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# Changes In The Rural And Urban Literacy And Illiteracy Rate In West Bengal (2001 – 2011)

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Abstract: Education is extremely important for the overall development and empowerment of all human beings. Higher levels of education are considered to be extremely effective in reducing differences between various sections and strata of the society. Among the sustainable development goals ensuring inclusive and equitable quality education, promotion of lifelong learning opportunities and making substantial efforts to ensure that a substantial portion of the adults achieve literacy was previously decided upon by all the member countries within the stipulated time frame. This paper aims to discuss the differentials in the literacy and illiteracy rate of people staying in the rural and the urban areas of West Bengal and for this purpose literacy rate, illiteracy and differential index was also calculated for the entire state as well as individually for all the districts for both the years. This paper also aims to bring forth the development the state has made in terms of in the above mentioned categories and the necessary steps taken by the government keeping the sustainable development goals in their mind. The data presented in this paper has been obtained from the secondary sources which have been published by the Census of India.

Keywords – literacy, inter district differentials, rural-urban differentials, illiteracy, regional variation, trends analysis, differential index

# I. INTRODUCTION

Literacy is considered to be an extremely important and effective measure in bringing about inclusive and sustainable development. Attainment of equitable and good quality of education, promotion of lifelong learning opportunities and making substantial efforts to ensure that a substantial portion of the adults achieve literacy has been stressed on in the goal four of the Sustainable Development Goals. However it has been observed that in most cases this development becomes quiet skewed and lopsided as only the urban areas tend to move forward in the journey whereas the rural counterparts lag behind showing signs of illiteracy and this gap tends to widen over the course of time. Time and again the Government of India has stressed upon the importance of attainment of education and has made significant efforts to guarantee free elementary education to every child between the age group of six to fourteen years. The state Government of West Bengal in this regard has also stressed on the importance of education and has undertaken "Kanyashree Prakalpa", "Sikshashree Scheme" and various other schemes which are aimed at increasing the literacy levels of the state and reducing the difference between the rural and the urban areas. This paper aims to throw light on the development which has been achieved by the state in terms of the literacy levels, its role in narrowing the difference between the rural and the urban areas and the efforts taken by them to make progress in terms of the indices and parameters set by the goal four of the Sustainable Development Goals.

# II. LITERATURE REVIEW

Literacy is seen as one of the biggest challenges which the people all around the world are constantly facing time and again and India is definitely one of them (Shafiqullah 2011). According to the, (Census 2011), (Census 2001), a person aged seven and above who can read and write in any language is treated as a literate. Literacy rate is also seen as an important indicator of socio economic development of a country (Jangra and Kaushik 2016). It is seen as an catalytic factor which contributes towards the personal development, it helps in developing the capabilities of an individual and it is an extremely effective tool to empower oneself, (Islam 2019), (Vachaspati 2019), (Jhariya and Jain 2014), (Som and Mishra 2014), (Shakir, Lone and Zafar 2012), (Shafiqullah 2011). It is also treated as one of the most important socio-economic indicator which is used in the analysis of human development index and gender development index and it is also essential for improving the quality of human life (Sharmila 2019), (Islam 2019), (Jhariya and Jain 2014), (Som and Mishra 2014), (Khan 2004). Higher levels of literacy are also essential to attain better health, better nutritional status, economic growth and to empower of various sections of the society (Islam 2019). Literacy is also considered to be extremely useful in reducing the levels of disparities between the various ethnic divisions as it helps in reducing the poverty, bringing about significant improvement in the living standard and it is also seen as an important indicator for assessing the level of development which has taken place in the rural and the urban areas (Pushkarna 2017), (Kumar 2014).

Literacy is seen as a basic step towards achieving the general wellbeing of the people and is extremely important for sustainable development of an area (Pushkarna 2017). Elementary education is an important Millennium Development Goal for the government and the "Right To Education Act" empowers every child between the age of six to fourteen years free elementary education. Among the Sustainable Development Goals, goal four focuses on ensuring inclusive, equitable, quality education and promotion of lifelong learning opportunities for all (United Nations 2020). It was also decided that substantial efforts would be made to ensure that a substantial portion of the adults comprising of both men and women achieve literacy and numeracy by the stipulated time period (United Nations 2020). In the report by (NITI Aayog 2019), it could be observed that different States and Union Territories of India were ranked on the basis of their achievements with respect to the Sustainable Development Goals as all of them are considered to be extremely important stake holders who plays an extremely important role in implementing the various developmental programs which is aimed at enhancing the overall progress. Among the different states of India, West Bengal has ranked fourteenth in the composite index which was computed by the NITI Aayog and falls in the "performer" category in case of the goal 4 as its score is less than 65 but is greater than equal to 50 (NITI Aayog 2019). Through this paper an effort has been made to check on how far West Bengal has been able to achieve this goal.

It has been observed that though there is significant improvement in the literacy rate in India but there are regional disparities in the levels of literacy between various age groups, people staying in urban and rural areas and between males and females (Sharmila 2019), (Islam 2019), (Pushkarna 2017), (Jhariya and Jain 2014), (Shafiqullah 2011). In this regard (Pushkarna 2017), has observed that in general the literacy rate is higher in the urban areas as compared to the rural areas but it can be said that various efforts are being made by the government to reduce the inequality between the urban and the rural areas. Hence this paper would also like to discuss the changes in the differentials between the inter district literacy and illiteracy level in the rural as well as the urban areas of West Bengal, this paper would also assess the literacy growth rate in the rural and the urban areas of West Bengal.

### III. OBJECTIVES

To study the differentials between the literacy and the illiteracy rates among the rural and the urban population in the various districts of West Bengal from 2001- 2011.

# IV. RESEARCH METHOD AND METHODOLOGY

In order to bring out the differentials in the first half of the paper the total, rural and urban population of the entire state of West Bengal was elaborated on. In the second half of the paper the total literacy rate of state, followed by the district wise urban and rural literacy rate was discussed, the district wise differentials in the literacy rate as compared to the state's average literacy rate was elaborated on. In the third half of the paper the total illiteracy rate of the state, followed by the district wise urban and rural illiteracy rate was discussed then the district wise differentials in the illiteracy rate as compared to the state's average illiteracy rate was discussed and district wise differential index was also computed for both the years.

