

## **CHAPTER IV**

### **LEVELS OF EDUCATIONAL DEVELOPMENT IN SIKKIM**

In the last chapter we have peeped into the historical background of Sikkim as a kingdom of the Namgyal Dynasty and also as a state after its merger to India. In this section we attempt to look into the trends in the levels of educational development in Sikkim. The position of the four districts of Sikkim will be clear in their respective levels of educational development. The levels of educational development will be relevant in the present context since the study is basically related to spatial variation and the levels of development in Sikkim. Hence, we can get a clear picture of the districts position in terms of its levels of educational development in the state.

If we look at the need for adding the educational aspect of development in this chapter then we can argue that in actual practice the formal educational system often reinforces rather than reduces differences among humans. Investing in education is like investing in techniques that would help them to better their life chances. It has been also noted that lack of human capital has undermined the development of regions. Thus by increasing the stock of human capital, economic growth as well as mobility would be assured. Education has an important role to play in the pursuit of equality. A child's access to

education and the wider culture, which is needed for occupational mobility and a just division of labour, is fairly determined by his or her position in the socio-economic hierarchy. However, human resources play a significant role in bringing the state of all-round development in a country and the development of human resources depends mainly on education. Education creates a way for economic growth and social welfare in a country hence to educate the masses means equipping them to handle modern science and technology which in a long way lead to progress and prosperity.

According to Schultz (1962) there are five ways of developing human resources: (1) health facilities and services, broadly conceived to include all expenditures that effect the life expectancy, strength and stamina, and the vigour and vitality of the people, (2) on the job training, including old type organized by the firms, (3) formally organized education at the elementary, secondary and higher levels, (4) study programmes for adults that are not organized by firms, including extension programmes notably in agriculture, (5) migration of individuals and families to adjust to changing opportunities<sup>1</sup>. So in a wider sense investment in human capital means expenditure on health, education and social services. There is a need for intensive programme for human resource development or man power planning which is also

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<sup>1</sup> T.U.Schultz, Investment in Human Capital, American Economic Review, March 1961.

closely related to the concept of Human Development. Human resource development relates to the long range development of semi skilled, unskilled and skilled man power requirement of the economy and plan educational priorities and investments in human resource development so as to enlarge employment opportunities and to eradicate the social barriers for development. Thus it can be argued that widespread education can bring radical changes in the traditional society of Sikkim and can uplift economic status of the people.

In 1990, the United Nations Development Programme (UNDP) introduced the concept of 'human development' by putting forward a new measuring tool 'Human Development Index (HDI), a multi-dimensional composite index which was equipped to measure progress in development over time and allowing meaningful comparison between states. Prof. Mahbub-ul-Haq and Prof. Amartya Sen worked together to bring out the initial human development report and were able to provide an alternative view of development. The influence of Prof. A.K.Sen is predominant in the formation of the conceptual underpinning of Human Development. The meaning of measurement of Human Development, proposing a new composite index has been prepared by a team of eminent economists and development professionals, like Gustav Ranis, Amartya Sen, Stewart, Meghnad Desai, K.Griffin, A.R.Kvan, Paul-streten and Herbert Wulf, under the overall guidance of Mahbub Ul-Haq. To

Haq, development is all about enlarging people's choices in order to lead long, healthy life with dignity. Sen has however put forward the notion of increase in freedom or decrease in freedom as the main objective of development. Leading a long and healthy life, being able to gain knowledge and having enough means to be able to live a decent life are the most important aspects of human development. Therefore, access to resources, health and education are the key areas in human development. Hence, it is noticeable that education has been given a high priority in measuring the human development index of countries that enlarges people's freedom and allows living a meaningful life. This concept was also able to challenge the dominant view according to which per capita Gross National Product (GNP) or Gross Domestic Product (GDP) should be taken as the main indicators of a country's level of welfare.

The development process is an integrated achievement of economic factors and non economic factors of development. In this consequence, development criteria consist of two aspects simultaneously: the quantitative aspect and the qualitative aspect and the concept of human development as an admixture of both the aspects. In this approach Gross Domestic Product is taken as a purely economic factor, on the other hand the literacy achievement is a prolonged non economic factor, largely related with the qualitative aspect of development and lastly the

health indicators and demographic factors has two way aspect i.e. economic and non economic<sup>2</sup>.

We shall now examine the importance of comparative studies and the research strategies used in the present context for its analysis before we attempt for the comparison. Comparative approach is not new to Geographical studies as the basic of geography is to analyze the "spatial variation of phenomena". In this endeavour we make use of ordinal scale, ratio scale and interval scale. Students' achievements are seen on ordinal levels, where grades are used to differentiate one another. Similarly we also classify labour as skilled and unskilled labours. Most of the theoretical concepts in the social sciences seem to be at an ordinal level of quantification. In summary, 'ordinal level of quantification' applies to concepts that vary in such a way that different states of the concept can be rank ordered to some characteristics<sup>3</sup>. Comparative researches are done on peoples' experience of different societies. They are compared between two time periods or in similar situation in the present. It becomes easier to understand phenomena when they are compared with similar phenomena from another time or place. There are advantages as well as disadvantages of comparing one society with another. Let us look at the advantages of comparison. It enables us to

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<sup>2</sup> Ramkrishna Mukherjee, *The Quality of Life Valuation in Social Research*, Sage Publication, New Delhi, 1989

<sup>3</sup> Nicholas Walliman, (2005), *"Your Research Project"*, Second Edition, Vister publication, New Delhi, pp.103.

