

Regional Disparity in Primary and Upper Primary Level of Education of Paschim Medinipur: A Block Level Analysis

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Abstract: Educational development especially at primary and upper primary level is instrumental factor for eradication of illiteracy and regional development of any region. Educational development means overall status of education in terms of access, infrastructure and outcome, etc. The present study considers fourteen (14) indicators for an assessment of educational development in Paschim Medinipur district of West Bengal under four sub-categories i.e. access, infrastructure, teachers and outcome. Educational Development Index (EDI) has been determined by using Principal Component Analysis (PCA). Firstly, levels of educational development index at Primary and Upper Primary have been calculated followed by determination of composite educational development index. The study concludes that the blocks which are located in the eastern and north-eastern part of the district are belong to very high and high developed category in comparison to the blocks of western part of the district.

Keywords: Educational development index, Access, Infrastructure, Teacher-pupil ratio, Outcome

1. Introduction

Education is one of the key parameters of the levels of development of a region. Education constitutes, the most vital and integral part of every civilization. It plays a significant role in the development of human skills and imparting knowledge. Education not only imparts knowledge and skills that enable individuals to raise economic productivity but also furnishes values, ideas, attitudes and aspirations which act as the agents of economic and social change. In the present day context, education is perhaps the single most important means for individuals to improve personal skills, capacity building, overcome constraints and in the process, widen their existing set of opportunities and options for improving their standards of living. Primary and Upper primary education form the foundational stone for achieving universal literacy as well as overall social development. Primary and upper primary education are combinedly known as elementary levels of education which should be provided free and compulsory to the citizens (Article No.45, the Indian Constitution). Paschim Medinipur district is one of the developed districts of West Bengal. It ranks 5th in HDI of West Bengal in 2011 (West Bengal Development Report, 2011). The literacy rate of Paschim Medinipur district is 68.97 percent (Census-2011) which varies across its constituent blocks. The present study attempts to evaluate the status of educational development at Primary and Upper primary level in Paschim Medinipur district in 2011.

district of the Burdwan Division is situated between 21°36' 35" and 22°57' 10" North latitudes and between 86°33' 50" and 88° 12' 40" East longitudes. Its boundary lies in Bankura and Purulia districts in the north, Mayurbhanj and Balasore districts of Odisha in the south, Hugli and Purba Medinipur districts in the east and Singhbhum district of Jharkhand and part of Odisha in the west. The total geographical area of Paschim Medinipur district is 9345.00 Sq. km. It has twenty nine blocks distributed within four subdivisions. Table No.1 shows the blocks of Paschim Medinipur district under major sub-divisions.

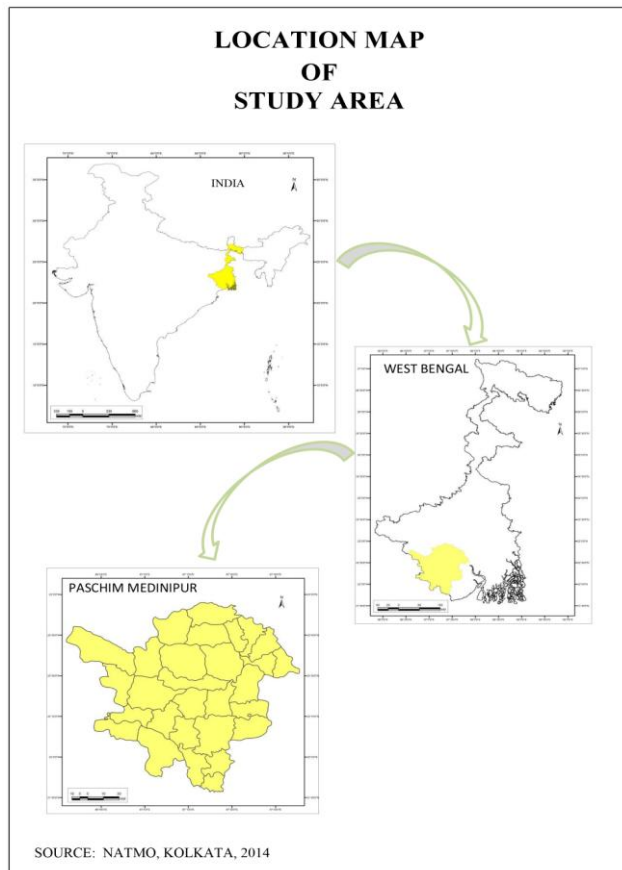
Table No. 1: Blocks of Paschim Medinipur District

