REVIEW ARTICLE

SPATIAL AND SOCIAL DISPARITIES IN EDUCATIONAL STATUS: A CASE OF MAYURBHANJ DISTRICT IN ODISHA, INDIA

*Jana, N. C. and Prasanta Kumar Ghosh

Department of Geography, The University of Burdwan, Burdwan-713104, West Bengal, India

ARTICLE INFO	ABSTRACT
	Being socio-economically backward and culturally rich Odisha (previously known as 'Orissa') is one of the important states in Eastern part of India. It occupies a special position in the tribal map of India. Out of 30 districts 9 are considered as tribal district (according to Location Quotient value) and of the total population (41,947,358) a significant share (22.1%) goes to tribal people (8,145,081). According to 2011 Census the literacy rate of the state is 73.45% which is almost same as of literacy rate of India (74.04%). Though previous researches show that in case of education there are significant disparities in the state among the districts. In this paper an attempt has been made to investigate the spatial disparity in education at block levels in terms of caste and gender in Mayurbhanj District of Odisha, as this district has the second highest proportion of STs (56.6 per cent) and highest concentration of schedule tribe population (Location Quotient value is 2.56). The overall objective of this study is to obtain a better understanding of disparities and variations in educational status in Mayurbhanj, Odisha. This study includes: (1) an analysis of present educational status at block level; (2) an intra-regional educational disparities; (3) identification of probable factors responsible for such variations, and (4) remedial measures required to overcome the problems of educational development. To measure the disparities we have used (i) Disparity index in literacy with the help of Sophers' Disparity Index, (ii) Co-efficient of Equality in Education, (iii) Gender Parity Index in Enrolment and (iv) Teacher- Student ratio. Maps have been prepared on the above-mentioned indicators based on secondary data using Arc-GIS software v.9.3. It is clear from the analysis that the educational conditions in the district has improved remarkably over the years but educational disparities in terms of caste and gender continue to be a major problem mostly in tribal and backward areas.

INTRODUCTION

Disparity means lack of equality or difference but not all differences are considered disparities. The term, disparity, is used to connote unjust or unfair differences. From historical past, Indian society suffers from substantial disparity in education, employment, and income based on caste and ethnicity (**Desai and Kulkarni, 2008**). For many decades, 'growth with equity and social justice' has remained on the development agenda of developing countries. Historically, education was used as a potent instrument for exclusion of certain population groups and regions from participation in the development process. That's why in this paper emphasis is given specifically on education as it constitutes an important component of human development and helps in building up human capabilities. It raises a person's productivity and income earning potential by imparting basic as well as specialized skills (**DHDR, Mayurbhanj 2011**). Thus it also helps the backward region to develop their economic conditions.

*Corresponding author: Jana, N. C.
Department of Geography, The University of Burdwan, Burdwan-713104, West Bengal, India.

The importance of education in economic growth (**Schultz 1961**) and human development (**Sen 1985, 1993**) has been widely recognized. Our constitution also acknowledges the significance of education. In 1982, the Constitution specified 15% and 7.5% of vacancies in public sector and government-aided educational institutes as a quota reserved for the Scheduled Caste and Scheduled Tribes candidates respectively for a period of five years, after which the quota system would be reviewed (Educational Safeguard, Department of education, Government of India). This period was routinely extended by the succeeding governments. The Supreme Court of India on April 10, 2008, in its landmark judgment upheld the government move for initiating 27% OBC quotas in all government funded institutions, including institutions of higher education. As a result of this, the government is now in a position to reserve up to 49.5% of the seats in all central universities, prestigious professional schools, and elite colleges (**Laskar, 2010**). In spite of that, still now tribes especially tribal women are the most neglected section of the society. In India, they are considered to be the weakest and backward sections of

the population in terms of common socio-economic and demographic factors such as poverty, illiteracy, lack of developmental facilities and adequate primary health facilities (**Thakur *et al.*, 1991; Basu 1994**).

Among 29 states in India, Odisha (previously known as Odisha), being socio-economically backward and culturally sound, occupies a unique place in the tribal map of the country having largest number of tribal communities (62 tribes including 13 primitive tribes) with a population of 9.59 million constituting 22.86% of state's population and 9.17% of the total tribal population of the country (Census of India, 2011). Out of 30 districts 9 are considered as tribal district (according to Location Quotient value).

