Spatio-Temporal Variations of Block Wise Rural Sex Ratio of Hooghly District in West Bengal (2001-2011)

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Abstract

Sex ratio is an important demographic index to access the social perception of the population of a region. It varies from one place to another and also changes from time to time depending on the socio economic progress of a region. The district of Hooghly located in the lower Ganga plane of West Bengal has a reach socio-cultural heritage as well as economic prosperity. However, the rural population in most part of the district are not so aware of the multiplications but still the imbalances are for more natural in occurrence. All these have been observed in the census year 2001 and 2011.

Keywords

Rural sex ratio; literate sex ratio; crude sex-ratio; worker sex-ratio; social perception.

Introduction

Demography is an indispensable part of geographical studies and sex ratio is one of the vital demographic attributes for any region. It affect the social, economic and political structure of a nation **(Saha and Debnath, 2016)**. Sex ratio is also an index of the socio-economic conditions prevailing in an area and is a useful tool for regional analysis **(Franklin, 1956)**. In Indian perspective sex ratio is measured in terms of number of females per thousand males. Since the two sexes play partly contrasting and partly complementary roles in the economy and society, the study of sex composition assumes added significance for a population geographer **(Chandna, 2007)**.So far the national scenario of the spatial distribution of sex ratio is concerned, it is found that the states of southern part of India have more than the national average while the northern and central part of the country are far behind from the national average**(Census, 2001 and 2011)**. As the northern states are highly populated so it can be realised that a huge portion area of total population of the country experiences a deficit sex ratio. The same trend continued during the last two census years 2001 and 2011.Reasons behind low female sex ratio in Indian scenario are gender discrimination (preference for son), discrimination against girl child, failure of stringent laws, MTP (abortion), female feticide

and infanticide, dowry, and higher mortality of females (young girls, maternal mortality, and female infanticide) **(Vijay Kumar, 2012)**.

In this paper, the domain of the discussion is confined in the rural areas of the Hooghly district.

Study Area

Hooghly district lies between 22°39´32″ N and 23°01´20″ N. parallels and 87°30´15″ E and88°30´20″E meridians. The district is bounded in the north by Purba Barddhaman district, on the east by River Hooghly, on the south by Howrah district and on the west by Bankura and West Midnapore districts.It has 3,149 km²area with a population of 5,519,145 (2011) and adensity of 1753/km² (2011). Itcontains 3.54% of the total area of the State and 6.05% of total population of West Bengal (2011).The district has four sub-divisions, 25 Police stations, 18 Community Development Blocks, 1Municipal Corporation, and 12 Municipalities. The study area concerns the 18 CD Blocks under the jurisdiction of four Subdivisions viz., Chinsurah-Mogra, Polba-Dadpur, Panduah, Dhaniakhali and Balagarh are under the Sadar Subdivision; Singur, Haripal and Tarakeswar are under Chandannagar Subdivision; Serampore-Uttarpara, Chanditala-I, Chanditala-II and Jangipara are under Serampore Subdivision, while Arambagh, Pursurah, Goghat-I, Goghat-II, Khanakul-I and Khanakul-II are under Arambagh Subdivision.
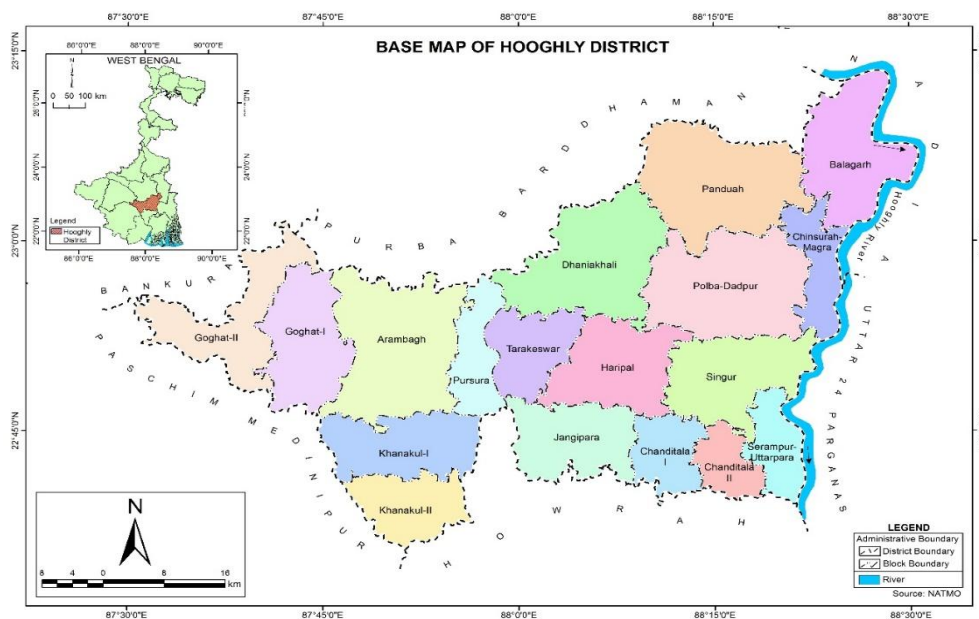
Map no. - 1 (Prepared by the author)

The shape of the district resembles an irregular parallelogramwith a triangular projection on the extreme west beyond the Dwarakeswar river **(O'Malley, 1912)**.The entire district lies on the Lower Gangetic plain enriched with fertile alluvial soil, except a greater part of Goghat-I

& II blocks where is rocky, consisting of the low lateritic fringe of the Bankura Uplands or alluvium mixed with lateritic debris**(O'Malley, 1912)**.The main streams of the district are Hooghly, Damodar, Mundeswari and Dwarakeswar. Agriculture is the pre-dominanteconomic activity of the rural people of the district while presently, the growth of industries can also be found in rural areas.

