



SPATIO-TEMPORAL ANALYSIS OF LITERACY AND EDUCATIONAL ATTAINMENT OF SCHEDULED CASTE FEMALE OF KOCH BIHAR DISTRICT OF WEST BENGAL, INDIA

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ABSTRACT

Literacy is one of the vital qualitative factors for the improvement of a person as well as socio-economic development of human society. Literacy helps to acquire a higher social status through the process of social mobility. Being one of the most important key factors of socio-economic change, study of literacy pattern and its differential on gender of an area is very valuable. This paper attempt to show the spatio-temporal analysis of Literacy and Educational Attainment of Scheduled Caste (SC) Female population of Koch Bihar district. The entire paper has been done on the basis of secondary data, collected from District Census Hand Book, 2001 and 2011 to show the rural-urban temporal variation of female literacy of different blocks of Koch Bihar district. For the fulfilment of the objective, different parametric measures and statistical techniques have been done i.e. Effective Literacy Rate, Spatio-temporal Change in Literacy, Gender Disparity Index and Composite Educational Index (CEI).



KEYWORDS : Literacy, Educational Attainment, Spatio-temporal, Gender Disparity Index, Composite Educational Index.

1. INTRODUCTION:

India is a land of unity in diversity; there is a wide diverse found in different sector such as religions, races, culture and social group (Chatterjee, 2010). In Indian Caste system Scheduled Caste are recognized as backward, untouchables, impure and fifth caste (Sachchidananda, 1974). Scheduled Caste is regionally backward in education, social aspect, and political participation and in the sector of employment opportunities than the other castes (Ghosh, 2009). Literacy is one of the vital qualitative factors for the improvement of a person as well as socio-economic development of human society (Olivera & Valsiner, 1998) that ensure to acquire a higher social status and quality of life through the process of social mobility as it is directly proportional to overall skill development (Benjamin, 1991; Coulombe et. al., 2004). The United Nations Educational Scientific and Cultural Organization (UNESCO) has defined literacy as the,—ability to identify, understand, interpret, create, communicate and compute, using printed and written materials associated with varying context. Literacy involves a process of learning to enable an individual to achieve his or her goals to develop his or her knowledge and potential and to participate fully in the wider society” (Census of India, 2011). In India, the definition and method of consideration of ‘literacy’ varies across various sources, such as the Census of India, National Literacy Mission (NLM), National Sample Survey Organisation (NSSO) and National Family Health Survey (NFHS). However, the decennial census definition is the most widely suitable and habitually quoted estimates of literacy in our country. According to the census enumeration, ‘a person, who can read and write with understanding in any language, is considered to be

'literate'. The person may or may not have received any formal education' (Govinda et. al, 2005). Literacy and education are like oxygen for human beings in contemporary technology-driven world and knowledge economy (Showered, 1986 & Francis, 1993). A Higher level of literacy brings social change, cultural advancement and economic development (Benjamin, 1991). Despite the commitment in the constitution, a number of children dropping out of school are alarmingly large (Cecchi et. al. 1999, 2007 & 2008). India has registered phenomenal growth in the sphere of education since independence. But the benefits of educational development have not percolated down to the poorest of the poor (Chevalier, 2003 & Di Paolo et. al. 2010). Growing inter-group educational disparity is one of the challenging problems (Ray & Majumder, 2010). Being one of the most important key factors of socio-economic change, study of literacy pattern and its differential on gender of an area is very valuable (Agarwal, 1997). In British rule the narrow growth in literacy was the result of faulty and neglected educational policy where the deprived sections such as scheduled caste and scheduled tribes were far distance from the educational opportunities (Dreze & Murthi, 2001; Farhana Khatun, 2013). Though after that Indian Government take many progressive strategies and policies for the development of literacy and educational status among Scheduled Caste and Scheduled Tribes (Kusum, 1974). As a result the growth of literacy and educational status has been increased since 20th century (Pandey, 1986). Without education any human being as well as human society cannot be developed. For the proper development of the society both male and female have to educate. Due to low degree of urbanization, low status of economic condition and political background, low development of transport and communication, lack of educational facilities (Samanta, 2003), very few number of educational institutions, low status of women in society and standard of living are the factors which influence directly on the rate of difference in literacy among male and female in rural and urban areas (Banu & Rawal, 2015; Saha & Debnath, 2016). The developing countries of the world, of which India is a part, are characterized not only by low literacy rates but also by a great disparity in the literacy rates found in between urban and rural areas, between males and females and between young and the aged people (Mishra and Singh, 2015). Female literacy is one of the most prerequisite factors in one hand for reducing gender gap in all aspect and other hand it leads to women empowerment (Sundaram, Sekar & Subburaj, 2014). But the status of female literacy and education of the districts in West Bengal is not impressive and having a wide gender disparity which leads to spatial difference in literacy over the state (Basak & Mukherjee, 2012). The analysis of Spatio-temporal variation and gender gap in literacy shows the areas of deficiency in education which can help the policy or planning makers to further development.

2. OBJECTIVES:

- i) To show the spatio-temporal variation in literacy of Scheduled Caste females in Koch Bihar District.
- ii) To study the rural-urban differentials in literacy rate and educational attainment of Scheduled Caste females in Koch Bihar district.
- iii) To examine the gender disparity in literacy of Scheduled Caste population of different blocks of Koch Bihar District.
- iv) To show the variation in educational attainment among the major sub-castes of Scheduled Caste Population in Koch Bihar district.

3. MATERIALS AND METHODS:

The entire work has been completed with the help of secondary data which collected from District Census Handbook 2001 & 2011, Census of India 2001 & 2011. The essential cartographic techniques such as maps, diagrams and tables used with the help of GIS-Arc software. For the fulfilment of the study many parametric measures have been used such as –

- i) **Effective Literacy Rate:** Effective Literacy Rate has been defined as the percentage of a total number of literates among the population aged 7 years and above.

$$\text{Effective literacy rate} = \frac{\text{Total number of literates aged 7 and above} \times 100}{\text{Population aged 7 and above}}$$

ii) **Spatio-temporal Change in Literacy:** A Spatio-temporal analysis of literacy has been calculated with the help of following formula

iii)

$$\text{Spatio-temporal Change} = \frac{\text{Literacy Rate of 2011} - \text{Literacy Rate of 2001}}{\text{Literacy Rate of 2001}} \times 100$$

iv) **Gender Disparity Index:** Sopher’s Disparity Index (1974) is well accepted technique to measure the gender disparity in literacy between male and female.

v)

$$DI_s = \log \frac{X_2}{X_1} + \log \frac{(100 - X_1)}{(100 - X_2)}$$

Where, X1= Value of Deprived Group (Female)
X2= Value of Dominant Group (Male)

The index measures disparity between two groups in their possession of a particular property in terms of the logarithm of the odds ratio. The objective of taking log is to reduce the levelling off effect i.e. regions with higher literacy rate may show a lower level of disparity than the regions having a lower level of literacy rate even though the gender gap remains same for both region (Sopher, 1980). But this index fails to satisfy the additive monotony axiom (Kundu & Rao, 1986). The additive monotony axiom specifies that if a constant is added in all observations in a non-negative series, the inequality index must show the declining trend. The modified disparity index proposed by Kundu & Rao (1986) is-

$$DI_{KR} = \log \frac{X_2}{X_1} + \log \frac{(200 - X_1)}{(200 - X_2)}$$

This (Disparity Index by Kundu & Rao) method is most suitable to measure the inequality between two variables. The value of DI 0 means the perfect equality between two variables. Greater the value indicates higher gender inequality.

vi) **Gender Parity Index:** Backwardness in educational attainment has been studied with the help of Gender Parity Index(GPI) in a different level of education i.e. literate without an educational level, pre-primary, primary, middle school, secondary, higher secondary, non-technical diploma, technical diploma, graduate and above and unclassified. GPI has been calculated with the following formula –

$$GPI = \frac{\text{Female Literate}}{\text{Male Literate}}$$

The GPI value 1 indicates perfect gender parity. Higher the parity value, greater the achievement of the Scheduled Caste females in terms of education.

vii) **Composite Educational Index (CEI):** Following Nauriyal and Sahoo (2010), the study tried to estimate the composite educational index for different blocks of Koch Bihar district by using the following formula –

$$CEI = \left(\frac{2EAI + GEI}{3} \right)$$

Where,

$$\text{Educational Attainment Index (EAI)} = \frac{\text{Actual Literacy Rate} - \text{Minimum Literacy Rate}}{\text{Maximum Literacy Rate} - \text{Minimum Literacy Rate}}$$

Where maximum value is 100 and minimum value is 0.

$$\text{Gross Enrolment Index (GEI)} = \frac{\text{Actual Gross Enrolment} - \text{Minimum Gross Enrolment}}{\text{Maximum Gross Enrolment} - \text{Minimum Gross Enrolment}}$$

Where maximum value is 100 and minimum value is 0.

