



ANALYSIS OF THE PROGRESS OF ELEMENTARY EDUCATION IN WEST BENGAL:

A GEOGRAPHICAL PERSPECTIVE

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Abstract : The need for the educational wellbeing in the contemporary era is becoming more and more essential for the human civilization. The ability to acquire knowledge and skill are decided by the opportunity of the individual to have his or her access to the elementary education as a part of economic entitlement. Although, the knowledge based society in the developing economies like India, is at the doorstep of the crisis phase since the model of educational facilities at the elementary level as well as the educational schemes by the GOI has huge gap from the reality.

In West Bengal also the spatio-temporal change in the availability and accessibility of educational facilities at elementary level is improving in a slow pace. The education development index ranking is at a level of inappropriate progress fixed in few areas only. The gender gap in GER in addition to the gaps in schemes like SSA is also very sensitive issues related to the achievement of elementary education in the study area. The working paper is an attempt to draw the facts and analysis of the existing status of the elementary education facilities and its spatio-temporal change detection, the spatial differentiation in EDI and identifying the gender gap of GER in the area under investigation to compare it with the nation. The findings and summary put stress on the strategies for the improvement of the present situation.

IndexTerms - Educational Wellbeing, Pupil-Teacher Ratio, Student Classroom Ratio, Educational Development Index, Gross Enrolment Ratio, Sarva Shiksha Abhiyan.

INTRODUCTION

The education system is to provide every citizen to acquire essential knowledge and skill for building capabilities for their functioning in the society. Everyone has to acquire certain level of education for being able to realize his or her potential in living a meaningful and quality life. The study of well-being has become a popular theme of study in the early 1960s in social science in general and geography in particular through the emergence of welfare approaches. The measurement of social wellbeing depends on various indicators such as health status, education, environmental quality, civic engagement, social security so on and so forth. Education among these indicators is the most important parameter determining the quality of life as well as the social wellbeing. Elementary education is conceivably the most significant variable because it enables individuals as well as the communities to progressively enhance their standard of living in order to achieve better quality of life and wellbeing.

The relationship between worldwide spread of elementary education and the social well-being is broadly recognized issues. Elementary Education is comprised of both the primary and upper primary education. The Indian Education System is one of the largest in the world with more than 1.5 million schools, 8.5 million teachers and 250 million children from varied socio economic backgrounds. (UNICEF, December 2018). This is almost half of the population of Europe and three fourth of the population of the US which is indicative of the India's challenge on managing the quality of educational attainment. Therefore, universalisation of elementary education in India is a national project since independence. The state West Bengal in India, with total 19 districts (Census 2011) some of them are semi developed, developing and developed in educational background. Since education is in concurrent list in our constitution hence state and central Govt. should give special attention to uplift the bellow level of educational indicators.

The basic education in our country is mainly determined by the education at primary and upper primary level. It has been noticed that the literacy rates depend on the basic education and Gross Enrolment Ratio (GER) of the elementary level. But, there are other indicators of educational wellbeing like Pupil Teacher Ratio (PTR), Student Classroom Ratio (SCR), Educational Development Index

(EDI) etc. which determine the accessibility to the elementary education all over the state. Apart from this, the gap between the male and female students in primary and upper primary level determines the educational attainment.

1.1 Objective and Methodology

The objective of the present study is to examine the spatial pattern and temporal trend of inter-district variation in facilities available in schools at primary level. The paper also analyses the pace of improvement in educational attainment by comparative analysis of EDI at primary and upper primary level using rank correlation. It assesses the gaps in the provision as per Sarva Siksha Abhiyan (SSA) norms of elementary education, literacy rate and gross enrolment ratio. The present work also attempts to analyse the sequential availability and accessibility of educational facilities in the area under investigation.