Out of 18 blocks Polba-Dadpur (285.69 km²) is the largest block in terms of area while Serampore-Uttarpara (43.85 km²) is the smallest block. Dhaniakhali block consistently maintained highest position in terms of total population and total number of households while Goghat-I is the lowest position in same fields during last two census years **(Census, 2001 and 2011)**.

Objectives

    (i)   To evaluate the block wise spatial pattern of sex ratio of individual parameter.

    (ii)   To evaluate the temporal variation sex ratios of individual parameter during two census years.

Database and Methodology

The study is based on secondary data, collected from District Census Handbook of Hooghly 2001 and 2011. Male and female wise data on number of persons, children, literates, schedule castes, schedule tribes, workers, main workers, and marginal workers are extracted from the Census of each Block of the district. Sex ratios are calculated based on the extracted data.

Sex Ratio= F/M×1000

(where, F= Number of Female, M= Number of Male)

Descriptive Statistics are calculated from the sex ratios of different parameters to compare them. Spatial distribution of sex ratios is represented by choropleth mapping through QGIS software. Within the entire paper literature reviews are cited as per the requirement of the discussion on individual parameter.

Result and Discussions

1. In 2011, the district comprised 18 blocks of unequal size. Serampore-Uttarpara is the smallest block with an area of only 43.85 km² and Polba-Dadpur is the largest block with an area of 285.69 km².

2. In terms of number of households, Goghat-I is the smallest block with 3120 families and Dhaniakhali is the largest block with 78260 families.

3. In terms of population, Goghat-I is the smallest block with an average household size of 4 members per family, a household density of 167 per km² and a population density of 751 per km², which is the lowest in the district. Dhaniakhali is the largest block in terms of total population (320534) with an average family size of 4, and average household density of 284 per km² and a population density of 1163 per km².

4. Household density manifests in the concentration of families per sq. km. It is the lowest in case of Goghat-I (167) and highest in case of Serampore-Uttarpara (850). This is because Serampore-Uttarpara is more urbanised followed by Chinsurah-Mogra and Chanditala-II. The remaining blocks are principally rural in nature with mainly farming families whose economy is based on agriculture.

5. The concentration of population per km² depends both on the volume of population and on the area. Population density increases as population increases and area decreases and population density decreases if smaller number of population lives in large area. Thus Goghat-I, Goghat-II and Polba-Dadpur record densities less than 1000 per km² and Serampore-Uttarpara, Chinsurah-Mogra and Chanditala-II records a figure of 3000+.

6. The average family size varies between 4 and 5 members per households. Social awareness is relatively poor in Goghat-II, Chanditala-I and Jangipara. The bigger the family size the smaller the per capita income, the smaller the per capita purchasing power, smaller the savings and smaller the availability of nutrition.

Crude Sex Ratio

The crude sex ratio in 2001 varies between 923 - 1031 females/'000 males with a mean of 969 females/'000 males. The distribution is platykurtic and almost bell shaped. Chanditala-I is exceptionally high in sex ratio with a figure of 1031 per 1000 males. This may be due to out-migration of working males in the western and southern states of India.
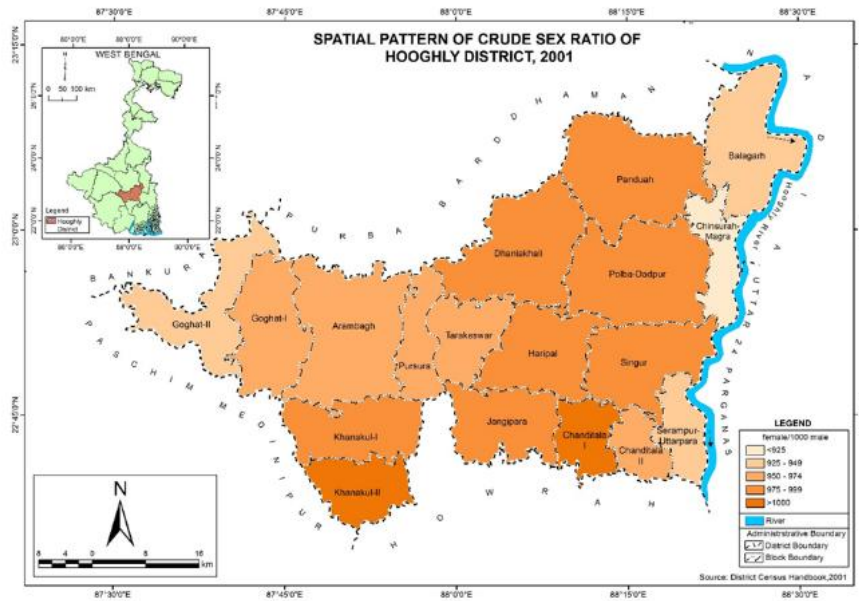
Map no. - 2 (Prepared by the author)