find out more about a particular place since shallow understanding about the place will deter such comparison. It further strengthens and improves our base for classification of different regions. When we attempt for classifications we turn the constants into variables, thereby we provide ourselves the raw material for explanation. Comparative analysis enables us to develop and scrutinize such questions: which district/subdivision of Sikkim is more developed? Whether there lie acute differences between regions? If so, what reasons can be attributed to such lopsided development? What steps have been taken by the government to check inter-district regional and intra-district regional disparity in the state? On the basis of our understanding and generalization, one can predict the future trends of its development and prepare a blue print for the future course of action to be taken to reduce inter-state and intra-state regional disparity. Sometimes there is difficulties in comparing a region with another due to lack of information, particularly data deficiency is seen when we compare one country with another. Generalization is sometimes restricted on the biasness of selection for comparison. In general, selection is biased towards developed countries, which is a part of the world system. There are lesser instances of comparison with weaker economies. Though, researchers sometimes feel safe to study stronger economies owing to the fact that they can access data on relevant issues that the weaker

economies do not possess. If we have a closer look at the literature available on comparative studies, we find that they are dominated by variable dominated research, although case oriented studies are also seen.

### **EDUCATIONAL SCENARIO IN SIKKIM: A BRIEF REVIEW**

At the outset it will be pertinent to review the educational scenario of Sikkim right from the pre-merger period. The education in pre-merger Sikkim was rather conservative, helping the upper class in perpetuating their feudal privileges and dominations in the society. The scope of education was not equal for all the people in Sikkim. Educational opportunity was not universalized while it was apparently restricted to the feudal upper class people. Besides, proper educational facilities available for commoners was lacking than that of the actual requirements in the society. Low level education did not create skilled and trained personnel locally who could have taken leading part in the development process in the state<sup>4</sup>. The monastic education (training) which was so far available in Sikkim being esoteric in nature did not benefit the common men. As a result there was a few educated who were mainly from the upper class to man the available positions in the Sikkimese bureaucracy. The educational qualifications necessary for

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<sup>4</sup> Amal, Dutta, Sikkim Since Independence, Mittal Publication, New Delhi, 1991, pp.2.

particular occupational positions were mostly either curtailed or modified to suit the interest of the feudal elements i.e. the feudal elites<sup>5</sup>. The history of modern formal education in Sikkim begins with the establishment of a missionary school in 1883 in Gangtok by Reverend Mc Farlene, a scottish missionary. Thereafter, two schools were established in 1906, one for the Bhutia boys named as Bhutia Boarding School and another named as Nepali Boarding School for Nepalese boys. But , subsequently in 1924 both the Bhutia and Nepali boarding schools were amalgamated into one High School which was named after the then Maharaja Tashi Namgyal of Sikkim. Around that time the first girls' school was also established but at a primary level by the Christian Missionaries. Since 1944, the education and educational institutions were brought under the direct control of the then Maharaja Tashi Namgyal. In 1954 initiative was taken to impart formal education in the state in a planned and systematic manner<sup>6</sup>.

What is important here to notice is the fact that the educational system in Sikkim before the merger period was biased in favour of the ruling classes i.e. the Bhutias. Moreover, the Bhutias and the Lepchas were also inclined towards the traditional educational system that has a very important role in the traditional Sikkimese society i.e. the monastic

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<sup>5</sup> A.C.Sinha, Politics of Sikkim, pp. 56-57, Faridabad, Thomas Press (India) Limited, 1975.

<sup>6</sup> D.S.Bhattacharya, A Study of Educational Development in Sikkim, Ph.D Dissertation, Maharaja Sayajirao University, Baroda, 1986.



education system which was not acceptable to the Nepalese since they followed Hinduism and not Buddhism. During the later period i.e. during the time of Maharaja Kumar Thendup, Tibetan influence in educational development was seen. The establishment of Sheda Nyngma College, the Namgyal Institute of Tibetology and Enchey School which imparted knowledge in Buddhist scripture to young Lamas and others are examples of Tibetan influence. The curriculum were based on Tibetan languages and Mahayana Buddhist text, but offered Bachelors' degree. Most of the schools were centered in and around Gangtok. With the increasing demand of the Nepali population some of the schools that came up later on were at Chyakung, Kaluk, Hi-gaon, Soreng, Yang-yang, Timburbung, Mangalbarey, Sosing, Namchi etc. to spread education in Sikkim.

During 1960's as seen from the records of the education department the number of school, teachers and students in Sikkim were as follows:

**TABLE: - 4.1, NUMBER OF SCHOOLS, TEACHERS AND STUDENTS IN SIKKIM, 1960.**

School (Category)	No. of Schools	No. of Teachers		No. of students
		Degree	Primary	
High School	6	60	54	4,662
Junior High School	13	76	79	3,903
Upper Primary	53	-	207	2,815
Lower Primary	38	-	91	1,141
Total	110	136	431	12,521

Source: Thulung, P., 1998, *Sikkim-ma Siksha-Ko Vikash – Sangchhipta Parichay* (Nepali), Boomtar, Namchi, South Sikkim. p70.

It is clearly visible from the table that during 1960s, Sikkim has just begun its journey in developing its educational infrastructure. Though population of Sikkim was also very low but then infrastructural facilities were not in proportion to the requirement of the masses as far as education is concerned. Total number of school was 110 and the number of students attending schools was 12,521. Out of which there were 38 Lower Primary schools, 53 Upper Primary Schools, 13 Junior High Schools and 6 High Schools. However the number of teachers was 567, both Degree teachers and primary teachers. This scenario prevailed prior to the merger of Sikkim, where the '*Chogyal*' has given away all his land to the '*Thikadars*' and in turn the '*Thikadars*' used to pay revenue

to the king. Though there were discontent among the Nepali community for the pathetic state of education in the state and demands were also put to the King, but in return the King has asked the '*Thikadars*' to look at the matter. However the Thikadars have refused to do the needful as that would have cut short their profit. The demand was mainly related to the payment of salary to the teachers and up-gradation of School. The Thikadars have however argued that the schools were not opened with their consent and hence they are not responsible for matters related to school.