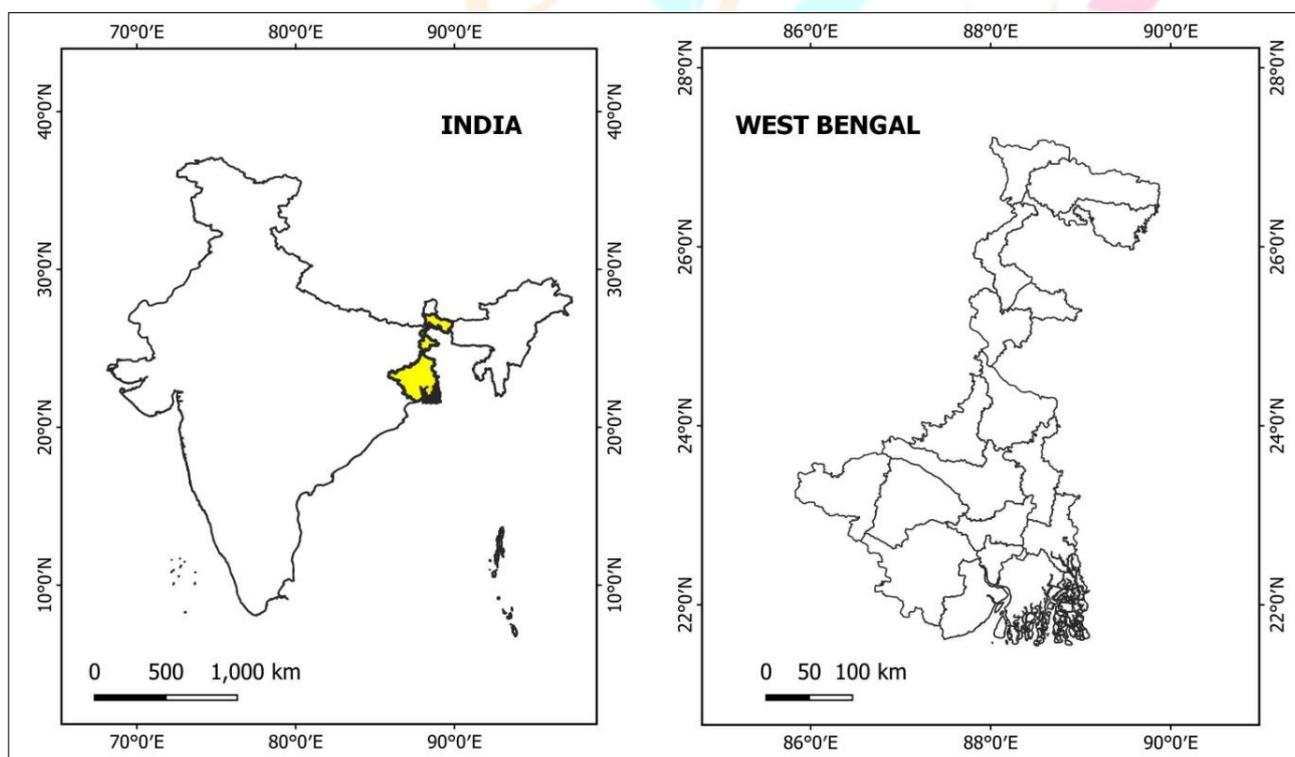
The methodology followed in the work is collection of different records and reports related to the theme from secondary sources, detection, analysis and presentation of the data with the help of quantitative techniques and GIS mapping. The results are discussed and findings are summarized.

1.3 Data Source

The entire study relies on the secondary data sources available in the internet. Therefore, various web-sources of books and journals, record and reports incorporates the information about the study area. The secondary data sources are: Census of India: 1981, 1991, 2001, and 2011; District level Household and Facility Survey: 2001-02 and 2007-08 Reports; West Bengal Human Development Report: 2004; and All-India Educational Survey, NCERT: 1978,1986,1993,2002 and 2014 Reports.

1.4 The Study Area

The selected study area is the state in eastern India named West Bengal has international border with Bangladesh in the east, Bhutan in the north and Nepal in the north-west. Apart from this, it has border with the neighbouring states of Assam and Meghalaya in the east, Bihar and Jharkhand in the western side, Sikkim in the north and Odisha in the southern side.



map no. 1.1 location map of the study area

The latitudinal and longitudinal extension of state of is from 20°31'N to 27°12' N latitude and 85°50' E to 89°52' E longitude. The state also shares Himalayas in the extreme north and North-West as well as coastal area of Bay of Bengal in the extreme southern part with versatile landscape of plateau in the extreme western districts. (Map No. 1.1). It covers a geographical area of 88,752 sq.km with population of 91,347,736) and population density of 1,029 persons per square km (the highest among other states in India, nearly 3 times the national average). It represents immense diversity in terms of climate, vegetation and soil type. Parts of the deltaic area of Ganga-Brahmaputra-Meghna are famous for it's richness of flora and fauna in the Sundarnas area which is internationally recognised by UNESCO as World Heritage sties for the high biodiversity of mangrove flora and fauna.

As the literacy rate of the study area West Bengal bears the signs of inequality, the average literacy rate of the state is 69 percent, representing much lower rates of literacy among Adivasis (43%), Muslims (57%) and Dalits (59%) in general and among the women of the three communities in particular (29%, 49% and 47% respectively). Unfortunately, the low level of the average literacy rate has significant impact on the educational as well as social wellbeing of the state. On the other hand, out of total illiterate persons, the Adivasis, Muslims and Dalits form nearly two third (nearly 68%), while their population share is just more than half of the total population (about 54%). Hence, the area suffers from uneven distribution and development of educational wellbeing, which seek immediate attention of the researchers. This is the rationale for the selection of this state as study area.(West Bengal. Encyclopedia Britannica: <https://www.britannica.com/place/West-Bengal>).

