

Trends and Patterns of Female Work Participation in Koch Bihar District, West Bengal: A Geographical Analysis

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Abstract : Female work participation is an indicator of economic development. Females are the backbone of our society and female work participation is nothing but the symbol of women empowerment which drives the society towards development. In Koch Bihar district female work participation rate is 20.67 per cent against male work participation of 58.24 per cent as per 2011 census. In this paper, an attempt has been made to show the trend of female work participation, temporal variation of female work participation and gender disparity in work participation in the district based on data collected from different secondary sources. The block wise female occupational structure has been shown here with some cartographic techniques. To measure disparity Sopher's Disparity Index (modified by Kundu & Rao, 1986) has been applied. Statistical analysis like standard deviation, CV, correlation has been done on excel to fulfil the objectives. The study reveals that though the female work participation is very low in the study area but it is a little bit higher than the state average and has an increasing trend. There exists male-female disparity in work participation in both rural and urban areas. Out of 12 blocks 3 blocks having high disparity. Besides this, the spatial pattern of economic activities shows that most of the rural women are predominantly engaged in agriculture work.

Keywords : Female work participation, disparity, Sopher's Index, agricultural worker, occupational structure

Introduction

The work participation rate is the key indicator of the growth and development of any country. Females are the spine of any society and female work participation plays a significant role in determining the progress of the nation. Less female work participation is the sign of stagnation of development which counteracts the progress of any society. In our society, females are mainly neglected and their workforce participation is controlled by various socio-economic factors. Poverty, illiteracy, lack of facilities, conservative thinking of elderly persons, rigid religious perception, etc. are the main constraints of participation of females in economic activity. On the other hand, women rights are included in human rights, it gives the right to work with everyone on any platform. So, it is very much important to encourage and to engage them in all kinds of economic activities available

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in our society. The participation of women in the working sector not only reduces gender inequality but also promotes their economic strength (Narayan, 2016). Therefore, reducing gender disparity in the workforce and making women empowered have been included in Millennium Development Goals by United Nation (Deshbandhu et al, 2017). In India female work participation is very less compared to male. The female work participation rate is directly associated with female literacy but Chakraborty & Chakraborty (2010) stated that in West Bengal high work participation is noticed in areas where female literacy is comparatively low and work participation is showing low in Muslim community dominating areas. Female work participation is also low among SC/ST and backward class people. Active participation of women in work with developed education and skill can enrich their status in the home and outside (Ghosh & Khatun, 2018). Koch Bihar is a socioeconomically poor district where female work participation is 20.64 per cent (2011 census) which is quite higher than the state average but still there exists high gender disparity in work participation in both rural and urban areas. So in this paper, an attempt has been made to analyse the female work participation rate, gender disparity in workforce participation and variation in the occupational structure of Koch Bihar district.

The Study area

Koch Bihar is a district of West Bengal in the foothills of the Himalaya. Koch Bihar lies in the North-Eastern part of West Bengal, bounded by the district of Alipurduar in the North, Jalpaiguri in the North-West, State of Assam in the East and International border in the form of Indo-Bangladesh boundary in the South-West, South and South-East. It lies between 25°57'47" N and 26°36'20" N and 88°47'44" E to 89°54'35" E with a total area of 3387 square kilometres having population of 2,819,086 of which 1,451,542 are males and 1,367,544 are females. The density of population is 832 persons per square kilometres and sex ratio is 942 and child sex ratio is 948 females per 1000 males as per 2011 census. The district comprises 12 blocks namely Haldibari, Mekhliganj, Mathabhanga-I, Mathabhanga-II, Koch Bihar-I, Koch Bihar-II, Tufanganj-I, Tufanganj-II, Dinhata-I, Dinhata-II, Sitai and Sitalkuchi.

Objectives

1. To study the trend of female work participation in Koch Bihar district.
2. To study gender disparity in work participation rate in rural and urban areas of the district.
3. To assess the block wise variation in female occupational structure in the district.