#### V. DATA AND SOURCES OF DATA

The data presented in this data has been derived from the Census 2001 and Census 2011. It can be observed from the census data that among all the districts of West Bengal in 2001, Medinipur was counted as one entire district but in 2011, Medinipur was split in two districts, namely, Purba Medinipur and Paschim Medinipur. Other than this it was observed from the data that Kolkata is the only district which did not have any rural population in 2011 as well as in 2001.

#### VI. RESULTS AND DISCUSSIONS

Positive population growth rate of 13.84441 percent was recorded for the entire state of West Bengal, however in the rural areas 7.678351 percent of population growth rate was recorded and in the urban areas 29.72166 percent of population growth rate was recorded between 2001- 2011. Urban areas has recorded the highest population growth rate and the ratio of increase between rural and urban areas is also pretty high.

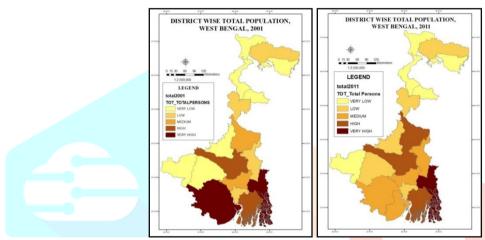


Figure 1- Map Showing The Total Population, West Bengal (2001-2011)

In 2001, seven districts had very low total population – Dakshin Dinajpur, Darjiling, Uttar Dinajpur, Koch Bihar, Puruliya, Birbhum and Bankura but the number districts under this category reduced to five in 2011 – Dakshin Dinajpur, Darjiling, Koch Bihar, Puruliya, Uttar Dinajpur. In 2001, only five districts had low population – Maldah, Jalpaiguri, Haora, Kolkata, Nadia were present in this category but this number increased to six districts – Birbhum, Bankura, Jalpaiguri, Maldah, Kolkata and Haora. In 2001, only two districts had medium total population – Hugli, Murshidabad which increased to four in 2011 – Purba Medinipur, Nadia, Hugli, Paschim Medinipur. In 2001, only two districts had high population – Barddhaman, South Twenty Four Parganas which increased to three in 2011 – Murshidabad, Barddhaman, South Twenty Four Parganas. Two districts had very high population in 2001 - North Twenty Four Parganas and Medinipur, this number decreased to just one district in 2011 – North Twenty Four Parganas. The total population in all of the districts had increased except for Kolkata which has recorded a negative population growth rate, the net difference between the population of 2011 and 2001 was -76182 persons. Dakshin Dinajpur, Darjiling, Koch Bihar are among the top three districts which recorded the lowest increase in the population and South Twenty Four Parganas, Murshidabad, North Twenty Four Parganas accounted for the highest increase in the population. Kolkata recorded a negative total population growth rate of -1.66595 percent, and Uttar Dinajpur has recorded the highest population growth rate of 23.1527 percent.

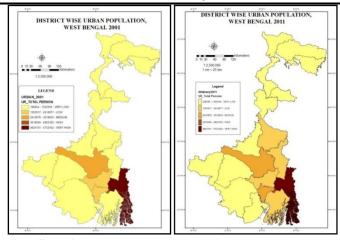


Figure 2- Map Showing The Urban Population, West Bengal (2001-2011)

In 2001, thirteen districts had very low urban population which included Dakshin Dinajpur, Koch Bihar, Bankura, Maldah, Puruliya, Birbhum, Uttar Dinajpur, Darjiling, Jalpaiguri, Murshidabad, Nadia, Medinipur, South Twenty Four Parganas. In 2011, the number reduced to eleven districts which had low urban population, it included Dakshin Dinajpur, Koch Bihar, Bankura, Puruliya, Birbhum, Uttar Dinajpur, Maldah, Purba Medinipur, Paschim Medinipur, Darjiling, Jalpaiguri. In 2001, only Hugli and Haora had low urban population and in 2011, Murshidabad, Nadia, South Twenty Four Parganas, Hugli fell in that category. In 2001, Barddhaman, had medium urban population and in 2011 along with it Barddhaman, Haora were also added on to the list. Only Kolkata had high urban population in both 2001 and in 2011 and North Twenty Four Parganas had very high urban population in both the years. Kolkata registered a negative increase in the population by -76182 persons in the urban areas and South Twenty Four Parganas has registered the highest increase in the urban population. Kolkata has registered a lowest growth rate of -1.66595 percent and Maldah has registered the highest population growth rate of 124.81116 percent.

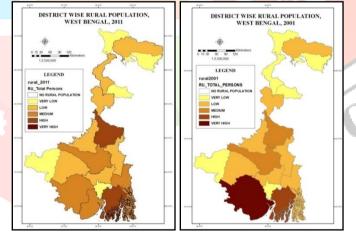


Figure 3- Map Showing The Rural Population, West Bengal (2001-2011)

In 2001, Darjiling, Dakshin Dinajpur, Haora, Uttar Dinajpur, Koch Bihar, Puruliya has very low rural population and in 2011 Darjiling, Dakshin Dinajpur, Haora, Koch Bihar, Puruliya has very low rural population. In 2001, Birbhum, Jalpaiguri, Bankura, Maldah, Hugli, Nadia, North Twenty Four Parganas have low rural population and in 2011, Uttar Dinajpur, Jalpaiguri, Birbhum, Bankura, Hugli, Maldah, Nadia have low rural population. In 2001, Barddhaman, Murshidabad had medium rural population and in 2011, North Twenty Four Parganas, Purba Medinipur, Barddhaman, Paschim Medinipur have medium rural population. In 2001, only South Twenty Four Parganas had high rural population and in 2011, Murshidabad and South Twenty Four Parganas have high rural population. Only in 2001, Medinipur had very high rural population and in 2011 none of the districts fell in that category. Haora had recorded the lowest rural population growth of – 345224 persons and Murshidabad had recorded the highest rural population growth of 569280 persons. The rural population growth rate of Uttar Dinajpur is 23.17064 percent it is the highest and Haora has the lowest rural population growth rate of -16.27564 percent.

