

ROLE OF GIS IN THE STUDY OF CHANGING OCCUPATIONAL STRUCTURE IN RAJPUR-SONARPUR MUNICIPAL AREA, SOUTH 24 PARGANAS, WEST BENGAL

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Abstract:

Most of the urban places in the recent past has undergone with sea changes in terms of its population dynamics, administrative boundaries, redistribution of settlements etc. As a part of that changes of occupational structure become significant due to vast job diversification for changing technological bases and land use land cover changes. The traditional rural society being replaced by modern urban growth features and eventually leads to specific occupational pattern within the economy. The present study is concerned with the study of changing occupational structure in Rajpur-Sonarpur municipal area, South 24 Parganas. Such types of studies have immense to importance to understand spatio-temporal changes in economy as societal directions as well. At first the most part of the study area was under Gram Panchayat where paddy cultivation and fishing were practiced. But due to proximity of this area with the city of Kolkata helps to develop infrastructure such as wide roads and various inter connecting lanes and by lanes along with drainage network development and water supply facilities the large number of people migrated mostly from southern part of the Sundarbans settled here for getting better standard of living specially education and job facilities that eventually brought changes in occupational structure that become actually superimposed over this area. These migrated people also brought huge changes in settlement pattern, structure and size that subsequently rapidly changing the skyline of the outer fringe of the study area. Moreover the technological development, job diversification, city services on daily basis mainly served by the people of this area. To understand the nature of urban sprawl and LULC changes and related occupational changes may be portrayed and justified through RS and GIS techniques along with thorough field survey. With rapid urban growth the huge influx of migrated population in the study area is suffering from the challenges of mitigation of their daily demands of livelihood. Actually income security and employment is the biggest challenge of this century. Proper economic goals considering the ecological limits and vitality need to be implemented to sustain these vast populations.

Keywords: Occupational structure; changing pattern; urban sprawl; GIS.

Introduction:

Occupational structure is one of the important contents of the study of population geography. It is closely related with the socio-economic development of any area ^[3, 4]. Not only that to assess the human development it plays an important role. Percentages of population of any area engage in which sector reveals the actual status of the socio-economic development of this unit. Therefore to understand the level of economic development and livelihood pattern of any area it is important to study the occupational structure not only that growth of economy along with time also reveals by studying the changing pattern of occupational structure i.e. movement of work participation rate from primary sector to secondary and tertiary sector refers to the progress of economy ^[1, 2].

Rajpur-Sonarpur municipality is one the fastest growing municipalities not only in India but all over the world and one of the oldest Municipalities of the district S. 24 Parganas in the state of West Bengal was formed in 1876 under the style of South Suburban Town Committee covering Behala, Tollygunge, Garia, Rajpur etc. Later, in the year 1876, out of the said area Rajpur was segregated to Rajpur Municipality comprising Rajpur, Jagaddal, Harinavi, Malancha and Kodalia with only five wards and had a small area of two square miles. Since then underwent expansion of urban area takes place from time to time. For a long time the study area existed with 14 Wards in 20.98 sq.km. Due to location of this urban unit within KMDA and closeness to the city of Kolkata it acts as a gateway of South 24 Parganas ^[11]. A large number of people who are coming from peripheral areas of South 24 Parganas namely Gosaba, Canning I, Canning II, Basanti, Namkhana etc to get better facilities like education, health, employment in this area .

On the other hand increasing congestion at the central part of the city drives people out but not too far away from the central part of the city till is the magnet for cultural and economic specialization as we see all over the India ^[13]. A major portion of the residents of the study area go to Kolkata for their daily job in the morning every day but at evening they come back after doing their work to live with peaceful life by getting less pollution, fresh fruits and vegetables etc.

Almost three decades ago the major economic activity of this study area was agriculture. Most of the land was under paddy cultivation. Huge area was covered by a large number of water bodies, vegetation biomass. Most of workers also engaged in primary activities namely agriculture, fishing etc. But immigrated people from both the city of Kolkata and peripheral district of S. 24 Parganas changed the scenarios by occupying the job in secondary and tertiary sectors namely teaching, nursing, telecommunication, pharmacy, mass media, manufacturing etc ^[7].

Literature review:

The Researcher has reviewed books, journals, Reports and conference proceedings, journals etc related to the present the study. **Singh** (1981) has explained the importance of activities related to trade and commerce in urban centres of eastern Uttar Pradesh. It finds that 36 towns out of 69 to be specialized in trade and commerce. **Khalil** (1996) analyzes structural transformation of work force in Iran. It is found that diversification of economy in Iran changes the structural pattern of the workforce with time and this changing pattern mainly towards tertiary sectors rather than the secondary sectors. **Bagchi, Das and Chattopadhyay** (2005) examined the structural changes in the economy of Gujarat from 1970 to 2000. From the study it is found that work participation rate in primary activities mainly agricultural has been stagnant or even declining. On the other hand high rate of growth has been shown in secondary and tertiary sectors. **Khadke** (2019) showed the changing occupational structure in Aurangabad city. They found that primary activities are not playing an important role in terms of economic development and urban growth of the city. It is also found that gender inequality in work participation rate is continuously decreasing. **Akanda** (2005) analyzes the structural changes in land use and rural livelihoods of Bangladesh. It discussed the how changing land use pattern, technological development and micro credit has improved rural livelihoods. **Clerk** (1940) showed the strong relationship between the occupational structure and growth of economy of any area. Economic development is the result of necessary and predictable changes in occupational structure.

Study area:

Rajpur-Sonarpur municipality extends from 22°15'N to 22°19'N latitude and 88°32'E to 88°34'E longitude is basically a part of Gangetic Delta with an average elevation of 8.5m. It is the 7th largest municipality of West Bengal in terms of population after Kolkata Municipal Corporation, Asansol, Howrah, Siliguri, Durgapur and Maheshtala with an area of 55.00 sq. km as per Census of India, 2011. This municipality is bounded to the north by Kolkata Municipal Corporation, to the south by Baruipur Municipal area and to the east as well as to the west by the gram Panchayat Samity. The Eastern Railways Station namely Garia, Narendrapur, Sonarpur and Subhasgram, are within this municipal area. As per 2011 Census of India study area have a total population of 423,806; of which male and female are 215,983 and 207,823 respectively. According to census of India total population of RSM (Rajpur-Sonarpur Municipality) recorded as 64000 in 1991 and it increased to 336628 in 2001 and decadal growth rate was 425%. Population density of the study area is 8603/sq.km according to 2011 Census. It has been notified that the population density has increased nearly 3 times from 1991 to 2011. Ward wise population growth rate shown by the fig no. 3. Average literacy rate of Rajpur Sonarpur Municipal area is 91.06 % of which male and female literacy rate are 94.28% and 87.71% respectively. The sex ratio is 962 per 1000 males. Figure-1 shows the location of the study area [6].