Methodology

The study is mainly based on secondary data collected from various sources. District census handbooks for the year 2001 & 2011, different literatures, government records have been used here. Work participation rate and disparity index have been calculated by the following formula. Statistical

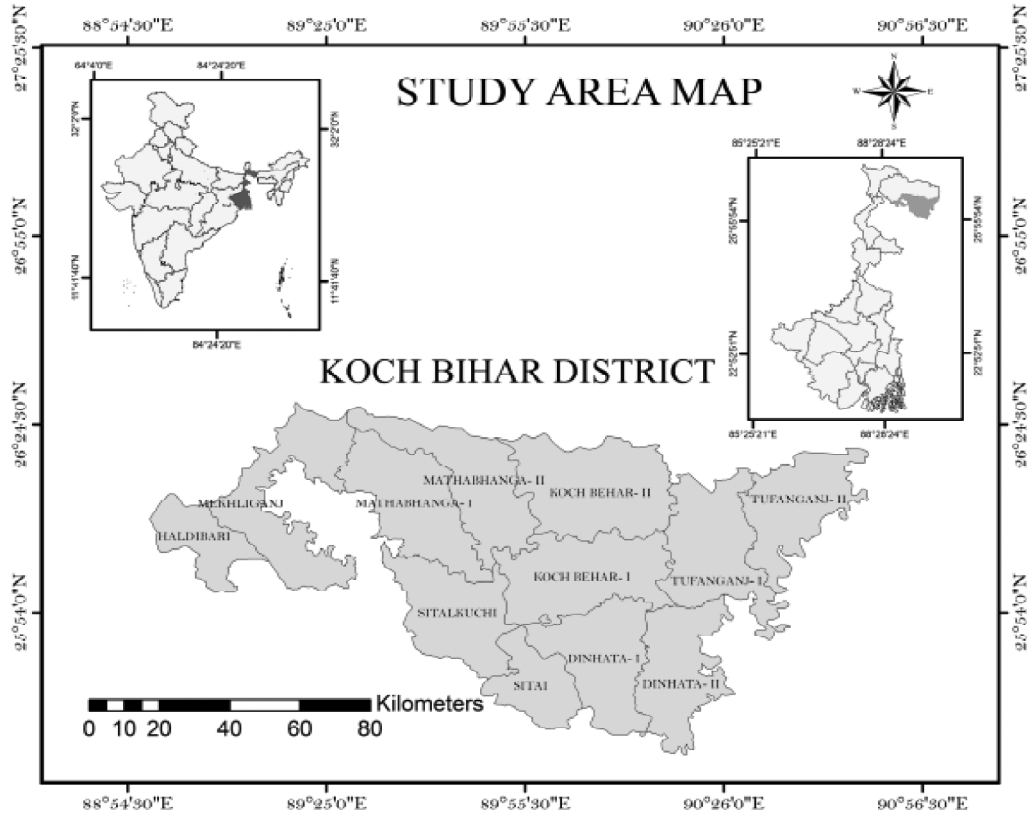


Fig 1: The Study Area

tools like standard deviation, CV, correlation has been done to fulfil the objectives. Finally, maps have been prepared on Arc GIS 10.1 version.

Female Work participation rate

$$(\text{Total female worker} / \text{Total no. of female population}) \times 100$$

Disparity Index

$$DI = \log(X_2/X_1) + \log(Q-X_1)/(Q-X_2)$$

Where, $X_2 > X_1$ and $Q = 200$

This (Sopher's Disparity Index modified by Kundu&Rao, 1986) 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.

Results and Discussion

Comparative analysis of work participation rate with state average

The comparative study will help to understand the situation of the district with state average. The following table shows that there is no such wide difference in WPR in Koch Bihar compared to West Bengal and WPR in Koch Bihar is higher than the state average. According to 2011 census total WPR in West Bengal is 38.08 per cent but in Koch Bihar it was 40.01 per cent. Male and female WPR in the district were 58.24 per cent and 20.67 per cent respectively which is also higher than state average.