There has been a significant increase in the total literacy rate of West Bengal from 2001 – 2011 the literacy rate has increased from 58.86585 percent in 2001 to 67.41992 percent in 2011. The literacy rate in the rural areas has increased from 53.40361 percent in 2001 to 63.06178 percent in 2011 whereas in the urban areas it has increased from 72.9308 percent in 2001 to 76.73496 percent in 2011. West Bengal has recorded a net increase of 8.55407 percent increase in the literacy rate. The net

increase in the literacy rate in the rural areas is greater than the average state literacy rate. The literacy rate was calculated using the formula-

Total Literacy Rate = (Total Literate Population/Total Population)\*100

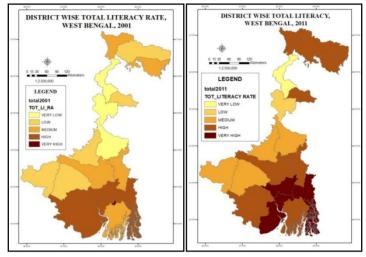


Figure 4- Map Showing The Total Literacy Rate, West Bengal (2001-2011)

In 2001 three districts- Uttar Dinajpur, Maldah, Murshidabad had very low total literacy rate, it has reduced to just one district- Uttar Dinajpur in 2011. In 2001, five districts- Puruliya, Birbhum, Dakshin Dinajpur, Jalpaiguri, Bankura had low literacy rate but in 2011 it has reduced to just one district – Maldah. In 2001, five districts had medium literacy rate- Koch Bihar, Nadia, South Twenty four Parganas, Barddhaman, Darjiling, this number reduced to four in 2011- Puruliya, Murshidabad, Birbhum, Bankura. In 2001, four districts had high total literacy rate- Medinipur, Hugli, Haora, North Twenty Four Parganas but in 2011 it has increased to eight districts- Jalpaiguri, Dakshin Dinajpur, Koch Bihar, Nadia, South Twenty Four Parganas, Barddhaman, Paschim Medinipur, Darjiling. In 2001, only the literacy rate of Kolkata was very high but it has increased to five districts in 2011, Hugli, Haora, North Twenty Four Parganas, Purba Medinipur and Kolkata. Uttar Dinajpur has registered the highest total literacy growth rate of 30.984334 percent and Kolkata has registered the lowest total literacy growth rate of 7.88928 percent.

The district wise urban literacy rate is calculated using-District wise Urban Literacy rate = (District wise Urban Literate Population/District wise Urban Population)\*100

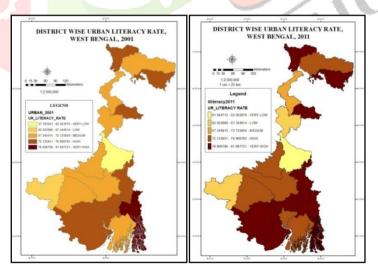


Figure 5- Map Showing The Urban Literacy Rate, West Bengal (2001-2011)

In both the years Murshidabad has recorded the lowest urban literacy rate among all the districts. Only Puruliya in 2001 has recorded very low literacy rate and in 2011, Maldah and Puruliya districts had low urban literacy rate. In 2001, Barddhaman, Birbhum, Maldah, Uttar Dinajpur, Jalpaiguri, South Twenty Four Parganas, Bankura had medium urban literacy rate and in 2011 only Uttar Dinajpur had medium urban literacy rate. In 2001, Haora, Nadia, Medinipur, Kolkata, Dakshin Dinajpur, Hugli, Darjiling, Koch Bihar had high urban literacy rate and in 2011, Birbhum, Barddhaman, Jalpaiguri, South Twenty Four Parganas, Haora, Bankura have a high urban literacy rate. Previously, in 2001 only North Twenty Four Parganas had very high urban literacy rate and in 2011 Paschim Medinipur, Nadia, Purba Medinipur, Hugli, Darjiling, Kolkata, Koch Bihar, North Twenty Four Parganas, Dakshin Dinajpur have a high urban literacy rate. Maldah has registered the least growth in the

literacy rate in urban areas by-6.04099 percent and the literacy rate of Maldah has registered the highest decrease in the urban literacy rate among all districts 2001-2011. Dakshin Dinajpur has registered the highest growth in the literacy rate in urban areas by 9.51594 percent.

The district wise rural literacy rate is calculated using the formula-District wise rural literacy rate = (District wise Rural Literate Population/District wise Rural Population)\*100

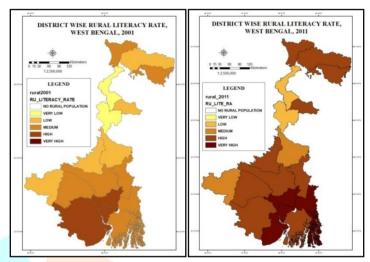


Figure 6- Map Showing The Rural Literacy Rate, West Bengal (2001-2011)

In 2001, Maldah and Uttar Dinajpur had very low rural literacy rate but in 2011 none of the districts featured in this class. In 2001, five districts had low rural literacy rate- Dakshin Dinajpur, Birbhum, Jalpaiguri, Puruliya, Murshidabad and in 2011, only two districts had low rural literacy rate- Maldah, Uttar Dinajpur. In 2001, Murshidabad and Puruliya had medium rural literacy rate and in 2011, seven districts- North Twenty Four Parganas, Darjiling, South Twenty Four Parganas, Barddhaman, Koch Bihar, Nadia, Bankura has medium rural literacy rate. In 2001, only three districts- Medinipur, Haora, Hugli had very high rural literacy rate and in 2011, four districts had high rural literacy rate which includes Purba Medinipur, Haora, Hugli, North Twenty Four Parganas, Paschim Medinipur, Darjiling, South Twenty Four Parganas, Barddhaman, Koch Bihar, Nadia, Dakshin Dinajpur, Jalpaiguri, Bankura, Birbhum. All the districts of West Bengal having rural population has registered a positive literacy growth rate from 2001- 2011, among which Haora had registered the least increase in rural literacy growth rate- 12.24245 percent and Uttar Dinajpur had registered the highest increase in the rural literacy growth rate- 39.78061 percent from 2001-2011.