The CEI index varies from 0 to 1. The block which having CEI score close to 1 performing better while the block having minimum value is the worst performance.

4. ANALYSIS:

Literacy is one of the most important indicators to know the population quality of any geographical region. It is very important in population geography to know the literacy pattern, variation and affecting different socio-economic factors of literacy in one region to another region (Kumar & Sharma, 2015). Even within the same region or country literacy varies between rural and urban context among male and females, among different occupational groups and social castes. A large number of socio-economic factors, such as nature of the economy, levels of urbanization, the standard of living, place of females in society, educational opportunities and levels of technological development influence the pattern of the literacy (Basak & Mukherjee, 2012).

4.1. The trend in SC Female Literacy since 1961 to 2011:

The table 1 shows the trends of Scheduled Caste female literacy pattern compare to the total SC literacy and general literacy of the country since 1961. It has been noted that the literacy rate of the total population has been 28.31% in 1961, and has further increased up to 74.04% during 2011. Similarly, in 1961, 10.27% of Scheduled Castes were found to be literates, which have increased to 63.89% in 2011 whereas SC female literacy was 3.29% in 1961 and 14.6% in 2011.

Table-1 Progress of SC Female literacy in India from 1961-2011

Census Year	Total Literacy (%)	Decadal Growth	SC Literacy (%)	Decadal Growth	SC Female Literacy (%)	Decadal Growth
1961	28.3		10.27		3.29	
1971	34.45	6.15	14.67	4.4	6.44	3.15
1981	42.57	8.12	21.38	6.71	10.93	4.49
1991	52.21	9.64	37.41	16.03	23.76	12.83
2001	65.38	13.17	54.69	17.28	41.9	18.14
2011	74.04	8.66	63.89	9.2	56.5	14.6

Source: Census of India (1961-2011)

Thus, the literacy pattern shows an increasing trend among the Scheduled Castes. This was possible because of the ‘National Literacy Mission (NLM)’ has been introduced by the Government of India, which has formed a new span of instant awareness to furnish the energy for rapid growth of literacy and educational attainment in the country. However, it is pretty shocking to note that, though the literacy rate of the total population is comparatively higher than that of the Scheduled Castes during the period of 1961- 2011, yet the percentage increase in the growth of literacy rate has been always higher among the Scheduled Castes (53.62%) than that of the total population (45.74%) as a whole. This might be because of the “Reservation Policy” which was introduced by Dr. B.R. Ambedkar, which might have provided several opportunities to Scheduled Castes in the field of education.

Table-2 Temporal Variation on SC Literacy (%)

Census Year	Koch Bihar	Decadal Growth	West Bengal	Decadal Growth
1961	17.18		13.58	
1971	18.28	1.10	17.8	4.22
1981	25.21	6.93	24.42	6.62
1991	41.07	15.86	42.21	17.79
2001	66.3	25.23	59.04	16.83
2011	75.5	9.20	68.24	9.20

Source: Census of India (1961-2011)

Table 2 also depict the increasing scenario of SC literacy in Koch Bihar district with the compare to the state average from 1961 to 2011 which tells that the increasing rate of SC literacy in Koch Bihar district is higher than the state average.

4.2. Trend in SC Female Literacy in Koch Bihar district:

The trend of SC female literacy has been shown by the table no 3 which depicts about that the female literacy is increasing by the passage of time with the proper utilization of the different government initiatives or policies which has been taken for the proper development of the Scheduled Caste females. In 2001 and 2011 census the highest female literacy was found in Cooch Behar-II block contributing 59.55 and 72.60 per cent SC female population were literate to the total SC female population (table 3). On the other hand lowest was found in Sitai block both the census i.e. 41.65 and 56.38 per cent respectively.

Table-3 SC Female Literacy Rate (%) in 2001 and 2011

Block	Total		Rural		Urban	
	2001	2011	2001	2011	2001	2011
Cooch Behar-I	53.67	69.36	53.18	67.74	70.35	80.55
Coochbehar-II	59.55	72.6	59.38	72.17	63.88	76.42

Dinhata-I	52.44	67.35	52.42	66.67	68.46	79.85
Dinhata-II	56.7	68.71	56.7	68.71		
Haldibari	48.07	63.34	48.07	62.43	60.14	74.15
Mathabhanga-I	46.34	63.19	46.33	62.56	71.16	79.01
Mathabhanga-II	53.11	63.99	53.11	63.99		
Mekhliganj	47.69	61.57	47.69	61.45	49.32	64.08
Sitai	41.65	56.38	41.65	56.38		
Sitalkuchi	43.94	62.11	43.94	62.11		
Tufanganj-I	56.89	69.2	56.89	68.33	76.45	80.56
Tufanganj-II	53.36	67.79	53.56	67.78		
Koch Bihar	44.60	66.01	51.71	65.45	66.66	77.31