Table 1: Work participation rate of Koch Bihar & West Bengal

Region	Total	Male	Female
West Bengal	38.08	57.07	18.08
Koch Bihar	40.01	58.24	20.67

Source: Census of India, 2011

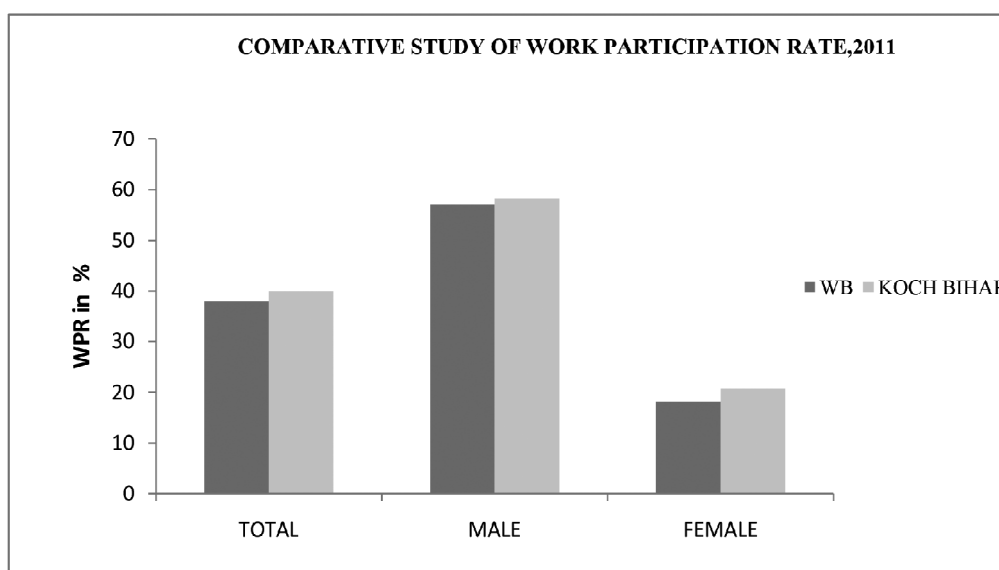


Fig.2: Comparative study of work participation rate, 2011

Temporal change of FWPR

Table 2 shows the block wise temporal variation of FWPR in the study area. FWPR for some blocks have been increased and some blocks show a negative change during 2001 to 2011. Highest

WPR in 2011 is recorded in Sitai block(31.77 per cent) followed by Mathabhanga I(29.85 per cent), Sitalkuchi (22.9 per cent), Koch Bihar I(22.83 per cent) etc and lowest WPR has been recorded in Koch Bihar II block(14.84 per cent) followed by Haldibari (18.06 per cent), and some other blocks. Out of 12 blocks, 5 blocks are showing positive change whereas 7 blocks are showing a negative change in FWPR in this period. The highest positive change in FWPR has been shown in Haldibari block but in Dinhata II block highest negative change has been recorded. In 2001 it was 37.91 per cent but in 2011 it decreased to 17.82 per cent which is a matter of concern that in this block share of non-working population has been increased during this period.

Table 2: Temporal variation of FWPR (2001-2011)

Female work participation (per cent)					
Blocks	2001	2011	Blocks	2001	2011
Haldibari	7.83	18.06	Tufanganj - I	14.17	20.2
Mekliganj	18.67	23.83	Tufanganj - II	20.79	19.92
Mathabhanga - I	32.00	29.85	Dinhata - I	23.20	19.54
Mathabhanga - II	23.22	20.33	Dinhata - II	37.91	17.82
Koch Bihar - I	16.06	22.83	Sitai	28.69	31.77
Koch Bihar - II	24.78	14.84	Sitalkuchi	28.31	22.9