Let us now have a look at the census figures of 1981, 1991 and 2001 related to literacy levels in Sikkim as it will give us the necessary input for our further investigation. Disparity in the literacy rate between the males and females as well as among the rural and urban population is observed in the 1981 Census report of the Government of India. Gender gaps are seen to be very high. The literacy rate for the males is 43.95% where as the female literacy rate is 22.20% as for the 1981 census is concerned. The gender gap is 21.05% which is very wide among the males and females. In the state the urban male literacy rate is 61.44% and the urban female literacy rate is 45.42%. The gender gap between the urban male female literacy is at 16.02%, where as the gender gap between the rural male female literacy is 22.01% which is very sharp. Similarly, if we look at the highest rural male literacy rate in the

districts, it is 45.20% for the East District and 32.57% for the West District. Here, the gap between highest and the lowest male rural literacy rate seems to be wide i.e. 12.63%. In the case of male urban literacy rate East District has the highest Male Urban literacy rate with 61.76% and West District has 57.50% with a difference of 4.26%.

**TABLE: -4.2, DISTRICTWISE LITERACY RATES IN SIKKIM: 1981**

District/ State	Rural/ Urban/ Total	Sex-wise literacy rate (Percentage)		
		MALE	FEMALE	TOTAL
NORTH	Rural	39.27	16.13	28.99
	Urban	59.38	44.40	54.23
	Total	39.97	16.78	29.74
EAST	Rural	45.20	22.80	34.98
	Urban	61.76	46.70	55.54
	Total	50.64	29.77	41.39
SOUTH	Rural	41.63	18.87	31.05
	Urban	60.41	38.12	51.39
	Total	43.09	20.06	32.48
WEST	Rural	32.57	12.60	23.04
	Urban	57.50	35.80	48.67
	Total	33.20	13.04	23.62
SIKKIM	Rural	40.25	18.24	30.05
	Urban	61.44	45.42	54.86
	Total	43.94	22.20	34.05

Source: Census of India, Sikkim Series, District Primary Census Abstract, 1981, p.127.

Wide variations and disparity in the literacy rate between the males and females as well as among the rural and urban population is also seen in the 1991 census. Gender gap has reduced over time but is

still very high. The literacy rate for the males is 56.94% where as the female literacy rate is 46.76% as for the 1991 census. The gender gap is 10.18% which is wide among the males and females. In the state the urban male literacy rate is 74.69% and the urban female literacy rate is 63.40%. The gender gap between the urban male female literacy is at 11.29%, where as in the rural areas it is 16.54% which is really very high. Similarly, if we look at the highest male rural literacy rate in the districts, it is 57.83% for the East District and 44.29% for the West District. Here, the gap between highest and the lowest male rural literacy rate seems to be wide i.e. 13.54%. In the case of male urban literacy rate East District has the highest Male Urban literacy rate with 75.28% and West District has 68.93% with a difference of 6.35%.

**TABLE: - 4.3, DISTRICTWISE LITERACY RATES IN SIKKIM: 1991**

District/ State	Rural/ Urban/ Total	Sex-wise literacy rate (Percentage)		
		MALE	FEMALE	TOTAL
NORTH	Rural	50.27	31.76	41.85
	Urban	69.29	55.93	64.38
	Total	50.85	32.26	42.43
EAST	Rural	57.83	41.87	50.35
	Urban	75.28	64.25	70.52
	Total	61.13	45.60	53.95
SOUTH	Rural	51.03	34.46	43.19
	Urban	71.98	63.42	68.50
	Total	51.67	35.12	43.87
WEST	Rural	44.29	27.79	36.39
	Urban	68.93	50.33	60.90
	Total	44.77	28.16	36.82
SIKKIM	Rural	51.94	35.40	44.14
	Urban	74.69	63.40	69.85
	Total	56.94	46.76	56.94

Source: Sikkim: A Statistical Profile 2004-2005, Directorate of Economics, Statistics, Monitoring & Evaluation, Government of Sikkim, p.7

There is a notable disparity in the literacy rate between the males and females as well as among the rural and urban population. Gender gaps are seen to be very high. The literacy rate for the males is 76.73% where as the female literacy rate is 61.46% as for the 2001 census is concerned. The gender gap is 15.27% which is very wide among the males and females. In the state the urban male literacy rate is 88.61% and the urban female literacy rate is 80.19%. The gender gap between the urban male female literacy is at 8.42%, where as in the rural areas it

is 16.06% which is very sharp. Similarly, if we look at the highest rural literacy rate in the districts, it is 80.15% for the East District and 66.94% for the West District. Here, the gap between highest and the lowest male rural literacy rate seems to be wide i.e. 13.21%. In the case of male urban literacy rate South District has the highest Male Urban literacy rate with 93.25% and West District has 82.90% with a difference of 10.35%.