The crude sex ratioin 2011 varies between 950 - 1000 females/'000 males with a mean of 970 females/'000 males. The distribution is platykurtic and almost bell shaped. Khanakul-I has the highest sex ratio with an equal proportion of male and female population, i.e. 1000 females/'000 males.
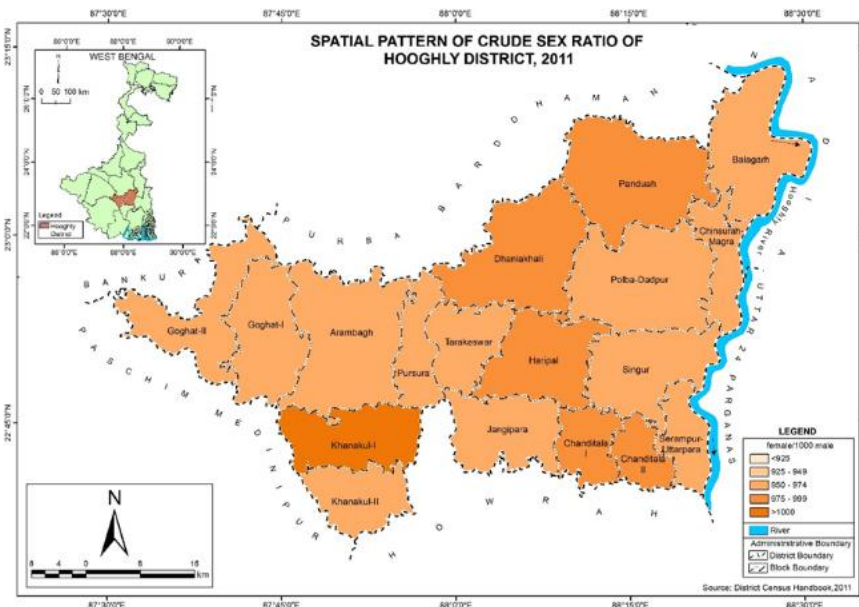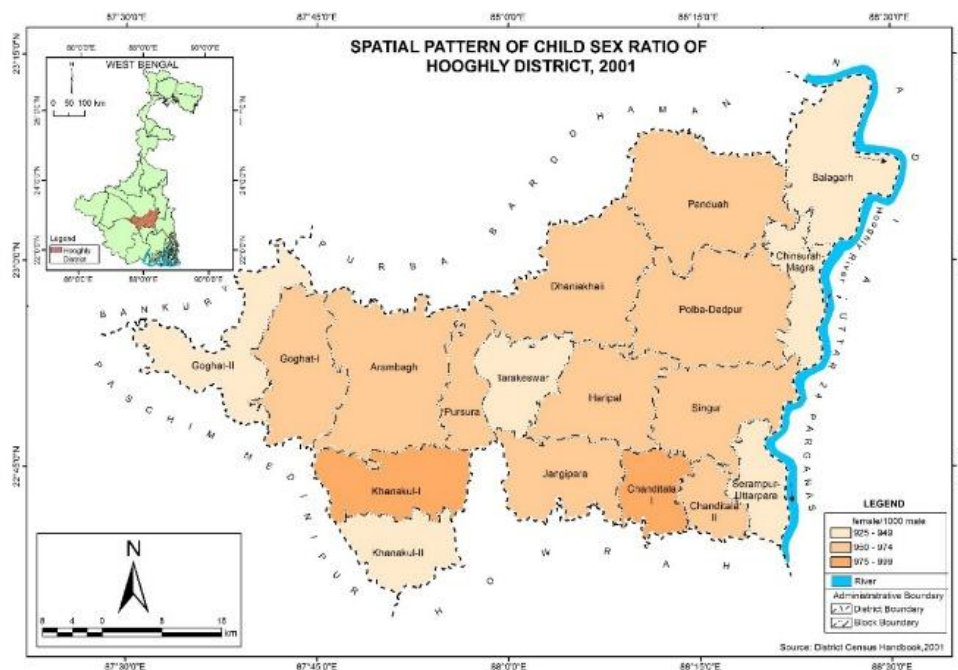

Map no.- 3 (Prepared by the author)

In 2001 census, two blocks out of 18 viz., Chinsurah-Mogra and Serampore-Uttarpara were below the national rural sex ratio i.e., 946 females/'000 males while in 2011 census,a total of 18 blocks were above the national rural sex ratio i.e., 947 females/'000 males. In terms of the average sex ratio of West Bengal in 2001 Census, only Chinsurah-Mogra block was below

the state average i.e., 934 females/'000 males. But in 2011 census, all of the 18 blocks were above the state average i.e., 950 females/'000 males. During these two census years, 9 out of 18 blocks had positive growth in sex ratio. In 2011, crude sex ratio had been spatially rationalised than 2001. Goghat-I, Balagarh, Chinsurah-Mogra, Serampore-Uttarpara and Chanditala-II blocks had done considerable upgradation in crude sex ratio in 2011 in respect of 2001. So, the spatio-temporal variation of different blocks of Hooghly district indicates towards the better condition of crude sex ratio during these two census years.
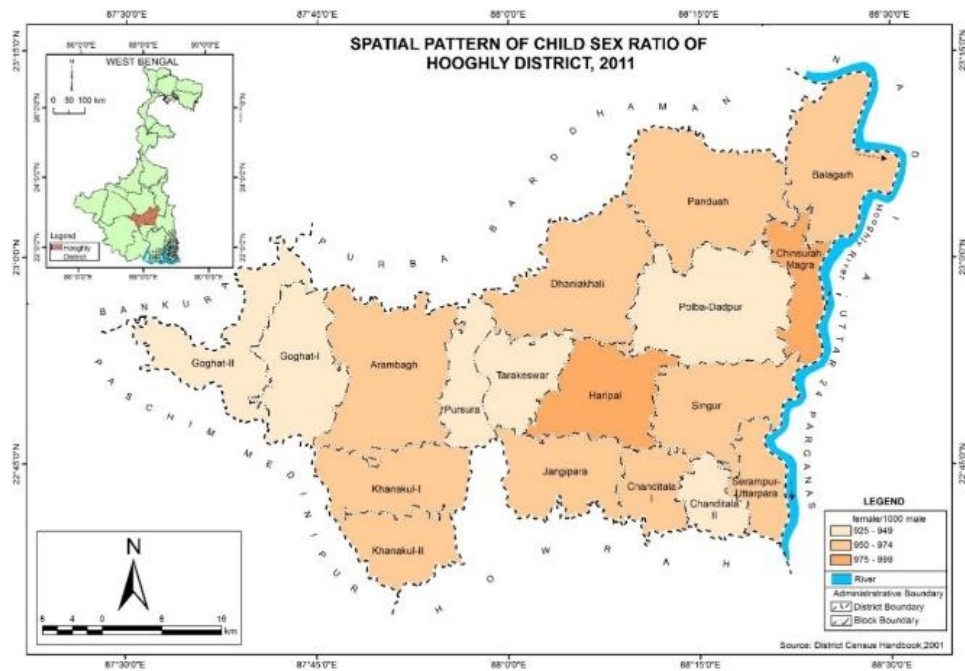
Child Sex Ratio