Source: Census of India, 2011

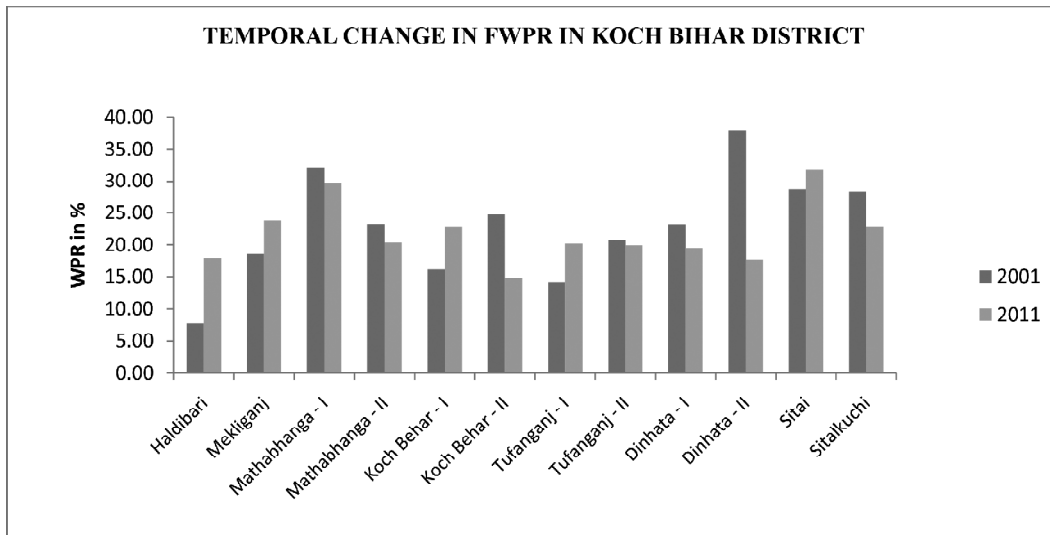


Fig .3: Temporal Change in FWPR in Koch Bihar district

Table 3: Measures of dispersion

Year	Mean	SD	CV
2001	22.97	8.24	35.87
2011	21.82	4.88	22.37

Source: Census of India, 2011

There exists heterogeneity in the distribution of female work participation among the blocks. This nature of spatial distribution can be measured by using some measures of dispersion (Chattaraj & Chand, 2015). The SD value for 2001 and 2011 is 8.24 and 4.88 respectively and the value of the coefficient of variation is 35.84 in 2001 and 22.37 in 2011 which means that FWPR is more consistent in 2011 in the district. It depicts no doubt a satisfactory picture in FWPR in the study area.

Trends of female work participation rate with compared to State

The trend of FWPR in the district with comparison to West Bengal has been shown here (Fig 4). There has a fluctuation trend in FWPR. In 1951 and 1961 district FWPR was lower than the state average but after 1971 district shows an increasing trends and it is noticeable that district FWPR was higher than the state in all the decades.

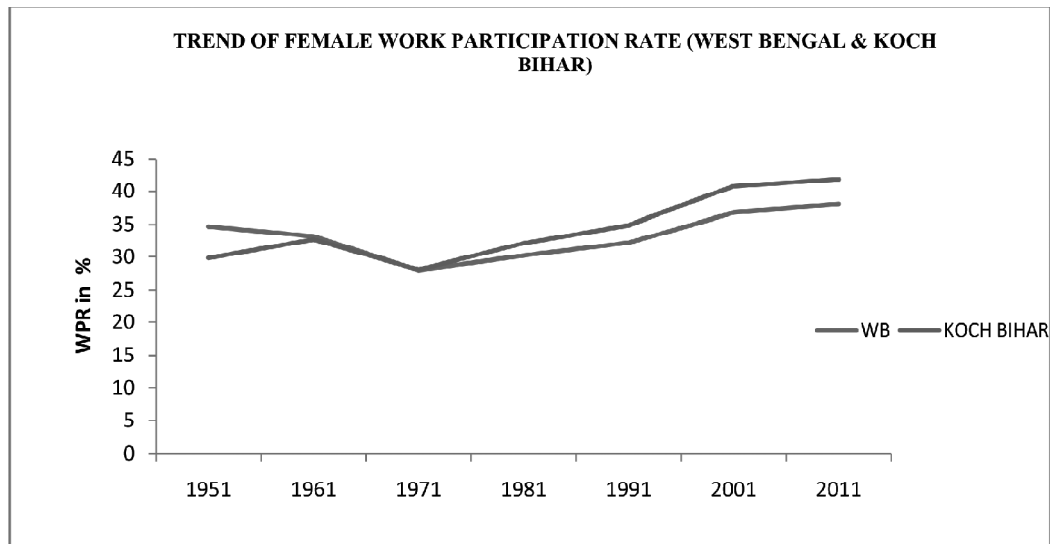


Fig. 4: Trend of FWPR (West Bengal & Koch Bihar)

Male female Disparity in work participation in rural areas of Koch Bihar district (2011)

There is a gap between male and female work participation rates in rural areas in the district. Male work participation is high in each of the block compared to female. The existing disparity in work participation in rural areas in the district has been shown here (Fig 5). As per census 2011 work participation of male is 58.24 per cent and female is 20.67. So the gender gap in work participation is 37.57 per cent which is a very much serious problem because work participation rate is a way of making women empowered. Though the rate of FWPR is increasing, the disparity in work participation is a matter of concern.