**TABLE: - 4.4, DISTRICTWISE LITERACY RATES IN SIKKIM: 2001**

District/ State	Rural/ Urban/ Total	Sex-wise literacy rate (Percentage)		
		MALE	FEMALE	TOTAL
NORTH	Rural	77.16	57.15	68.78
	Urban	81.98	75.06	79.41
	Total	77.32	57.65	69.11
EAST	Rural	80.15	64.13	72.89
	Urban	88.64	80.29	84.86
	Total	82.05	67.74	75.57
SOUTH	Rural	73.92	60.30	67.43
	Urban	93.25	83.74	88.92
	Total	74.57	61.02	68.12
WEST	Rural	66.94	50.46	59.02
	Urban	82.90	71.30	77.98
	Total	67.21	50.75	59.31
SIKKIM	Rural	75.11	59.05	67.67
	Urban	88.61	80.19	84.82
	Total	76.73	61.46	69.68

Source: Sikkim: A Statistical Profile 2004-2005, Directorate of Economics, Statistics, Monitoring & Evaluation, Government of Sikkim, p.7

It is evident from the above discussion that the overall literacy rate has shown a sharp increase from 17.74% in 1971 to 34.05%, 56.94% and 69.68% in 1981, 1991 and 2001 respectively. What is seen here is that in terms of literacy rates East District of Sikkim has an advantage over the other three districts of Sikkim namely South, North and West.

Since there seems to be gender discrimination in terms of educational development in Sikkim, hence it is important to examine the sex ratio of the state. It is pertinent to see here that the sex ratio of Sikkim is skewed which is a cause of serious concern for the state. The sex composition is considered as one of the most significant demographic and social indicator of measuring the status of male and female in a society. The sex ratio of Sikkim is shown in the following table that reveals that it is still well below India's average sex ratio of 940 as per 2011 census report. Decline of sex ratio is observed during 1971-1981 and 1991-2001, however the decline was sharp during 1971-1981. What is important to notice in the sex ratio of Sikkim is not that it is below the national average of India but that it has a huge gap and it has still not crossed the 900 mark.



**TABLE: -4.5, COMPARITIVE SEX RATIO OF SIKKIM AND INDIA**

SL. NO	CENSUS YEAR	SIKKIM	INDIA
1.	1971	863	931
2.	1981	835	934
3.	1991	878	927
4.	2001	875	933
5.	2011	890*	940

\*As published in the Village level Census of Sikkim, The Directorate of Census Operation, Government of Sikkim

Source: Compiled from Census Reports of Sikkim and India

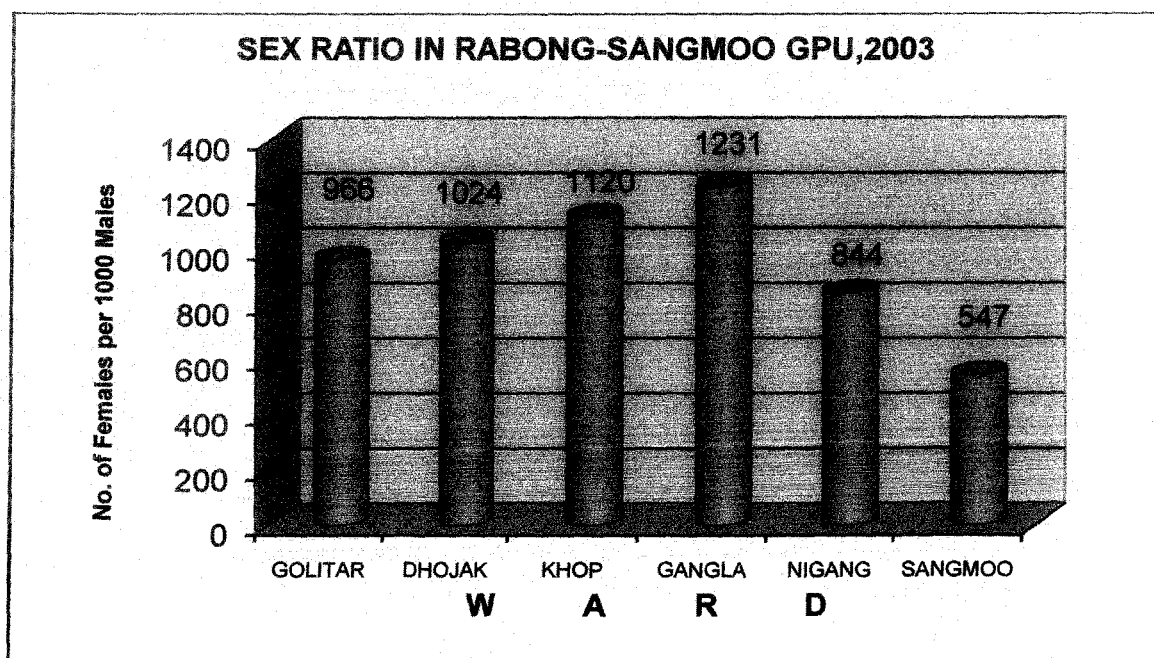
Sex ratio is bound to be unfavourable to women in regions where gender discrimination is rampant. In India, low sex ratio can be attributed to the factors like domestic violence against women, female foeticide, female infanticide, lower socio-economic status of women etc. However it is also important to realize that more number of women in a society doesn't mean a better status of women in a society. It could be that the men might have migrated to other areas for employment. In the present case it is interesting to note that the crime rate of Sikkim is very low and the factors that are considered normally for the low sex ratio are almost absent in Sikkim. The State Human Development Report 2001 argues that the unfavourable sex ratio over the last few decades may be attributed to the factors like in-migration of large number of male workers from different states of India. The presence of large number of

army personals in the state owing to its strategic importance is one of the important factors for the low sex ratio. In recent years Sikkim has surged ahead in terms of developmental works that are under progress. A large number of hydro electric projects are underway in the state that has resulted in the migration of skilled and unskilled labours that may be the reason for such a skewed sex ratio of Sikkim. It is also argued in the Human Development Report that in the socio-economic front of Sikkim, women are not secluded in the state and the instances of female infanticides are not reported officially. Women in the state enjoy many freedoms and have recorded significant gains in the Human Development Report. In this regard a case study was conducted for the Ravang Sangmoo GPU under Ravangla Sub Division, South District, Sikkim, the results of which is found as below:-