The differentials is calculated using for each of the three categories-Differentials= Literacy rate 2011 – Literacy rate 2001

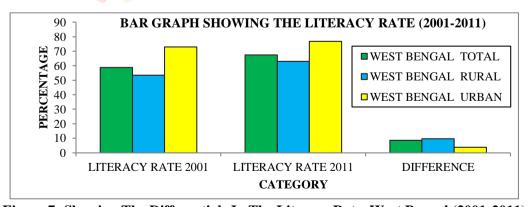


Figure 7- Showing The Differentials In The Literacy Rate, West Bengal (2001-2011)

In 2001, the total literacy rate of the state was 58.86585 percent but in 2011 the total literacy rate of the state increased to 67.41992 percent though the total state literacy rate has increased by 8.55407 percent approximately but the rate of increase is greater in the rural areas as compared to the urban areas. In rural areas it has increased from 53.40362 percent in 2001 to 63.06178 percent in 2011, so the rural literacy rate has increased by 9.65816 percent and in the urban areas it has increased from 72.9308 percent in 2001 to about 76.73496 percent in 2011, the increase in urban literacy accounts to about 3.80415

percent but there lies significant inter district discrepancies in both urban and rural areas in terms of changes in their literacy rate with respect to state illiteracy rate.

# A. URBAN AREAS- The differentials were calculated using the formula-

Differentials of rural literacy rate between the state and the districts literacy rate = District's rural literacy rate - state's average literacy rate

Names	literacy Rate Is Higher Than The State's, 2001		
Puruliya	6.978267816		1
Barddhaman	9.581504107		
Birbhum	9.81459127		
Maldah	10.83905437		
Uttar Dinajpur	11.48766352	1	South T
Jalpaiguri	11.78643354		
South Twenty Four Parganas	12.19995477	1	
Bankura	12.82062413	]	Pas
Haora	13.56970823		
Nadia	14.42757 <mark>117</mark>	1	P
Medinipur	14.5637988		
Kolkata	15.094234 <mark>09</mark>		
Dakshin Dinajpur	15.7239461		
Hugli	15.97549051		
Darjiling	16.22849328		North T
Koch Bihar	17.61785112		D
North Twenty Four Parganas	18.33196171		

Names	literacy Rate Is Higher Than The State's, 2011	
Uttar Dinajpur	3.35815645	
Birbhum	5.13152385	
Barddhaman	5.637670944	
Jalpaiguri	6.374137959	
South Twenty Four Parganas	6.571795672	
Haora	8.989646089	
Bankura	9.418223831	
Paschim Medinipur	10.42786 <mark>195</mark>	
Nadia	10.868368 <mark>32</mark>	
Purba Medinipur	11.70880272	
Hugli	11.92444724	
Darjiling	12.08426107	
Kolkata	12.37508348	
Koch Bihar	13.17911418	
North Twenty Four Parganas	14.21292936	
Dakshin Dinajpur	14.26780383	

Figure 8- Showing The Districts Whose Urban Literacy Rate Is Higher Than The State's Average Literacy Rate, West Bengal (2001-2011)

In 2001, the urban literacy rate of seventeen districts were higher than the state's average urban literacy rate among which Puruliya had recorded the lowest difference, its urban literacy rate is greater than the state's average literacy rate by 6.97827 percent and North Twenty Four Parganas has recorded the highest difference, its urban literacy rate is greater than the state's average literacy rate 18.33196 percent. In 2011, the literacy rate of sixteen districts is higher than the state's average urban literacy rate among which Uttar Dinajpur has the lowest difference, its urban literacy rate is greater than the state's average literacy rate by 3.358157 percent and Dakshin Dinajpur has the highest difference, its urban literacy rate is greater than the state's average literacy rate 14.2678 percent.

Names	Literacy Rate Is Lower Than The State's 2001
Murshidabad	-1.082808733

Names	Literacy Rate Is Lower Than The State's 2011
Murshidabad	-5.855204729
Maldah	-1.925880179
Puruliya	-0.440109146

Figure 9- Showing The Districts Whose Urban Literacy Rate Is Lower Than The State's Average Literacy Rate, West Bengal (2001-2011)

Previously in 2001, only Murshidabad's urban literacy rate was lower the state's average literacy rate but in 2011, Murshidabad, Maldah and Puruliya's urban literacy rate was lower than the state's average literacy rate among which Murshidad has the highest difference its literacy rate is lower than the state's literacy rate by 5.85521 percent and Puruliya has the lowest difference its literacy rate is lower than the state's literacy rate by 0.44011 percent.

# B. RURAL AREAS- The differentials were calculated using the formula-

Differentials of urban illiteracy rate between the state and the districts literacy rate = District's urban literacy rate - state's average literacy rate

Names	Literacy Rate Is Lower Than The State's Average Literacy Rate 2001
Uttar Dinajpur	-25.50726216
Maldah	-20.67118654
Murshidabad	-16.06856635
Puruliya	-14.40899088
Jalpaiguri	-9.432667832
Birbhum	-8.943218067
Dakshin Dinajpur	-8.905351574
Bankura	-5.928943336
Nadia	-5.724490741
Koch Bihar	-4.977053499
Barddhaman	-2.253726592
South Twenty Four Parganas	-2.248214594
Darjiling	-2.151392504

Names	Literacy Rate Is Lower Than The State's Average Literacy Rate 2011
Uttar Dinajpur	-20.79107653
Maldah	-17.18539234
Puruliya	-13.64725345
Murshidabad	-11.42416734
Birbhum	-7.400512884
Bankura	-6.676449148
Jalpaiguri	-6.395666319
Dakshin Dinajpur	-5.567642589
Nadia	-4.286145101
Koch Bihar	-3.489265698
Barddhaman	-2.791626852
South Twenty	-1.783522502
Four Parganas	-1.763322302
Darjiling	-1.565029018

Figure 10- Showing The Districts Whose Rural Literacy Rate Is Lower Than The State's Average Literacy **Rate, West Bengal (2001-2011)** 

Previously in 2001, among those districts whose rural literacy rate is lower than the state's average literacy rate Darjiling had the least difference, its literacy rate was lower than the state's average literacy rate by 2.15139 percent and Uttar Dinajpur had the maximum difference, its literacy rate was lower than the state's average literacy rate by 25.50726 percent. In 2011, Darjiling, had the least difference, its literacy rate was lower than the state's average literacy rate by 1.56503 percent compared to 2001 the percentage of decrease had further narrowed down and Uttar Dinajpur had the maximum difference, its literacy rate was lower than the state's average literacy rate by 20.79108 percent, in this case the difference between the state and district average has reduced to a greater extent.