RESULTS AND DISCUSSION

The distribution of educational opportunities is particularly far from equality as studied in the paper. Development of elementary education has taken place differently in terms EDI in West Bengal. This section will reveal the pattern and trend of universal elementary education in West Bengal with the help of pattern of accessibility and availability of facilities, progress in gross enrolment ratio. The following section also analyses the gap in Provision as per SSA norms and trend of gender disparity in India and West Bengal for a prolonged period.

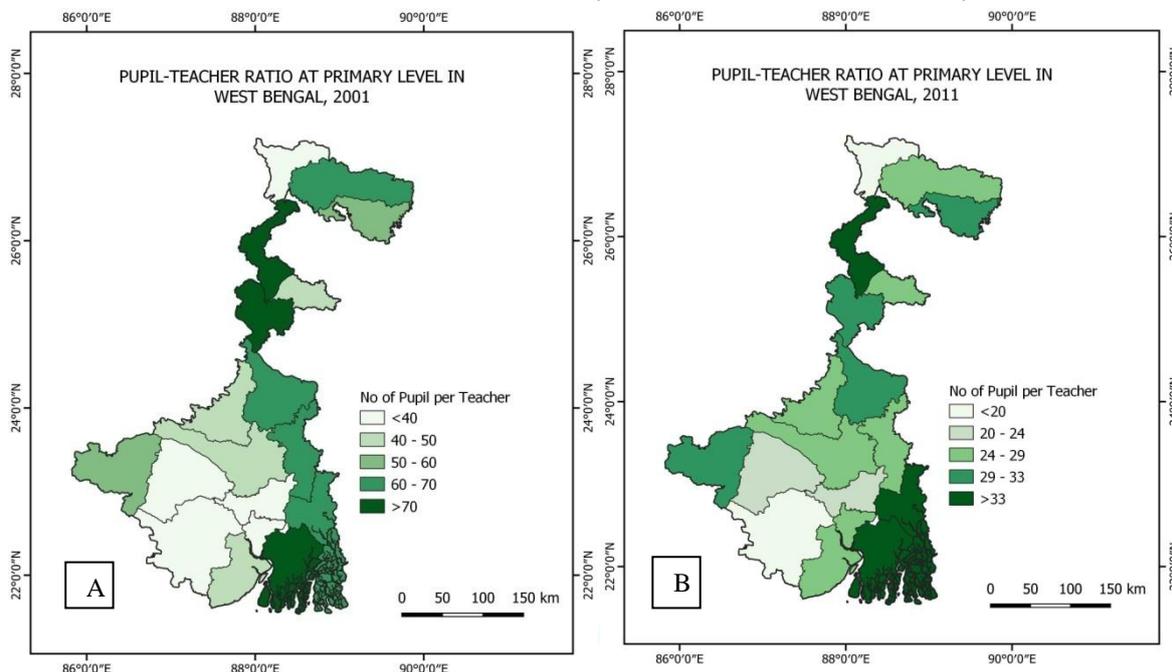
2.1 Status of Facilities in Schools at Primary Level

In order to show the district wise trend of temporal change of schooling facilities, considerable amount of data is required for each district. Some selected criteria had been chosen to show the condition of schooling facility for primary level schools viz., PTR (Pupil Teacher Ratio), percentage of single Teacher in school, SCR (Student Classroom Ratio), schools with girl's toilet. The data shows that there are still many schools with single teacher. The picture is worst at Puruliya with 44.2 % in 2001 and Bankura with 8.3 % in 2011. The Districts of Darjeeling, Malda, Murshidabad and Uttar Dinajpur still will have to perform better in case of separate girls' toilet facility. Lack of having that facility effects the enrolment of girl child in school. In the year of 2001, the picture was very bad as Cooch Behar District had highest percentage of schools having separate girls' toilet with only 32%. But the condition becomes much better in the year 2011. It is observed that during the last two decades the condition of separate toilet facility for girls has improved a lot. Bankura District is advanced in case of schools with separate girls' toilet facility of other districts with 99.7% when the state average is only 55.15 percent. (Table No. 2.1).

table 2.1 trend of inter-district variation in schooling facility at primary level

