation and nurturing. For this purpose such officials as *Gram Sachiv, Anganwadi* Supervisors etc. who are in direct contact with the community are selected. The DRDA officials monitor the progress of SHGs by visiting the groups to try to clear the doubts and guide them as and when needed but they do not discuss the economic activities to be taken up by the group in near future. DRDA officials admit that NGOs might play a more successful role in developing SHGs. In spite of holding quarterly meetings coordination among implementing agencies is lacking. DRDA officials blame the indifferent attitude of bankers and *Gram Panchayat*, lack of entrepreneurship among SHGs and inefficient facilitators for the poor performance of self help groups.

The facilitators claimed themselves to be fully familiar with the scheme but it was discovered that their knowledge was only superficial. They have been provided training but they felt the need of some orientation courses. Although they visit the groups regularly and monitor their proceedings they felt that such factors as illiteracy of group members, consistent threat to the unity of the group, communication gap between banks and groups, indifferent attitude of bankers, greater emphasis on individual *swarozgaris*, transfers of facilitators, etc. are some of the reasons behind the poor performance of the scheme.

Conclusions

To alleviate poverty of rural masses, SGSY is undeniably a fool proof scheme launched by the Govt. of India. There are many success stories available to prove the merits of the scheme. But for certain reasons the performance of the scheme is outstanding mostly in southern and eastern parts of the country and unfortunately the results are far from satisfactory in the northern part, particularly in the study area. To achieve the desired results it is pertinent to review the scheme at regional level and adopt some corrective measures.

The first and of foremost importance is identification of the target group for which the BPL list forms the basis. If and when the list itself is porous and the really poor get excluded or *pseudo*-poor are included (as often the case is) the very objective of the scheme is defeated. Also it has been observed that lack of awareness among the *swarozgaris* has resulted in low performance. To improve the conditions, it is necessary to impart practical training.

The quality and success of every SHG highly depends upon committed and dedicated facilitators, especially during the initial stage. If the group is formed only due to the financial

allurement it is highly improbable that the group so formed will realize the objectives of SGSY. It is generally acknowledged by all that the groups guided by NGOs are more successful and stable in all respects as compared to the SGSY groups led by government facilitators. Until and unless these passive facilitators are motivated, trained and made accountable for their work, groups cannot be nourished adequately and the success rate will be modest.

There is an urgent need for reorientation of micro finance institutions in India. Easy access of poor to credit is the biggest requirement for which the bankers have to play a more effective role by simplifying procedures, reducing the time taken for processing the applications and disbursement of the loan. For this, two models are suggested: (a) on the lines of Haryana Government's campaign 'Sarkar Aapke Dwar', the campaign of 'Bank Aapke Dwar' may be started through which all the facilities such as collection of savings, updating of passbooks, informing the group members about financial status of their accounts, disbursement of loan, etc. could be provided in the monthly group meetings; (b) introduction of a separate segment or subsidiary within the banking system with adequate and attuned staff to cater to the target group of SGSY.

Regular follow up action is badly needed in the study area. The implementing authorities must ensure whether the groups are functioning smoothly or not. The concerned officials have to keep a vigilant eye on the repayment status and attend to the problems of *swarozgaris* sympathetically.

Instead of blaming others for the dismal performance of the scheme, the officials involved in the implementation of SGSY must develop better coordination and understanding among themselves and settle the controversial issues in the SHG meetings.

To conclude, SGSY has an immense potential for making rural poor self-reliant by creating opportunities for self-employment at the local level. What is required is a committed and accountable manpower for the effective implementation of the scheme. Otherwise, the limited resources will get drained and the poverty will continue to remain omnipresent.

Note: This paper is an outcome of a UGC approved and sponsored Minor Research Project entitled "SGSY and Poverty Alleviation: A Case Study of Bawani Khera Block (Bhiwani)".

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NEW MAP SERIES : I
INDIA : GLOBAL CONNECTIVITY (2011)