	literacy rate is higher than	,		literacy rate is higher than	
names	the state's average literacy		names	the state's average literacy	
	rate 2001			rate 2011	
North Twenty Four Parganas	0.073707603		Paschim Medinipur	0.312159767	
Hugli	2.8727846 <mark>36</mark>		North Twenty Four Parganas	1.061310495	
Haora	4.158679616		Hugli	3.054676898	
Medinipur	4.21415094		Haora	3.320361762	
		<u>.</u> '	Purba Medinipur	9.285912499	

Figure 11- Showing The Districts Whose Rural Literacy Rate Is Higher Than The State's Average Literacy Rate, West Bengal (2001-2011)

Previously in 2001, four districts had their rural literacy rate higher than the state's average literacy rate among which North Twenty Four had the minimum difference its literacy rate was higher than the average state literacy rate by 0.07371 percent and Medinipur has the maximum difference its literacy rate is higher than the average state literacy rate by 4.21415 percent. In 2011, five districts had their rural literacy rate higher than the state's average literacy rate among which Paschim Medinipur had the minimum difference and its literacy rate is higher than the state's average literacy rate by 0.31216 percent and Purba Medinipur had the maximum difference as its literacy rate is higher than the average state literacy rate by 9.28591 percent.

The district wise total illiteracy rate was calculated using-

District wise Total Illiteracy rate = (District wise Total Illiterate Population/ District wise Total Population)\*100

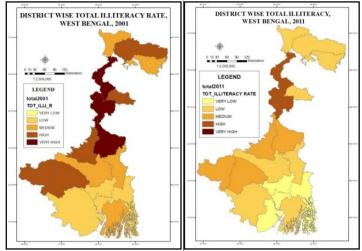


Figure 12- Map Showing The Total Illiteracy Rate, West Bengal (2001-2011)

The total district wise illiteracy rate has decreased from 2001 to 2011. Previously in 2001, Murshidabad, Maldah, Uttar Dinajpur had very high illiteracy rate but in 2011 none of the districts has recorded very high illiteracy rate. Among the districts having high illiteracy rate in 2001 five districts – Bankura, Jalpaiguri, Dakshin Dinajpur, Birbhum, Puruliya featured in the category but in 2011 only two districts were a part of that category- Maldah and Uttar Dinajpur. In 2001, five districts had medium illiteracy rate- Darjiling, Barddhaman, South Twenty Four Parganas, Nadia, Koch Bihar but in 2011, the number reduced to four districts- Bankura, birbhum, Murshidabad, Puruliya. Previously in 2001, only four districts had low illiteracy rate- North Twenty Four Parganas, Haora, Hugli, Medinipur and in 2011, the number of districts in this category increased to eight- Darjiling, Paschim Medinipur, Barddhaman, South Twenty four Parganas, Nadia, Koch Bihar, Dakshin Dinajpur, Jalpaiguri. Among the districts having very low illiteracy rate in 2001, only Kolkata was present in that category and in 2011, other than Kolkata four more districts accounted for having very low illiteracy rate- Purba Medinipur, North Twenty Four Parganas, Haora, Hugli. Puruliya has registered the least decrease in the total illiteracy rate by -16.56654 percent and Dakshin Dinajpur has registered the highest decrease in the total illiteracy rate by -24.48504 percent.

The district wise urban illiteracy rate is calculated using-District wise Urban Illiteracy Rate = (District wise Urban Illiterate Population/ District wise Urban Population)\*100

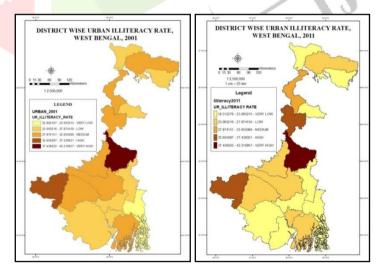


Figure 13- Map Showing The Urban Illiteracy Rate, West Bengal (2001-2011)

Though the net urban illiteracy rate has decreased in West Bengal from 2001 – 2011, but the rate of decrease is not uniform across all districts. In both the years 2001 and 2011, Murshidabad accounted for having the highest urban illiteracy rate but in 2001 it was 42.21695 percent which decreased to 38.43529 percent in 2011. In 2001 only Puruliya had high urban illiteracy rate and in 2011 Puruliya and Maldah had a high urban illiteracy rate. In 2001, Bankura, South Twenty Four Parganas, Jalpaiguri, Uttar Dinajpur, Maldah, Birbhum, Barddhaman had medium urban illiteracy rate and in 2011, only Uttar Dinajpur had medium urban illiteracy rate. In 2001, eight districts- Koch Bihar, Darjiling, Hugli, Dakshin Dinajpur, Kolkata,

Medinipur, Nadia, Haora had low urban illiteracy rate and in 2011, six districts - Bankura, Haora, South Twenty Four Parganas, Jalpaiguri, Barddhaman, Birbhum had low urban illiteracy rate. In 2001 only North Twenty Four Parganas had very low urban illiteracy rate and in 2011 it increased to nine districts – Dakshin Dinajpur, North Twenty Four Parganas, Koch Bihar, Kolkata, Darjiling, Hugli, Purba Medinipur, Nadia, Paschim Medinipur. Dakshin Dinajpur has registered the highest decrease in the urban illiteracy rate from 2001- 2011 by -27.93336 and on the other hand the illiteracy rate of Maldah has shown the highest increase from 2001- 2011 by 13.89951 percent.

The district wise rural illiteracy rate is calculated using-

District wise Rural Illiteracy Rate = (District wise Rural Illiterate Population/ District wise Rural Population)\*100

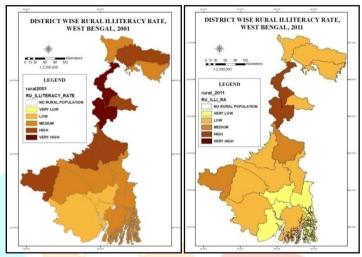


Figure 14- Map Showing The Rural Illiteracy Rate, West Bengal (2001-2011)