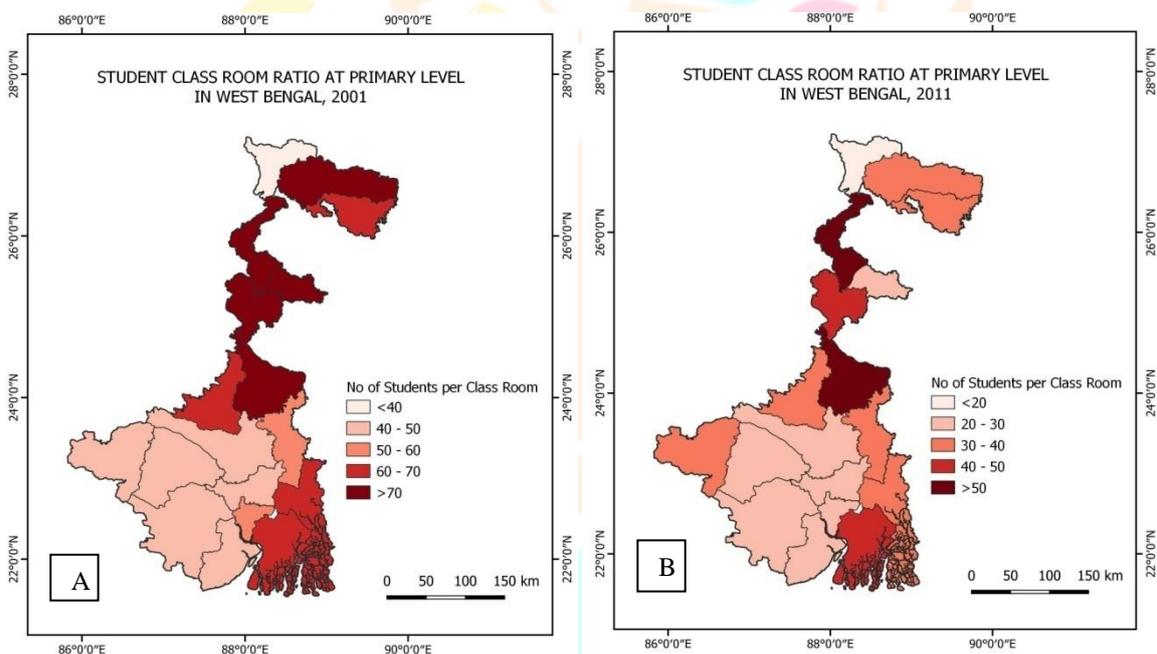
Regions	District	Pupil-teacher ratio (PTR)		Percentage of single teacher school		Student classroom ratio (SCR)		Percentage of Schools with girls toilet	
		2001	2011	2001	2011	2001	2011	2001	2011
	Year wise Distribution								
Himalayan	Cooch bihar	54	29	1.6	2.5	66	35	32	94.3
	Darjeeling	35	16	17.6	7.1	36	17	9.2	42
	Jalpaiguri	62	27	4.6	2.7	85	39	11.5	84.7
Middle-Eastern Plain	Uttar Dinajpur	69	37	2.9	1.7	119	54	3.5	79.1
	Dakshin Dinajpur	46	26	2.1	6.7	74	31	10	98.3
	Malda	75	32	2.8	0.5	102	40	6	76.3
	Murshidabad	67	32	1.1	0.9	79	48	14.8	77.7
	Nadia	61	25	1.7	1.5	59	32	9.3	97.2
Southern Plain	Birbhum	44	26	3.4	4	60	35	7.2	85
	N 24 Parganas	61	34	12.4	4	66	38	20.7	84.1
	Hawrah	40	26	1.1	3.9	57	30	12.1	92.9
	Hugli	43	24	3.5	1.6	47	28	12.9	98.1
	Burdwan	44	28	1.5	1.6	47	30	14.2	96.3
Western Plateau	S 24 Parganas	73	33	11.1	2.5	73	43	12.1	85.7
	Purba Medinipur	51	25	5.8	4.4	43	28	2.5	93.6
	Paschim Medinipur	41	20	8.5	2.7	41	27	2.8	90.9
	Puruliya	52	31	44.2	7.1	46	39	3.8	78.4
	Bankura	38	24	14	8.3	47	28	3.9	99.7
West Bengal	West Bengal	55	38	9.66	6.88	63	34	7.13	55.15
	Maximum	75	37	44.2	8.3	259	54	32	99.7
	Minimum	35	16	1.1	0.5	36	17	2.5	42
	C.V (%)	23.84	18.73	133.59	66.38	66.18	24.97	69.72	15.7

Research Through Innovation



map no. 2.1 (A & B)

2.1.1. Spatio-Temporal Change of PTR at Primary Level in West Bengal



map No. 2.2 (A & B)

2.1.2. Spatio-Temporal Change of SCR at Primary Level in West Bengal

The maps (Map no. 2.1 A & B) are showing the condition of PTR and SCR in primary and upper primary level in the districts of West Bengal. The change in PTR is remarkable at primary level from 2001 to 2011 as the ratio has increased in 2011 varying from 38 (>33) to 16 (<20) pupil per teacher. This ratio was very high in 2001 ranging from 75 (>70) to 35 (<40). This fact indicates that the change is positive in this respect but such gradual increase will delay the educational attainment. Districts of Maldah, South 24 Paraganas and Uttar Dinajpur are showing remarkably poor PTR (between 70 to 75) in 2001, which increased in 2011 (between 33 to 37). On the other hand, the spatio-temporal change in SCR also depicts the similar trend (Map no. 2.2 A & B). The districts of Jalpaiguri, Dakshin Dinajpur and Murshidanad have notable amount of SCR (74 to 85) in 2001, while the situation is worst in Uttar Dinajpur scoring 119 SCR in 2001. It has increased in 2011 ranging between 39 to 48 in the districts of Jalpaiguri, Dakshin Dinajpur, Murshidanad. But still in Uttar Dinajpur the SCR is 54, which is meagre in terms of educational facilities.