Table 4: Gender disparity in WPR in rural areas of Koch Bihar district

Blocks	Total worker	Male worker	Female worker	Gender Gap	Disparity Index
Haldibari	37.91	57.11	18.06	39.05	0.605
Mekliganj	41.34	57.42	24.19	33.23	0.466
Mathabhanga - I	44.94	59.12	29.85	29.27	0.379
Mathabhanga - II	39.76	58.07	20.33	37.74	0.558
Koch Bihar - I	41.50	58.51	23.34	35.17	0.496
Koch Bihar - II	37.71	58.11	15.25	42.86	0.696
Tufanganj - I	40.48	59.47	20.19	39.28	0.576
Tufanganj - II	39.91	58.43	20.21	38.22	0.565
Dinhata - I	39.77	58.67	19.67	39.00	0.580
Dinhata - II	39.69	59.97	17.82	42.15	0.641
Sitai	45.67	59.14	31.77	27.37	0.347
Sitalkuchi	39.53	55.60	22.90	32.70	0.474

Source: Census of India, 2011

Based on the calculated disparity index value the district has been categorized into 3 broad categories i.e, high disparity zone (>0.580), moderate disparity zone ($0.480-0.580$) and low disparity zone (<0.480). Out of 12 blocks 3 blocks having high disparity. The highest disparity is found in Koch Bihar II block followed by Dinhata II and Haldibari block. Low disparity has been found in Sitai block followed by Mekhaliganj and Sitalkuchi. The rest are the blocks fall under the moderate disparity zone. Fig 5 reveals that the work participation rates in the blocks are heterogeneous in nature.