Mayurbhanj is one of them. In the present paper, various education-related indicators or variables have been analyzed and compared for representing block-wise spatial patterns and variations in educational status (Spatial Disparity) between tribes and non-tribes (Social Disparity) and male-female population (Gender Disparity) in Mayurbhanj.

About the Study Area

Total geographical area of Mayurbhanj (Fig.1) are 10,418 km^2 and extend from 21°16' N to 22°34'N, 85°42' E to 87°11'E. Before Independence of India, Mayurbhanj was a princely state, ruled by the Mayurs and Bhanjas since the Ninth Century A.D. They ruled continuously for more than 1000 years.
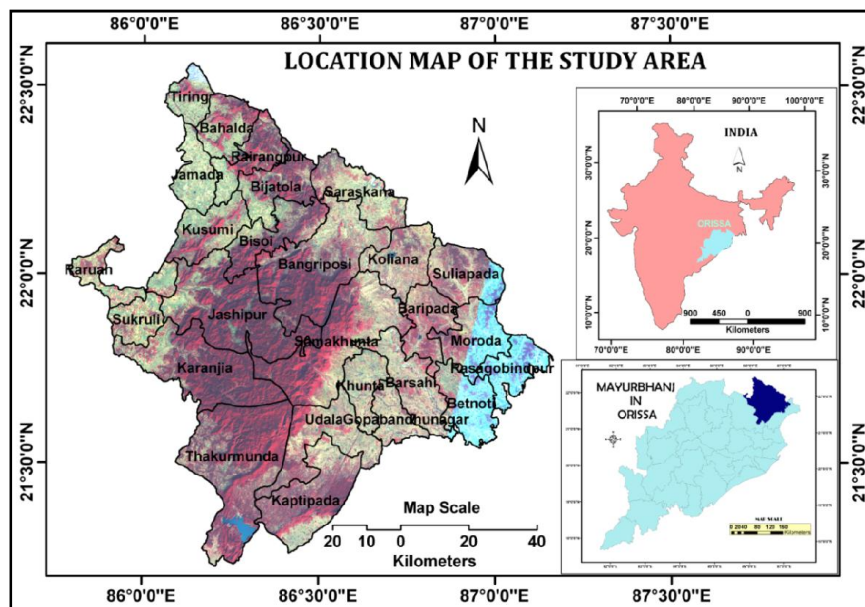

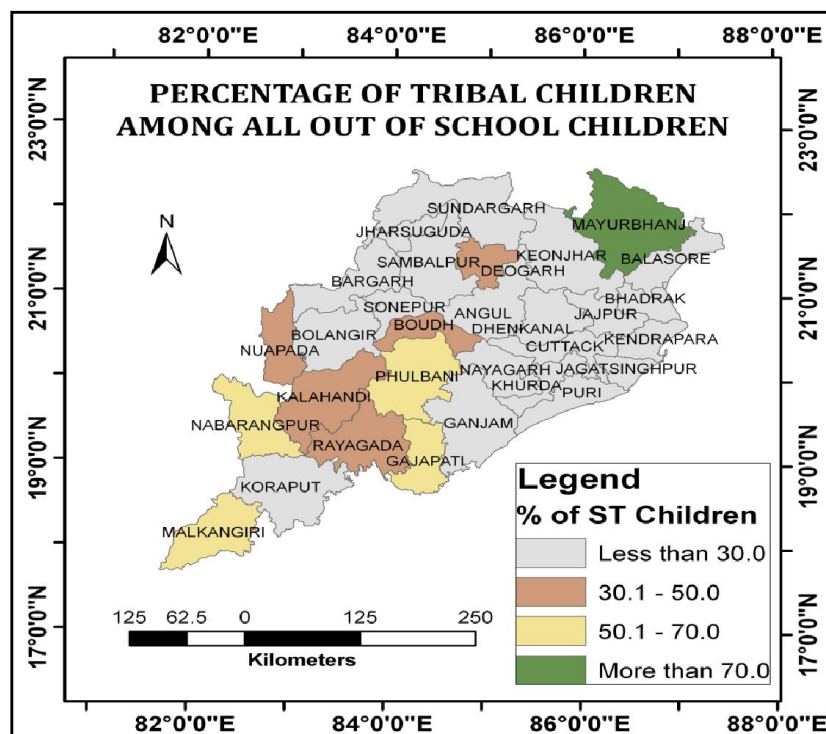**Fig.1. Administrative Blocks and Physiography of Mayurbhanj, Odisha**