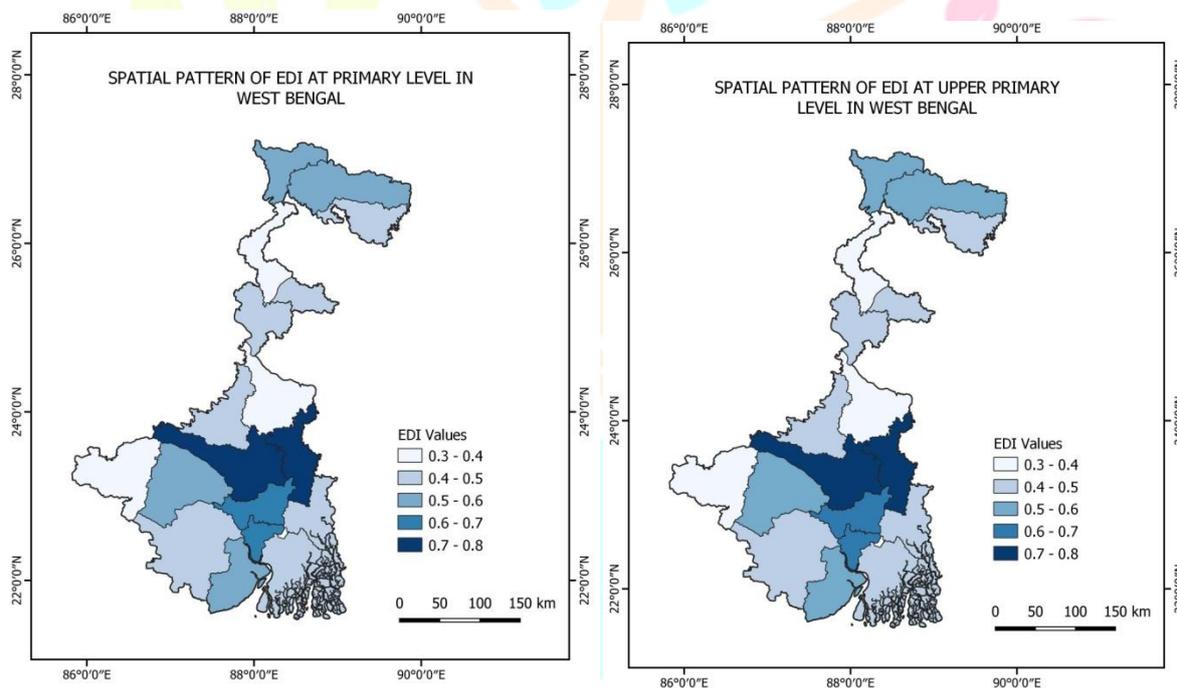
2.2 Educational Development Index

Educational Development Index (EDI) is separate for primary and upper primary level. National University of Educational Planning and Administration (NUEPA) calculated EDI at state level by combining 23 indicators pertaining to access to the infrastructure, teacher’s related factors and outcome separately for primary and upper primary level since 2005- 06. District level EDI for West Bengal is developed by slightly modifying the NUEPA methodology by using DISE data for the most recent period of 2009-10.

table 2.2 pattern of EDI at elementary level in West Bengal, 2009-10

Region	Districts	Primary	Rank	Upper Primary	Rank
Himalayan	Cooch Bihar	0.43	12	0.51	11
	Darjeeling	0.50	5	0.53	14
	Jalpaiguri	0.49	6	0.61	10
Middle-Eastern Plain	Uttar Dinajpur	0.29	18	0.39	17
	Dakshin Dinajpur	0.44	10	0.65	5
	Malda	0.40	13	0.52	9
	Murshidabad	0.37	17	0.42	16
	Nadia	0.76	1	0.70	3
	Birbhum	0.39	14	0.41	15
Southern Plain	N 24 Pargana	0.46	9	0.60	12
	Howrah	0.59	4	0.66	4
	Hugli	0.65	3	0.78	1
	Burdwan	0.70	2	0.72	2
	S 24 Pargana	0.44	11	0.64	6
Western Plateau	Purba Medinipur	0.48	7	0.63	8
	Paschim Medinipur	0.39	15	0.50	13
	Puruliya	0.38	16	0.39	18
	Bankura	0.48	8	0.54	7
	West Bengal	0.49		0.55	
	Maximum	0.76		0.78	
	Minimum	0.29		0.39	
	S.D	0.10		0.11	
	C.V (%)	20.06		18.27	