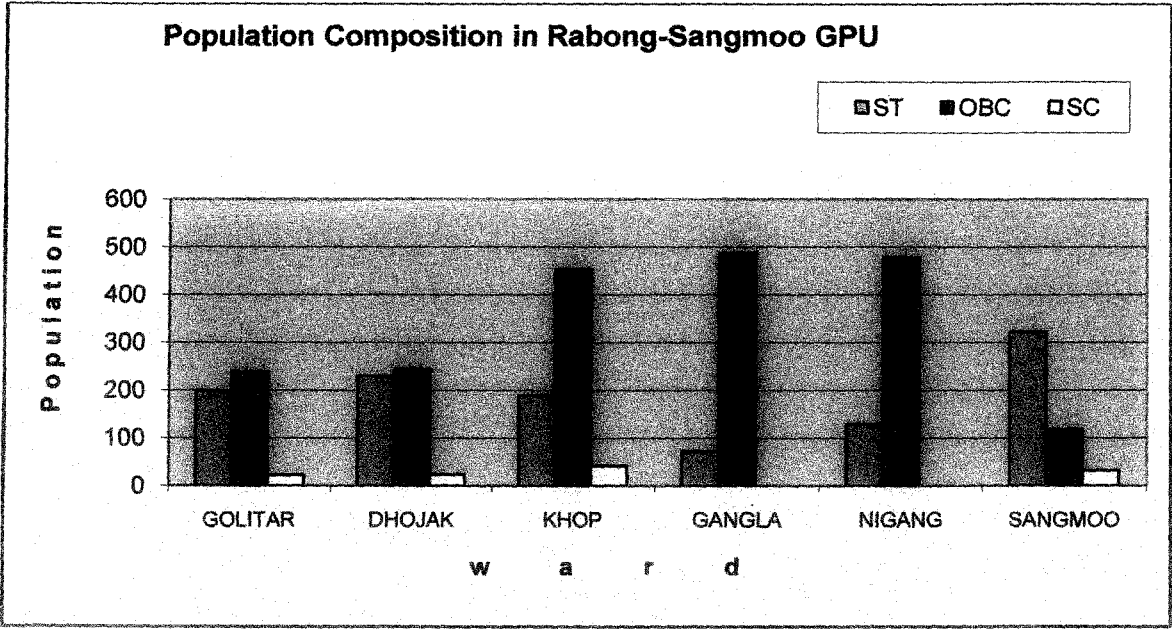
### **Demographic attributes of Ravong-Sangmoo GPU**

The population figures for the different wards as per 2003 records shows that Khop ward has the highest population with 685 peoples, followed by Gangla (560), Dhojak (498), Sangmoo (472), Golitar (460) and Nigang (278). Similarly if we have a closer look at the number of females per thousand males in the ward area then we see that those wards that have higher population do not necessarily lead in sex ratio. Sangmoo has the lowest sex ratio, which is 547 per thousand males though it stands fourth in population figures. The Gangla ward has the

highest sex ratio with 1231 females for every 1000 males. We can simply say female outnumber males in the Khop and Dhojak ward with 1120 and 1024 females per thousand males respectively. There is a serious imbalance in the sex ratio Nigang, Golitar and particularly in the Sangmoo ward where the sex ratio has dropped to 547. The number of males and females in the ward is 305 and 167 respectively. Interestingly Schedule Tribe population dominates the ward. The reason for such imbalance is due to preference of male child over female child and higher female mortality rate as reported by most of the respondent; this has to be verified through in-depth study of its mortality and fertility trends and pattern.