Subdivision	Name of the Blocks	Number of Blocks
GHATAL	Daspur-I, Daspur-II, Chandrakona-I, Chandrakona-II, Ghatal	5
MEDINIPUR	Salboni, Keshpur, Garbeta-I, Garbeta-II, Garbeta-III, Medinipur	6
KHARAGPUR	Pingla, Sabong, Debra, Dantan-I, Dantan-II, Narayangarh, Mohanpur, Kharagpur-I, Kharagpur-II, Keshiary,	10
JHARGRAM	Jhargram, Binpur-I, Binpur-II, Jamboni, Nayagram, Sankrail, Gopiballavpur-I, Gopiballavpur-II	8
Source: Prepared by authors from DSHB, Paschim Medinipur, 2011		

2. Location of the Study Area

Paschim Medinipur located in the southern part of West Bengal, has been carved out from the erstwhile Medinipur district, the then largest district of India and came into existence in the present form on the 1st January 2002. Paschim Medinipur district which forms the southernmost

Map No. 1 Location Map of the Study Area



3. Objectives

- 1) To find out the Educational Development Index of Paschim Medinipur district at primary and upper primary levels.
- 2) To find out the overall (Composite) Educational Development Index of Paschim Medinipur district.
- 3) To study the correlation between HDI and Composite Educational Development Index of Paschim Medinipur district.

4. Materials and Methods

The study is based on secondary sources which have been drawn from District Information System for Education (DISE), Paschim Medinipur, 2010-2011 and Human Development Report (2011) of Paschim Medinipur district. Fourteen indicators under four major components of educational development, namely Access Index, Infrastructure Index, Teachers Index and Outcome Index as given below, have been selected for obtaining the overall Educational Development Index separately for Primary and Upper Primary level.

- (a) **Access index:** Two variables are taken to determine the educational accessibility
 - i) Number of Schools per 1000 Population
 - ii) Ratio of primary and upper primary Schools
- (b) **Infrastructure Index:** Three variables are taken to determine the Infrastructural development.
 - iii) Average Student Classroom Ratio
 - iv) Percentage of schools with common Toilet
 - v) Percentage of schools with Girl's Toilet

- (c) **Teachers Index:** Three variables are taken to determine the Teacher Index
 - vi) Percentage of Female Teachers
 - vii) Average Pupil-Teacher Ratio
 - viii) Percentage of Teachers without Professional Qualifications
- (d) **Outcome index:** Six variables are taken into account
 - ix) Overall Gross Enrolment Ratio
 - x) Gross Enrolment Ratio of Scheduled Caste
 - xi) Gross Enrolment Ratio of Scheduled Tribe
 - xii) Gender Parity Index in Enrolment
 - xiii) Repetition Rate
 - xiv) Dropout Rate

Educational Development Index has been determined for fourteen variables separately for primary and upper primary level by using Factor Loading and Eigen Values from Principal Component Analysis (PCA) through Statistical Package for Social Science (SPSS).

1) **Primary Education Development** = (Access Index + Infrastructure Index + Teachers Index + Outcome index)/4

2) **Upper Primary Education Development** = (Access index + Infrastructure Index + Teachers Index + Outcome index)/4

Composite Educational Development Index has been calculated by obtaining the average of educational development indices of primary and upper primary level.

3) **Composite Education Development** = (Primary Education Development + Upper Primary Education Development)/2

Karl Pearson's Product Moment Correlation Coefficient has been worked out to find the relation between Human Development Index and Composite educational Development Index of Paschim Medinipur district.

5. Results and Discussion

Primary Education Development Index: Primary education lays the foundation stone for eradication of illiteracy and is a key step towards achieving social development. Table No. 2 presents Primary Educational Development Index of twenty nine blocks of Paschim Medinipur district, categorised into five groups.