Objectives:

Main objective of this study is to analyze changing occupational structure in Rajpur-Sonarpur Municipal area. To fulfill the main objective sub objectives are followed.

1. To show the changing pattern of work participation rate in the study area.
2. To analyze the changing pattern of occupational structure with related to urban growth.
3. To explore the underlying causes of economic changes as a part of social change.

Methodology:

This study is mainly based on secondary data. After the extensive review of literatures of different aspects on occupational structure and relevant reports such as District Human development Reports of South 24 Parganas, Human development Reports of West Bengal data were collected from different sources such as Census of India, District Census Handbook, South 24 Parganas 1901 to 2011; the Bureau of Applied Economics and Statistics: Government of West Bengal, District Statistical Handbook, South 24 Parganas, 2005 to 2013; different Local Urban Bodies. Various administrative and thematic maps related to the study were gathered from National Atlas and Thematic Mapping Organization, Census of India and local urban offices etc.

Geographical Information System is a power full tool to represent the accurate and spatio-temporal information of any changes of any area. After tabulating and calculating the data GIS software are used for mapping the resulted values, analyze data and fulfill the objectives^[9].

Work participation rate of any area is the percentage of total workers to the total population of this unit. Thus,

Work Participation Rate = Total workers (Main + Marginal) / Total population *100

Male Work Participation Rate = Total male workers (Main + Marginal) / Total male population *100

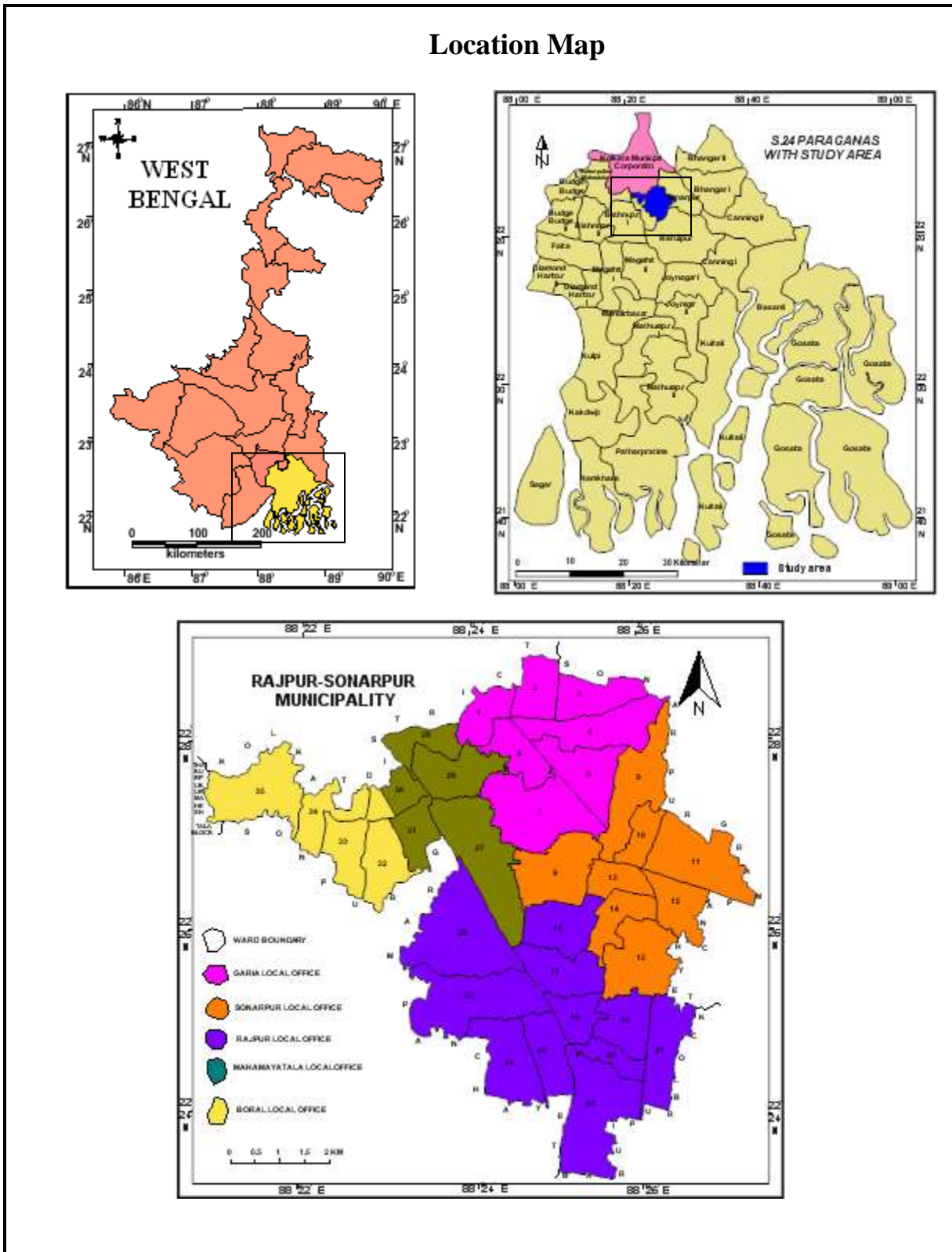
Female Work Participation Rate = Total Female workers (Main + Marginal) / Total female population *100

Work Participation Rate as Main or Marginal = Total main or marginal workers /Total population *100

Occupational diversification is calculated by dividing the number of workers in any sector of the occupation (Cultivators, Agricultural labourers, Household industrial workers, Other workers) by the total number of workers as main or marginal and result is multiplied by 100. Thus,

Occupational diversification of Main Workers = Total workers engaged as main workers in specific sector of occupation / Total main workers *100

Figure- 1: Rajpur-Sonarpur Municipality: Location Map



Source: District Planning Map Series, NATMO, Kolkata

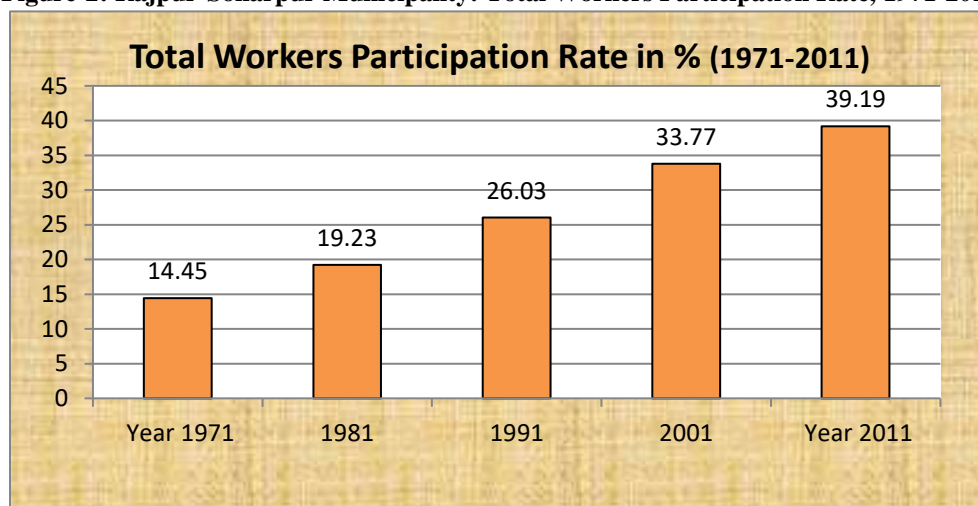
Result and Discussion:

Work Participation Rate

Percentage of total population who are engaged as main or marginal workers is representing by the work participation rate. According to Census of India those people who have worked for the major part of the year are known as the main workers, on the other hand those who have worked at all in the year but not for the most part of the year are called marginal workers [6].