In the rural areas it can be clearly seen that the illiteracy rate in the rural areas has declined from 46.59638 percent in 2001 to 36.93822 percent in 2011 but there are a lot of discrepancies among the districts. The district wise rural illiteracy rate has decreased in West Bengal from 2001-2011. Previously in 2001, none of the districts had very low illiteracy rate but in 2011, Purba Medinipur, Haora, Hugli and North Twenty Four Parganas have very low illiteracy rate. In 2001, only three districts-Medinipur, Haora and Hugli had low illiteracy rate but in 2011, it has increased to ten districts. Paschim Medinipur, Darjiling, South Twenty Four Parganas, Barddhaman, Koch Bihar, Nadia, Dakshin Dinajpur, Jalpaiguri, Bankura, Birbhum. In 2001, seven districts- North Twenty Four Parganas, Darjiling, South Twenty Four Parganas, Barddhaman, Koch Bihar, Nadia, Bankura had medium rural illiteracy rate but in 2011, Murshidabad and Puruliya were the only districts in that category. In 2001, five districts- Dakshin Dinajpur, Birbhum, Jalpaiguri, Puruliya, Murshidabad had high illiteracy rate and in 2011, only two districts- Maldah and Uttar Dinajpur fell in that category. Previously in 2001, only Maldah and Uttar Dinajpur had very high rural illiteracy rate but in 2011, none of the districts fell into that category. Kolkata is the only district which does not have any rural population. In 2001, Medinipur has the lowest rural illiteracy rate of 36.92 percent but in 2011, the lowest rural illiteracy rate of 23.29417 percent was recorded by Purba Medinipur. In both the years Uttar Dinajpur, has recorded the highest rural illiteracy rate but in 2001 it was 66.64141 percent and in 2011, it decreased to 53.37116 percent. All the districts having rural population in West Bengal has registered a decrease in the growth rate in terms of the illiteracy from 2001- 2011 among them Dakshin Dinajpur has recorded the highest decrease with -23.76478 percent and Bankura has recorded the least decrease with -16.58744 percent from 2001-2011.

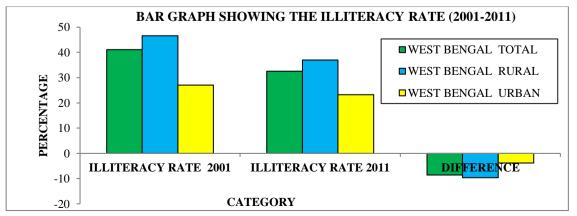


Figure 15- Showing The Differentials In The Illiteracy Rate, West Bengal (2001-2011)

In 2001, the total illiteracy rate of the state was 41.134 percent but in 2011 the total illiteracy rate of the state decreased to 32.580 percent though the total state illiteracy rate has decreased by 8.554 percent approximately but the rate of decrease is greater in the rural areas as compared to the urban areas. In the rural areas it has decreased from 46.59638 percent in 2001 to 36.93822 percent in 2011, which accounts to about 9.658 percent and in the urban areas it has decreased from 27.0692 percent in 2001 to about 23.26505 percent in 2011, the decrease in the urban illiteracy accounts to about 3.804 percent but there is significant inter district discrepancies in both the areas.

# A. RURAL AREAS- The differentials were calculated using the formula-

Differentials of rural illiteracy rate between the state and the districts illiteracy rate = District's rural illiteracy rate - state's average illiteracy rate

Names	Illiteracy Rate Is Lower Than The State's 2001
Medinipur	-4.21415094
Haora	-4.158679616
Hugli	-2.872784636
North Twenty Four Parganas	-0.073707603

Names	Illiteracy Rate Is Lower Than The State's 2011
Purba Medinipur	-9.285912499
Haora	-3.320361762
Hugli	-3.054676898
North Twenty Four Parganas	-1.061310495
Paschim Medinipur	-0.312159767

Figure 16- Showing The Districts Whose Rural Illiteracy Rate Is Lower Than The State's Average Illiteracy Rate, West Bengal (2001-2011)

The differentials of rural illiteracy rate between the state and the districts illiteracy rate was calculated for both the years and it can be observed that in 2001, the rural illiteracy rate of four districts were lower than the state's average rural illiteracy rate among which North Twenty Four Parganas had the lowest difference, its illiteracy rate is lower than the state's average illiteracy rate by 4.21415 percent and the Medinipur had the highest difference, its illiteracy rate is lower than the state's average illiteracy rate by 0.07371 percent. However in 2011, the rural illiteracy rate of five districts was lower than the state's average rural illiteracy rate among which Paschim Medinipur had the lowest difference, its illiteracy rate is lower than the state's average illiteracy rate by 0.31216 percent and Purba Medinipur had the highest difference, its illiteracy rate is lower than the state's average illiteracy rate by 9.28591 percent.

Names	Illiteracy Rate Is Higher Than The State's 2001	Names	Illiteracy Rate Is Higher Than The State's 2011
Darjiling	2.151392504	Darjiling	1.565029018
South Twenty Four Parganas	2.248214594	South Twenty Four Parganas	1.783522502
Barddhaman	2.253726592	Barddhaman	2.791626852
Koch Bihar	4.977053499	Koch Bihar	3.489265698
Nadia	5.724490741	Nadia	4.286145101
Bankura	5.928943336	Bankura	6.676449148
Dakshin Dinajpur	8.905351574	Dakshin Dinajpur	5.567642589
Birbhum	8.943218067	Birbhum	7.400512884
Jalpaiguri	9.432667832	Jalpaiguri	6.395666319
Puruliya	14.408 <mark>99088</mark>	Puruliya	13.64725 <mark>345</mark>
Murshidabad	16.06856 <mark>635</mark>	Murshidabad	11.424 <mark>16734</mark>
Maldah	20.67118654	Maldah	17.18539234
Uttar Dinajpur	25.50726216	Uttar Dinajpur	20.79107653

Figure 17- Showing The Districts Whose Rural Illiteracy Rate Is Higher Than The State's Average Illiteracy Rate, West Bengal (2001- 2011)

In 2001, the rural illiteracy rate of thirteen districts were higher than the state's average illiteracy rate among which Darjiling had the lowest difference, its illiteracy rate is higher than the state's average illiteracy rate by 2.15139 percent and Uttar Dinajpur has the highest difference, its illiteracy rate is higher than the state's average illiteracy rate by 25.50726 percent. In 2011, the illiteracy rates of thirteen districts were higher than the state's average illiteracy rate and Darjiling had the lowest difference its illiteracy rate is higher than the state's average illiteracy rate by 1.56503 percent and Uttar Dinajpur had the highest difference its illiteracy rate is higher than the state's average illiteracy rate by 20.79108 percent.