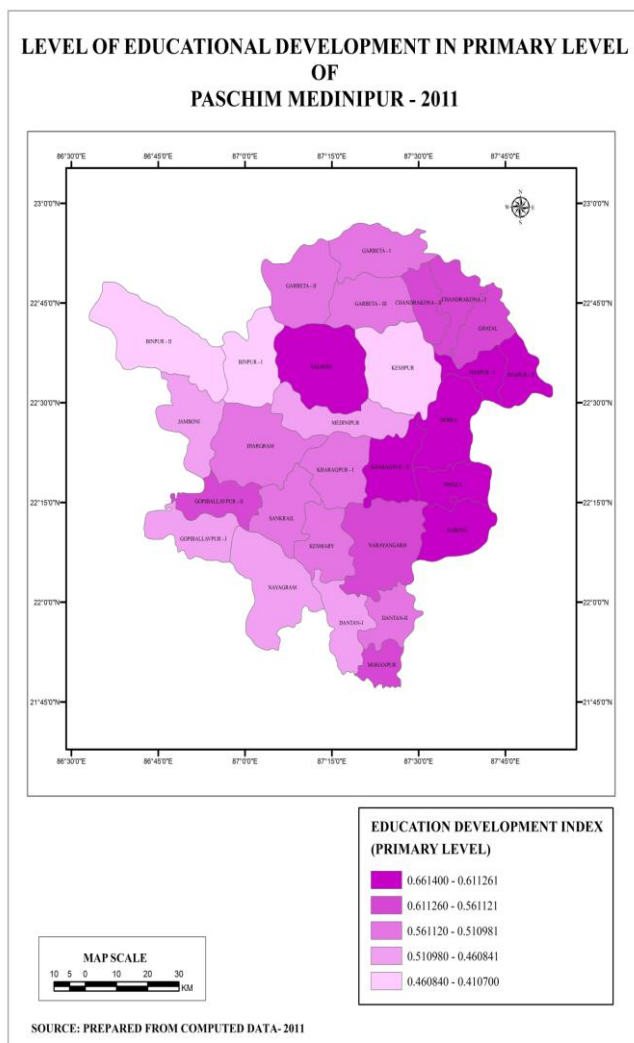
Table 2: Primary Educational Development Index, Paschim Medinipur District, 2011

Sl No	Categories	Level of Educational Development	Name of the Block	Number of Blocks
1	0.661400-0.611261	Very High	Pingla, Sabong, Daspur-I, Dantan-II, Debra, Daspur-II, Salboni, Kharagpur-II	7
2	0.611260-0.561121	High	Mohanpur, Ghatal, Chandrakona-I, Gopiballavpur-II, Narayangarh, Chandrakona-II	6
3	0.561120-0.510981	Moderate	Sankrail, Garbeta-III, Dantan-II, Keshiary Garhbeta-I, Kharagpur-I,	7

			Jhargram,	
4	0.510980-0.460841	Low	Garbeta-II, Gopiballavpur-I, Medinipur, Dantan-I, Jamboni,	5
5	0.460840-0.410700	Very Low	Nayagram, Binpur-II, Binpur-I, Keshpur	4
<i>Source: Prepared by authors from Appendix-1</i>				

The top three developed blocks are Pingla (0.6614), Sabong (0.6544) and Daspur-I (0.6509) and the bottom three blocks are Binpur-II (0.4527), Binpur-I (0.4341) and Keshpur (0.4107). However, the overall ranking of the blocks may be misleading in so far as their performance with respect to access, infrastructure, teachers and outcome individually is concerned (Appendix-1). There are variations in the performance of each of these blocks in respect of four major components of educational development. For instance, although Salboni block falls under very high educational development category at primary level due to its best performance as far as infrastructure is concerned (0.9761), but fairs very poorly in teacher (0.5256) and outcome (0.4704). For higher educational development, every component of education should be strengthened.

Map No.2



Upper Primary Educational Development: Upper primary education follows primary education and is a key link to secondary and higher education. The Table No. 3 shows Upper Primary Education Development Index of Paschim Medinipur District. The most developed blocks are Daspur-II (0.8571), Pingla (0.8207) and Sabong (0.7911) and the bottom ranking blocks are Binpur-I (0.4324), Medinipur (0.4132) and Kharagpur-I (0.3812). The Educational Development Index in upper primary level of twenty nine blocks of the district may be categorised into five groups as follows:

Table 3: Upper Primary Education Development Index, Paschim Medinipur District, 2011