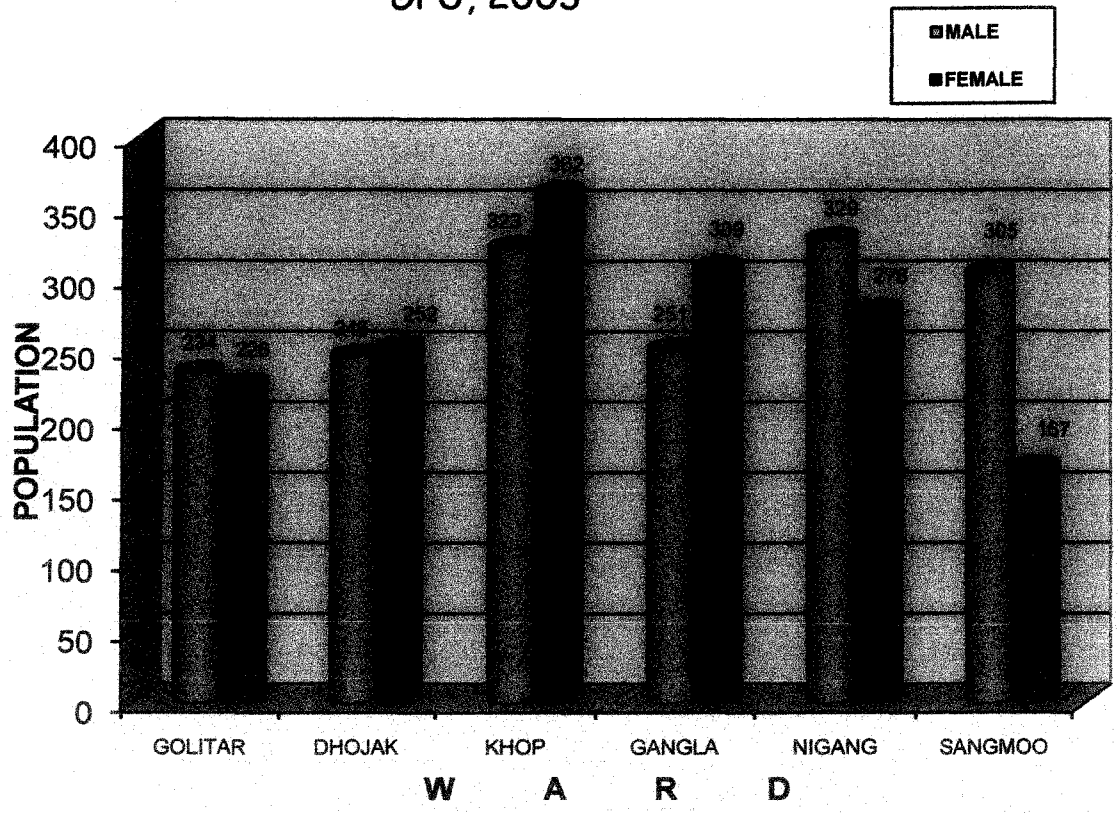


Source: Village Handbook of Ravangla Sangmoo Gram Panchayat Unit, Government of Sikkim



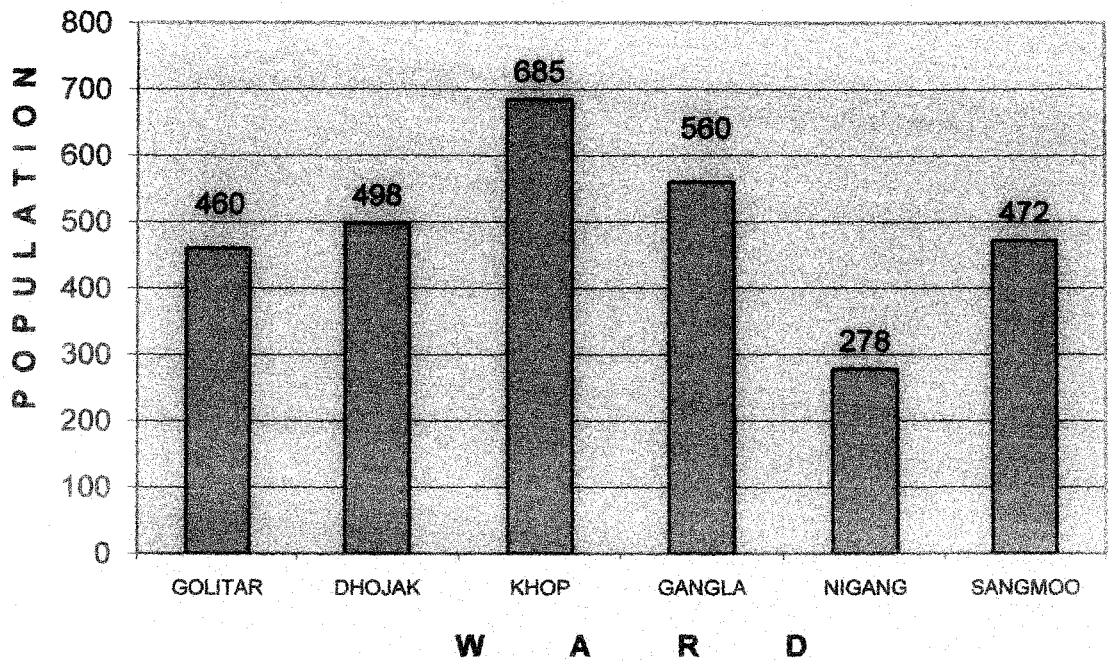
Source: Village Handbook of Ravangla Sangmoo Gram Panchayat Unit, Government of Sikkim

### Male-Female Population in Rabong-Sangmoo GPU, 2003



Source: Village Handbook of Ravangla Sangmoo Gram Panchayat Unit, Government of Sikkim

### Population in Rabong-Sangmoo GPU, 2003



Source: Village Handbook of Ravangla Sangmoo Gram Panchayat Unit,  
Government of Sikkim

Sikkim Development Report 2008 prepared by Planning Commission, Government of India contend that unlike many other Indian states, particularly in the northern India, the sex ratio in the age group of 0-4 is relatively high (964 females per 1000 males) in Sikkim. This is very strong indicator of respect for girl children in the state. It confirms that the people in the state do not practice ills like discrimination against girl child or female foeticide. If we see in the age group belonging to 0-29 years for the state as a whole, female population remains relatively higher thereby leading to a much higher sex ratio of over 90 percent. One can find a drastic fall in the sex ratio after the 0-29 years of age group and steadily goes down to as low as 65.5 percent (i.e. 655 females per 1000 males) by the time they attain 55-59 age group. It again starts improving steadily after the 60-64 age group and reaches a better ratio of 86 percent in the 80+ age group<sup>7</sup>.

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<sup>7</sup> Binod Bhattarai & Pema Rinzing Bhutia, Skewed Sex Ratio: a cause of serious concern in Sikkim, Sikkim Express, 5<sup>th</sup> March 2012, p.4, Gangtok, Sikkim.

**TABLE: -4.6, DISTRIBUTION OF SEX RATIO BY AGE GROUP**

<b>AGE GROUP</b>	<b>F/M RATIO (PERCENT)</b>
0-4	96.45
5-9	98.34
10-14	95.03
15-19	92.23
20-24	90.14
25-29	91.06
30-34	83.74
35-39	75.46
40-44	72.63
45-49	70.21
50-54	66.23
55-59	65.45
60-64	72.41
65-69	74.70
70-74	72.47
75-79	77.89
80+	85.65
Age not stated	83.78
<b>TOTAL</b>	<b>87.80</b>

Source: Sikkim Development Report, 2008, Planning Commission, Government of India.