Average growth rate of workers participation as main or marginal is 6.19% per decade. In 1971 only 14.45% of the total population was employed and this percentage increased into 39.19% in 2011. In 2001 more than the one third of the total population was workers. Between the year 1991 and 2001 work participation rate increased at highest rate i.e. 7.74% which is more than the one third of the total population due to jurisdictional expansion of the study area so that a big number of people engaged in different activities in the surrounding rural areas added with the Rajpur-Sonarpur municipality (Figure-2).

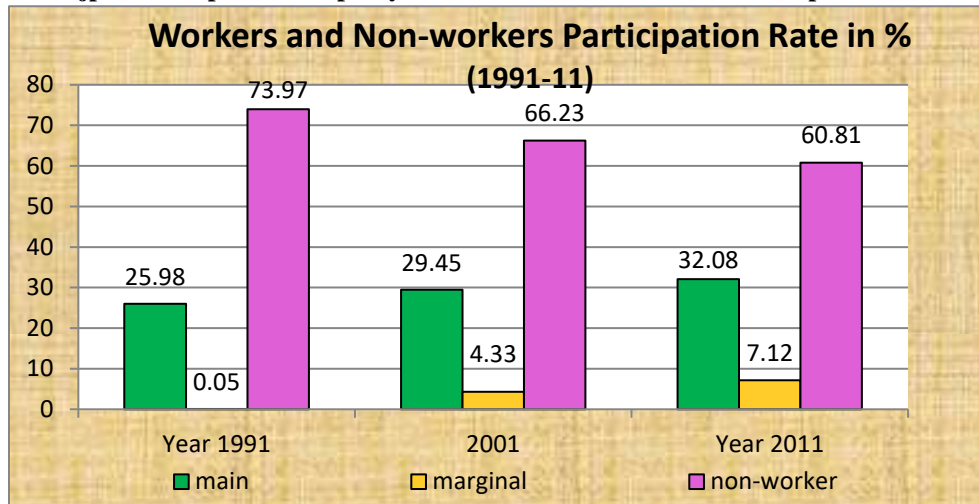
Figure-2: Rajpur-Sonarpur Municipality: Total Workers Participation Rate, 1971-2011



Source: Census of India, 1971-2011

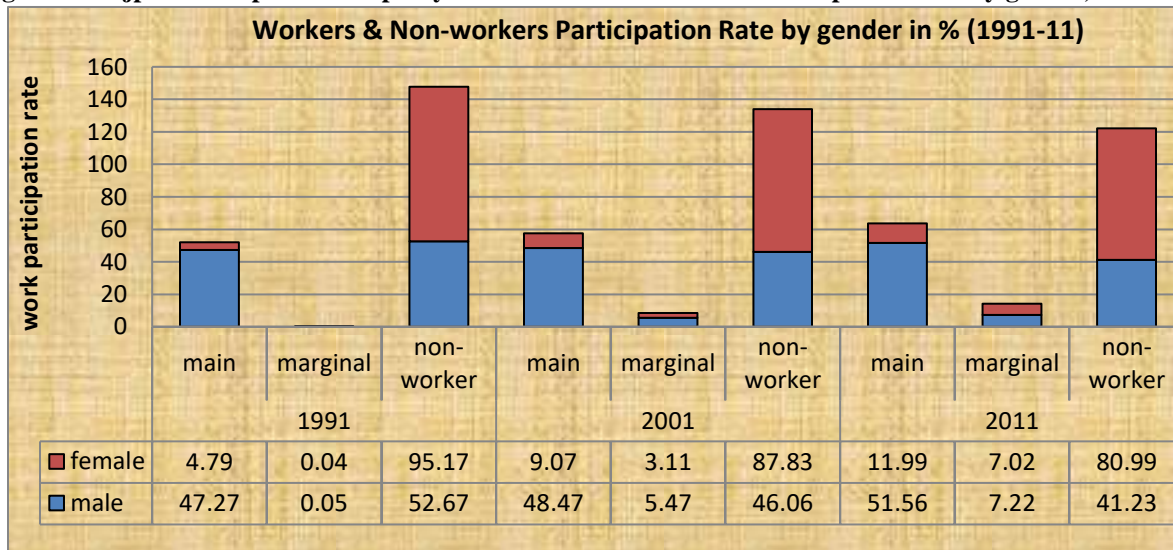
On the other hand figure-3 shows the share of workers as main or marginal and non-workers. Comparing the employment ratio of 1991, 2001 and 2011 it can be observed that both the participation rate of main and marginal workers is increased. It is 6.1% for main workers and 7.07% for marginal workers. Growing rate of Participation of main workers is slow than that of the marginal workers. That is to say that job consistency is not established till now in true sense not only in the study area but all over the state. Percentage of non-workers decreased 13.16% in between 1991 to 2011 due to job opportunities, increasing awareness about literacy specially female literacy and standard of living etc.

Figure-3: Rajpur-Sonarpur Municipality: Workers and Non-workers Participation Rate 1991-2011