Source: Computed from the DCHB of Koch Bihar, 2001 & 2011

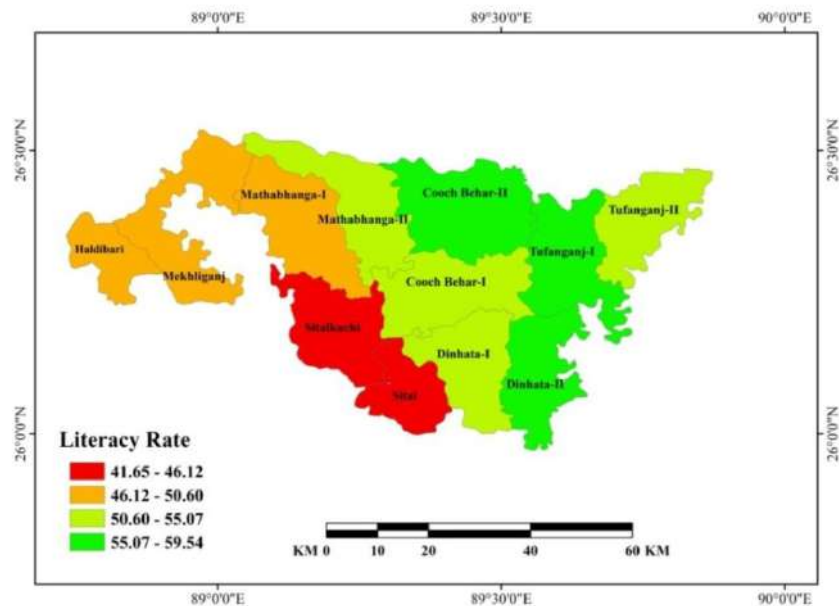


Figure-1 Effective Literacy of SC Female Population of Koch Bihar, 2001

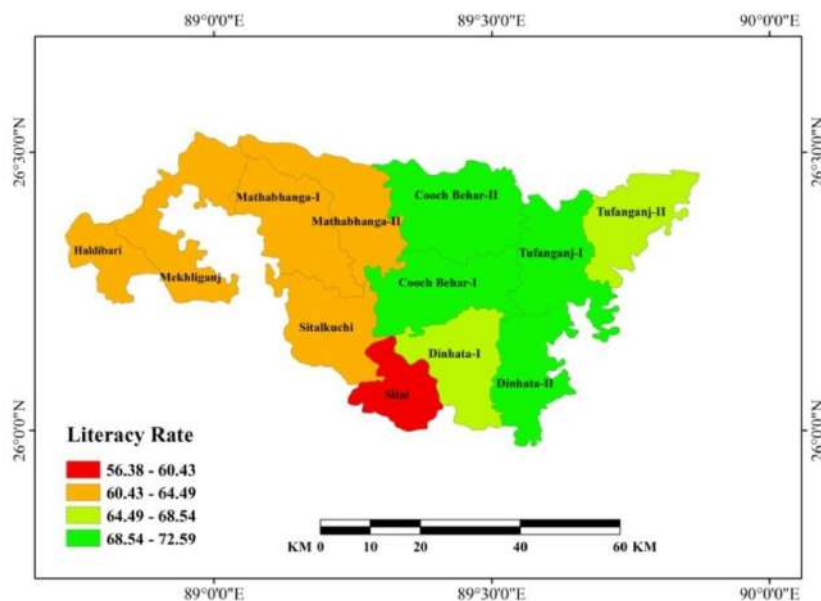


Figure-2 Effective Literacy of SC Female Population of Koch Bihar, 2011

Though the literacy rate is high in urban areas but the value of change between the two censuses was high among the rural females (table 3). In rural areas, highest literacy rate was found in Cooch Behar-II block contributing 59.38 and 72.17 per cent where in urban areas highest rate was found in Tufanganj-I block i.e. 76.45 and 80.56 per cent in both the censuses respectively (figure 1 & 2). It may be the female literacy is low in rural areas because the low attitude of parents towards female education compare to the male education, economic backwardness of the parents and also the lack of interest of the female child whose are also engaged in the household activities.

4.3. Crude Literacy Rate of Major Sub-castes of SC Population:

The crude literacy rate is the rates where the total literates are divided by the total population which differs from the effective literacy rate. Ineffective literacy rate, the total literates are divided by the total population aged 6 and above years old. Crude literacy rate are not the proper literacy rate because in this measure 0-6 population also included which are not possible to literate whereas effective literacy rate gives the proper literacy rate. In this study crude literacy rate of the major sub-castes of Scheduled Caste population in Koch Bihar district because of lack of age group wise population of these major sub-castes. Table 4 reveals that the literacy rate of both male and female was higher among the Dhoba sub-castes in both rural and urban also. In rural areas Dhoba sub-castes contribute 72.97 per cent and 59.51 per cent in male and female literacy respectively where as followed by Rajbanshi (male 64.78% and 43.91%) and Jalia Koibarta (male 62.52% and female 45.86%) whereas in urban areas highest literacy found among Dhoba sub-castes (male 80.43% and female 70.40%) followed by the Jhalo Malo (male 78.26% and female 62.42%). On the other hand, Bagdi (male 49.41% and female 28.56%) and Koch (male 23.26% and female 16.88%) represents the least literacy rate in rural and urban areas respectively.

Table-4 Crude Literacy Rate of major Sub-castes of SC Population, 2011

Sub-Castes	Total			Rural			Urban		
	Total	Male	Female	Total	Male	Female	Total	Male	Female

Bagdi	39.74	49.80	28.95	39.36	49.41	28.56	65.85	76.19	55.00
Bhumali	51.49	62.03	40.81	50.11	60.66	39.41	66.52	76.99	56.00
Chamar	46.78	56.67	36.06	45.58	55.3	35.04	54.02	64.89	42.20
Dhoba	67.50	73.71	60.62	66.59	72.97	59.51	75.61	80.43	70.40
Hari	40.78	48.73	32.84	47.68	52.04	42.97	38.19	47.42	29.24
Jalia Koibarta	54.91	63.01	46.48	54.36	62.52	45.86	70.63	76.64	64.19
Jhalo Malo	52.37	59.86	44.44	51.65	59.16	43.66	70.05	78.26	62.42
Koch	48.92	57.84	39.64	48.05	56.93	38.85	20.25	23.26	16.88
Namasudra	51.87	60.62	42.54	51.07	59.97	41.58	65.18	71.70	58.48
Rajbanshi	54.98	65.08	44.42	54.59	64.78	43.91	69.63	76.38	63.00

Source: Calculated from Statistical Hand Book, 2013-14

4.4. Spatio-temporal change in SC Female literacy:

Spatio-temporal change in SC female literacy had been shown by the table 5 which state that in all the blocks of Koch Bihar district female literacy had been increased from 2001 to 2011 as a greater extent i.e. 20 to 40 per cent changes were found.

Table-5 Spatio-temporal change in SC Female literacy

Block	SC Female Literacy Rate (%)		Spatio-temporal Change (+, -)
	2001	2011	
Cooch Behar-I	53.67	69.36	+29.23
Coochbehar-II	59.55	72.6	+21.91
Dinhata-I	52.44	67.35	+28.43
Dinhata-II	56.7	68.71	+21.18
Haldibari	48.07	63.34	+31.77
Mathabhanga-I	46.34	63.19	+36.36
Mathabhanga-II	53.11	63.99	+20.49
Mekhliganj	47.69	61.57	+29.10

Sitai	41.65	56.38	+35.37
Sitalkuchi	43.94	62.11	+41.35
Tufanganj-I	56.89	69.2	+21.64
Tufanganj-II	53.36	67.79	+27.04
Koch Bihar	44.60	66.01	+48.00

Source: DCHB of Koch Bihar, 2001 & 2011

The highest changes or increase was found in Sitalkuchi block i.e. 41.35 per cent followed by Mathabhanga-I (36.36%) and Sitai (35.37%) block where least was found in Mathabhanga-II (20.49%) block (figure 3).

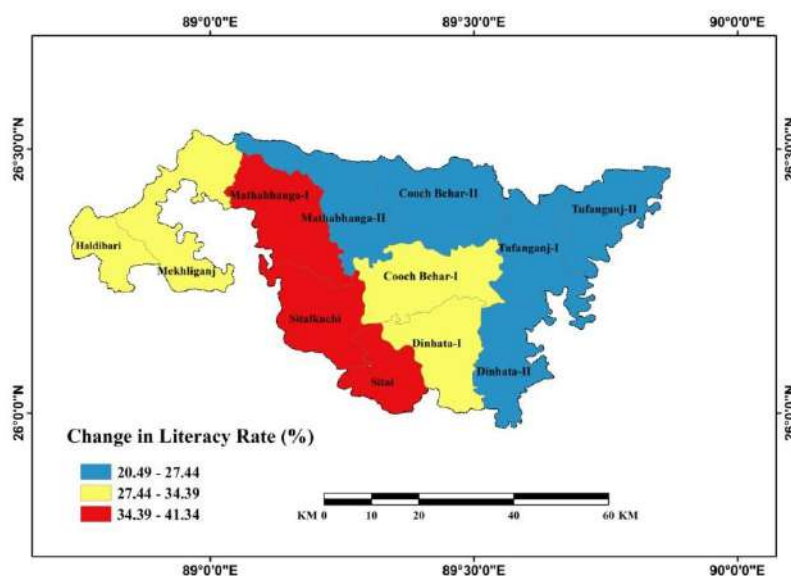


Figure-3 Spatio-temporal Change in SC Female Literacy (2001-11)

Variation of spatio-temporal change in SC female literacy by the place of residence had been shown in table 6 which shows the there was a great variation in the changes of literacy between the rural and urban areas. Though the literacy rate of SC female population is high in both the censuses in all the urban blocks but the spatio-temporal change was higher in rural areas in all the blocks compare to the urban areas; which also indicate the female literacy is increasing in recent time with the better implementation of the different governmental effort for SC female population. In rural areas the highest spatio-temporal change was found in Sitalkuchi block i.e. 41.35 % and least was Tufanganj-I (20.11%) block whereas Mekhliganj (29.93%) get the first rank in spatio-temporal change in SC female literacy in urban areas of Koch Bihar district.