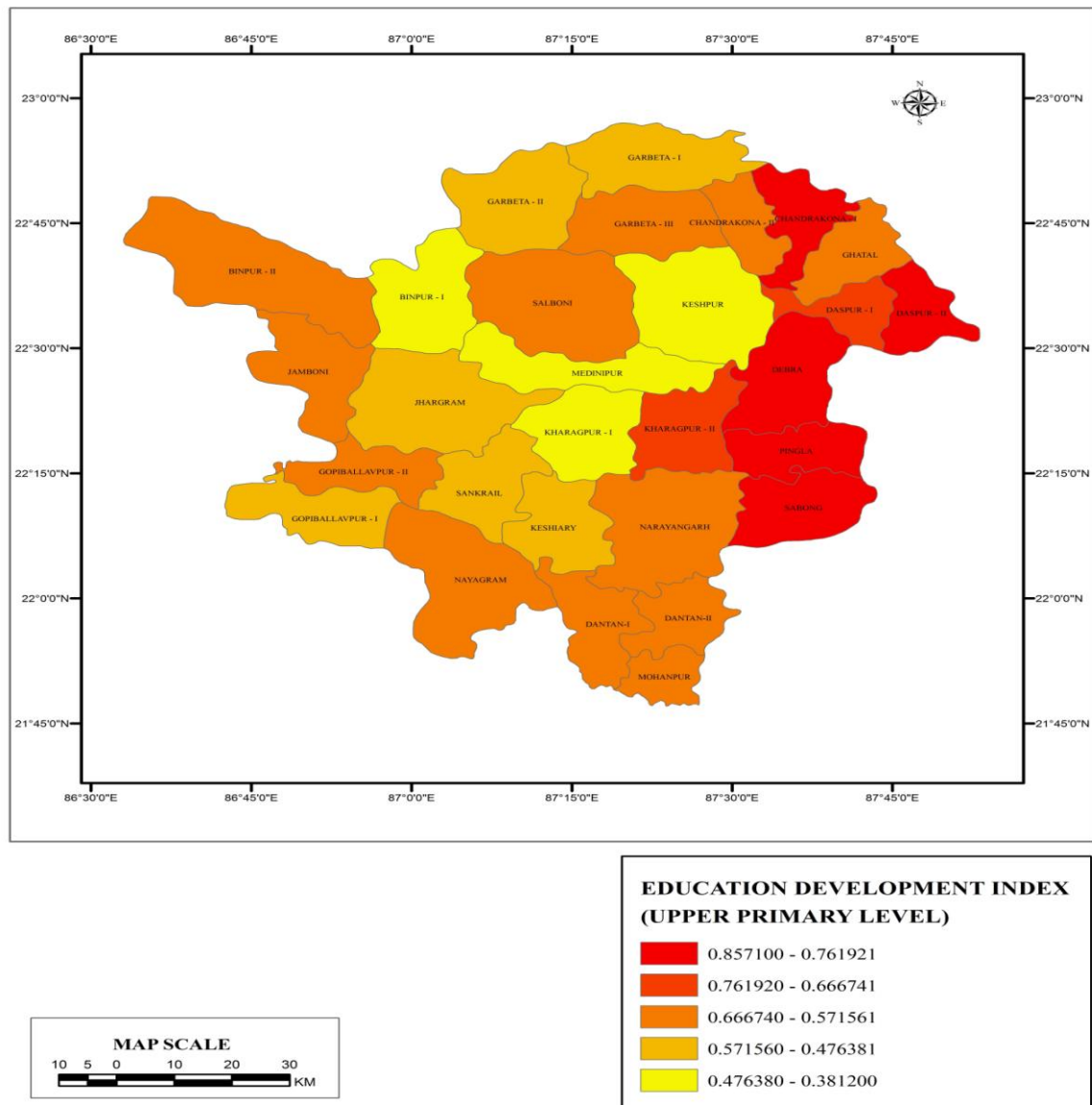
Sl No	Categories	Level of Educational Development	Name of the Block	Number of Blocks
1	0.857100-0.761921	Very High	Pingla, Sabong, Debra, Daspur-II, Chandrakona-I	5
2	0.76120-0.666741	High	Kharagpur-II, Daspur-I, Jamboni	3
3	0.666740-0.571561	Moderate	Salboni, Narayangarh, Mohanpur, Dantan-I, Binpur-II, Gopiballavpur-II, Ghatal, Chandrakona-II, Garbeta-II, Nayagram	10
4	0.571560-0.476381	Low	Gopiballavpur-I, Dantan-II, Sankrail, Keshiary, Garbeta-III, Jhargram, Garhbeta-I	7
5	0.476380-0.381200	Very Low	Binpur-I, Keshpur, Medinipur, Kharagpur-I	4