Source: Census of India, 1971-2011

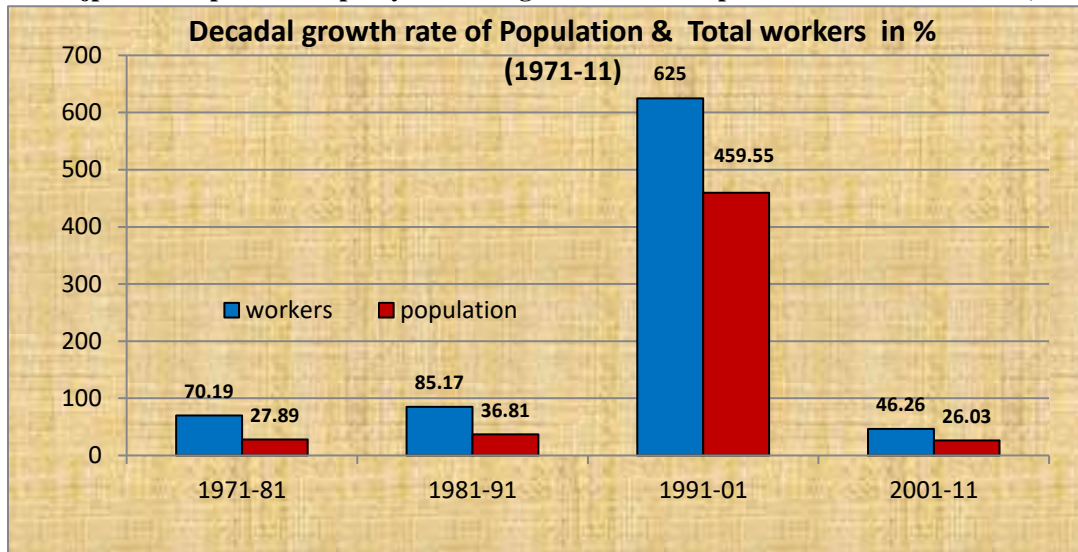
Figure-4: Rajpur-Sonarpur Municipality: Workers & Non-workers Participation Rate by gender, 1991-2011



Source: Census of India, 1971-2011

Discrimination is observed considering the percentage of male and female workers (Figure-4). Female participation rate is very low compared to the male in the study area [8]. In 1991 the rate of male workers as main or marginal was 47.32% in 1991 while only 4.83% female population were engaged as main or marginal workers. If we exclude the marginal workers and only consider the main workers then this gender discrimination becomes even more striking which is not surprising in the context of the state because West Bengal is one of the lowest recorded states in terms of female workers participation rate in India. Only 11% of the total female population was engaged as main workers. But this discrepancy between the participation rate of total male and female workers decreased slowly from 42.5% in 1991 and 41.77% in 2001 to 39.76% in 2011.

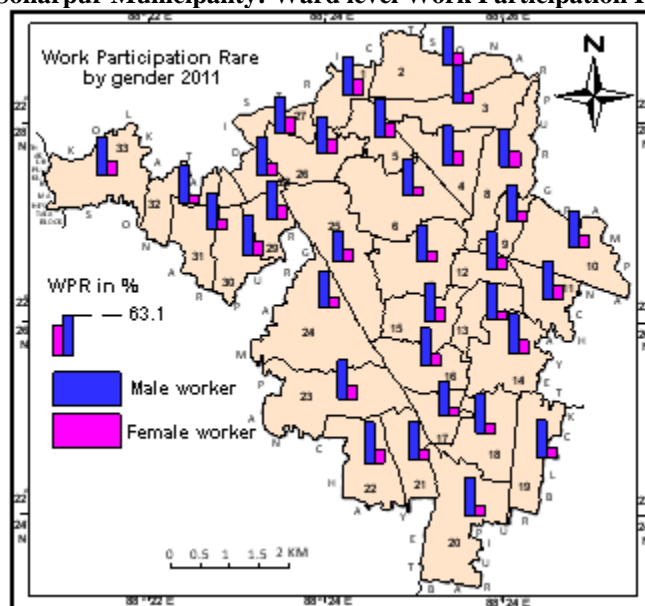
Figure-5: Rajpur-Sonarpur Municipality: Decadal growth rate of Population and Total workers, 1971-2011



Source: Census of India, 1971-2011

According to Human Development Report 2004 this gender discrimination of work participation rate is may be due to the under reporting because of social invisibility and lack of recognizing women’s unpaid work [7]. Fig.6 shows Ward wise male female work participation rate of the study area. The inter-wards status of female work participation rate is more or less same. Of course, the rate of female participation in all the wards is much lower than the male. Lowest gap between the male and female work participation rate is 28.45% seen in ward no. 25 and highest is 46.26% seen in ward no 32 in 2011 (see Table-1).

Figure-6: Rajpur-Sonarpur Municipality: Ward level Work Participation Rate by gender, 2011



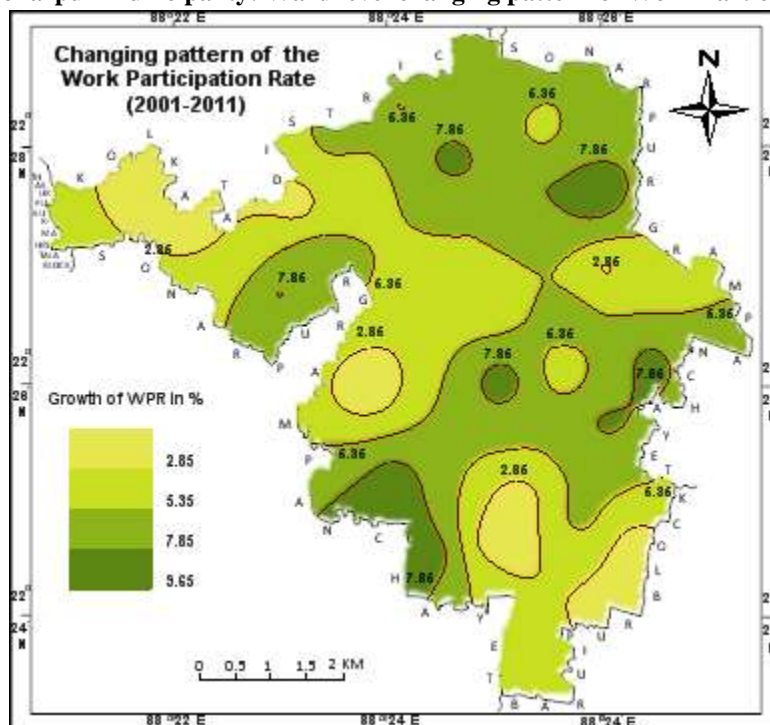
Source: Census of India, 2011

From the decadal growth rate of total population and total workers (figure-5) it can be observed that growth rate of workers is more than that of the population from 1971 to 2011. It means growing population generates more workers than the earlier. It is the good sign of the economy of any area. It is also observed that there is a huge growth rate taken place in both the sectors population and workers in between 1991 to 2001 due to areal expansion of the municipality from 20.98 sq. km to 49.26 sq. km.

The Ward Level:

In 1991 this municipality had only 14 wards within an area of 20.98 sq. km. There had been administrative redistribution between 1991 and 2001. In 1993 total area of this municipality expanded to 49.26 sq. km by merging the surrounded Panchayat rural areas and number of wards increased to 33. So it is difficult to compare the work participation rate of the wards with one to one correspondence from 1991 to 2001 and 2011. On the other hand number 2 and 18 were divided into two halves and number of wards increased from 33 to 35 in 2009 which creates another problem to calculate the ward wise growth of work participation rate from 2001 to 2011. To solve this problem total number of wards of the year 2001 i. e has been taken as the basis calculated the data.