Table-6 Spatio-temporal Change in SC Female Literacy in Rural and Urban areas

Block	Rural			Urban		
	Literacy (%)	Rate	Spatio-temporal	Literacy (%)	Rate	Spatio-temporal

	2001	2011	change (+, -)	2001	2011	Change (+, -)
Cooch Behar-I	53.18	67.74	+27.38	70.35	80.55	+14.5
Coochbehar-II	59.38	72.17	+21.54	63.88	76.42	+19.63
Dinhata-I	52.42	66.67	+27.18	68.46	79.85	+16.64
Dinhata-II	56.7	68.71	+21.18			
Haldibari	48.07	62.43	+29.87	60.14	74.15	+23.3
Mathabhanga-I	46.33	62.56	+35.03	71.16	79.01	+11.03
Mathabhanga-II	53.11	63.99	+20.49			
Mekhliganj	47.69	61.45	+28.85	49.32	64.08	+29.93
Sitai	41.65	56.38	+35.37			
Sitalkuchi	43.94	62.11	+41.35			
Tufanganj-I	56.89	68.33	+20.11	76.45	80.36	+5.11
Tufanganj-II	53.56	67.78	+26.55			
Koch Bihar	51.71	65.45	+26.57	66.66	77.31	+15.97

Source: Calculated from DCHB of Koch Bihar, 2001 & 2011

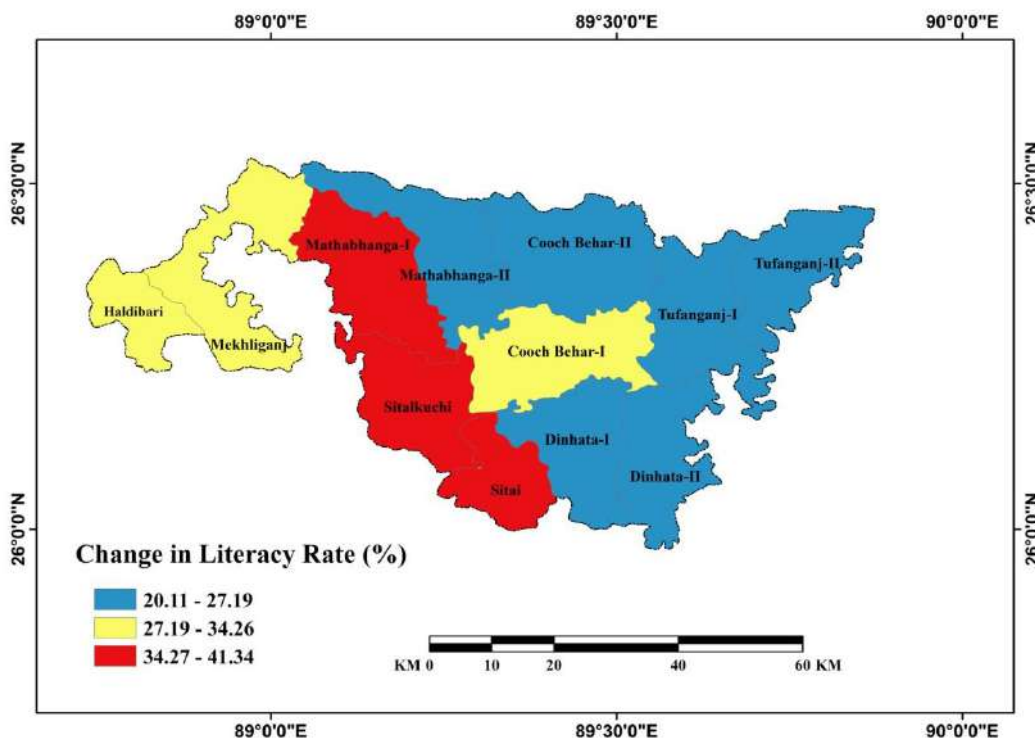


Figure-4 Spatio-temporal Change in SC Female Literacy in Rural areas

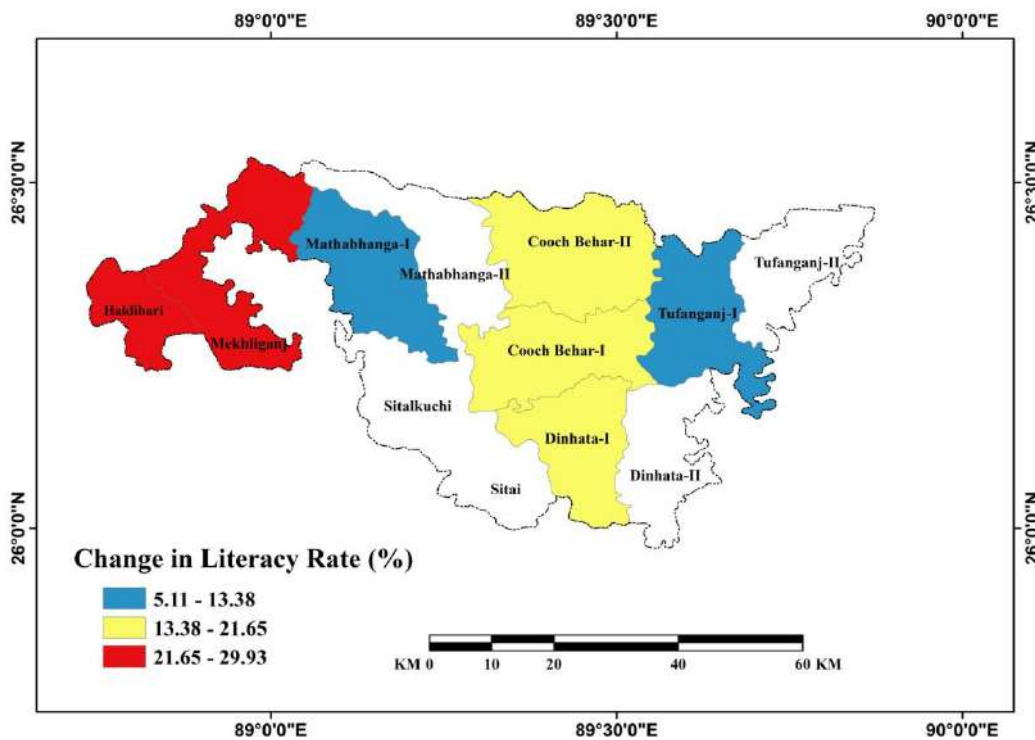


Figure-5 Spatio-temporal Change in SC Female Literacy in Urban areas

4.5. Gender Disparity in Literacy:

Gender Disparity is simply meant the inequality in different social aspect such as education, employment, politics as well as society which is found in India from earlier to till now.

Table-7 Gender Disparity in Literacy among SC Population in 2001 & 2011

Block	2001		Disparity Index	2011		Disparity Index	Change in D.I.
	Male	Female		Male	Female		
Cooch Behar-I	77.28	53.67	0.235	83.63	69.36	0.131	0.104
Coochbehar-II	81.64	59.55	0.211	85.73	72.6	0.119	0.092
Dinhata-I	73.97	52.44	0.218	80.39	67.35	0.122	0.096
Dinhata-II	78.51	56.7	0.213	81.5	68.71	0.119	0.094
Haldibari	73.8	48.07	0.267	78.36	63.34	0.143	0.124
Mathabhanga-I	73.73	46.34	0.287	80.1	63.19	0.16	0.127
Mathabhanga-II	77.85	53.11	0.246	79.52	63.99	0.147	0.099
Mekhliganj	73.78	47.69	0.271	78.25	61.57	0.159	0.112
Sitai	65.51	41.65	0.268	70.65	56.38	0.143	0.125
Sitalkuchi	69.19	43.94	0.274	77.84	62.11	0.151	0.123
Tufanganj-I	78	56.89	0.206	82.99	69.2	0.127	0.079
Tufanganj-II	76.4	53.36	0.23	82.02	67.79	0.132	0.098
Koch Bihar	90.68	44.6	0.328	80.67	66.01	0.105	0.223

Source: DCHB of Koch Bihar, 2001 & 2011

Gender Disparity also equal to the Gender Bias where males are act as the supervisor and females are neglected. This problemis found in all areas but major found in rural areas where male children's are known as the future security for the parents; not female child. This attitude creates the gender disparity in literacy and educational attainment which is not favourable for the proper development.