### B. URBAN AREAS- The differentials were calculated using the formula-

Differentials of urban illiteracy rate between the state and the districts illiteracy rate = District's urban illiteracy rate - state's average illiteracy rate

Names	Illiteracy Rate Is Lower Than The State's 2001	Names	Illiteracy Rate Is Lower Than The State's 2011
North Twenty Four Parganas	-18.33196171	Dakshin Dinajpur	-14.26780383
Koch Bihar	-17.61785112	North Twenty Four Parganas	-14.21292936
Darjiling	-16.22849328	Koch Bihar	-13.17911418
Hugli	-15.97549051	Kolkata	-12.37508348
Dakshin Dinajpur	-15.7239461	Darjiling	-12.08426107
Kolkata	-15.09423409	Hugli	-11.92444724
Medinipur	-14.5637988	Purba Medinipur	-11.70880272
Nadia	-14.42757117	District - Nadia	-10.86836832
Haora	-13.56970823	Paschim Medinipur	-10.42786195
Bankura	-12.82062413	Bankura	-9.418223831
South Twenty Four Parganas	-12.19995477	Haora	-8.989646089
Jalpaiguri	-11.78643354	South Twenty Four Parganas	-6.571795672
Uttar Dinajpur	-11.48766352	Jalpaiguri	-6.374137959
Maldah	-10.83905437	Barddhaman	-5.637670944
Birbhum	-9.81459127	Birbhum	-5.13152385
Barddhaman	-9.581504107	Uttar Dinajpur	-3.35815645
Puruliya	-6.978267816		

Figure 18- Showing The Districts Whose Urban Illiteracy Is Lower Than The State's Average Illiteracy Rate, West Bengal (2001- 2011)

In the urban areas the differentials of urban illiteracy rate between the state and the districts illiteracy rate was calculated for both the years and it can be observed that in 2001, the urban illiteracy of North Twenty Four Parganas was maximum, its illiteracy rate was lower than the state's average illiteracy rate by 18.33196 percent and the difference was minimum in case of Puruliya its illiteracy rate was lower than the state's average illiteracy rate by 6.97827 percent. However in 2011, the difference was maximum in case of Dakshin Dinajpur its illiteracy rate was lower than the state's average illiteracy rate by 14.2678 percent and the difference was minimum in case of Uttar Dinajpur its illiteracy rate was lower than the state's average illiteracy rate by 3.35816 percent.

Names	Illiteracy Rate Is Higher Than The State's 2001	Names	Illiteracy Rate Is Higher Than The State's 2011
Murshidabad	1.082808733	District - Puruliya	0.440109146
		District - Maldah	1.925880179
		District - Murshidabad	5.855204729

Figure 18- Showing The Districts Whose Urban Illiteracy Is Higher Than The State's Average Illiteracy Rate, West Bengal (2001-2011)

In 2001, only Murshidabad's urban illiteracy rate was greater than the state's illiteracy rate but in 2011, the urban illiteracy rate of Puruliya, Maldah and Murshidabad was greater than that of the states and among which the difference was lowest in case of Puruliya its illiteracy rate is higher than the state's illiteracy rate by 0.44011 percent and highest in case of Murshidabad its illiteracy rate is higher than the state's illiteracy rate by 5.855221 percent.

# **Differential Index**

The differential index was calculated using the formula-

Differential index= (Urban Literacy Rate – Rural Literacy Rate) / Total Literacy Rate

It can be observed that the differential index in 2001, was approximately 0.33172 and it had reduced to 0.20281 in 2011 the differential index has reduced by 0.12892 from 2001- 2011. However significant variations in the differential index can be observed between different districts –

Category	2001	2011	<b>Difference</b> (2001-2011)
Differential Index	0.331723446	0.202806142	-0.128917304

Figure 19- Table Showing The Differential Index Of West Bengal for (2001 – 2011)

The differentials for the districts have been computed using the above mentioned formula for both the years and it was then divided into three categories- low, medium and high. It was observed that in the year 2001, ten districts were present in the low category namely- Haora, Medinipur, Barddhaman, Hugli, South Twenty Four Parganas, North Twenty Four Parganas, Darjiling, Murshidabad, Bankura, Nadia. In the medium category, five districts were present namely- Birbhum, Jalpaiguri, Koch Bihar, Puruliya, Dakshin Dinajpur and in the high category three districts were present namely- Malda, Uttar Dinajpur and Kolkata. However in the year 2011, it was observed that maximum number of districts were present in the low category namely- Purba Medinipur, Haora, Murshidabad, Hugli, South Twenty Four Parganas, Barddhaman, Paschim Medinipur, North Twenty Four Parganas, Darjiling, Jalpaiguri, Birbhum, Nadia, Puruliya, Koch Bihar, Bankura, Maldah, Dakshin Dinajpur. Uttar Dinajpur was the only district in the medium category and Kolkata was the only district which featured in the high category.

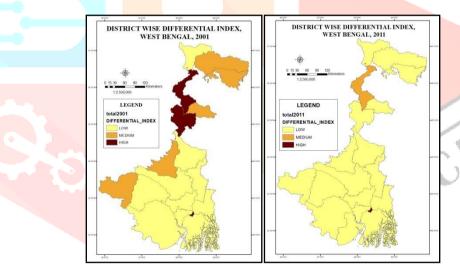


Figure 20- Map Showing The District Wise Differential Index, West Bengal (2001-2011)

Then the district wise differential index was compared with the state differential index for 2001 and 2011.

Names	District Differential	State Differential	District-State
1 (diffes	Index 2001	<b>Index 2001</b>	Differential Index 2001
Haora	0.138879	0.331723	-0.19284
Medinipur	0.161361	0.331723	-0.17036
Barddhaman	0.194072	0.331723	-0.13765
Hugli	0.198152	0.331723	-0.13357
South Twenty Four Parganas	0.245342	0.331723	-0.08638
North Twenty Four Parganas	0.265177	0.331723	-0.06655
Darjiling	0.293333	0.331723	-0.03839
Murshidabad	0.335484	0.331723	0.003761
Bankura	0.345179	0.331723	0.013455
Nadia	0.35091	0.331723	0.019186
Birbhum	0.364016	0.331723	0.032293
Jalpaiguri	0.39871	0.331723	0.066987
Koch Bihar	0.403877	0.331723	0.072153
Puruliya	0.45885	0.331723	0.127127
Dakshin Dinajpur	0.463079	0.331723	0.131356
Maldah	0.777993	0.331723	0.44627
Uttar Dinajpur	0.978194	0.331723	0.646471
Kolkata		0.331723	0.668277

Figure 21- Table Showing The Difference In The Differential Index Between Each District From The State Differential Index, West Bengal, 2001

In 2001, seven districts have their district's differential index which is lower than the State's differential index and among them Haora has the highest difference and Darjiling has the lowest difference Other than this all the other district's differential index is higher than the State's differential index and among them Murshidabad has the lowest difference and Kolkata has the highest difference.