Fig.2. Out of School Children

It was the last feudal state to be annexed with Odisha on January 1949 and became the largest district in Odisha. It is a tribal dominated border district in northern Odisha with a rich tradition and vibrant culture. The Similipal Forest is known for its biodiversity and natural panorama. For administrative convenience, the district has been organized into four sub-divisions, namely, Panchpir, Bamanghaty, Baripada and Kaptipada. There are 9 Tehsils and 28 Police Stations. The district is divided into 26 Community Development Blocks, which comprise 382 Gram Panchayats and 3,952 villages. Three distinct topographical formations are found in the district. At the centre, there are hills and lesser elevations running from north to south. These hills divide the plains into two parts: eastern and western. The eastern part slopes gradually towards the sea. Kaptipada and Baripada sub-divisions lie on this side. A number of hill streams pass through this region. On the western side, there are many rocky mounds and hills, for which the landscape is marked by rolling topography (**DHDR, Mayurbhanj 2011**) (Fig.1).

Rationale for Selecting Mayurbhanj as the Study Area

Though previous researches show that in case of education there are significant disparities among the districts in the state. In this paper an attempt has been made to investigate the spatial disparity in education at block levels in terms of caste and gender in Mayurbhanj District of Odisha, as this district has the second highest proportion of STs (56.6 per cent) and highest concentration of schedule tribe population (Highest *Location Quotient* value) and it is the only district in Odisha, where more than 70% (73.42%) Out of School children are ST (Fig.2). Keeping the above in backdrop, Mayurbhanj has been selected as the study area for the analysis of disparities in educational status.

Objectives of the Study

The overall objective of this study is to obtain a better understanding of disparities and variations in educational status in Mayurbhanj, Odisha. This study includes: (1) an analysis of present educational status at block level; (2) an intra-regional educational disparities; (3) identification of probable factors responsible for such variations, and (4) remedial measures required to overcome the problems of educational development.

Data Base and Methodology

The research methods followed in this work involve consultation of literatures, data collection from secondary sources, Statistical analysis, and preparation of maps. From some available books, reports and papers we get the basic ideas about the study area. Secondary data are obtained from (i) District Human Development Report, Mayurbhanj, 2011 (ii) District Statistical Handbook, Mayurbhanj, 2009 (iii) Odisha Primary Education Programme Authority (http://www.opepa.in) (iv) Odisha Government Portal (http://www.odisha.gov.in) (v) Department of School and Mass Education (http://www.odisha.gov.in/schooleducation), (vi) ST & SC Development, Minorities and Backward Classes Welfare Department (http://www.stscodisha.gov.in) (vii) SC & ST

Research and Training Institute, Bhubaneswar, (viii) Integrated Tribal Development Authority, Baripada (ix) District Statistical Office, Baripada, Mayurbhanj, (x) Census of India: 2001 & 2011. Physiographical map have been prepared by mosaicing satellite images in Erdas Imagine v.9.0. Other maps have been prepared based on secondary data using Arc-GIS software v.9.3. Diagrams are prepared by the help of Microsoft Office Excel v.2007.

Tools/Techniques used in the analysis

To calculate the concentration of tribal people we use Location Quotient as geographically the proportional share of tribal population in total population of the districts and of the State can be best represented by '*Location Quotient*'.

$$LQi = \frac{\frac{Pij}{Pi}}{\frac{Pj}{P}}$$

Where, LQi= Location quotient of ith unit, Pij= Population of j of class in i[th] unit, Pi=Total population of ith unit, Pj=Population of j class in total area, P= Total population of the area.