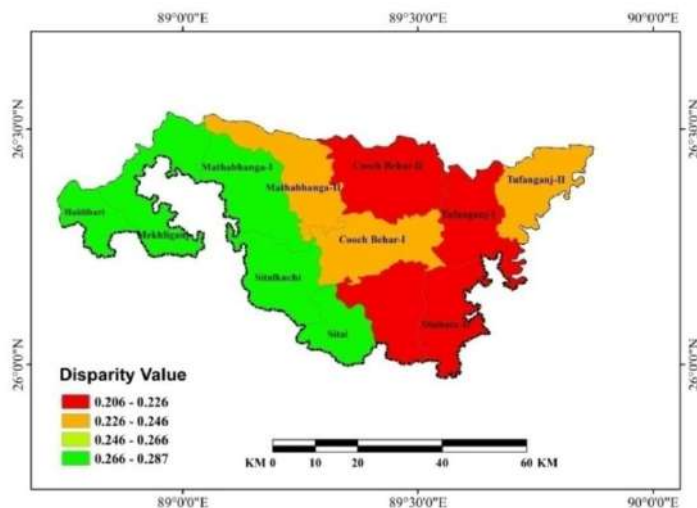


Figure- 6 Gender Disparity in Effective Literacy of SC Population, 2001

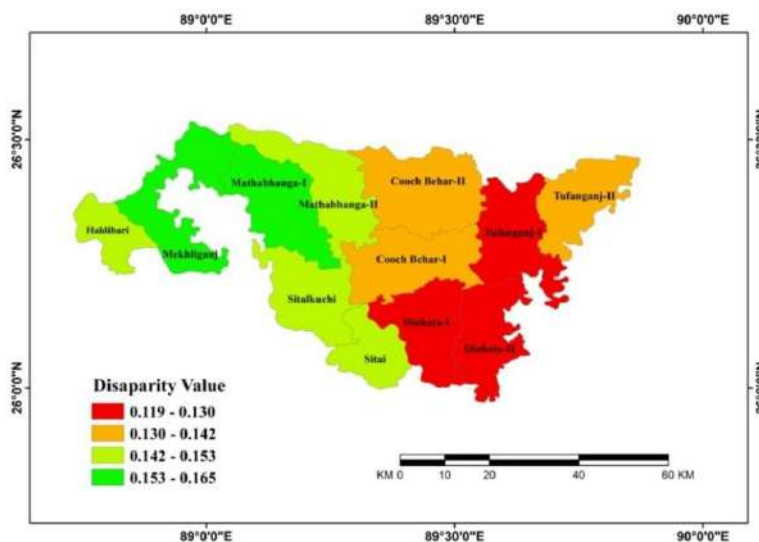


Figure-7 Gender Disparity in Effective Literacy of SC Population, 2011

Table 7 shows the nature of disparity among Scheduled Caste population in Koch Bihar district in 2001 & 2011. It is found that the degree of disparity is decreasing from 2001 to 2011 with the better implementation of different Governmental schemes, projects, and educational facilities for Scheduled Caste students which is a sign for the overall progress in the society. In 2001 the highest and lowest disparity was in Mathabhanga-I (0.287) and Tufanganj-I (0.206) and in 2011, Mathabhanga-I (0.160) and Cooch Behar-II (0.119) occupied the highest and lowest place in terms of disparity in literacy (figure 6 & 7).

Gender disparity in literacy among the Scheduled Caste population also differs by the place of residence which had been shown by the table 8. Rural areas are comparatively backward in terms of literacy, educational attainment and any other sector because of lack of educational attainment among the parents, lack of proper educational facilities, lack of administrative activities, poor economic condition, the dependency of child labour, attitude towards education etc. In rural areas, parents are give more attention for the better care of their male child than the female child.

Table-8 Gender Disparity in Literacy among SC Population in Rural areas

Block	2001		Disparity Index	2011		Disparity Index	Change in D.I.
	Male	Female		Male	Female		
Cooch Behar-I	77.02	53.18	0.238	82.88	67.74	0.14	0.098
Coochbehar-II	81.67	59.38	0.213	85.64	72.17	0.123	0.09
Dinhata-I	73.99	52.42	0.218	79.99	66.67	0.125	0.093
Dinhata-II	78.51	56.7	0.213	81.5	68.71	0.119	0.094
Haldibari	73.8	48.07	0.267	77.88	62.43	0.148	0.119
Mathabhanga-I	73.73	46.33	0.287	79.72	62.56	0.163	0.124
Mathabhanga-II	77.85	53.11	0.246	79.52	63.99	0.147	0.099
Mekhliganj	73.78	47.69	0.271	78.29	61.45	0.161	0.11
Sitai	65.51	41.65	0.268	70.65	56.38	0.143	0.125
Sitalkuchi	69.19	43.94	0.274	77.84	62.11	0.151	0.123
Tufanganj-I	78	56.89	0.206	82.53	68.33	0.132	0.074
Tufanganj-II	76.4	53.56	0.228	82.02	67.78	0.132	0.096
Koch Bihar	75.54	51.71	0.182	80.37	65.45	0.107	0.075

Source: DCHB of Koch Bihar, 2001 & 2011

From the table 4 & 5 it is found that the male literacy in rural areas and urban areas are more or less same, but in case of female literacy there is a great difference between rural females and urban females. In rural areas the high disparity value is found in Mathabhanga-I (0.287) in both the censuses and low disparity value found in Tufanganj-I (0.206) block (figure 2.8). On the other hand in 2011 census, Mathabhanga-I (0.163) and Dinhata-II (0.119) contribute the highest and lowest disparity in literacy (table 8 & figure 9). This picture are very clear from the table 8 that the value of disparity in rural areas are decreasing with the passage of time which indicates the greater achievement of the Scheduled Caste female population over the district.

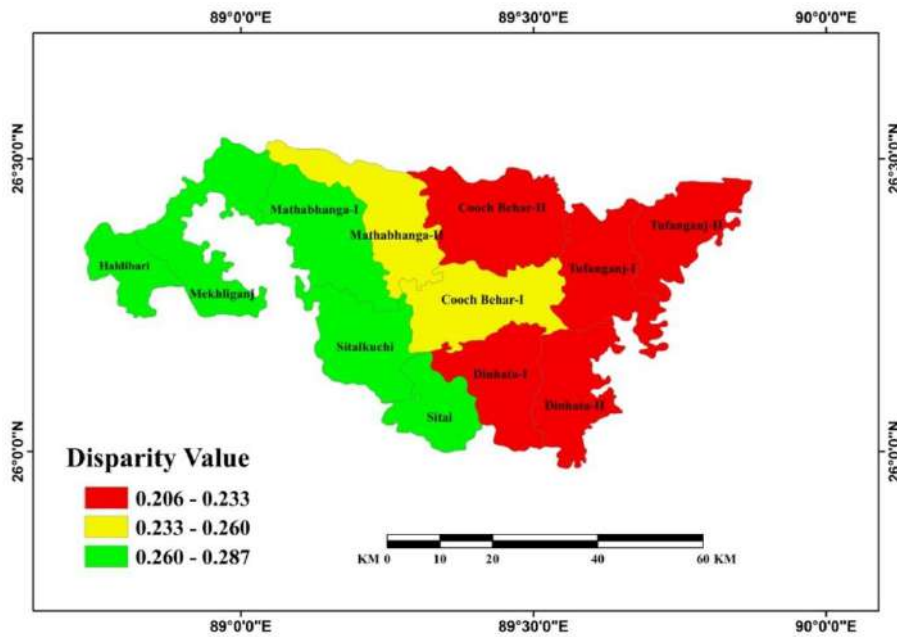


Figure-8 Gender Disparity in Effective Literacy of SC Population in Rural areas, 2001