In 2001, the child sex ratio varied between 927 - 977 girls /'000 boys. The range is quite low with insignificant variance and standard error of estimate. It is platykurtic and broadly negatively skewed.
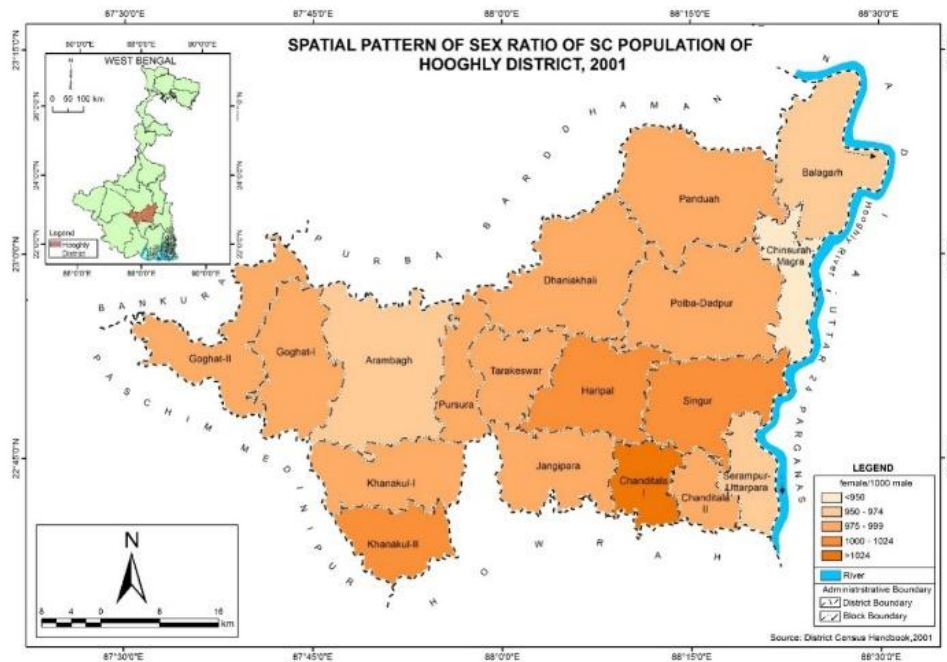

Map no.- 4 (Prepared by the author)

The child sex ratio in 2011 varied between 922 - 983 girls/'000 boys. The range is quite low with insignificant variance and standard error of estimate. It is platykurtic and broadly negatively skewed.

Map no.- 5 (Prepared by the author)

All the blocks are above the national average of the child sex ratio in both census years 2001 and 2011. While in 2001 census 13 out of 18 blocks were below in respect of state average of child sex ratio and in 2011 census 11 blocks were below the state average.Hooghly district lies among the bottom five districts of West Bengal in child sex ratio (948) in 2011 census **(Ghosh and Manna, 2013)**. This type of deficit in child sex ratio may be due to poor sex ratio in literacy and working sector too. If the national scenario is taken into consideration behind this type of miserable ratio, it may be due to son preference attitude in rural areas of India **(Singariya, 2013)**.This sharp decline in child sex ratio is dangerous symbol of the girl child deficit. It has shown an alarming signs of gender inequality in child population. The deficit in girl child population leads to serious demographic imbalance and difficult social consequences **(Ghosh and Manna, 2013)**.
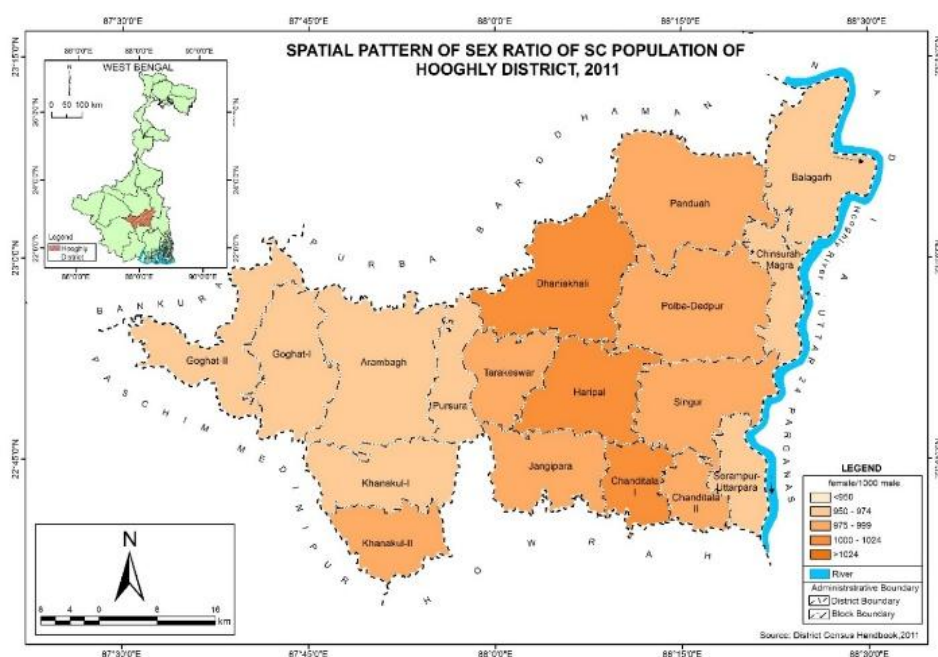
SC Sex Ratio