To find out Disparity between two groups we use '*Sopher's Disparity Index*'. This method of calculating disparities has been developed by **Sopher (1974)** modified by **Kundu and Rao (1983)** as the original index fails to satisfy the additive monotonocity axiom (The additive monotonocity axiom specifies that if a constant is added to all observations in a non-negative series, ceteris paribus, the inequality index must report a decline) (**Husain, 2010**) . According to this method:

$$DI = Log\left(\frac{X2}{X1}\right) + Log\left[\frac{Q - X1}{Q - X2}\right]$$

Where, X2 > X1 and Q = 200. In this method X2 is taken for the variable having comparatively higher value and X1 for the lower value. The objective of taking log is to reduce the leveling off effect (states with high levels of attainments may show a lower level of disparity than states with low levels of attainments even though the gender gap is the same for both states) (**Sopher 1980**). According to this Index, in case of perfect equality i.e. no disparity at all, the value of DI (Disparity Index) will be 'Zero'.

To measure the educational disparity between different ethnic groups we use '*Co-efficient of Equality in Education*'. **Victor S. D'Souza (1980)** evolved this formula for the measurement of educational inequalities among Scheduled Caste of Punjab. The coefficient of equality is estimated by using the following formula:

$$Q = \left[\frac{(Et/Eo)}{(Pt/Po)}\right] * 100$$

Where Q = Coefficient of equality for STs, Et = Enrolment of Scheduled Tribes in any particular types of education, Eo =Enrolment of other communities in the same, Pt = Population

of Scheduled Tribes, Po= Population of other communities. If the value of co-efficient of equality is 100, it indicates that Scheduled Tribes are at *par* with other communities and availing the same facility of education like others. If it is less than 100, it indicates that the tribal communities are lagging behind their counterparts. This would provide us the educational status of Scheduled Tribes vis-a-vis Non Scheduled Tribes (**Debi and Mahesh: Das and Sahoo, 2012**).

To analyze the disparity in case of enrolment of boys and girls in education, we use 'Gender Parity Index in Enrolment'. Gender Parity Index in education is the ratio of the number of female students enrolled at primary, secondary and tertiary levels of education to the number of male students in each level. It is calculated as

$$GPI = \left(\frac{ENRg}{ENRb}\right) * 100$$

Where ENR**g** = Enrolment of girls, and ENR**b** = Enrolment of Boys. A value of 100 for the index reflects a complete absence of gender inequities. A value of less than 100 shows less than proportionate representation of girls in enrolment and the opposite if the calculated value of the index is more than 100.

Discussion and analysis

Spatial Distribution of Scheduled Tribes in Mayurbhanj

Among thirty districts of Odisha, Mayurbhanj has the highest concentration of tribes (Location Quotient value is 2.56). Among twenty-six Community Development Blocks of Mayurbhanj, four blocks (Suliapada, Betnoti, Moroda and Barsahi) has less than fifty percent tribal population while seven blocks (Tiring, Jamada, Bijatola, Baripada, Khunta, Udala and Thakurmunda) has more than seventy percent tribal population with respect to its total population (Fig.3/A). Using the value of Location Quotient we identified six blocks as tribal dominated. The map reveals the following spatial pattern:

I.   Higher level of concentration (LQ value is >1.2) - Tiring, Jamada, Bijatola, Khunta, Udala and Thakurmunda.
II. Medium level of concentration (LQ value is 1.00-1.20) - Kusumi, Bisoi, Bangriposi, Koliana, Baripada, Samakhunta, Karanjia, Sukruli, Jashipur and Kaptipada.
III. Lower level of concentration (LQ value is <1.00) – Bahalda, Rairangpur, Raruan, Gopabandhunagar, Betnoti, Barsahi, Rasagobindpur, Maroda and Suliapada (Fig.3/B).