Source: Prepared by authors from Appendix-2

The ranking of the blocks differs according to upper primary educational development index as well different indicators under four components of educational development which have been taken into consideration. Here again, there are inter-component variations to be found. Amongst, blocks which fall under very high level of upper primary educational development, i.e., Daspur-II, Pingla, and Sabong, performance in educational access, infrastructure, teacher and outcome level varies. For instance, Daspur-II block fairs very badly in terms of infrastructure and teacher indices in comparison to the other blocks in the same category (See Appendix-2).

Map No. 3

LEVEL OF EDUCATIONAL DEVELOPMENT IN UPPER PRIMARY LEVEL OF PASCHIM MEDINIPUR - 2011



SOURCE: PREPARED FROM COMPUTED DATA- 2011

Composite Educational Development: This section covers the combined status of primary and upper primary educational development across the blocks of the Paschim Medinipur district. There exists a wide spread inter-block regional disparity in the distribution of education facilities (See Appendix-3). Daspur-II (0.7517) ranks first while Keshpur (0.4320) fares the worst in this category. All the

blocks of district may be conveniently arranged into five categories of very high development (0.751700-0.687761), high development (0.687760-0.623821), moderate development (0.623820-0.559881), low development (0.5598810-0.495941) and very low Educational Development Index (0.495940-0.432000).

Table No.4 Composite Educational Development Index of Paschim Medinipur District, 2011				
Sl No	Categories	Level of Educational Development	Name of the Block	Number of Blocks
1	0.751700-0.687761	Very High	Pingla, Sabong, Debra, Daspur-I, Daspur-II, Kharagpur-II	6
2	0.687760-0.623821	High	Chandrakona-I, Ghatal, Mohanpur	3

3	0.623820-0.559881	Moderate	Salboni, Narayangarh, Dantan-I, Gopiballavpur-II, Dantan-II, Sankrail, Jamboni, Chandrakona-II	8
4	0.5598810-0.495941	Low	Keshiary, Binpur-II, Jhargram, Garhbeta-I, Garbeta-II, Nayagram, Garbeta-III	7
5	0.495940-0.432000	Very Low	Binpur-I, Keshpur, Medinipur, Kharagpur-I, Gopiballavpur-I	5
<i>Source: Prepared by authors from Appendix-3</i>				

Blockwise regional disparity in the levels of composite educational development is depicted by Table No. 4 and Map No. 4. It is obvious from both that educationally developed blocks are concentrated in the eastern and south-eastern part of the district. On the other hand western, south-western and middle part show gloomy condition and educational development level is low to very low. There seems to be a sharp east-west divide in levels of educational development that create a gradient of development, culminating in a process of regional disparities in overall levels of development in Paschim Medinipur. The blocks

which are located in eastern part of the district are developed while the blocks of western parts are less developed (Samanta R, 2014). The Educational Development Index of Paschim Medinipur district has a high positive correlation (0.99) with the Human Development Index of the district. Table No.5 presents the correlation co-efficient of HDI and CEDI (Composite Educational Development Index). It reflects the key role of education in enhancing the levels of human development in a region.