The sex ratio of the Schedule Castes communityin 2001 varies between 949-1068 females/'000 males with a mean of 990 females/'000 males. Haripal, Singur and Chanditalaare the three blocks that records 1000+ figure.
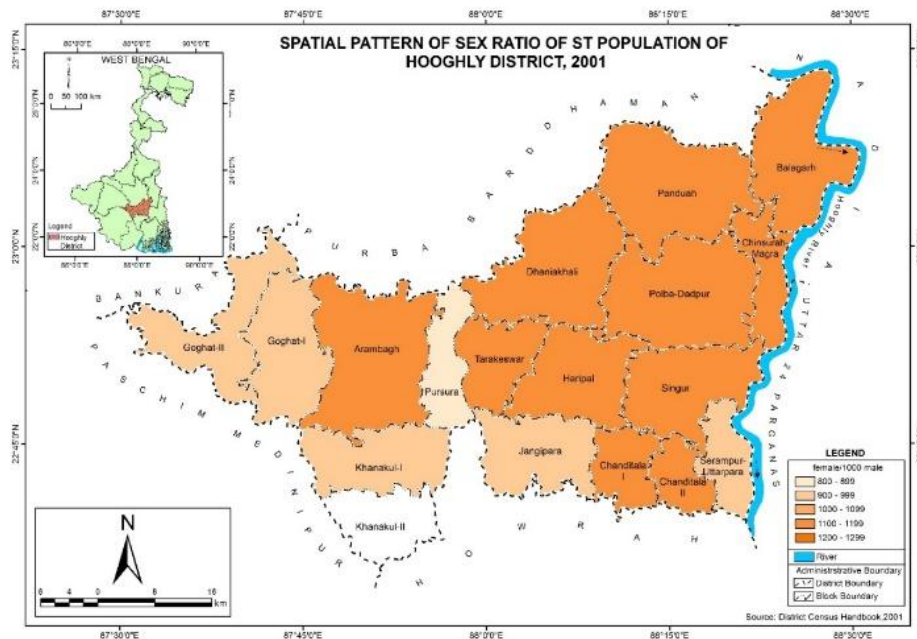
Map no.- 6 (Prepared by the author)

In 2011, the sex ratio of the Schedule Castes community varies between 952 - 1018 females/'000 males with a mean of 979 females/'000 males. Dhaniakhali, Haripal and Chanditala-I are the three blocks that records 1000+ figure. During these two census years, sex ratio of SC community decreased so far the mean value is concerned and the spatial distribution also shows the same.
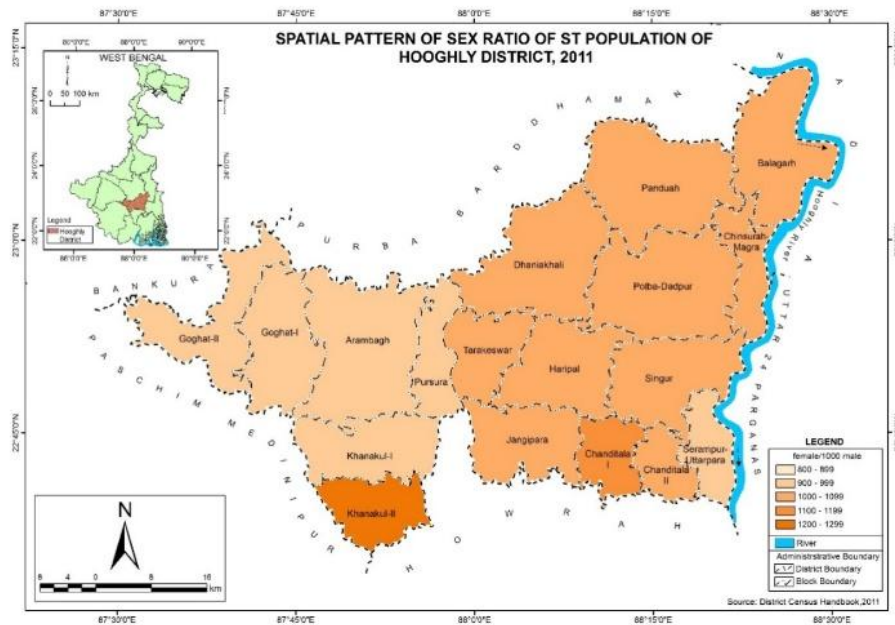

Map no.- 7 (Prepared by the author)

ST Sex Ratio

In case of Schedule Tribe population in 2001 it varies 0 - 1076 females/'000 males with a mean of 943 females/'000 males. The zero figure is due to absence of tribal population in Khanakul-II. Ten out of 18 blocks viz., Tarakeswar, Dhaniakhali, Panduah, Balagarh, Chinsurah-Mogra, Polba-Dadpur, Haripal, Singur, Chanditala-I and Chanditala-II record 1000+ figure.
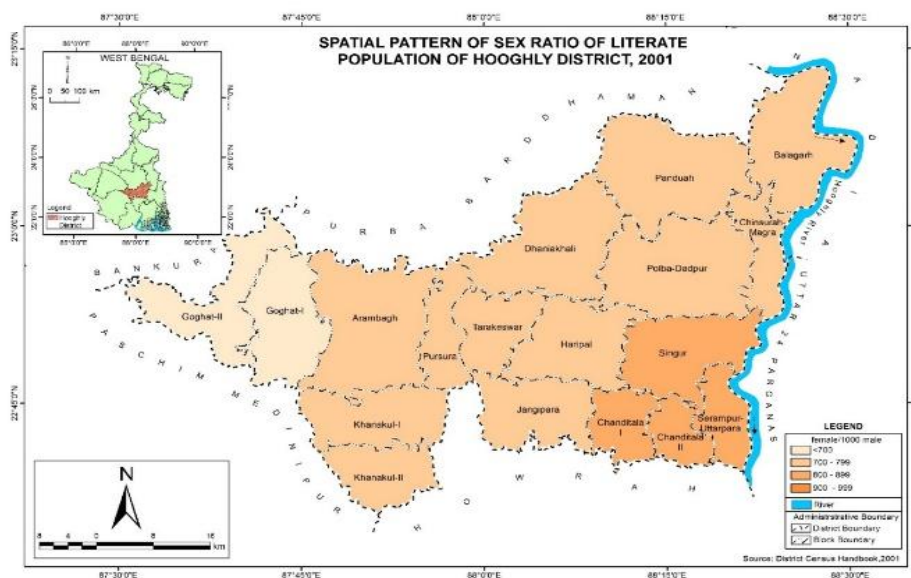