Growth of Education in Mayurbhanj

Realizing the importance of education, benevolent Bhanja Rulers had taken various measures to promote education in Mayurbhanj. During the regime of Maharaja Sriramachandra Bhanja, there were 44 primary schools with 2,376 students and one Middle English (ME) school in the district in 1882. Because of the keen interest and sincere efforts of the king, the number of primary schools increased to 431, students' strength rose to 9,600 and the Middle School (ME) at Baripada was upgraded to a high school in 1892. By 1949, the numbers increased to 100 primary schools, 21 ME schools and 4 high schools. Twenty five years later in 1973-74, the number of primary schools increased to 1,995, ME schools to 360 and high schools to 127. In 1991, more than one-third (37.88%) of the district population and less than one-fourth (23.68%) of women were literate. To overcome this problem, Government took -special initiatives like the *District Primary Education Programme* (DPEP) and *Sarva Sikshya Abhiyan* (SSA) to spread education all over the state. At present there are 2,385 primary school, 1,302 upper primary school and 508 secondary schools in the blocks of Mayurbhanj (**DHDR, 2011**). According to *Directorate of Economics and Statistics, Bhubaneswar*, in 2007-08 school enrolment also increases up to 2, 81,000 in case of primary education and 77,000 in case of secondary education, among which 1,32,000 and 32,000 are female.
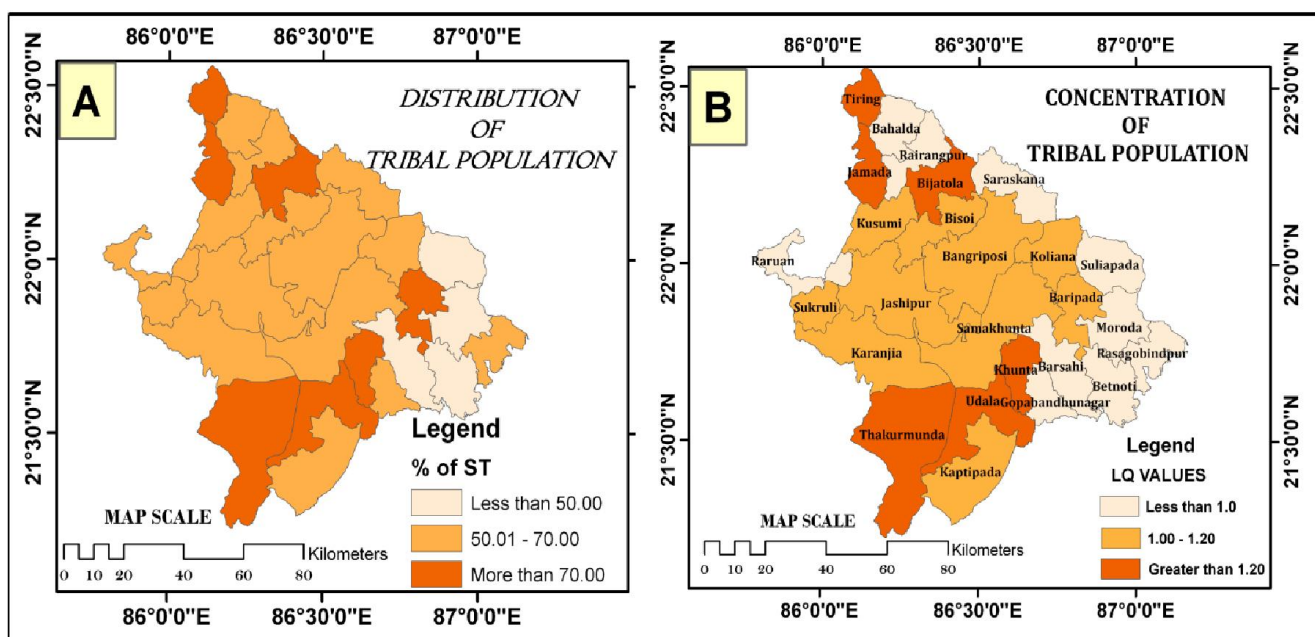

Fig.3.A&3B: Block-wise Distribution and Concentration of Tribes in Mayurbhanj

Literacy Status of Mayurbhanj

Literacy rate is considered as one of the crucial indictors of education. The overall literacy rate in Odisha has increased to about 57 percent, between 1951 and 2011 from 15.8 percent to 72.03 percent. This rate of increase is roughly the same as for all-India. However, as per the 2011 Census, Odisha still ranks 25th among 35 states/Union Territories (Census of India, 2011). According to 2011 Census the literacy rate of the state is 73.45% which is almost same as of literacy rate of India (74.04%). But the literacy rate of Mayurbhanj is still far behind than state and national average. The overall literacy rate in Mayurbhanj was very low in the immediate Post-Independence era. In 1951, only 5.2% people in the district were literate, among them Male literate was 9.6% and female literate was 1.2% only. With governmental efforts for expansion of basic education, the literacy rate in the district increased to 63.17% in 2011 (Fig.4/A), while male and female literacy rates stood at 73.76% and 52.71% respectively. Though the Sopher's Disparity Index hopefully reveals that the overall educational disparity among different gender is continuously decreasing with time (Fig.4/B).

female are literate only in three blocks namely Gopabandhunagar, Barsahi and Betnoti (Fig.5/B).