GOPAL KRISHAN
Chandigarh, India

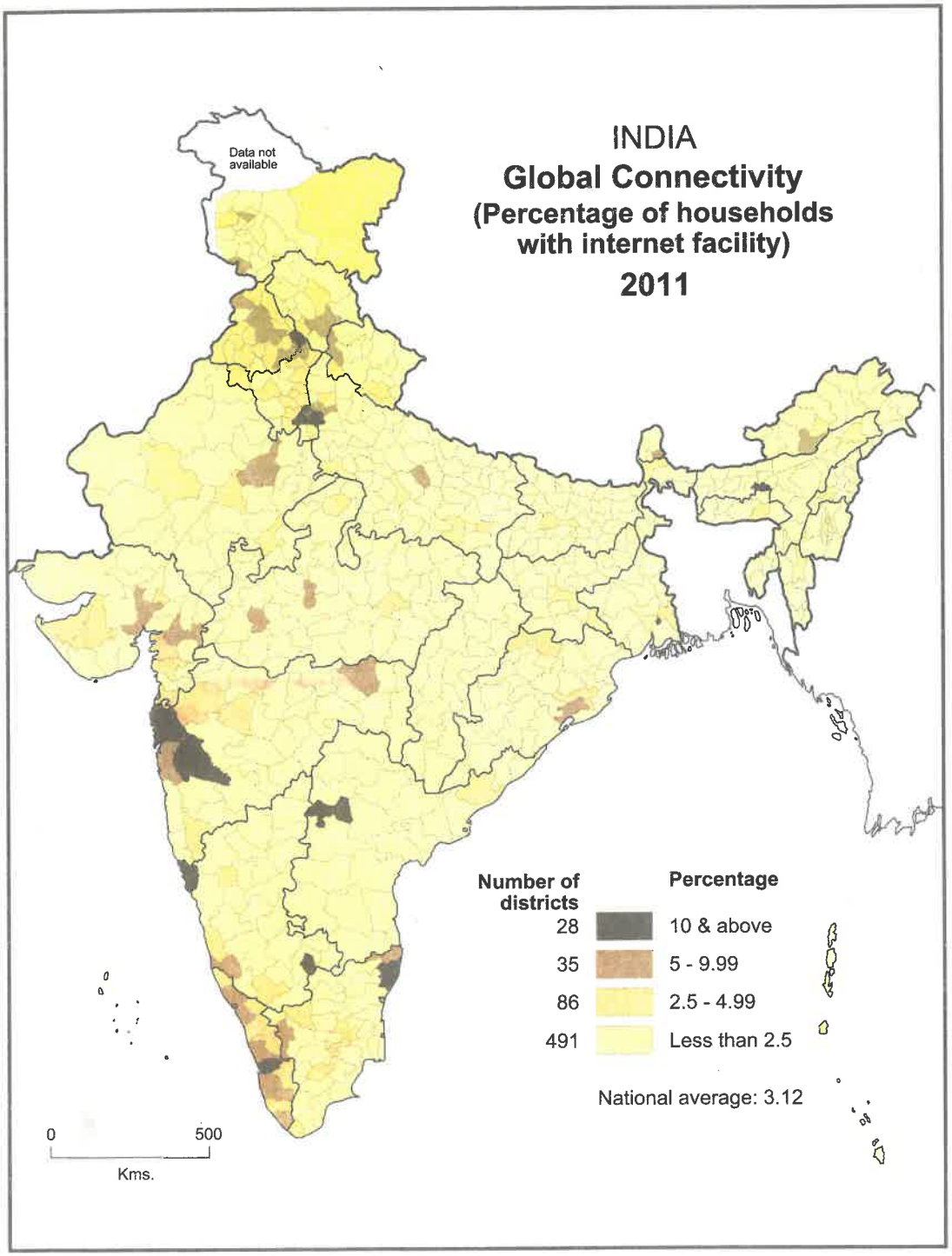
The first map in this resumed series attempts to capture the global connectivity of India through the indicator of the 'percentage of households having the facility of internet'. The latest 2011 Census of India of India data has been used for this purpose.

As a successor to a scientific communication network devised toward the close of 1960's, the internet took its present form in 1982. Though e-mailing continues to be the prime use of internet yet its usage has diversified phenomenally over the years. Conduct of job related work at home has been popular since 1980's. Since the early 1990's the internet started getting harnessed for e-commerce, such as on-line shopping , and e-services, such as filing of electricity bills, on a grand scale. With ushering in of the 21st century, the use of internet spread in several directions, especially for accessing public services, retrieving forms and sending applications, reading news, magazines and journals, planning travel and holidays, enjoying movies and music, availing on-line banking services, networking socially through face book, and what not. The internet has emerged as a veritable means of one's global connectivity.

The data made available by the Internet World Stats organization reveals that nearly one-third of world population of around 7 billion in 2011 is currently an internet user. Among them, one-third were apportioned by Europe and North America, together accounting for only one-sixth of world population. Within this realm, United Kingdom (84 per cent), Germany (83 per cent), the United States (78 per cent) and France (77 per cent) had at least three persons among every four as internet skilled. Among the Asian countries, by comparison, South Korea (83 per cent), Japan (80 per cent), Iran (47 per cent), Turkey (46 per cent), China (38 per cent), Vietnam (34 per cent), Philippines (33 per cent), Indonesia (22 per cent), Pakistan (16 per cent), and India (10 per cent) could be reckoned as the ones where internet has penetrated from significant to considerable degree. The comparatively low score of India leaves much to reflect on.

The 2011 Census of India recorded that only 3.12 per cent of the households in India have the facility of internet at home. Since the figure for internet users for the same year in the country was 10 percent of total population, it means that this facility at residence is availed of by three persons on an average. India is often acclaimed for its e-revolution but the above cited data refuses to support this contention.