Map no.- 8 (Prepared by the author)

In case of Schedule Tribe population in 2011 it varies 949 - 1231 females/'000 males with a mean of 1026 females/'000 males. About 11 out of 18 blocks viz., Tarakeswar, Dhaniakhali, Panduah, Balagarh, Chinsurah-Mogra, Polba-Dadpur, Haripal, Singur, Chanditala-I, Chanditala-II and Jangipara record 1000+ figure. Thus backwardness in terms of financial position is relatively more in case of Schedule Tribe community and it can be observed in the entire state.In West Bengal most of the districts have more ST sex ratio than SC sex ratio **(Saha, 2017)**. This gives rise to relatively higher rate of migration of working males.
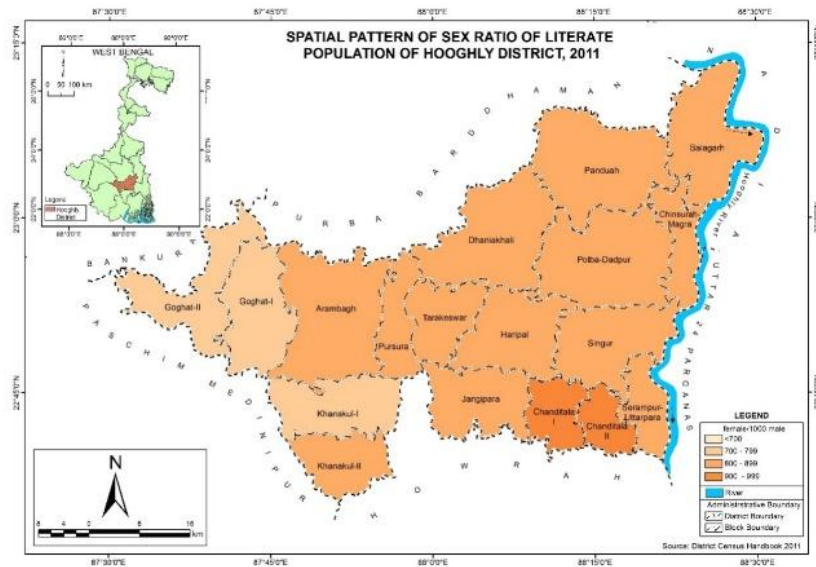
Map no.- 9 (Prepared by the author)

Literate Sex Ratio

Sex ratio of the literate populationof 2001 has been significantly low with a mean of 764 literate females/'000 literate males and ranging between 694 - 874 literate females/'000 literate males.

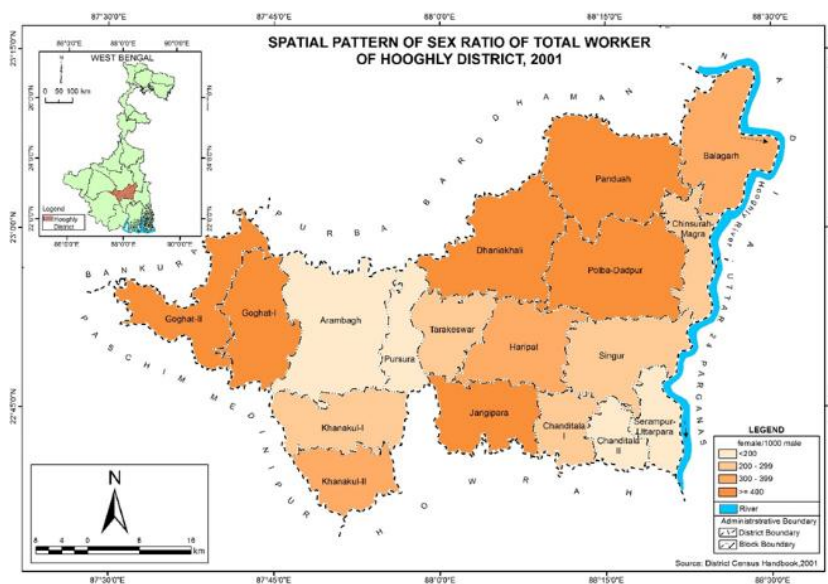
Map no.- 10 (Prepared by the author)

Sex ratio of the literate populationin 2011 has increased in respect of 2001 but still it was significantly low with a mean of 833 literate females/ '000 literate males and ranging between 792 - 907 literate females/'000 literate males. This type of low literacy rate among the female leads to many socio-economic inequalities within our society.