Educational Disparity between Tribes and Others

The literacy rate of SC population is almost same as General Caste. The literacy rate of SC in 2001 was 53.56% as compared to 51.91% for all. However, overall the ST population was less literate, having literacy rate of 38.80% in 2001(DHDR, Mayurbhanj, 2011). According to the values of *Co-efficient of Equality* in Primary Education, Thakurmunda and Jashipur have high Educational Disparity between ST and Others. The Co-efficient value of maximum blocks is more than 75, which indicate that the overall educational disparity between tribes and others is very low in case of Primary education (Fig.6/A). But in case of Higher Education the value of co-efficient of equality is very low in Bijatola, Bisoi, Baripada, Barsahi, Udala and in Kaptipada, which indicates that in these Blocks, tribal communities are lagging behind their counterparts.
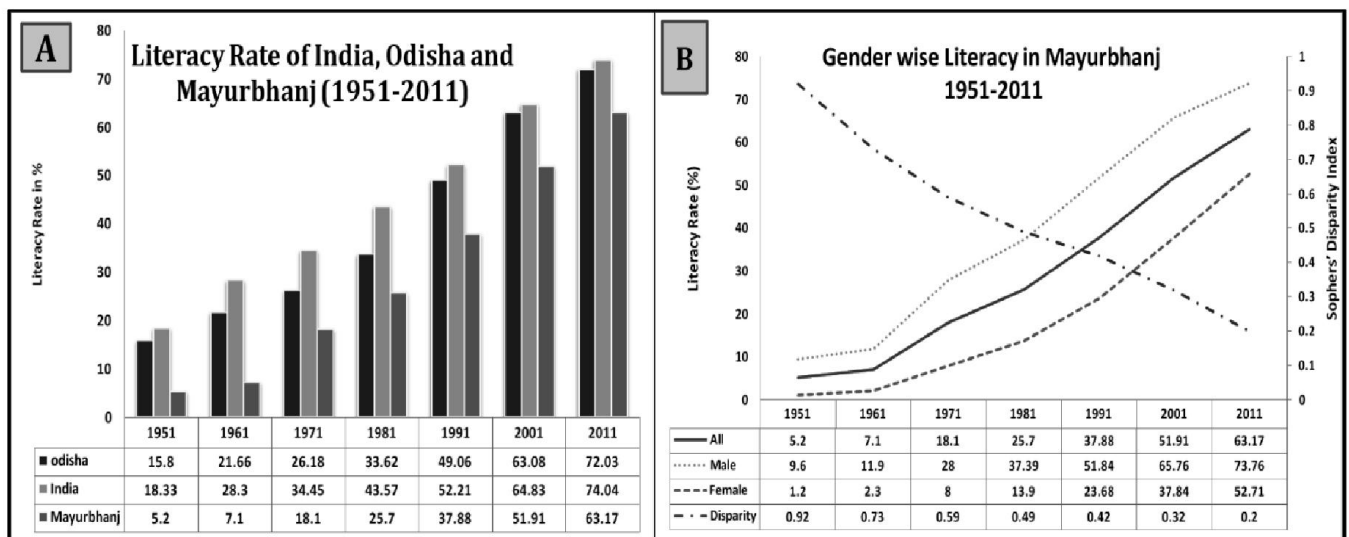

Fig.4. Status of Literacy

Block-wise Spatial Disparity in Literacy Rate

In 2011, the state average of Male Literacy Rate is 81.59% and Female Literacy Rate is 62.46% in Odisha. The Male literacy rates in the blocks of Mayurbhanj ranges from 51.59% in Thakurmunda to 69.43% in Gopabandhunagar Block, while the female literacy rate ranges from 24.68% in Thakurmunda to 47.69% in Gopabandhunagar. That means the highest rural female literacy rate does not reach up to the lowest male literacy rate, which indicates that overall female literacy are lagging behind than their counterpart in the rural blocks of Mayurbhanj. Bijatola, Jashipur, Baripada, Thakurmunda, Kaptipada and Udala are the blocks with less than 60% male literacy (Fig.-5/A). Among these, three are tribal concentrated blocks. Though Baripada is an urban area, the cause of low male literacy is immigration for work from western and bordered area. In case of female literacy, more than 40%

In the blocks of Mayurbhanj the Co-efficient value of higher education in maximum blocks ranges from 7 to 54 (except Bahalda), which indicates that the overall educational disparity between tribes and others is high in case of higher education (Fig.6/B).