Figure-7: Rajpur-Sonarpur Municipality: Ward level changing pattern of Work Participation Rate, 2001-11



Source: Census of India, 2001 and 2011

Ward level changing pattern of the work participation is shown by the figure-7. It shows that the growth of work participation rate is not even all over the municipality. Highest

Table-1: Rajpur-Sonarapur Municipality: Ward Wise Workers Participation Rate by gender in %, 2001-11

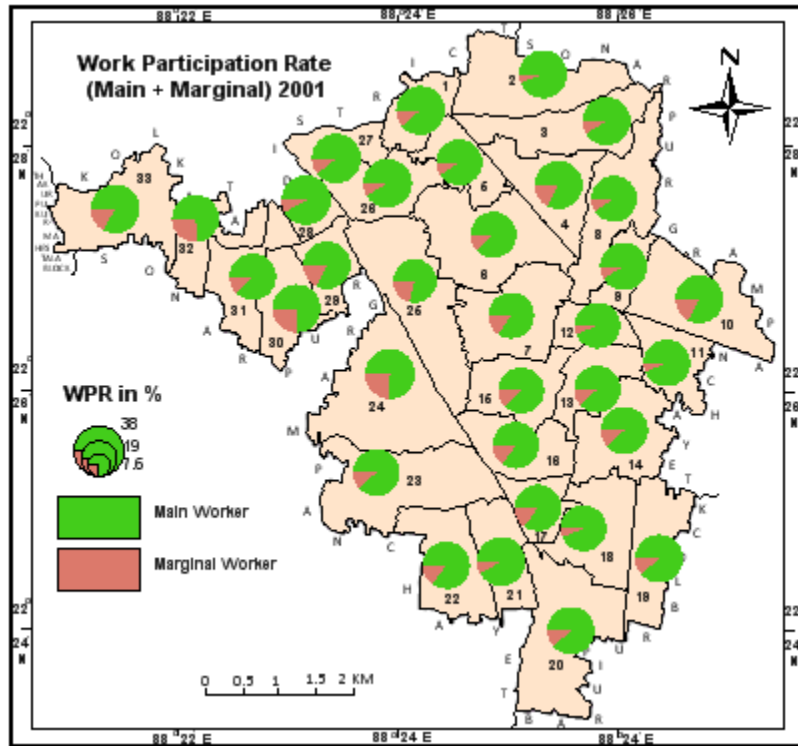
Ward No	2001			2011			Change in Total WPR 2001-11
	Male	Female	Total	Male	Female	Total	
1	53.45	17.20	35.83	58.86	23.38	41.13	5.29
2	54.64	12.98	34.24	61.40	20.05	40.81	6.57
3	55.55	12.66	34.87	60.59	17.47	39.30	4.43
4	54.65	13.08	34.89	61.66	23.19	42.61	7.72
5	52.68	10.89	32.43	59.05	21.83	40.95	8.52
6	51.81	10.00	31.47	58.12	14.20	36.74	5.27
7	51.57	9.30	31.27	55.56	14.16	35.04	3.76
8	53.64	9.31	32.13	59.40	23.56	41.75	9.61
9	55.30	9.73	33.35	57.00	14.44	35.88	2.53
10	53.14	14.81	34.90	57.89	19.91	39.16	4.26
11	51.92	11.56	33.06	59.70	22.74	41.46	8.40
12	51.07	10.56	31.78	57.62	19.63	38.50	6.72
13	54.05	10.52	32.93	57.70	15.02	36.46	3.53
14	54.62	12.78	34.03	61.77	21.70	42.14	8.11
15	52.47	9.36	31.31	59.72	21.15	40.54	9.23
16	53.42	10.68	32.44	58.87	18.26	38.43	6.00
17	54.05	11.01	32.81	54.35	13.82	34.21	1.40
18	54.06	9.26	31.97	60.91	15.53	38.27	6.30
19	55.43	13.17	34.51	58.29	14.43	36.26	1.75
20	54.32	12.43	33.70	58.72	15.16	36.96	3.26
21	57.05	13.86	35.83	59.08	14.82	37.35	1.52
22	56.60	9.74	33.96	63.09	22.00	43.24	9.28
23	55.02	9.12	32.81	60.64	22.12	41.63	8.82
24	55.67	17.02	37.03	57.43	16.90	37.39	0.36
25	42.15	9.60	29.19	45.86	17.42	33.50	4.31
26	56.05	14.70	35.62	56.65	22.31	39.62	4.00
27	55.79	16.46	36.57	58.64	26.71	42.73	6.16
28	58.15	14.87	37.20	59.61	17.84	39.09	1.89
29	54.14	13.39	34.33	61.37	22.75	42.12	7.79
30	56.76	11.80	34.78	63.10	21.76	42.68	7.90
31	55.40	10.59	33.25	58.06	15.05	37.02	3.77
32	56.05	11.81	34.35	59.68	13.42	36.80	2.45
33	56.74	14.32	36.09	58.31	20.07	39.74	3.65

Table-2: Rajpur-Sonarapur Municipality: Ward Wise Workers Participation Rate as main and marginal in %, 2001 & 2011

Ward No	2001		2011	
	Main	Marginal	Main	Marginal
1	31.69	4.14	34.78	6.35
2	32.56	1.68	31.19	9.62
3	31.50	3.37	32.94	6.36
4	29.30	5.58	35.40	7.21
5	29.17	3.27	34.33	6.62
6	27.81	3.66	31.32	5.42
7	26.60	4.68	31.87	3.17
8	28.79	3.34	32.09	9.66
9	30.65	2.70	30.71	5.17
10	28.85	6.05	31.51	7.65
11	30.65	2.41	35.06	6.40
12	29.93	1.85	32.09	6.41
13	28.78	4.15	32.03	4.43
14	29.74	4.29	31.54	10.60
15	27.64	3.66	31.58	8.95
16	27.76	4.67	31.98	6.45
17	28.12	4.69	28.25	5.95
18	30.01	1.95	33.83	4.44
19	30.64	3.86	30.45	5.81
20	30.11	3.59	33.42	3.54
21	32.77	3.06	34.60	2.75
22	29.34	4.62	35.02	8.21
23	29.09	3.73	31.08	10.55
24	28.53	8.50	29.40	7.99
25	23.10	6.09	27.48	6.02
26	32.60	3.02	32.48	7.14
27	33.04	3.54	32.69	10.05
28	33.95	3.25	33.11	5.97
29	28.13	6.20	32.91	9.21
30	25.67	9.11	31.02	11.66
31	29.03	4.23	31.29	5.73
32	24.88	9.47	31.10	5.70
33	30.31	5.78	30.57	9.16