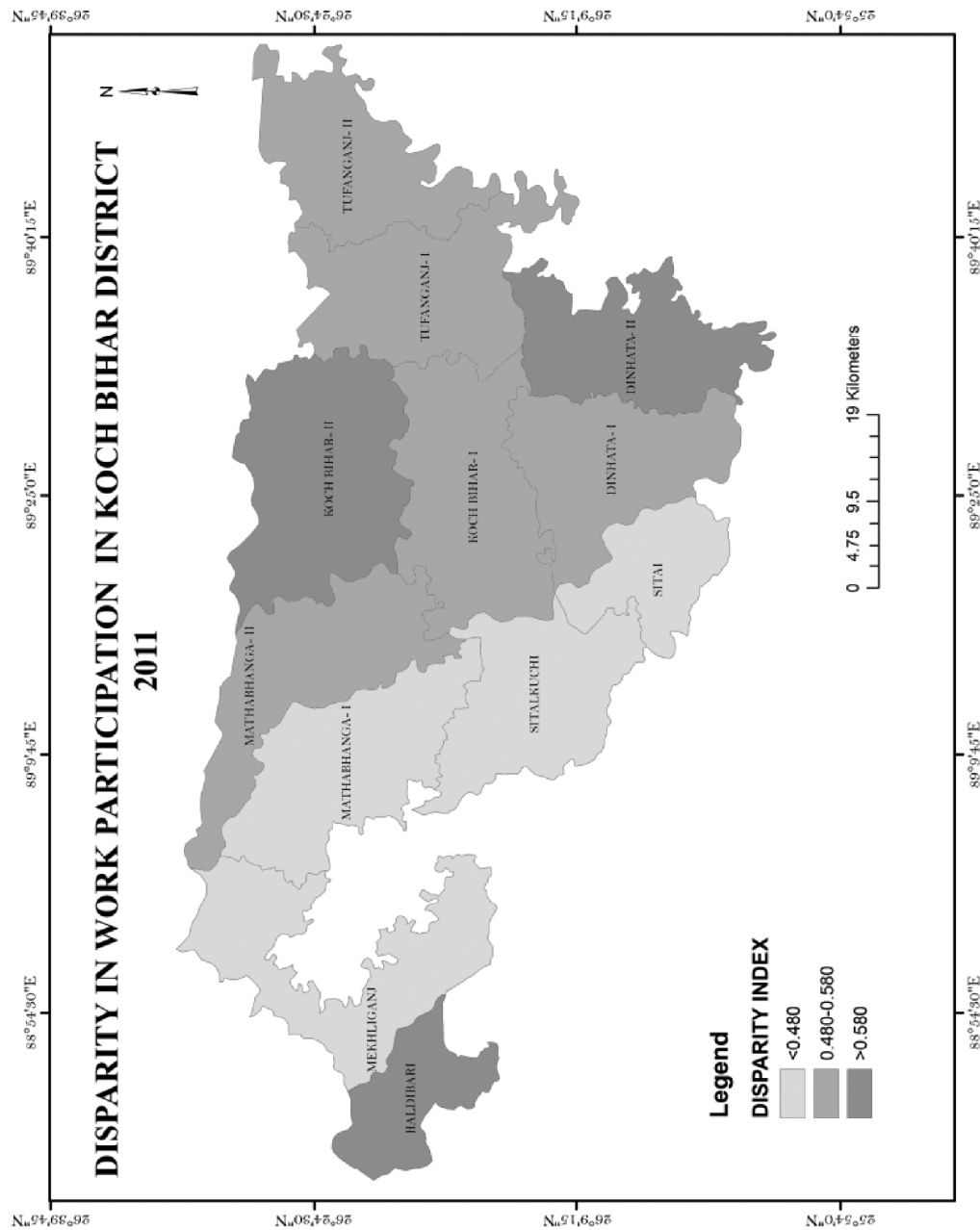


Fig. 5: Disparity in Work participation rate in rural areas in Koch Bihar district

Male female Disparity in work participation in urban centres of Koch Bihar district (2011)**Table 5: Gender disparity in WPR in urban areas of Koch Bihar district**

Urban Centers	work participation rate in per cent			Gender gap	Disparity Index
	Total	Male	Female		
Nagar Changrabandha	33.75	55.31	12.01	43.3	0.777
KharimalaKhagrabari	35.44	57.19	13.54	43.65	0.742
Guriahati	38	58.42	17.14	41.28	0.644
Dhaliabari	47.64	61.85	32.44	29.41	0.364
Baneswar	34.85	54.3	13.48	40.82	0.712
Khagrabari	34.79	56.48	12.43	44.05	0.774
Baisguri	36.33	56.69	14.85	41.84	0.693
Chakchaka	33.72	57.5	8.4	49.1	0.964
Takagach	36.62	57.05	15.06	41.99	0.690
Kamatphulbari	40.93	59.75	21.03	38.72	0.559
Chhotalaukuthi	35	58.72	10.38	48.34	0.880
Bhangriprathamkhanda	36.83	60.3	11.42	48.88	0.853
Haldibari (M)	35.76	54.97	15.99	38.98	0.640
Mekhliganj (M)	35.21	55.47	14.05	41.42	0.706
Mathabhanga (M)	36.16	57.45	14.45	43	0.714
Koch Bihar (M)	35.16	55.43	14.83	40.6	0.680
Tufanganj (M)	35.78	56.99	13.82	43.17	0.730
Dinhata (M)	33.9	56.4	10.69	45.71	0.842

Source: Census of India, 2011

Table 5 shows the gender wise disparity of work participation in urban centres in Koch Bihar district. In each of the urban centres disparity in WPR is a common phenomenon but the highest disparity is found in Chakchaka whereas lowest disparity is recorded in Dhalaibari urban centres. It is interesting to see that the range of disparity in urban centres is higher than in the rural areas.

Relationship between FWPR and Disparity index

There is a relationship between female work participation rate and the disparity index. There is a strong negative relationship between these two variables (Fig 7). If the female work participation is high then the disparity will be definitely low .