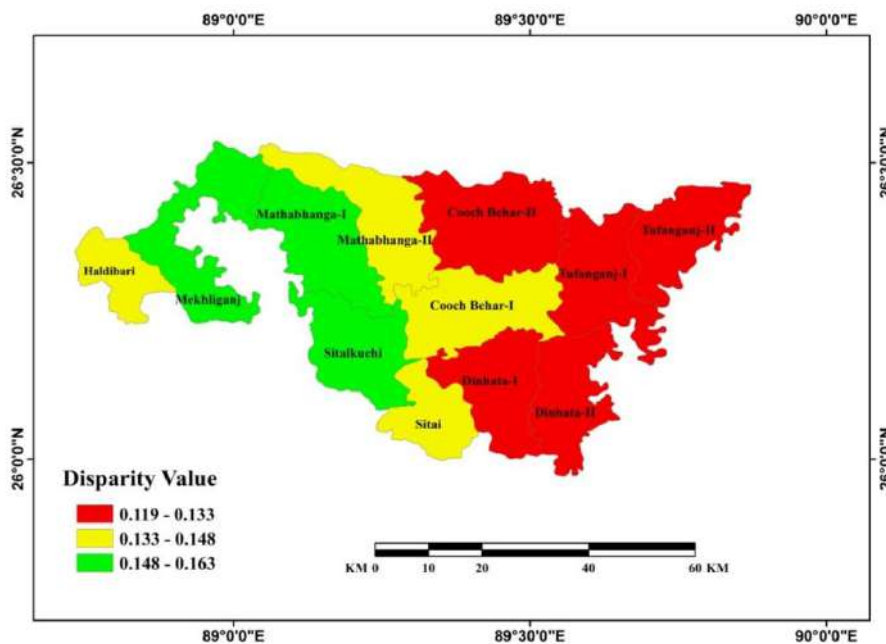


Figure-9 Gender Disparity in Effective Literacy of SC Population in Rural areas, 2011

Table-9 Gender Disparity in Literacy among SC Population in Urban areas

Block	2001		Disparity Index	2011		Disparity Index	Change in D.I.
	Male	Female		Male	Female		
Cooch Behar-I	86.46	70.35	0.147	89.36	80.55	0.078	0.069
Cooch Behar-II	80.85	63.88	0.16	86.61	76.42	0.092	0.068

Dinhata-I	81.21	68.46	0.118	88.08	79.85	0.073	0.045
Haldibari	76.06	60.14	0.154	84.26	74.15	0.092	0.062
Mathabhanga-I	85.21	71.16	0.128	88.89	79.01	0.088	0.04
Mekhliganj	72.36	49.32	0.239	77.45	64.08	0.127	0.112
Tufanganj-I	92.29	76.45	0.141	89.08	80.36	0.078	0.063
Koch Bihar	83.08	66.66	0.114	87.04	77.31	0.07	0.044

Source: DCHB of Koch Bihar, 2001 & 2011

In urban areas the high disparity value is found in Mekhliganj (0.239) followed by Cooch Behar-II (0.160) in 2001 and Mekhliganj (0.127) also occupied the highest rank in 2011 in terms of gender disparity in literacy and low disparity value found in Dinhata-I (0.118, 0.073) block in both the censuses (figure 10 & 11).

Table-10 Gender Disparity in Crude Literacy Rate (%) of SCs by Major Sub-Castes, 2011

Sub-Castes	Total	Rural	Urban
Bagdi	0.272	0.275	0.211
Bhuimali	0.228	0.233	0.21
Chamar	0.238	0.239	0.237
Dhoba	0.146	0.148	0.133
Hari	0.207	0.12	0.245
Jalia Koibarta	0.179	0.181	0.144
Jhalo Malo	0.173	0.175	0.171
Koch	0.206	0.207	0.164
Namasudra	0.198	0.203	0.146
Rajbanshi	0.216	0.219	0.15

Source: DCHB of Koch Bihar, 2001 & 2011

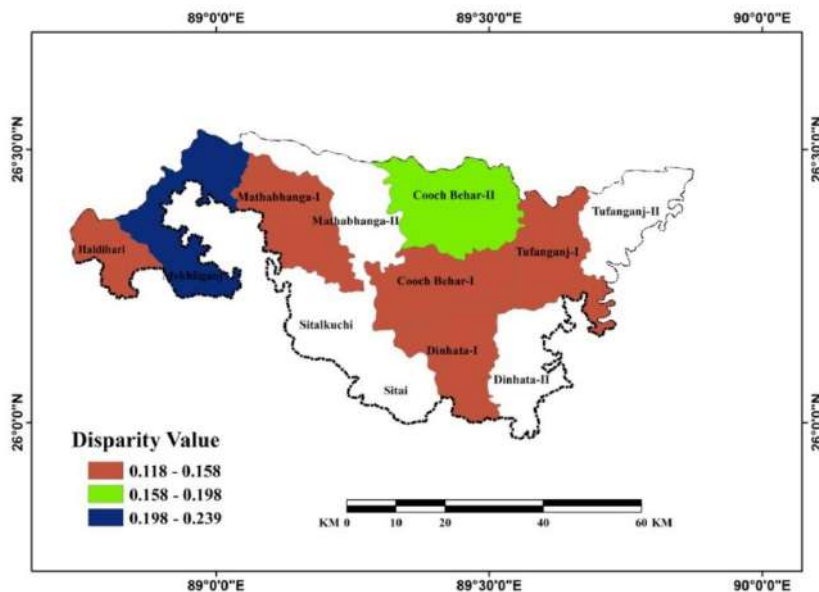


Figure-10 Gender Disparity in Effective Literacy of SC Population in Urban areas, 2001

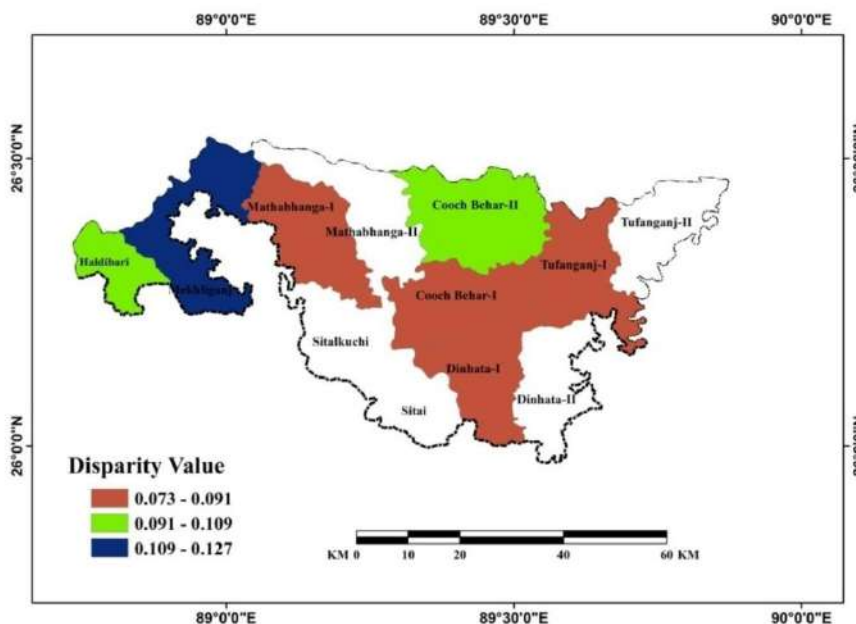


Figure-11 Gender Disparity in Effective Literacy of SC Population in Urban areas, 2011

Table 10 discuss about the gender disparity in crude literacy of major sub-castes of Scheduled Caste population of Koch Bihar district which tells that highest disparity found among the Bagdi sub-castes followed by Chamar (0.238) and Bhuimali (0.228) and the lowest value is found among Dhoba (0.146) which picture also found in rural areas of the district. On the other hand in urban areas of the district highest value found among Hari (0.245) sub-castes followed by Chamar (0.237) and Bagdi (0.211) and lowest is found in Jalia Koibarta (0.144) followed by Namasudra (0.146).