Hence looking at the preceding analysis we can argue that there is absence of the normal causes that are responsible for a low sex ratio in the state like domestic violence against women, female foeticide, female infanticide, lower socio-economic status of women etc. However it is seen that 66% of the girls married in Sikkim by the time they reach the age of 20 years. The mortality rate of females in the age group of 30-59 years is very high as compared to the age group of 0-29 and 60 and above. This shows that the reproductive age of the women in Sikkim is vulnerable that needs special attention.

#### **LEVELS OF EDUCATIONAL DEVELOPMENT**

In the context of Sikkim no earlier scholar on Sikkim has however touched this aspect that has been carried out in our investigation. Almost all of the studies are mostly concentrated on the educational aspect of Sikkim with simple data analysis that is available from government publications and other secondary sources. No scholar has however attempted a thorough investigation of the study area with quantitative techniques. Work on the educational aspect of Sikkim has not been conducted by using any sophisticated statistical technique that has revolutionized the investigation methodology in human geography and other branches of social sciences. A systematic study based on proper theoretical framework are lacking in the region concerned. In this

regard the present study is to be considered as an attempt to have a systematic study with proper theoretical framework and an attempt to fill the research gap in the area.

Regional inequality is common to all societies irrespective of their level of development. It exists in the developed countries as well as in the underdeveloped countries; however the degree of inequality is sharp in the underdeveloped countries, which need to be curbed. Hirschman (1958) pointed out that "inter regional inequality of growth is an inevitable concomitant and condition of growth itself". Hence, let us assume that disparity in Sikkim has widened to converge later on. But, despite the efforts taken by the state and central government to check the disparities in various levels of education desired results have not been found. However, the *Sarva Shiksha Abhiyan* is a good venture that aims at providing elementary education to all children in the age group of 6-14 years by the year 2010, but then its progress has to be reviewed at the end of its tenure in Sikkim. Since inequality is found more in male/female literacy rate and in rural/urban literacy rate, an attempt has been made to estimate male/female and rural/urban literacy rate in the state of Sikkim. An attempt to verify the levels of educational development is also considered for the weaker section of the society i.e. the Schedule Caste and the Schedule Tribes literacy percentage of the state.

It is observed that when overall literacy level goes up in the state or region, the segmented disparity values come down, i.e. with higher literacy level the disparity declines. This is an important hypothesis, and is intended to be studied in the present paper. This also has important policy perspective in reducing segmental disparities in the state. The purpose of this section is to examine the extent of inter district rural/urban and male/female disparities in education in the state of Sikkim at three points of time i.e. 1981, 1991 and 2001. The inter district variation in literacy is observed higher among the females in both rural/urban and male/female disparities. The disparity/inequality in literacy rate is estimated by using Sopher's Index with modification of Kundu and Rao.

The main objectives of the study are: i) to examine the inter district variation in the literacy rates of Sikkim at three points of time i.e. 1981, 1991 & 2001<sup>8</sup> for rural and urban areas and ii) to find out the inequality of literacy rate between the males and females and the underprivileged section of the societies i.e. the schedule castes and the schedule tribes. The validity of the following hypothesis are tested empirically: i) The inequality in literacy rates is higher in females than in their male counterparts, ii) the variability in literacy rate is higher in the rural areas than in the urban areas and iii) the literacy rates among the

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<sup>8</sup> Since the data for 2011 was not officially published during the time of submission of the thesis by the Census Department, Government of Sikkim, analysis for 2011 is not included in the study.

Schedule Caste and the Schedule Tribes is substantially lower than the state average.

### **Methodology**

Data related to literacy rate is collected from the Census Reports of Sikkim for the year 1981, 1991 & 2001. The inter district variability in literacy rate is estimated by calculating standard deviation and coefficient of variation for the three census years for males and female literacy and rural and urban literacy. The literacy disparities have been computed using the modified version of Sopher's Index of disparity (1974), which was presented by Kundu and Rao (1986).

Sopher's Index<sup>9</sup> (1974) was presented as follows:

$$DS = \log (X_2 / X_1) + \log [(100 - X_1) / (100 - X_2)]$$

Where,  $X_2 \geq X_1$

The modified version of Sopher as presented by Kundu and Rao<sup>10</sup> (1986) is as follows:

$$DS^* = \log (X_2 / X_1) + \log [(200 - X_1) / (200 - X_2)]$$

Where,  $X_2 \geq X_1$

Here, we have used  $X_1$  = female literacy

$X_2$  = male literacy

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<sup>9</sup> D.K. Sopher, (1974), "Measurement of Disparity", *The Professional Geographer*, 26/6 (Nov), pp.380-92.

<sup>10</sup> A. Kundu, and J. M. Rao, (1986) 'Inequality n Educational Development', in Moonis Raza (Ed), "Educational Planning: A long term Perspective", Concept, New Delhi. pp. 435-465.

## **Empirical Results**

This section presents the empirical results of the inter district male/female and rural/urban disparities.

### **Inter district variation/inequality in SC and ST population**

The inter district variation in literacy rates is estimated in terms of Standard Deviation and co-efficient of variation. It is noticed that the mean SC literacy is higher than the ST literacy rates, which is 47.00 in case of ST and 56.68 in SC population. The Schedule Cast literacy rates are higher in the subdivision of Chungthang, Mangan, Gangtok and Pakyong where as Schedule Tribe Literacy rate is higher in Namchi, Ravangla, Gyalshing and Soreng. Hence, SC literacy percentage is better than the ST literacy percentage in North and East District, where as ST literacy percentage is better in South and West district. The highest disparity value of 4.0990 is observed in Gangtok subdivision and the lowest disparity value of 0.0112 is seen in Chungthang subdivision.