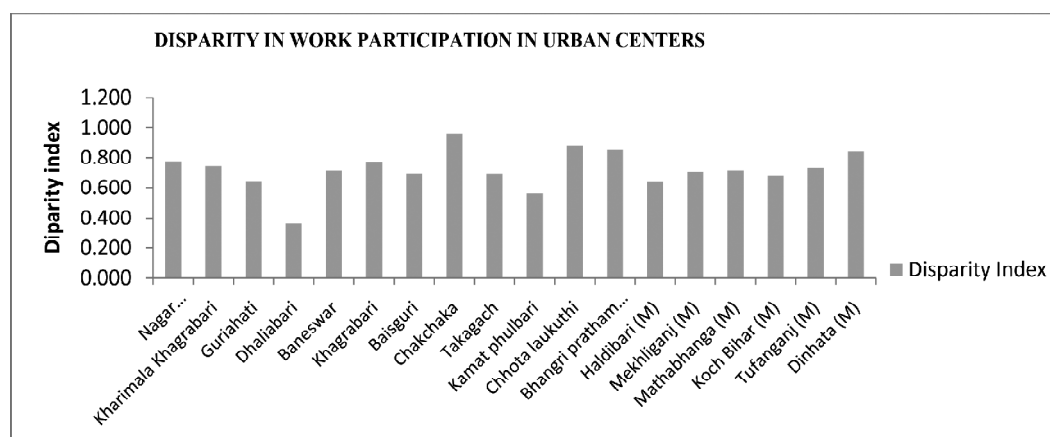


Fig. 6: Disparity in Work participation rate in urban areas in Koch Bihar district

Correlation between female work participation and some other socio-economic variables

Table 6: Correlation matrix showing a relation between FWPR and other socio-economic variables

Variables	Female worker	Sex ratio	Total literacy	Female literacy	MWPR	per cent of net shown area	per cent of Agricultural worker	Urban pop
Female worker	1							
sex ratio	0.508*	1.000						
Total literacy	-0.687*	-0.812**	1.000					
Female literacy	-0.418**	-0.795**	0.991**	1.000				
MWPR	0.407*	-0.421	0.081	0.114	1.000			
per cent of net shown area	-0.240	-0.751**	0.762**	0.741**	0.119	1.000		
per cent of agricultural worker	0.147	0.144	-0.392	-0.317	0.430	-0.611	1.000	
Urban pop	-0.370	-0.655*	0.719**	0.731**	0.000	0.726**	-0.369	1

Source: Census of India, 2011

*Significant at the 0.05 level (2-tailed)

**Significant at the 0.01 level (2-tailed)

Basically, female work participation is determined by various socio-economic factors which is directly or indirectly influence female work participation in any region. Here the relation between

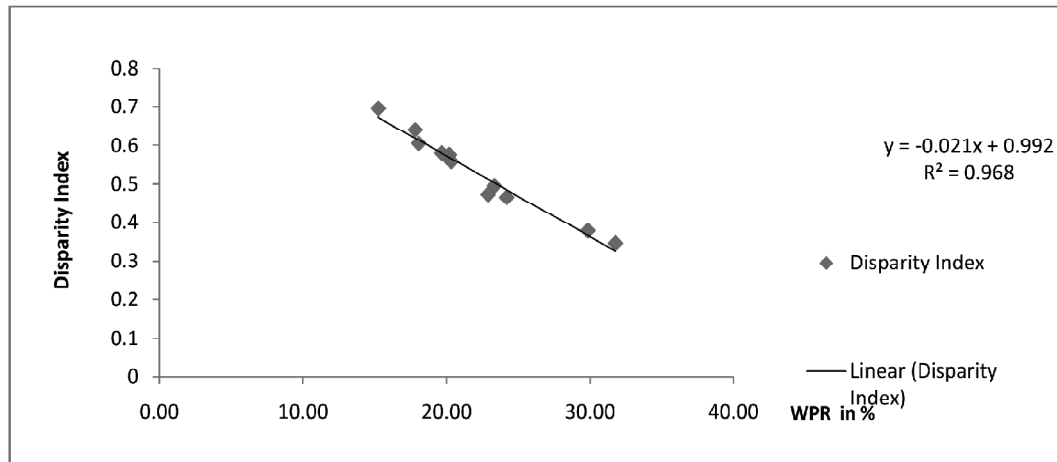


Fig.7: Relationship between FWPR and Disparity Index

female work participation and some variables have been shown (Table 6). There is a positive relation between female work participation and sex ratio (0.508) and per cent of agricultural worker. Male work participation rate also found to be positively related with female work participation. But female work participation has negative relation with , total literacy (-0.687) ,female literacy (-0.418), per cent of net shown area(-0.240) , per cent of urban population (-0.370) in the study area.