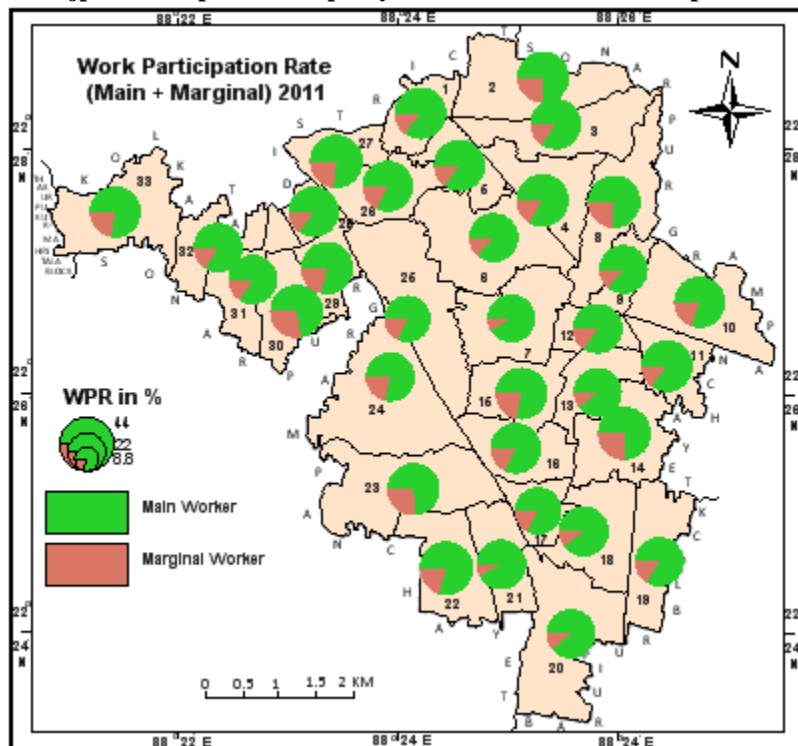
Source: Compiled by author based on District Census Handbook, South 24 Parganas, 2001 & 2011

Figure-8: Rajpur-Sonarapur Municipality: Ward level Work Participation Rate, 2001



Source: Census of India, 2001

Figure-9: Rajpur-Sonarapur Municipality: Ward level Work Participation Rate, 2011



Source: Census of India, 2011.

increase is seen along the Eastern railway line that is the northern, northeastern and eastern sides of the study area. So that workers can easily communicate with other areas mainly with the megacity. Work participation rate increased more than 6 % in all these areas between the year 2001 and 2011 (see Table-1). On the other hand work participation rate increase below 3% in the border areas of Kolkata because this rate was already high in all those areas in 2001. Due to the absence of infrastructural facilities, poor transportation network and different local problems work participation rate increase less in the southern part of the study area.

From the ward level analysis of main and marginal work participation rate of the year 2001 and 2011 in the study area it is found that most of the workers involved as main workers in both the years (Figure-8 & 9). Percentage of workers as marginal and main to the total population has increased near about at the same rate in the most parts of the study area. In 2001 highest rate of main and marginal workers participation was 33.95% in ward no 28 and 9.47% in ward no 32 respectively. Both the wards are located at the border areas of Kolkata. In 2011 ward no 4 and 30 ranked first in terms of main work participation rate i.e. 35.4% and marginal work participation rate i.e. 11.66% respectively. Between 2001 and 2011 main work participation rate increased more than 5% in the wards no 4, 5, 7, 22, 30, and 32. On the other hand negative growth has been taken place in ward no 2, 19, 26, 27 and 28. In terms of marginal work participation rate ward no 2, 8, 14, 15, 23 and 28 performed better than the other wards (see Table-2).

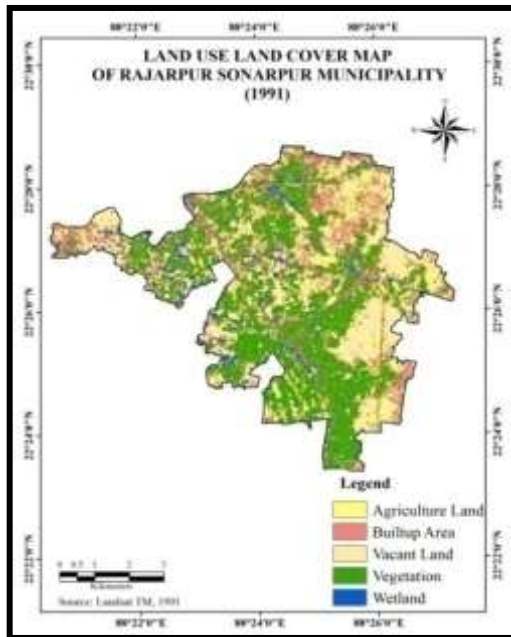
Occupational Diversification:

It is important to identify the sectoral distribution of workers to represent the mobility of the economy in any area. There are four main categories of workers i. e cultivators, agricultural labourers, household industrial workers and other workers. Almost 2 to 3 decades ago main economic activity of Rajpur-Sonarapur Municipality was agriculture. Huge area was under paddy cultivation. A large number of people were engaged as main or marginal workers in agriculture. But after 1980's the process of urbanization at the adjacent rural areas was so rapid that makes changes in land use and land cover of the study area tremendously. Agricultural land is the prime victim of the process of land transformation in the study area.

Geographical Information System is a powerful tool to derive the accurate spatio-temporal changing information of land use land cover. By overlaying the two satellite images of the study area of 1991 and 2011 it is found that 27% of the total area was agricultural land in 1991 which decreased into only 7% in 2011 by transforming the agricultural land into urban utilities specially for residential uses (Figure-10 & 11)

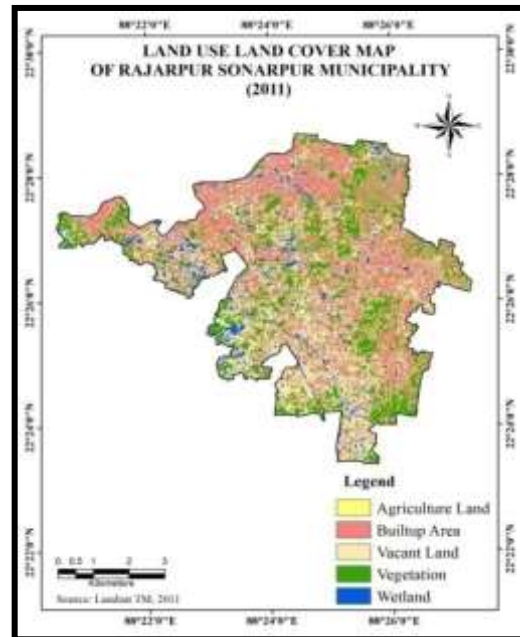
Figure-12 shows the share of agricultural and non-agricultural workers which are related with the LULC changes ^[1]. It is observed that the rate of agricultural workers to the main