Source: Elementary Education in India, District Report Cards (2003-04, 2011-12)



map no. 2.3

2.2.1 Spatial Pattern of EDI at Elementary Level in West Bengal, 2011

The spatial pattern of EDI in West Bengal (Map No. 2.3) shows similar situation in both primary and upper primary level. The districts of Burdwan and Nadia show a good position scoring above 0.7 values which is nearer to perfect position (1.00). Hugli and Howrah districts (including Kolkata) also shows a better position, but, rest of the districts are in a position to be concerned and taken to be under consideration. The situation is worst in Uttar Dinajpur as the score is only 0.29 in 2001 and 0.39 in 2011 (nearer to 0.00). The districts of Purulia and Murshidabad also need special care as the score of EDI is 0.38 and 0.37 in 2001 respectively. In the year 2011 the score of Uttar Dinajpur and Purulia is still poor (0.39 in both).

The EDI ranking will endorse the districts to improve their functioning and a profound look at both the inputs and the outputs of the parameters that affect elementary education. It is expected that EDI will also encourage the stakeholders to support the goal of *Sarva Shiksha Abhiyan* (SSA) scheme, already implemented to the neediest regions.

GAPS IN PROVISION OF FACILITIES IN SCHOOLS IN RESPECT TO SARVA SHIKSHA ABHIYAN (SSA)

This section aims to examine the exact gap between targeted provision under SSA in selected parameters and the actual situation in West Bengal at elementary level of education after five years of implementation of SSA. The table 1.3 indicates that there is a sizeable

gap of infrastructure in between target norms and actual provisions in some areas in West Bengal at elementary education level. It is important to notice that these gaps are narrowing rapidly which is positive progression towards universalisation of elementary education.

table 3.1 gaps in provision as per SSA norms in west Bengal

Target /Norms	Status
Teaching Resource	
1. One teacher for every 40 children in primary and upper primary	The people-teacher ratio (PTR) at Primary levels 1: 42 and at upper primary level is 1: 34.
Gap:- PTR at primary and upper primary level suggests that this norm is close to achievement at primary level and is achieved at upper primary level. Yet, a significant disparity exists within states.	
2. At least two teachers in a Primary school.	Average number of teacher per primary school is 2.8 and upper primary school is 3.4. still there are 2.7 % of primary schools that have only one teacher.
Gap:- The norms have been fulfilled in this parameter but single teacher schools have to be supplemented with teacher as soon as possible.	
3. One teacher for every class in upper primary.	DISE does not report on this norm specifically, but the PTR and Student-Classroom Ratio (SCR) suggests that this norm is close to achievement.
Gap:- As with all of the norms, while state mean average suggests that progress is good, there are regional variations that need to be addressed.	
Classrooms	
4. There should be one upper primary school for every two primary schools.	In rural areas there are on average 5.93 primary schools for every upper primary school and 20.46 % of rural population has to travel more than 3 km to access upper primary schooling facility.
Gap:-The gap in access is wide at the upper primary level in West Bengal.	
5. A room for every teacher in Primary and upper primary schools.	6.5% of primary schools and 15.6 % of upper primary schools have only one room.
Gap:- Very high gap exist in terms of availability of adequate number of classroom in schools.	
Free Textbooks	
6. Free textbooks	50.30 % of children children at primary and 19.92 % of children at upper primary level getting free text book.
Gap:- A huge gap exists in provision of free text book and situation is much worse for girls/SCS/ST.	
Teacher grant	
7. Learning Materials (TLM)	72.8 percent of primary and 55.0 percent of upper primary schools received the Rs 500 per teacher per year.
Gap:- There is still a gap of 27.2 percent at primary and 45.0 percent at upper primary level in this parameter, but it is closing fast	

Source: Compiled by the researcher from MHRD SSA Framework for Implementation, 2003 & District Information System for Education, 2009-10

DISPARITY IN PARTICIPATION AT ELEMENTARY EDUCATION

All India Educational survey provides important statistics since 1965 in the proportion of children attending school i.e. participation and utilization of educational opportunities. Gross Enrolment Ratio (GER) in West Bengal both at the primary and upper primary level remained below the national average in between 1965-1993 (Table 4.1). On the other hand, in upper primary level it remained below the national average since 1965 which indicates the high rate of drop out after the completion primary schooling cycle in West Bengal.