Map No-4

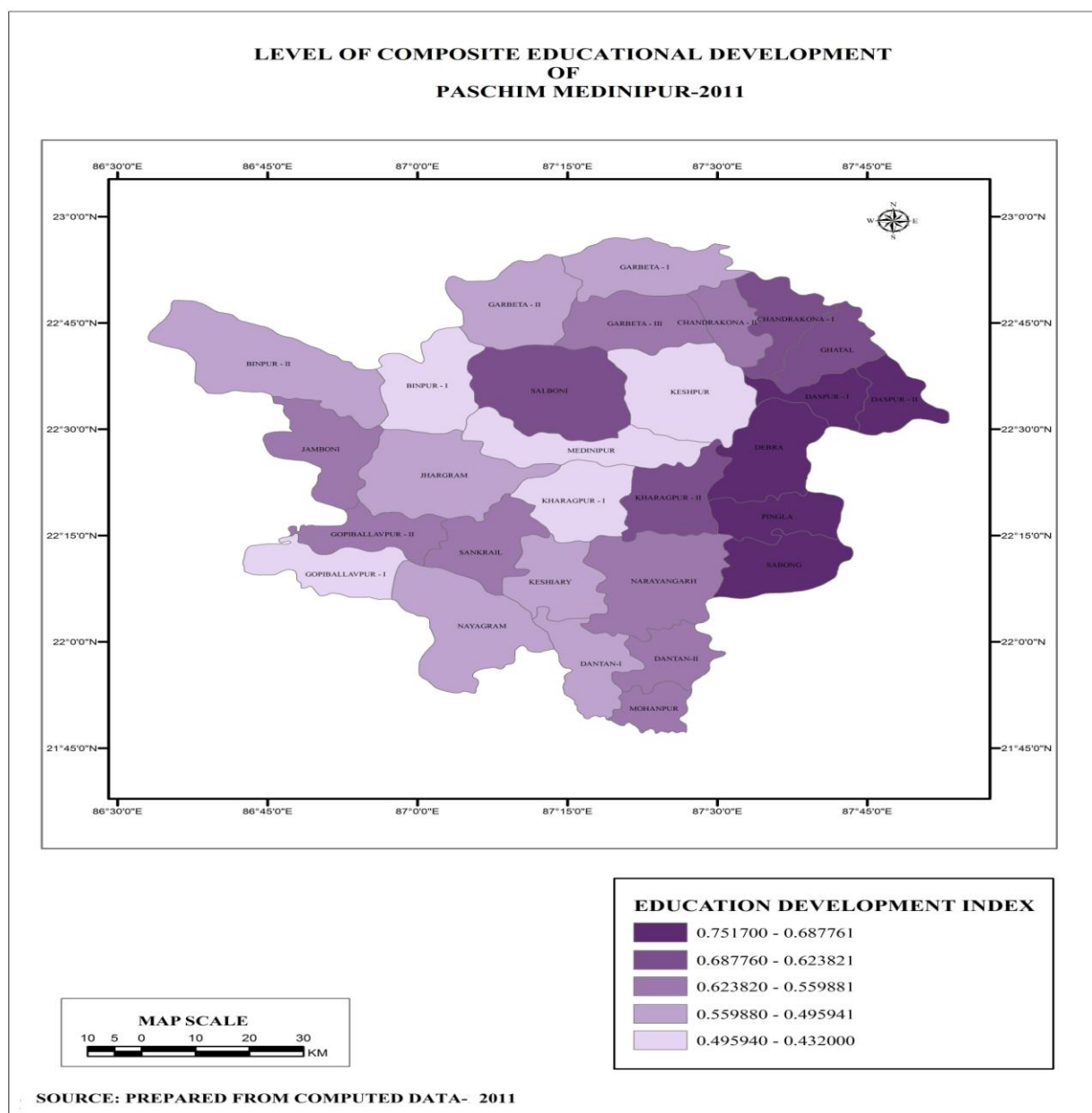


Table No.5 Co-rrrelation between HDI and CED

NAME OF THE BLOCKS	Human Development Index	Educational Development Index
Jhargram	0.516	0.5160
Binpur -I	0.505	0.5050
Binpur -II	0.479	0.4790
Jamboni	0.451	0.4510
Nayagram	0.423	0.4230
Sankrail	0.527	0.5270
Gopiballavpur-	0.524	0.5240
Gopiballavpur-	0.535	0.5350
Salboni	0.596	0.5960
Keshpur	0.592	0.5920
Garbeta-I	0.587	0.5870
Garbeta-II	0.542	0.5420
Garbeta-III	0.595	0.5950
Medinipur	0.521	0.5210
Debra	0.641	0.6410
Pingla	0.617	0.6170
Keshiary	0.532	0.5320
Dantan-I	0.544	0.5440
Dantan-II	0.585	0.5850
Narayangarh	0.569	0.5690
Mohanpur	0.599	0.5990
Sabong	0.619	0.6190
Kharagpur-I	0.541	0.5410
Kharagpur-II	0.535	0.5350
Chandrakona-I	0.629	0.6290
Chandrakona-	0.628	0.6280
Ghatal	0.649	0.6490
Daspur-I	0.728	0.7280
Daspur-II	0.772	0.7720
Pearson's product moment Co-rrrelation Co-		
Source: Prepared by authors, 2015		

Human Development Index: *District Human Development Report, Paschim Medinipur, 2011*

6. Major Findings

- 1) Block- wise performance of blocks in terms of access index, infrastructure index, teacher index and outcome index varies.
- 2) Educational Development in upper primary level is much higher than primary level.
- 3) Levels of educational development are higher in eastern and south-eastern part than western, south-western and middle parts of the district.
- 4) Levels of educational development are highly correlated with levels of HDI in the district.