Figure-10: Rajpur-Sonarpur Municipality: Land Use Land Cover Map, 1991



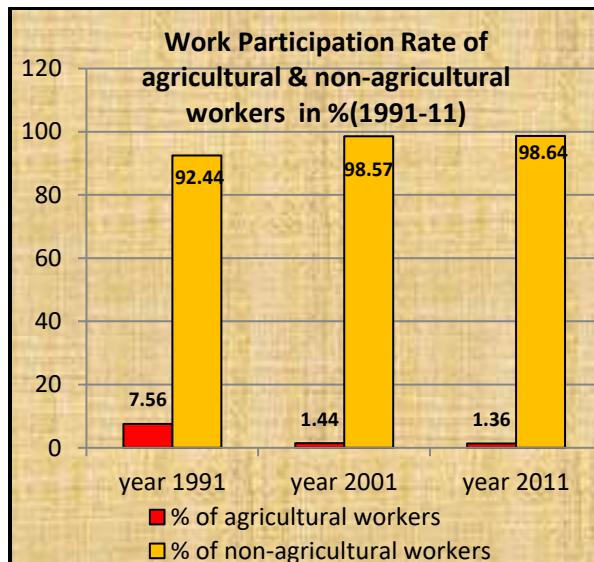
Source: LANDSAT TM (1991)

Figure-11: Rajpur-Sonarpur Municipality: Land Use Land Cover Map, 2011



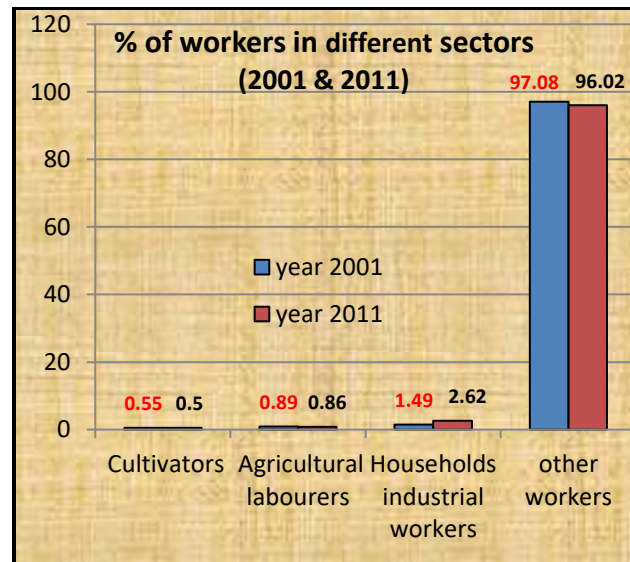
Source: LANDSAT ETM+ (2011)

Figure-12: RSM: Work Participation Rate of agricultural and non-agricultural workers, 1991-11



Source: Census of India, 1991-2011

Figure-13: RSM: Percentage of Workers in different sectors, 2001 and 2011



Source: Census of India, 2001 & 2011

workers was 7.56% in 1991 which decreased into 1.36% in 2011 due to less availability of agricultural land, unplanned urban growth, and closeness to the city of Kolkata which offers different job opportunities in non-agricultural sectors [9]. So that share of non-agricultural

workers increased from 92.44% to 98.64% between 1991 and 2011 based on the same reasons. If we consider the pattern of workforce participation rate in non-agricultural sectors it is to be found that most of the part is moving towards unorganized and informal sectors ^[15].

Negative changes have seen in the percentage of cultivators and agricultural labourers and other workers (Figure-13) between 2001 and 2011 in the study area. Development of Calcutta Leather Complex, Bantala and Special Economic Zone accelerated the industrial growth which increased the percentage of workers in households industry from 1.49% to 2.62% to the total workers over the decade.

Figure-14 & 15 show the percentage of workers engaged in different sectors at ward level that reflected the similar result to the municipality. Share of cultivators and agricultural labourers and other workers to the total workers fall in all over the municipality between 2001 and 2011 except few wards. Only the percentage of household industrial workers increased in all over the area except ward no. 3, 12, 13, 25 and 33. It increased from 0.38% in ward no. 24 to 5.61% in ward no 19 (see Table-3). Except industrial growth also being well connected through roads and railways with Kolkata and other parts of the district provides better marketing channels for household industrial products.

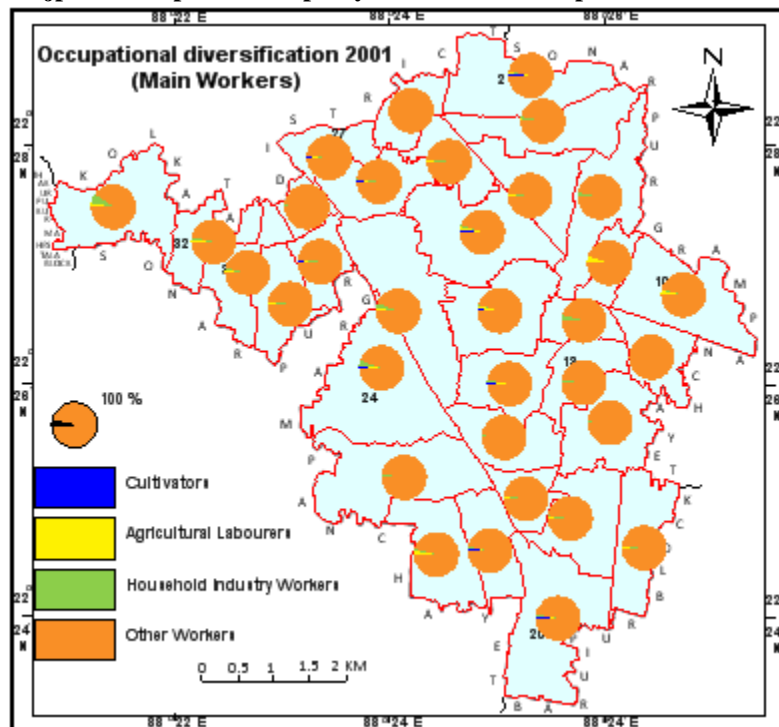
Causes of economic changes as a part of the social change:

From the perception study of the employer and employed judging their real life status, it is evident that youths of this generation are failing to keep away themselves out of the impact of engrossing consumerism, moreover dismantling family structure, income insecurity, huge competition for jobs have been keeping away these youths to pursue long term future plans and goals. These actually collectively leads to the engagement of increasing number of middleclass and lower middleclass youths in the secondary and tertiary sectors that demands multitasking jobs. It actually validates the macroeconomic concepts of the shadow of vicious cycle of poverty.

Overall employment is increasing along with literacy rates. But, the striking features is that most part of the earning are used for their daily needs and savings is very meager amount that is actually manifested in terms of production, development and sustainability of their standard of living as the escape from the marginality seemed far away due to limitations of knowledge and training access for this generation.