table 4.1: trends of gross enrolment ratio in India and West Bengal, 1995-2011

Years	Unit	Total	Primary level				Upper Primary Level		
			Boys	Girls	*GD	Total	Boys	Girls	*G.D
1965	West Bengal	70.57	89.32	51.93	0.36	29.17	40.31	17.97	0.41
	India	74.36	93.39	54.7	0.37	30.15	43.46	16.33	0.49
1978	West Bengal	78.8	95.2	61.9	0.31	32.6	41.01	23.3	0.3
	India	80.5	97.41	62.6	0.32	36.9	48.6	24.4	0.36
1986	West Bengal	74.82	87.43	61.28	0.25	41.01	49.11	32.48	0.22
	India	91.69	104.88	77.55	0.24	47.95	60.13	35.03	0.31
1993	West Bengal	83.14	88.34	77.74	0.09	44.66	50.56	38.41	0.15
	India	81.85	90.04	73.1	0.15	54.21	62.1	45.42	0.19
2002	West Bengal	101	100	101	-0.01	56	58	54	0.04
	India	92.92	95	90.93	0.04	58.42	62	54.21	0.08
2011	West Bengal	92.7	91.5	93.9	-0.02	86.3	84.6	88	-0.03
	India	116	115.4	116.7	-0.01	85.5	87.7	83.1	0.04

* G.D (computed by author) represents Gender Disparity

Source: All India Educational Surveys 1965, 1978, 1986, 1993, 2002 and 2011; NCERT

Performance of West Bengal is satisfactory and is very close to be achieved the RTE norms in some parameters like percentage of pupil-teacher ratio, student-class room ratio, percentage of schools' approach by all weather; road in schools and school functioning. Detailed data tables for availability of teachers suggest that PTR is 1:34 which is very close to RTE norms of 1:30 and average number of teachers' is 3.8 at primary level which is also very close to the prescribed norms. And progress in enrolment ratio of the students is gradually increasing.

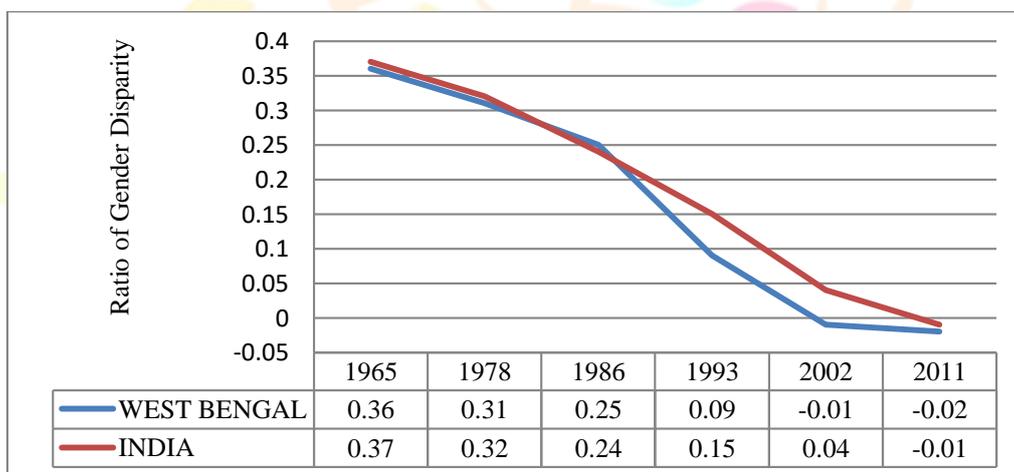


fig.1.1: trends of gross enrolment ratio at primary level in India and West Bengal, 1965-2011

Source: All India Educational Surveys 1965, 1978, 1986, 1993, 2002 and 2011; NCERT

The gap between ratios of GD at primary level in India and West Bengal seems to be increased since 1993 and reached the highest in 2002 followed by a gradual decrease in 2011 to attain similar figure. The gap between ratios of GD at upper primary level in India and the state becomes greater in 1986 followed by a sharp decline up to 2002. After that again the gap in the rate of GD in between India and WB has raised till 2011.