Block wise female occupational structure

A large share of women work participation in West Bengal is seen either in agricultural and traditional rural household industries (Hussain & Siddiqui, 2013). According to census 2011, occupational structure can be classified into four broad categories i.e, cultivator, agricultural labour, household industry worker and other workers. Fig 8 shows the block wise distribution of female occupational structure. In each of the block agricultural labours occupy major proportion followed by cultivator. Highest female agricultural female labour (66.36 per cent) can be found in Dinhata II block and lowest can be found in Tufanganj I block (37.32), but this block holds highest household industrial labour which is only (23.80 per cent). The share of industrial worker in the study area is very much low this is mainly due to the lack of major industry, infrastructural facilities in the district. Female in the district area mainly engaged in home-based work like beedi making, tailoring, pati weaving etc. Sitai block is considered as the block having highest female cultivator. The picture depicts that the distribution of economic activities are not homogenous. The female work participation in each of the block is low and most of them engaged as agricultural labour.

Conclusion

From the above discussion, it is clear that though female work participation in the study area is very much low but is in increasing trend. Block wise female work participation is heterogenous in

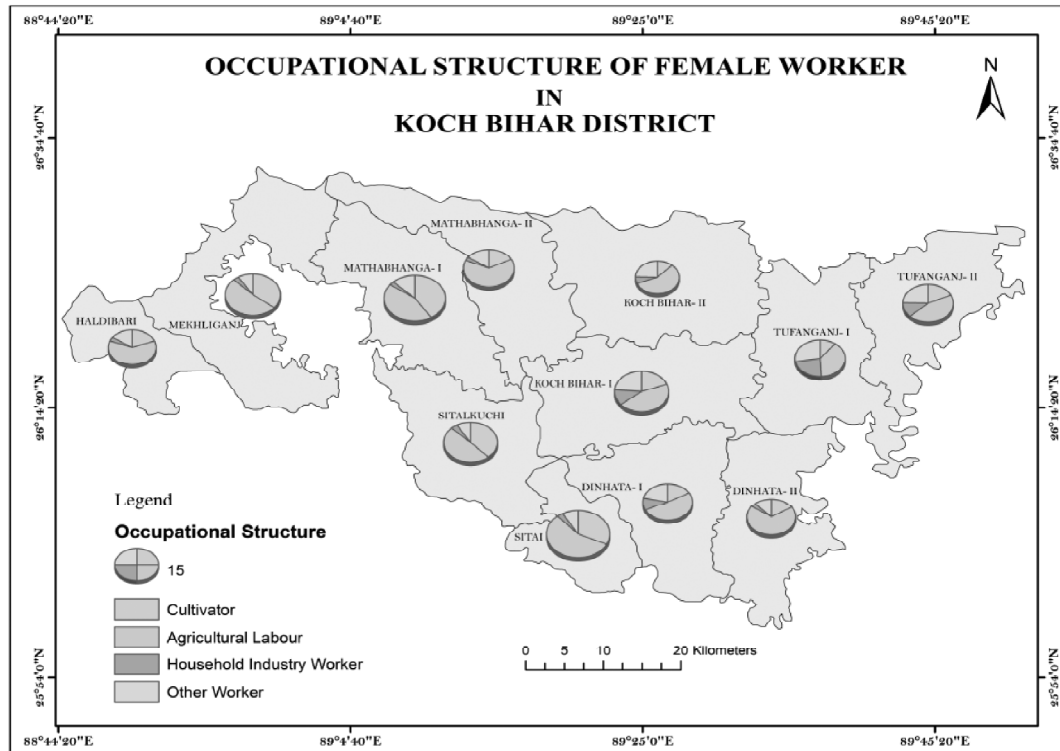


Fig.8:Occupational structure of female worker in Koch Bihar District

nature. Gender Disparity in work participation is a serious issue of concern for both rural and urban areas. It is common in each and every block but Haldibari, Koch Bihar II, Dinhata II these 3 blocks having high disparity in work participation. Highest FWPR in 2011 is recorded in Sitai blocks and lowest FWPR is found in Koch Bihar II block. Various socio-economic factors may effect on female work participation rate. Total literacy and percentage of female literacy have a negative relation with FWPR. But MWPR and Sex ratio and percentage of agricultural labour have a positive relation with FWPR. The major shares of working females are mainly engaged in agricultural practices in the district. Very little share of female is engaged in household industry. Overall female work participation is not as much satisfactory in the study area. So the government should make proper policies and facilities to bring them to this platform.

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