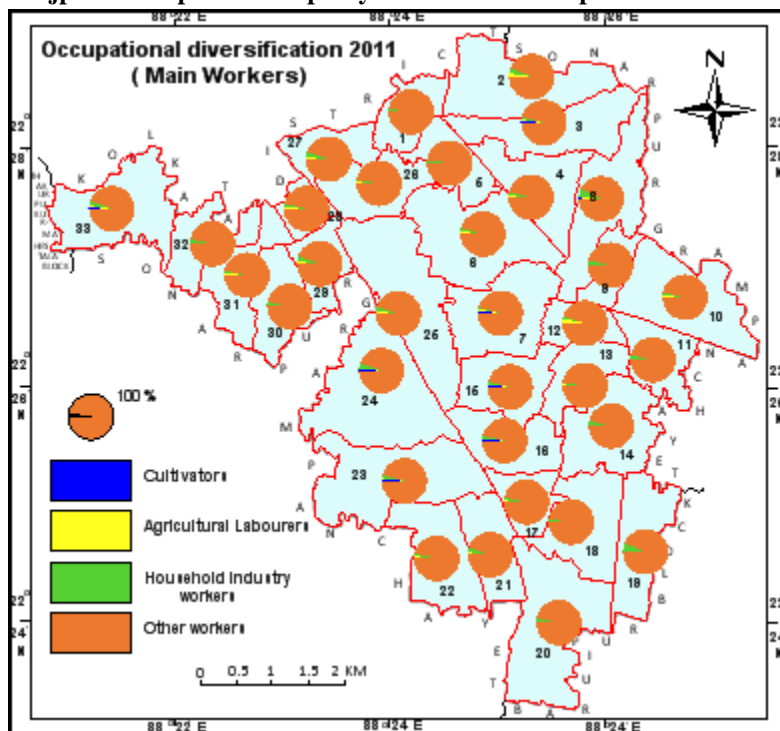
Increasing population has widened the gap between the demand and supply of land. Rapid and unplanned urban growth consumes most of the agricultural land in the study area. Not only that low agricultural output motivates the farmers to sell their agricultural lands to the property dealers, developers, industrialists, Government etc. Farmers not only lost their fertile agricultural assets but also lost their livelihood. There was occupational shift as cultivators or

Figure-14: Rajpur-Sonarpur Municipality: Ward level Occupational diversification, 2001



Source: Census of India, 2001

Figure-15: Rajpur-Sonarpur Municipality: Ward level Occupational diversification, 2011



Source: Census of India, 2011

Table-3: Rajpur-Sonarpur Municipality: Occupational diversification of main workers, 2001 & 2011

Ward No	Cultivators		Agricultural Labourers		Household industries		Other services	
	2001	2011	2001	2011	2001	2011	2001	2011
1	0.47	0.52	0.23	0.22	0.33	1.30	98.98	97.95
2	0.74	0.35	1.50	1.83	0.83	3.91	96.93	93.90
3	0.46	0.92	1.02	1.35	1.80	1.57	96.72	96.16
4	0.13	0.50	0.30	0.76	0.53	2.30	99.04	96.44
5	0.17	0.24	0.13	0.15	0.67	1.32	99.02	98.29
6	1.54	0.59	2.18	1.53	1.39	2.18	94.88	95.70
7	1.46	1.59	2.34	1.51	0.59	1.19	95.61	95.71
8	0.53	0.46	0.46	0.91	2.17	5.61	96.84	93.01
9	0.21	0.14	4.52	0.21	0.45	2.98	94.82	96.68
10	0.62	0.50	2.61	0.76	0.74	1.93	96.04	96.81
11	0.20	0.29	0.31	0.34	0.61	2.82	98.88	96.55
12	0.63	0.37	0.17	3.00	3.25	1.36	95.95	95.27
13	0.00	0.11	0.26	0.84	1.82	1.19	97.92	97.86
14	0.14	0.31	0.11	0.39	0.93	2.62	98.83	96.68
15	0.63	0.67	1.13	0.67	1.17	2.42	97.07	96.24
16	0.34	0.40	0.17	0.52	1.07	2.58	98.42	96.51
17	0.36	0.88	0.47	0.29	0.94	1.86	98.23	96.96
18	0.22	0.10	0.51	0.37	1.38	1.46	97.89	98.07
19	0.13	0.11	0.30	0.16	0.50	6.11	99.07	93.62
20	1.08	0.42	0.70	0.79	1.00	1.92	97.22	96.87
21	1.88	0.90	0.30	0.71	1.09	3.44	96.73	94.96
22	0.49	0.67	2.09	0.98	1.35	1.97	96.06	96.39
23	0.48	0.80	0.48	0.96	1.46	2.42	97.59	95.81
24	0.43	0.77	1.25	0.65	3.59	3.96	94.73	94.61
25	0.92	0.60	1.20	1.17	3.85	3.14	94.02	95.09
26	0.52	0.81	0.16	0.42	1.21	1.28	98.11	97.49
27	0.36	0.52	0.21	0.69	0.33	4.18	99.09	94.61
28	0.32	0.29	0.00	0.44	1.00	2.63	98.68	96.64
29	0.31	0.31	0.03	1.36	1.28	3.90	98.37	94.42
30	0.29	0.55	0.29	0.46	1.28	2.21	98.13	96.78
31	0.90	0.36	0.94	1.07	1.58	1.65	96.58	96.92
32	0.23	0.23	0.51	0.43	2.24	2.46	97.01	96.88
33	0.80	0.71	1.95	1.68	6.94	3.45	90.32	94.15

Source: Compiled by author based on District Census Handbook, South 24 Parganas, 2001 & 2011

agricultural labourers from agriculture to non-agricultural activities. Elevated land prices have further limited their ability to acquire extra commercial space. They are progressively getting involved in different secondary and tertiary activities.

On the other hand excessive in-migration changes the scenario of occupational structure. Immigrants both from the overcrowded city of Kolkata and peripheral rural areas engaged in different non-agricultural activities are settled here changed the actual data of occupational structure in the study area.

Conclusion:

From the study it is observed that overall dependence on agriculture is decline largely in the study area. Of course, the extent of changes is not even all over the municipality. Expectedly as an urban unit most of the workers are involved in non-agricultural sectors for their livelihood. Lack of agricultural land, proximity and well connectivity with the city of Kolkata and peripheral blocks of the districts through roads and railways, location within KMDA etc. are the main reasons of dependence on non-agricultural activities of the residents in the study area. Migrated people from both the overcrowded city of Kolkata and southern part of Sundarbans not only brought changes in occupational structure but also changes in settlement pattern, structure and size that subsequently rapidly changing the skyline of the outer fringe of the study area. According to census data increase of work participation rate in non-agricultural activities is more in other sector while increase in household industry workers is nominal. This rapid occupational diversification towards non-agricultural activities mainly other sectors is identified as a new phenomenon. But the quality of the workers in terms of production, development, sustainability of their standard of life is not improved at the same rate of quantity of employment.

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