The Map on the following page is a further testimony to what has been observed above. In hardly 63 districts out of 640 districts of India, the percentage of households with internet facility exceeds 5 percent. Among them, not even one-half can claim more than 10 percent of the households as being beneficiary of this facility. The highest figure of 24.24 per cent, obtained for New Delhi district, tellingly conveys that even in the most internetted district of India three among every four households have to do without this facility at home. On the top of this, 85 percent of the households having the facility


INDIA
Global Connectivity
(Percentage of households with internet facility)
2011
Data not available
Number of districts
Percentage
28 10 & above
35 5 - 9.99
86 2.5 - 4.99
491 Less than 2.5
National average: 3.12
0
500
Kms.

were confined to urban places, accounting for less than one-third of total households.

The spatial pattern of districts with varying proportion of internet linked households reinforces what is being highlighted above. Among 63 districts, with at least 5 percent households as internetted, more than one-fifth are located within the national capital of Delhi and its surroundings, and one half of them coincide with the capitals of states/union territories and their neighbourhood. The rest of such districts are concentrated either in the Kerala coastal belt or the central corridor of Punjab or are the locale of major regional or metropolitan centres, such as Pune, Coimbatore, Indore and Vadodara. Ironically some prominent state capitals, such as Patna, Shillong, Ranchi and Raipur, fail to meet the cut-off figure of even 5 percent, as mentioned above.

The picture emerges as still more grim when we find that 491 districts (77 per cent of the total) in India are observed as having less than 2.5 percent of their households with internet facility and among them 283 districts as recording a figure of less than one percent on this count. Such is the scene prevailing over large parts of India, independent of virtually any direction.

Evidently India is obliged to question its self-professed perspective of being a great e-power. The development in this field is highly concentrated over space and place, as described above. Vast areas in India are weak in their infrastructure base, education level, technical skill, and assured power supply to facilitate the diffusion of e-revolution. Till the time the people of India remain deprived of all this, the evolution of its inclusive global connectivity will remain a distant dream.

Table - 1

India: List of Districts with at least Five Percent Households having Internet Facility (2011)

	District	State /Union Territory	Percent households with facility
1	New Delhi	National Capital Territory	24.24
2	East Delhi	National Capital Territory	22.58
3	West Delhi	National Capital Territory	20.94
4	Gurgaon	Haryana	20.92
5	South West Delhi	National Capital Territory	20.50
6	South Delhi	National Capital Territory	20.13
7	Mumbai Suburban	Maharashtra	19.96
8	Chennai	Tamil Nadu	19.64
9	Mumbai	Maharashtra	19.03
10	Chandigarh	Chandigarh	18.84
11	Bangalore	Karnataka	18.13
12	Central Delhi	National Capital Territory	17.21
13	Hyderabad	Andhra Pradesh	16.91
14	Panchkula	Haryana	16.89
15	Gautam Buddha Nagar	Uttar Pradesh	16.81
16	North West Delhi	National Capital Territory	15.62

Contd.....

17	Kolkata	West Bengal	14.17
18	Sahibzada Ajit Singh Nagar	Punjab	13.16
19	North Goa	Goa	13.09
20	Faridabad	Haryana	12.30
21	South Goa	Goa	12.26
22	North Delhi	National Capital Territory	12.18
23	Pune	Maharashtra	11.32
24	Rangareddy	Andhra Pradesh	11.31
25	Ernakulam	Kerala	11.21
26	Thane	Maharashtra	10.54
27	Kancheepuram	Tamil Nadu	10.09
28	Kamrup Metropolitan	Assam	10.03
29	Srinagar	Jammu & Kashmir	9.80
30	Ghaziabad	Uttar Pradesh	9.41
31	Thiruvananthapuram	Kerala	8.64
32	Jalandhar	Punjab	8.61
33	Ahmadabad	Gujarat	8.45
34	Bhopal	Madhya Pradesh	8.36
35	Lucknow	Uttar Pradesh	8.33
36	Ludhiana	Punjab	8.18
37	Thiruvallur	Tamil Nadu	8.06
38	Dehradun	Uttarakhand	8.01
39	Mahe	Puducherry	7.98
40	Indore	Madhya Pradesh	7.91
41	Kottayam	Kerala	7.88
42	North East Delhi	National Capital Territory	7.69
43	Thrissur	Kerala	7.55
44	Papum Pare	Arunachal Pradesh	7.40
45	Khordha	Odisha	7.29
46	Patiala	Punjab	6.71
47	Puducherry	Puducherry	6.69
48	Coimbatore	Tamil Nadu	6.69
49	Jaipur	Rajasthan	6.68
50	Jammu	Jammu & Kashmir	6.59
51	Pathanamthitta	Kerala	6.57
52	Raigarh	Maharashtra	6.47
53	Amritsar	Punjab	6.24
54	Ambala	Haryana	6.20
55	Vadodara	Gujarat	6.09
56	Kannur	Kerala	6.01
57	Kapurthala	Punjab	5.89
58	Nagpur	Maharashtra	5.82
59	Dakshina Kannada	Karnataka	5.48
60	Alappuzha	Kerala	5.46
61	East District	Sikkim	5.38
62	Kozhikode	Kerala	5.38
63	Shimla	Himachal Pradesh	5.08
	INDIA		**3.12**

Source: Census of India, 2011