### **Male- Female literacy Inequality**

Male literacy is observed higher in all the subdivisions than their female counterparts. Male literacy percentage is seen highest in South District for all the three census years. It also witnessed highest female literacy percentage in these census years. Female literacy percentage is seen

lowest in the West district for the entire census years and highest in the South district. The Male-Female disparity in literacy is seen to be reducing with its highest value as 1.4355 and lowest value as 0.1316.

**TABLE:- 4.7, MEAN MALE, FEMALE AND TOTAL LITERACY RATE AND DISPERSION AROUND THE MEAN IN SIKKIM, 1997, ACROSS ALL THE DISTRICTS.**

DISTRICT	TOTAL			MALE			FEMALE		
	1981	1991	2001	1981	1991	2001	1981	1991	2001
NORTH	29.74	42.43	69.11	39.97	50.84	77.32	16.78	32.26	56.65
SOUTH	41.39	53.95	75.57	50.64	61.13	82.05	29.77	45.60	67.74
EAST	32.49	43.87	68.12	43.09	51.67	74.57	20.06	35.12	61.02
WEST	23.62	36.82	59.31	33.20	44.77	67.21	13.04	28.16	50.75
<b>AVERAGE</b>	<b>31.81</b>	<b>44.26</b>	<b>68.02</b>	<b>41.72</b>	<b>52.10</b>	<b>75.28</b>	<b>19.91</b>	<b>35.28</b>	<b>59.04</b>
<b>STANDARD DEVIATION</b>	<b>6.39</b>	<b>6.17</b>	<b>5.78</b>	<b>6.26</b>	<b>5.85</b>	<b>5.37</b>	<b>6.20</b>	<b>6.44</b>	<b>6.20</b>
<b>CO-EFFICIENT OF VARIATION</b>	<b>20.08</b>	<b>13.94</b>	<b>8.49</b>	<b>15.00</b>	<b>11.22</b>	<b>7.13</b>	<b>31.14</b>	<b>18.25</b>	<b>10.50</b>

Source: Government of Sikkim, (2002), Sikkim a Statistical Profile 2002, Directorate of Economics, Statistics, Monitoring and Evaluation, Gangtok

### **Rural-Urban literacy inequality**

Rural literacy percentage is highest in the East district for 1981, 1991 and 2001. The urban literacy percentage is highest in the East

district for 1981 and 1991, whereas for 2001 it is the South district. Similarly, rural literacy percentage is lowest in the West district in all the decades. It also witnessed lowest urban literacy percentage throughout. The rural-urban disparity in literacy is seen with its highest value as 1.3925 and lowest value as 0.0961.

**TABLE: - 4.8, MEAN S.C/S.T LITERACY RATE AND DISPERSION AROUND THE MEAN IN SIKKIM, SUBDIVISION-WISE, 1997.**

<b>SUBDIVISION</b>	<b>SCHEDULE TRIBE LITERACY %</b>	<b>SCHEDULE CASTE LITERACY %</b>
Chungthang	38.76	39.58
Mangan	31.72	72.56
Gangtok	25.21	69.57
Pakyong	60.14	69.09
Namchi	58.40	57.87
Ravong	63.69	57.10
Gyalshing	44.23	42.05
Soreng	53.87	45.68
<b>AVERAGE</b>	<b>47.00</b>	<b>56.68</b>
<b>STANDARD DEVIATION</b>	<b>5.48</b>	<b>4.02</b>
<b>CO-EFFICIENT OF VARIATION</b>	<b>11.65</b>	<b>7.09</b>

Source: Government of Sikkim, (2002), Sikkim a Statistical Profile 2002, Directorate of Economics, Statistics, Monitoring and Evaluation, Gangtok.

**TABLE: - 4.9, MEAN RURAL URBAN LITERACY RATE AND DISPERSION AROUND THE MEAN IN SIKKIM, 1981, 1991 & 2001, ACROSS ALL THE DISTRICTS.**

DISTRICT	1981		1991		2001	
	RURAL LIT-ERACY %	URBAN LIT-ERACY %	RURAL LIT-ERACY %	URBAN LIT-ERACY %	RURAL LIT-ERACY %	URBAN LIT-ERACY %
NORTH	28.99	54.23	41.85	64.38	68.78	79.14
EAST	34.98	55.54	50.35	70.52	72.89	84.86
SOUTH	31.05	51.39	43.19	68.50	67.43	88.92
WEST	23.04	48.667	36.39	60.90	59.02	77.98
<b>AVERAGE</b>	<b>29.51</b>	<b>52.45</b>	<b>42.94</b>	<b>66.07</b>	<b>67.03</b>	<b>82.72</b>
<b>STANDARD DEVIATION</b>	<b>4.31</b>	<b>2.65</b>	<b>4.97</b>	<b>3.71</b>	<b>5.04</b>	<b>4.42</b>
<b>COEFFICIENT OF VARIATION</b>	<b>14.60</b>	<b>5.05</b>	<b>11.57</b>	<b>5.61</b>	<b>7.51</b>	<b>5.34</b>

Source: Government of Sikkim, (2002), Sikkim a Statistical Profile 2002, Directorate of Economics, Statistics, Monitoring and Evaluation, Gangtok.

### **Summary and concluding observations**

The preceding analysis reflects that the variation in literacy between different districts of the state is found to be higher among females. The male-female literacy disparity has however declined appreciably over the decades. Similarly the rural-urban literacy disparity has also declined. Schedule Cast/Schedule Tribe literacy rates seem to be much fairer than the other states of India.