7. Conclusion

In respect of composite educational development index, Daspur-II ranks first whereas Keshpur ranks twenty ninth. The western blocks of the district have rugged topography and adverse climatic conditions affecting livelihoods of the people which ultimately reflect in lower development in primary and upper primary education. Sub-division wise Ghatal and Kharagpur show higher educational development in comparison to the Medinipur and Jhargram sub-division.

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Appendix-1

EDI of Primary Levels of Education					
Block name	Access index	Infrastructure index	Teacher's index	Outcome index	Primary education development
BINPUR-I	0.4491	0.5040	0.4199	0.3632	0.4341
BINPUR-II	0.5933	0.5923	0.2433	0.3819	0.4527
CHANDRAKONA-I	0.7298	0.6092	0.4781	0.5569	0.5935
CHANDRAKONA-II	0.5979	0.8562	0.3891	0.4939	0.5843
DANTAN-I	0.5386	0.5139	0.3654	0.5217	0.4849
DANTAN-II	0.5887	0.3957	0.5928	0.6121	0.5473
DASPUR-I	0.6528	0.7944	0.6043	0.5522	0.6509
DASPUR-II	0.6623	0.7265	0.6223	0.5738	0.6462

DEBRA	0.6027	0.8142	0.6164	0.5510	0.6461
GARHBETA-I	0.4404	0.7036	0.3683	0.6469	0.5398
GARHBETA-II	0.5322	0.6318	0.4316	0.4642	0.5150
GARHBETA-III	0.4839	0.6362	0.3473	0.7429	0.5526
GHATAL	0.6624	0.6976	0.5177	0.5639	0.6104
GOIBALLAVPUR-I	0.4585	0.6925	0.3767	0.4711	0.4997
GOIBALLAVPUR-II	0.7142	0.6387	0.4292	0.5903	0.5931
JAMBONI	0.6220	0.6139	0.3440	0.3678	0.4869
JHARGRAM	0.5279	0.6874	0.5264	0.3737	0.5289
KESHIARY	0.5252	0.6351	0.4185	0.4853	0.5160
KESHPUR	0.5803	0.2398	0.3073	0.5152	0.4107
KHARAGPUR-I	0.0861	0.7163	0.7123	0.5486	0.5158
KHARAGPUR-II	0.6328	0.7723	0.5794	0.5270	0.6279
MEDINIPUR	0.3496	0.5776	0.5495	0.4645	0.4853
MOHANPUR	0.5911	0.5512	0.5975	0.6856	0.6064
NARAYANGARH	0.5677	0.6712	0.5404	0.5620	0.5853
NAYAGRAM	0.6363	0.4312	0.4232	0.3584	0.4623
PINGLA	0.6536	0.6980	0.6826	0.6114	0.6614
SABONG	0.7241	0.6586	0.6911	0.5436	0.6544
SALBONI	0.6034	0.9761	0.5256	0.4704	0.6439
SANKRAIL	0.5108	0.7604	0.4967	0.4743	0.5606