4.5.1. Hypothesis Testing:

1. Gender Disparity in Literacy and Educational Attainment is high in rural areas than the urban areas: From the table 11 it can be said that there is a significant association between gender disparity in literacy and educational attainment and area of residence. Gender disparity is high in rural areas compared to the

urban areas in the Koch Bihar district and Pearson Chi-Square value is 70.191 which are significant at the level of 100 percent.

Table-11 Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	70.191 ^a	2	0.02
Likelihood Ratio	88.215	2	0.00
Linear-by-Linear Association	57.955	1	0.00
N of Valid Cases	200		

Significant at the level = 0.00 Source: Calculation based on field survey, 2017-2018

4.5.2. The relationship between SC female literacy and different variables: The Estimated result of the relationship between SC female literacy and different variables were presented by the table 12. Here different variables i.e. Pupil-Teacher Ratio, Female Population (0-6 Yrs), School/100 sq km, Sex Ratio, Male Literacy, Rural Literacy, Urban Literacy, Female Labour Force Participation Rate and BPL Population have been a consideration for showing influencing affect of SC female literacy. The table depict that there is a positive relationship between SC female

Table-12 Relationship between SC female literacy and different variables

Variables	1	2	3	4	5	6	7	8	9
SC Female Literacy	0.227	0.247	0.713	0.732	0.957	0.994	0.592	-0.751	-0.831

Variable 1= Pupil Teacher Ratio, Variable 2= Female Population(0-6 Yrs), Variable 3= School/100 sq km, Variable 4= Sex Ratio, Variable 5= Male Literacy, Variable 6= Rural Literacy, Variable 7= Urban Literacy, Variable 8= Female Labour Force Participation Rate and Variable 9= BPL Population.

literacy and Pupil Teacher Ratio (0.227), Female Population (0-6 Yrs) (0.247), School/100 sq km (0.713), Sex Ratio (0.732), Male Literacy (0.957), Rural Literacy (0.994) and Urban Literacy (0.592) whereas the negative relationship was found in case of Female Labour Force Participation (-0.751) and BPL Population (-0.831) which indicates that with the increase of FLFP and BPL Population among the Scheduled Caste population in the study area, the rate of schooling among the SC female population will be less.

4.6. Gender Parity in Educational Attainment of SC Population:

Educational attainment is defined as the maximum level of education of peoples has successfully completed. In literature, this term also used as a highest educational qualification which can be ordered hierarchically. High level of educational attainment among all the peoples can progress the society.

Table-13 Educational Attainment of SC Population in Rural and Urban areas in Koch Bihar District, 2011

Educational Attainment	Rural			Urban		
	Male	Female	GPI	Male	Female	GPI
Literate without educational level	10597	8897	0.840	552	608	1.101
Below primary	139966	115978	0.829	5111	4849	0.949
Primary	148016	116908	0.790	5136	4670	0.909
Upper primary	107050	84802	0.792	5209	4883	0.937
Secondary	34237	23361	0.682	2461	1997	0.811
Higher secondary	35555	19377	0.545	3161	2814	0.890
Non Technical diploma	12	3	0.250	9	2	0.222
Tech. diploma	183	17	0.093	107	25	0.234
Graduate and above	2995	1048	0.350	3441	2033	0.591
Post graduate	2995	1048	0.350	724	504	0.696
Engineering	193	23	0.119	190	49	0.258
Medicine	40	2	0.050	56	7	0.125
Unclassified	1773	1463	0.825	128	109	0.852

Source: DCHB of Koch Bihar, 2001 & 2011

But in the study area there are found in wide gender gap in educational attainment among scheduled caste population which is not ideal for proper development. By the gender parity index we can say the degree of achievement in educational attainment of females to males. The high value of Parity Index indicates the high achievement and vice versa. From the table 13 it is found that in rural areas the highest parity value found in Literate without educational level (0.84) followed by Unclassified (0.825) and Below Primary (0.829). But in the other level of education there is a wide disparity is found mainly in case of Medicine (0.050) followed by Engineering (0.119) and Non Technical Diploma (0.250). In rural areas the parents are not willing to higher educate their girl child to compare to a male child because many rupees are required for their marriage. But in urban areas, all parents are educated and they give the same emphasis on both male and female child to educate their level best. It is found that from primary to the higher secondary level of education the achievement among females is high compared to another level of education. The highest Parity Value found in Literate Without Educational Level (1.100) followed by Below Primary (0.949) and Primary (0.937). It can be clearly said that the gender gap is increasing from the higher secondary level of education in both rural and urban areas.

4.6.1. Gender Parity in Educational Attainment of Major Sub-Castes of SC:

Gender parity in educational attainment of major sub-castes of SC population of Koch Bihar district has been shown by the table 14 (Total, rural and urban). From the tables, it can be clearly stated about the achievement of a female in different educational level by the place of residence of major sub-castes. It was seen that there was a negative relationship between gender parity value and educational level; higher the educational level, lower the parity value in case of total, rural and urban population. High achievement of a female was found in the level of below primary and primary of all the major sub-castes (see table 14) whereas low parity value was found in other educational levels. Among the sub-castes, the higher average parity value in educational attainment was found in Dhoba in case of both total and rural population i.e. 0.466 and 0.446 respectively followed by Jalia Koibarta (0.444, 0.418) and Rajbanshi (0.441, 0.420) whereas low attainment was found among the Chamar (0.339, 0.320). On the other hand in urban areas, the picture was quite different from the total and rural population. It was found that the highest average parity value in Jhalo Malo (0.899) followed by Jalia Koibarta (0.849) and Rajbanshi (0.694).

Table- 14 Gender Parity Index in Educational Attainment of Major Sub-Castes of SC of Koch Bihar District, 2011

Total										
Level of Education	Bag di	Bhui mali	Chamar	Dhoba	Har i	Jalia Koibarta	Jhalo Malo	Koch	Namasudra	Rajbanshi
Literate without educational level	1	0.5	0.89	0.7	0.8	0.71	0.78	0.6	0.68	0.68
Below Primary	0.5	0.76	0.7	0.93	0.7	0.83	0.8	0.7	0.76	0.75
Primary	0.5	0.65	0.6	0.86	0.7	0.71	0.71	0.7	0.69	0.67
Upper Primary	0.4	0.54	0.36	0.62	0.5	0.62	0.56	0.3	0.54	0.57
Matric/ Secondary	0.3	0.29	0.22	0.41	0.4	0.42	0.42	0.5	0.36	0.41
Higher Secondary/ Intermediate	0.2	0.23	0.14	0.37	0.3	0.33	0.24	0	0.3	0.34
Non-Technical Diploma	0	0	0	0	0	0	0	0	0	0.22
Technical Diploma	0	0	0	0	0	0.07	0	0	0.04	0.06
Graduate and Above	0.2	0.16	0.14	0.3	0	0.31	0.35	0.5	0.22	0.27
Mean	0.3	0.348	0.33	0.46	0.4	0.444	0.429	0.3	0.399	0.441
	61		9	6	00			94		
Rural										
Level of Education	Bag di	Bhui mali	Chamar	Dhoba	Har i	Jalia Koibarta	Jhalo Malo	Koch	Namasudra	Rajbanshi
Literate without Educational Level	1	0.5	0.85	0.76	0.6	0.68	0.75	0.6	0.67	0.67
Below Primary	0.5	0.77	0.71	0.91	0.9	0.83	0.8	0.7	0.75	0.75
Primary	0.5	0.61	0.56	0.83	0.7	0.71	0.69	0.7	0.68	0.67
Upper Primary	0.4	0.53	0.34	0.62	0.5	0.6	0.51	0.3	0.52	0.56
Matric/ Secondary	0.3	0.26	0.19	0.38	0.5	0.39	0.39	0.4	0.32	0.38