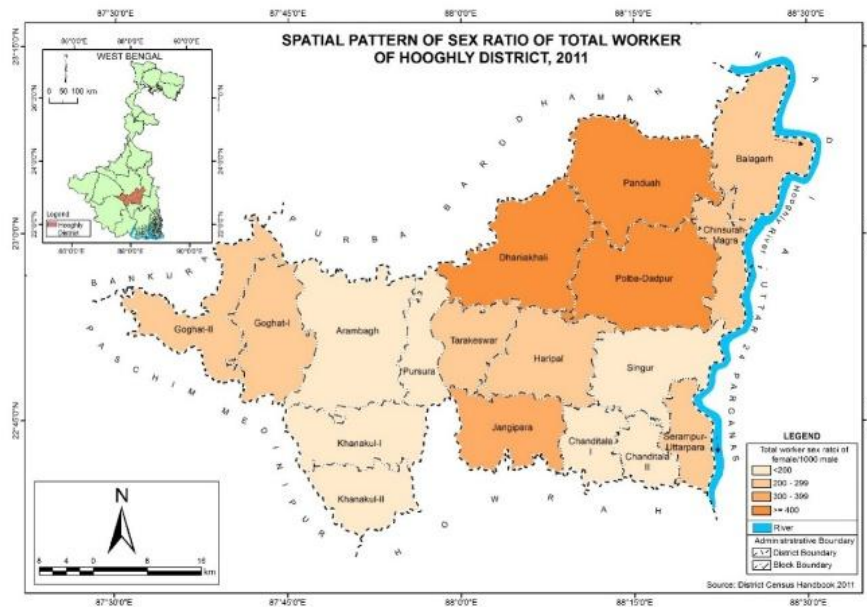**Map no.- 11 (Prepared by the author)**

Total Worker Sex Ratio

In case of the sex ratio of working populationof 2001 the situation is really worrisome. The mean figure is 307 females/'000 males and ranged between as low as 105 females/'000 males to highest figure of 557 females/'000 males. Only two blocks viz., Goghat-II and Jangipara record the figure 500+.

Map no.- 12 (Prepared by the author)

Sex ratio of working populationin 2011 is in worse situation than 2001. The mean figure is 256 females/'000 males and ranged from as low as 152 females/'000 males to highest figure of 460 females/'000 males. Only three blocks viz., Dhaniakhali, Panduah and Polba-Dadpur record the figure 400+. The proportion of working female population in organised sector is

very low. Even it indicates that women work participation during this period reduced in a considerable amount.
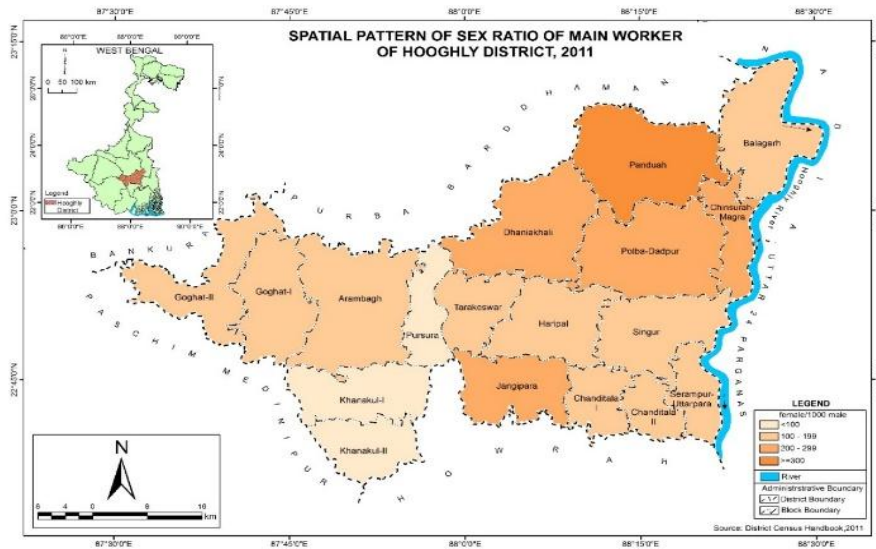

Map no.- 13 (Prepared by the author)

Main Worker Sex Ratio

When the sex ratio of the main workersof 2001 is considered, the level is very poor and it ranging between 70 to 300 females/'000 males with a mean of only 170 females/'000 males. Variance is quite high. It implies that in professional service the female participation is very very low. It is below 100 in the blocks of Arambagh, Pursurah, Chanditala-II and Khanakul-I.
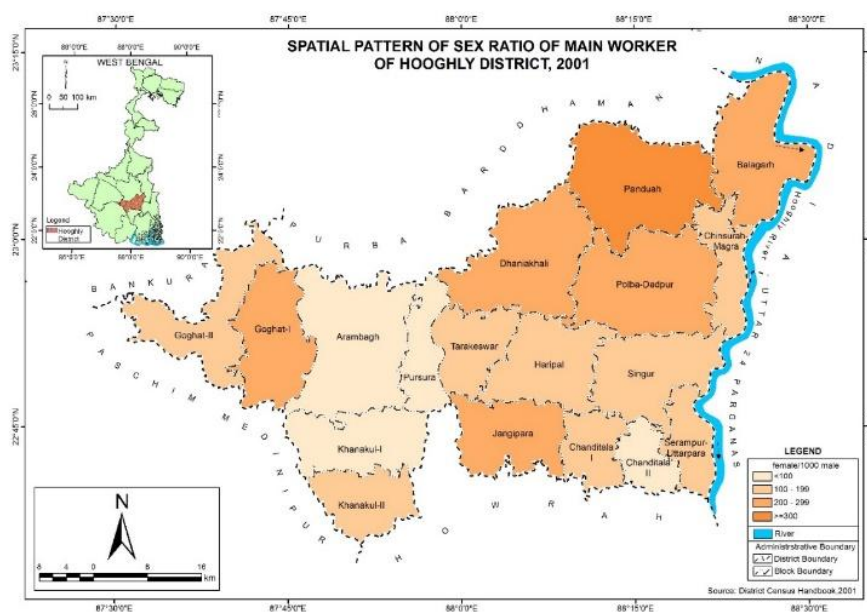
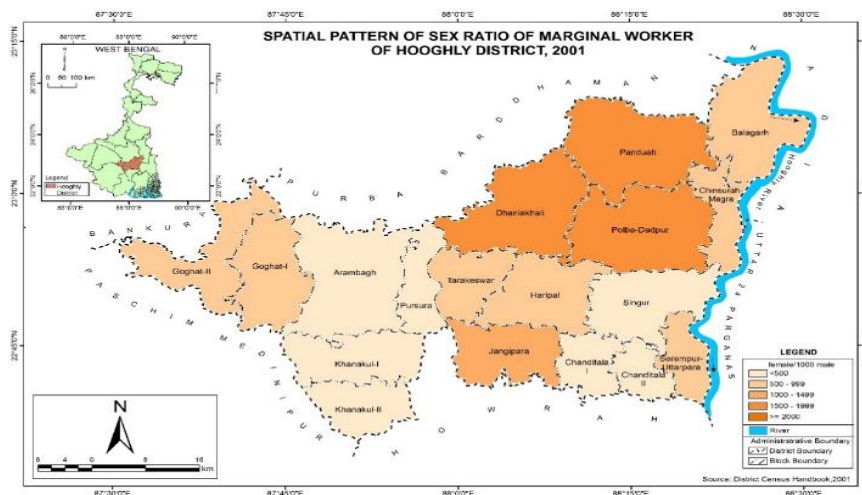**Map no.- 14 (Prepared by the author)**