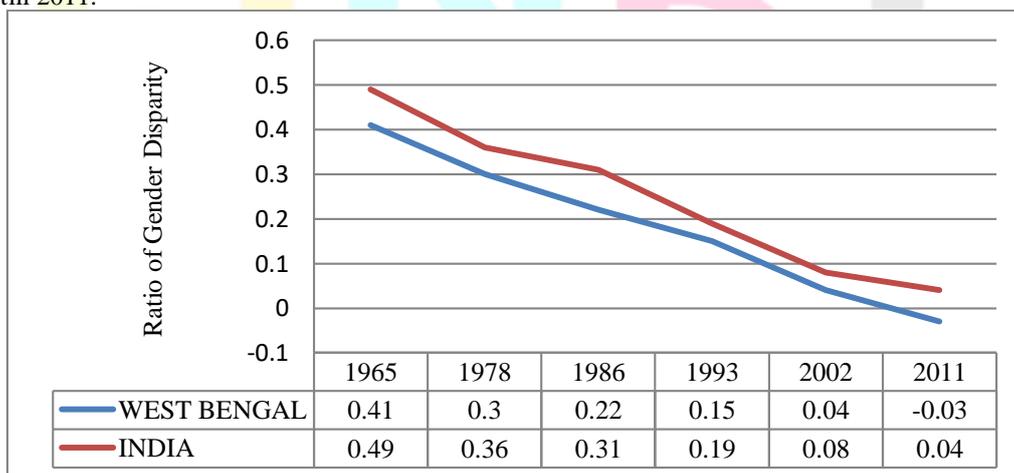


fig. 1.2: trends of gross enrolment ratio at upper primary level in India and West Bengal, 1965-2011

Source: All India Educational Surveys 1965, 1978, 1986, 1993, 2002 and 2011; NCERT

5.0 FINDINGS AND SUMMERY

The study arrives at the following findings:

(i) Some selected districts of Mid-Eastern Plain; Western Plateau and Himalayan region appears to be the backward or problematic areas. Cooch Behar and Jalpaiguri district in the Himalayan region; Uttar Dinajpur, Malda, Birbhum and Murshidabad in the Mid-Eastern plain; South 24 Parganas in the Southern plain; Purulia and Paschim Medinipur in the Western Plateau are such districts which have emerged as the problem areas.

(ii) The girl's toilet facilities in schools at primary level in 2001 are the worst in all the districts of Western Plateau region; very poor in Darjeeling in Himalayan region and all the districts of Middle-Eastern Plain except Uttar Dinajpur. Shortage of having this facility affects directly the GER of girl child in primary schools. But this situation is under control in almost all the districts in 2011 except Darjeeling. In Darjeeling district still only 42% schools have girl's toilet.

(iii) The state suffers from the problem that many schools have single teacher at primary level. It is noticeable that the schools having single teacher at primary level are higher in Darjeeling of Himalayan region; Purulia and Bankura districts of Western Plateau region and N 24 Parganas in Mid-Eastern Plain region in 2001. The overall scenario has improved in 2011 in all the districts; however the Purulia and Bankura districts have to increase the number of teachers in schools at primary level to upgrade the educational status.

(iv) The educational development and social development are closely related. Social development is measured in terms of GER, EDI etc. Geographical areas such as Uttar Dinajpur, Murshidabad and Bisbhum in Mid-Eastern Plain; Paschim Medinipur and Purulia in Western Plateau are lagging behind in these factors are also emerged as problem areas in universalisation of elementary education and marked by lower educational development.

(v) Geographical areas with lower educational development are likely to have a higher proportion of Adivasis, Muslims and Dalits and greater number of schools with high PTR and high SCR. The districts of Mid-Eastern Plain and S 24 Pargana of Southern plain have poor PTR, while SCR is found to be the poorest in Uttar Dinajpur of Mid-Eastern Plain region. More or less it is defined that the districts of Uttar Dinajpur, Darjeeling, Murshidabad, Purulia and Bankura are the most sufferer in the distribution of educational facilities all over the state.

(vi) In case of GER is showing a sharp declining trend both in primary and upper primary level in India as well as in West Bengal from 1965 to 2011. Situation is more acute in the state of West Bengal showing negative values in 2011. The gap between these two rates of gender disparity in India and WB shows an increase in primary level followed by slow decrease at last, while in upper primary level it is vice-versa.

6.0 CONCLUSION

This study ends with following recommendations:

i) More and more development in infrastructural facilities as school building, classrooms, toilets for both girls and boys students in primary and upper primary schools are necessary for the improvement of elementary education. In some cases the existing infrastructures need to be renovated.

ii) The recruitment of teachers is compulsory in the schools with single teachers. Other schools where the PTR is very low required mote teaching staffs.

iii) As the National University of Educational Planning and Administration (NUEPA) measured the EDI using indicators pertaining to access to the infrastructure, teacher's related factors and outcome separately for primary and upper primary to the educational attainment, further more analysis can be taken by the Govt. to estimate the quality of education and it's progress at the elementary level.

iv) Progress in elementary education in the district has been rather unpretentious. To improve indicators of average achievement, special focus must be on the groups of children who lag behind others, i.e. those belonging to the disadvantaged social groups and communities under SSA.

v) The most important deficiency in school infrastructure is perhaps the high ratio of the number of primary to upper primary/secondary schools in most of the villages. Efforts should be made to increase the number of schools with upper primary sections.

(vi) Identification of the 'backward' villages is an important step in the direction of geographical targeting in deprivation of educational well-being in the villages. But the criteria for identification of backward villages could be improved. This will lead to a closer correspondence between need and provisioning in basic amenities.

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