					7			4		
Higher Secondary/ Intermediate	0.1	0.2	0.15	0.32	0.4	0.3	0.18	0	0.22	0.3
Non-Technical Diploma	0	0	0	0	0	0	0	0	0	0.2
Technical Diploma	0	0	0	0	0	0	0	0	0	0.04
Graduate And Above	0.2	0.13	0.08	0.19	0	0.25	0.32	0.5	0.16	0.21
Mean	0.3	0.333	0.32	0.44	0.4	0.418	0.404	0.3	0.369	0.420
	62		0	6	23			81		

Source: District Statistical Hand Book, Koch Bihar, 2013-14

Urban

Level of Education	Bag di	Bhui mali	Chamar	Dhoba	Har i	Jalia Koibarta	Jhalo Malo	Koch	Namasudra	Rajbanshi
Literate without educational level	0	0	1.33	0.25	1	2.25	2	0	0.89	1.03
Below Primary	0.6	0.67	0.64	1.12	0.6	0.86	0.83	0.4	0.86	0.93
	7				6			3		
Primary	1	0.98	0.78	1.31	0.7	1.34	1.17	0.8	0.9	0.95
					1			3		
Upper Primary	0.3	0.59	0.34	0.6	0.6	0.96	1.2	0.4	0.74	0.97
	3				1					
Matric/ Secondary	0	0.47	0.34	0.61	0.3	0.94	0.63	1.5	0.74	0.9
					3					
Higher Secondary/ Intermediate	0	0.4	0.1	0.56	0.2	0.51	1.36	0	0.74	0.6
					5					
Non-Technical Diploma	0	0	0	0	0	0	0	0	0	0.25
Technical Diploma	0	0	0	0	0	0.17	0	0	0.1	0.08
Graduate And Above	0	0.5	0.4	0.49	0	0.61		0	0.43	0.54
Mean	0.2	0.401	0.43	0.54	0.3	0.849	0.899	0.3	0.600	0.694
	22		7	9	96			51		

Source: District Statistical Hand Book, Koch Bihar, 2013-14

4.7. Composite Educational Index:

The composite educational index has been computed for all the blocks of Koch Bihar district on the basis of effective literacy rate and gross enrolment rate in 2011 census of all the Scheduled Caste population. Educational attainment and gross enrolment show about the persons whose are termed as literate. If the numbers of literate persons are more, the scopes of the development in the entire sector are more in all the geographical areas of the country. Table 15 shows that Cooch Behar-I block gets the first rank on the basis of the composite educational index which is 0.940 followed by Cooch Behar-II (0.868) and Dinhata-I (0.639) and low rank is in Sitai block.

Table-15 Composite Educational Index of Koch Bihar District, 2011

Block	Literacy Rate (%)	Educational Attainment Index	Gross Enrolment	Gross Enrolment Index	Composite Educational	Rank
Cooch Behar-I	79.71	0.91	127646	1	0.94	1
Coochbehar-II	81.39	1	86893	0.605	0.868	2
Dinhata-I	75.38	0.677	82596	0.564	0.639	3
Dinhata-II	72.33	0.513	58249	0.328	0.451	7
Haldibari	71.08	0.446	33515	0.088	0.327	10
Mathabhanga-I	73.44	0.573	63055	0.375	0.507	6
Mathabhanga-II	72.68	0.532	52941	0.277	0.447	8
Mekhliganj	69.68	0.37	41153	0.162	0.301	11
Sitai	62.79	0	24381	0	0	12
Sitalkuchi	70.34	0.406	49305	0.241	0.351	9
Tufanganj-I	75.13	0.663	65568	0.399	0.575	4
Tufanganj-II	75.75	0.697	40935	0.16	0.518	5

Source: DCHB of Koch Bihar, 2001 & 2011

This table also stated that though the educational attainment index is higher in Cooch Behar-II (1.000) block but the gross enrolment is low compared to Cooch Behar-I (127646) block that's why Cooch Behar-I block takes the first rank on educational attainment index. In most of the blocks except Cooch Behar-I and Cooch Behar-II, the educational attainment index and gross enrolment index is not so good which clearly showed in the table 15. On the basis of composite educational score, all the blocks have been categorized within the three sections i.e. low, moderate and high educational attainment index zone. In low educational attainment, index was found in Mekhliganj and Sitai block whereas in 7 blocks was found the moderate zone and high was found in Cooch Behar-I, Cooch Behar-II and Dinhata-I block (figure 12).

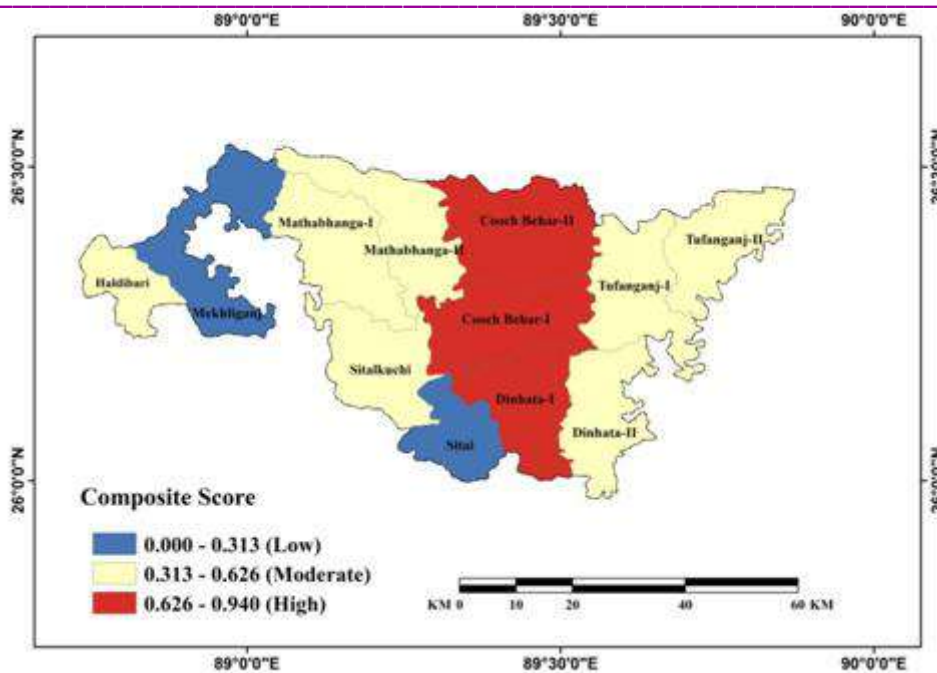


Figure-12 Composite Educational Index of Different Blocks of Koch Bihar, 2011

2.5. CONCLUSION:

The strength of a society should depend on the manpower of the society that means the power in equally both by men and women but it is the existing intellectual norms and social manner which noiselessly refuse equal opportunities to women by ignoring the importance of female education. A society can never annals its maximum potentiality if half of its population i.e. female population remains deprived on account of gender from education and resource utilization. If half of the population of a nation does not have proper access to education, it literally means that they do not have access to the strategies of development taken at Governmental and private levels. Equal participation of every stratum of society is highly necessary as development is an inclusive process and for that first we have to ensure equal access to education. The gender difference in literacy, especially in rural areas can be minimized by proper monitoring and awareness campaigning. The study suggests that the areas with high concentration of gender gap in literacy and the areas with high disparity in literacy need special attention at Governmental and NGO level to overcome the problems.

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