In 2011, the sex ratio of the main workers ranging between 70 - 325 females/'000 males with a mean of only 162 females/'000 males. Variance is quite high. It is below 100 females/'000 males in the blocks of Pursurah, Khanakul-I and Khanakul-II. Absence of proper engagement of women in different works is responsible for this kind of poor performance.
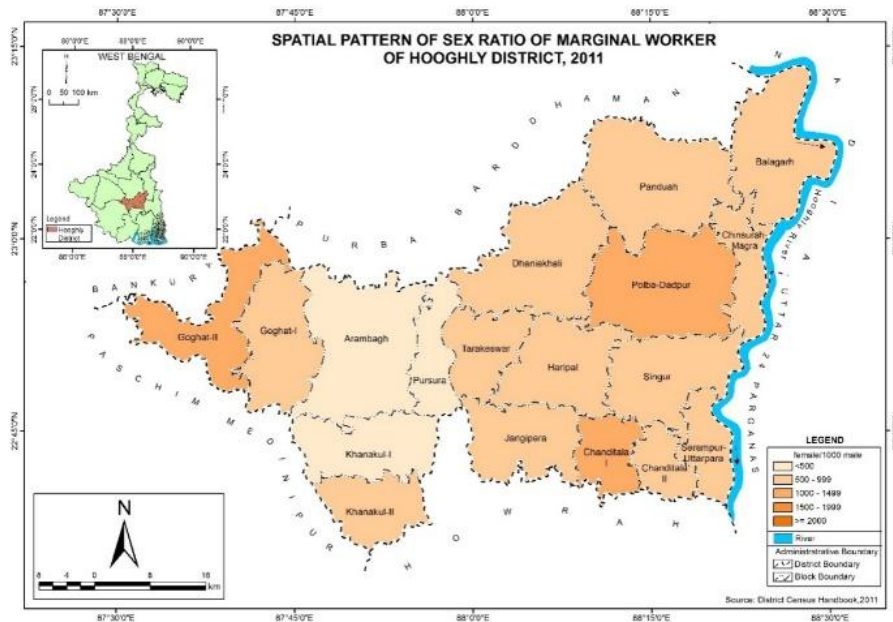

Map no.- 15 (Prepared by the author)

Marginal Worker Sex Ratio

In 2001, the sex ratio of the marginal worker is therefore very high with a mean of 1357 females per 1000 males and ranging between 318 - 3229 females/'000 males. Women are mostly employed seasonally and for household works. They are also implied as casual labour in different organisations and institutions. This is because their wage rate is very low and are underpaid.

Map no.- 16 (Prepared by the author)

The sex ratio of the marginal workersin 2011 is therefore very high with a mean of 773 females/'000 males and ranged between 427 - 1098 females/'000 males. It indicates that lack of women participation as marginal worker.

Map no.- 17 (Prepared by the author)

Conclusion

Through the entire discussion following conclusions may be drawn

* ❖ In spite of homogeneous landscape, social and economic bases, sex ratio of different parameter varies block wise and time period wise.
* ❖ Growth in crude sex ratio is quite satisfactory.
* ❖ Nearly stagnant growth in child sex ratio.
* ❖ Decrease in sex ratio of schedule castes population.
* ❖ Upward growth of sex ratio of schedule tribe population.
* ❖ Sex ratio among the literate people though increased but that is not satisfactory too.
* ❖ Sex ratio in working sector has been considerably decreased whether it may be total worker or main worker even in case of marginal worker.

The foregoing analysis shows that a positive growth is observed in crude sex ratio where only six blocks have increased its child sex ratio. Literate sex ratio has increased in all blocks but amount of growth is not satisfactory. Worker sex ratio reflects the woman participation in economic activities. The rural scenario is too miserable in respect of worker sex ratio in Hooghly. Nearly all the blocks have very low woman participation in working field. It is mismatching with increasing growth of crude sex ratio and literate sex ratio. Moreover, 10

out of 18 blocks have a negative growth in worker sex ratio. Mainly the blocks with urban vicinity have positive growth in worker sex ratio like, Chinsurah-Mogra, Serampore-Uttarpara, Tarakeswar, Arambagh, Chanditala-II, while the reverse picture can be seen in Goghat-I, Goghat-II, Khanakul-I, Khanakul-II blocks.

Currently, a change in perception among the people of our society is being observed. Daughters are beginning to be seen as contributors to natal and conjugal households and as contributing to the care of parents in old age. There is usually a lag effect in the visibility and recognition of such social change **(Kaur et. al, 2017)**. Still the whole study suggest that we need to take more initiatives towards the minimisation of gap in respect of gender discrimination.

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