Names	Differential Index 2011	State Differential Index 2011	District-State Differential Index 2011
Purba Medinipur	0.031471	0.202806	-0.17133
Haora	0.076268	0.202806	-0.12654
Murshidabad	0.097541	0.202806	-0.10527
Hugli	0.120032	0.202806	-0.08277
South 24 Parganas	0.123283	0.202806	-0.07952
Barddhaman	0.123978	0.202806	-0.07883
Pashchim Medinipur	0.146672	0.202806	-0.05613
North 24 Parganas	0.173019	0.202806	-0.02979
Darjiling	0.191609	0.202806	-0.0112
Jalpaiguri	0.197919	0.202806	-0.00489
Birbhum	0.203351	0.202806	0.000545
Nadia	0.225	0.202806	0.022194
Puruliya	0.238158	0.202806	0.035352
Koch Bihar	0.253929	0.202806	0.051122
Bankura	0.259236	0.202806	0.05643
Maldah	0.291732	0.202806	0.088926
Dakshin Dinajpur	0.306821	0.202806	0.104014
Uttar Dinajpur	0.487491	0.202806	0.284685
Kolkata	1	0.202806	0.797194

Figure 21- Table Showing The Difference In The Differential Index Between Each District From The State Differential Index, West Bengal, 2011

In 2011, ten districts had their district's differential index lower than the State's differential index among them Purba Medinipur has the highest difference and Jalpaiguri has the lowest difference. The differential index of nine other districts is higher than the State's differential index among which Birbhum has the lowest difference and Kolkata has the highest difference.

# VII. CONCLUSION

It can be observed that the overall literacy rate of Kolkata has registered the highest total increase with 79.795 percent and Uttar Dinajpur has registered the lowest total increase in terms of illiteracy from 2001- 2011 but it can be seen that in 2001, the lowest total literacy rate of 37.82 percent was recorded by the district and in 2011, the lowest total literacy rate of 49.54 percent was recorded by the same district. However in both the years the lowest rural literacy was recorded by Uttar Dinajpur in 2001, it was 33.36 percent which increased to 46.63 percent in 2011 and the highest rural literacy rate was recorded by Medinipur in 2001 at 63.08 percent but in 2011 it has increased and the highest rural literacy rate was recorded by Purba Medinipur at 76.71 percent. In the urban areas North Twenty Four Parganas has registered the highest urban literacy rate of 77.20 percent and in 2011, the literacy rate has further increased and Dakshin Dinajpur registered the highest urban literacy with 81.67 percent. In the urban areas, in 2001 Murshidabad has registered the lowest literacy rate of 57.78 percent and in 2011 the lowest literacy was recorded by the same district at 61.57 percent. Though the urban areas has shown a higher increase in the literacy rate but from the differential index it can be observed that the gap between the rural and the urban areas has also reduced, among which some districts have shown a significant level of progress.

In respect to illiteracy though Kolkata has registered the lowest total illiteracy rate in both the years but in 2001, it was 26.04 percent but in 2011, it had further decreased to 20.21 percent and the highest rate of total illiteracy was recorded by Uttar Dinajpur in both the years but in 2001, it was 62.18 percent which has decreased to 50.46 percent in 2011. In the rural areas in both the years Uttar Dinajpur has recorded the highest illiteracy rate but it had reduced from 66.14 percent in 2001 to 53.37 percent in 2011 and the lowest rural illiteracy rate has been recorded by Medinipur in 36.92 percent in 2001 which had reduced to 23.29 percent in 2011 and it was recorded by Purba Medinipur. In the urban areas in 2001, North Twenty Four Parganas has registered the lowest urban illiteracy of 22.8 percent in 2001 which decreased to 18.31 percent in 2011 and it was recorded by Dakshin Dinajpur. The highest urban illiteracy was recorded by Murshidabad for both the years at 42.22 percent in 2001, it has reduced to 38.44 percent in 2011.

The Government of West Bengal had planned to reduce the rate of illiteracy by 10 percent within a span of 5 years and special attention is being given to Koch Behar, Jalpaiguri, Uttar Dinajpur, Dakshin Dinajpur, Maldah, Murshidabad, Birbhum, Bankura and Puruliya (The Hindu 2016). To reduce the overall illiteracy rate and minimize the regional, social and gender disparities in literacy throughout the country "Saakshar Bharat" program was initiated (Government of West Bengal 2012). "Kanyashree Prakalpa" was initiated by the Government of West Bengal to provide financial assistance to an unmarried girl child aged thirteen to eighteen years and reading in classes from eight to twelve if her family's annual income is up to Rs 1.2 lac or less, other than this "Sikshashree Scheme" provides assistance to day scholar students belonging to scheduled caste and scheduled tribe of classes five to eight, "Sabooj Sathi Scheme" also aims at increasing the literacy rate of the state. As per (Government Of West Bengal 2020), as of 18th September 2020, 6487032 candidates were benefited from the "Kanyashree Prakalpa". In case of "Sabooj Sathi" scheme 3423004 people were benefited out of which 51.1 percent are females and 48.9 percent are males (Government Of West Bengal 2017). Other than there are a number of scholarships such as- "Swami Vivekananda Merit Cum Means Scholarship for Minorities", "Bigyani Kanya Medha Britti Scholarship", "West Bengal Post Matric Scholarship for SC/ST/OBC", "West Bengal Pre-Matric Scholarship for SC and ST Students", "Hindi Scholarship Scheme" and the state government has also decided to set up the "Aikyashree" scheme to provide fully funded state scholarship for minority students from 2019-2020 (Government Of West Bengal 2019), all of these schemes are aimed at increasing the literacy rate of West Bengal (Government Of West Bengal 2020), and it is also an attempt to make progress in respect to the goal four pertaining to education as stated by the Sustainable Development Goals (United Nations 2020).

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