Source: DISE, Paschim Medinipur, 2011

Appendix-2

EDI of Upper Primary Levels of Education					
Block name	Access index	Infrastructure index	Teacher's index	Outcome index	Upper primary education development
BINPUR-I	0.4108	0.6770	0.2478	0.3939	0.4324
BINPUR-II	0.5195	0.8093	0.6491	0.4764	0.6136
CHANDRAKONA-I	0.9664	0.8127	0.7077	0.6260	0.7782
CHANDRAKONA-II	0.6462	0.7145	0.5786	0.4398	0.5948
DANTAN-I	0.6609	0.7293	0.7369	0.3527	0.6200
DANTAN-II	0.7738	0.7106	0.3087	0.5255	0.5797
DASPUR-I	0.9056	0.8188	0.6602	0.5637	0.7371
DASPUR-II	0.9029	0.7930	0.7784	0.9541	0.8571
DEBRA	0.7533	0.9285	0.8916	0.4840	0.7644
GARHBETA-I	0.4337	0.6442	0.2948	0.6822	0.5137
GARHBETA-II	0.4302	0.8265	0.6536	0.3077	0.5545
GARHBETA-III	0.5203	0.6643	0.3587	0.7921	0.5839
GHATAL	0.8531	0.5893	0.5833	0.5373	0.6408
GOIBALLAVPUR-I	0.2688	0.7923	0.4184	0.4728	0.4881
GOIBALLAVPUR-II	0.6663	0.6703	0.5852	0.4727	0.5986
JAMBONI	0.6554	0.8813	0.7873	0.3173	0.6603
JHARGRAM	0.4100	0.7773	0.5689	0.3663	0.5306
KESHIARY	0.5581	0.5921	0.6264	0.4421	0.5547
KESHPUR	0.6867	0.3823	0.2165	0.5279	0.4534
KHARAGPUR-I	0.0913	0.6701	0.4543	0.3091	0.3812
KHARAGPUR-II	0.7868	0.8937	0.7088	0.5639	0.7383
MEDINIPUR	0.3445	0.6485	0.3232	0.3364	0.4132
MOHANPUR	0.7147	0.7988	0.6546	0.3141	0.6206
NARAYANGARH	0.6536	0.7161	0.6469	0.6190	0.6589
NAYAGRAM	0.5821	0.7433	0.6496	0.4566	0.6079
PINGLA	0.8491	0.8608	0.7774	0.7953	0.8207
SABONG	0.9629	0.7872	0.8510	0.5631	0.7911
SALBONI	0.6626	0.7903	0.4732	0.5004	0.6066
SANKRAIL	0.3094	0.7931	0.5780	0.5784	0.5647

Source: DISE, Paschim Medinipur, 2011

Appendix-3

CEDI of Primary and Upper Primary Levels of Education					
Block name	EDI primary level	EDI Upper primary level	Educational Development Index	Level of Educational Development	Rank
BINPUR-I	0.4341	0.4324	0.4332	Very Low	28
BINPUR-II	0.4527	0.6136	0.5331	Low	23
CHANDRAKONA-I	0.5935	0.7782	0.6859	High	7
CHANDRAKONA-II	0.5843	0.5948	0.5895	Moderate	13

DANTAN-I	0.4849	0.6200	0.5524	Moderate	15
DANTAN-II	0.5473	0.5797	0.5635	Moderate	17
DASPUR-I	0.6509	0.7371	0.6940	Very High	5
DASPUR-II	0.6462	0.8571	0.7517	Very High	1
DEBRA	0.6461	0.7644	0.7052	Very High	4
GARHBETA-I	0.5398	0.5137	0.5268	Low	24
GARHBETA-II	0.5150	0.5545	0.5347	Low	19
GARHBETA-III	0.5526	0.5839	0.5682	Low	18
GHATAL	0.6104	0.6408	0.6256	High	9
GOIBALLAVPUR-I	0.4997	0.4881	0.4939	Very Low	25
GOIBALLAVPUR-II	0.5931	0.5986	0.5959	Moderate	12
JAMBONI	0.4869	0.6603	0.5736	Moderate	14
JHARGRAM	0.5289	0.5306	0.5297	Low	22
KESHIARY	0.5160	0.5547	0.5354	Low	20
KESHPUR	0.4107	0.4534	0.4320	Very Low	29
KHARAGPUR-I	0.5158	0.3812	0.4485	Very Low	26
KHARAGPUR-II	0.6279	0.7383	0.6831	Very High	6
MEDINIPUR	0.4853	0.4132	0.4492	Very Low	27
MOHANPUR	0.6064	0.6206	0.6135	High	8
NARAYANGARH	0.5853	0.6589	0.6221	Moderate	11
NAYAGRAM	0.4623	0.6079	0.5351	Low	21
PINGLA	0.6614	0.8207	0.7410	Very High	2
SABONG	0.6544	0.7911	0.7227	Very High	3
SALBONI	0.6439	0.6066	0.6253	Moderate	10
SANKRAIL	0.5606	0.5647	0.5626	Moderate	16
<i>Source: DISE, Paschim Medinipur, 2011</i>					