Block-wise and Gender-wise Educational Disparity

Illiteracy of women in this district continued to be a major problem. But, the Sopher's Gender Disparity Index for literacy in the district has registered a decline from 0.92 in 1951 to 0.2 in 2011, which indicates that the overall educational disparity among different gender continuously decreasing with time (Fig.4/B). But if we compare gender-wise literacy rate between different blocks in Mayurbhanj then it is observed that Bisoi, Tiring, Jamada and Bijatola Blocks has high Educational

Disparity among different gender according to Sophers' Disparity Index (Fig.7).

Among these four blocks Tiring, Jamada and Bijatola Blocks are tribal concentrated blocks, which means the literacy of ST female continued to be a major problem in this district. Though overall school enrolment increased with time which is also a move towards achieving the *Millennium Development Goal of*
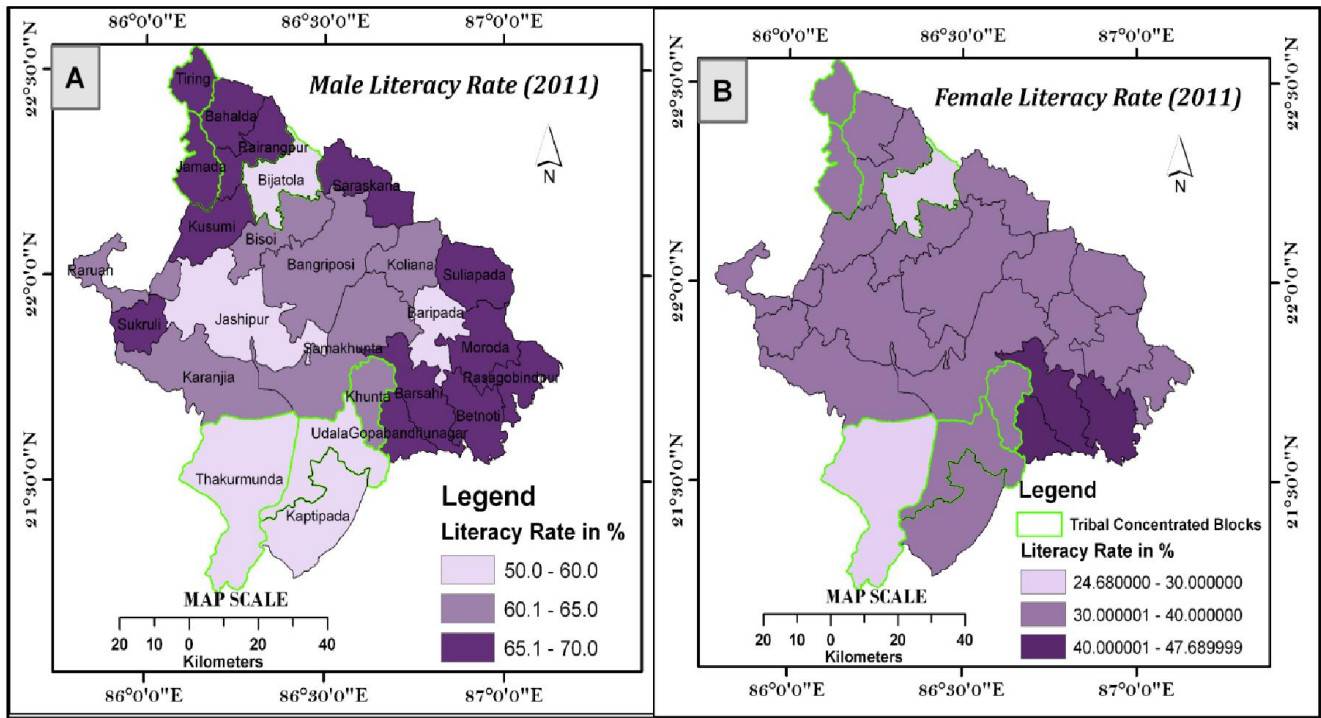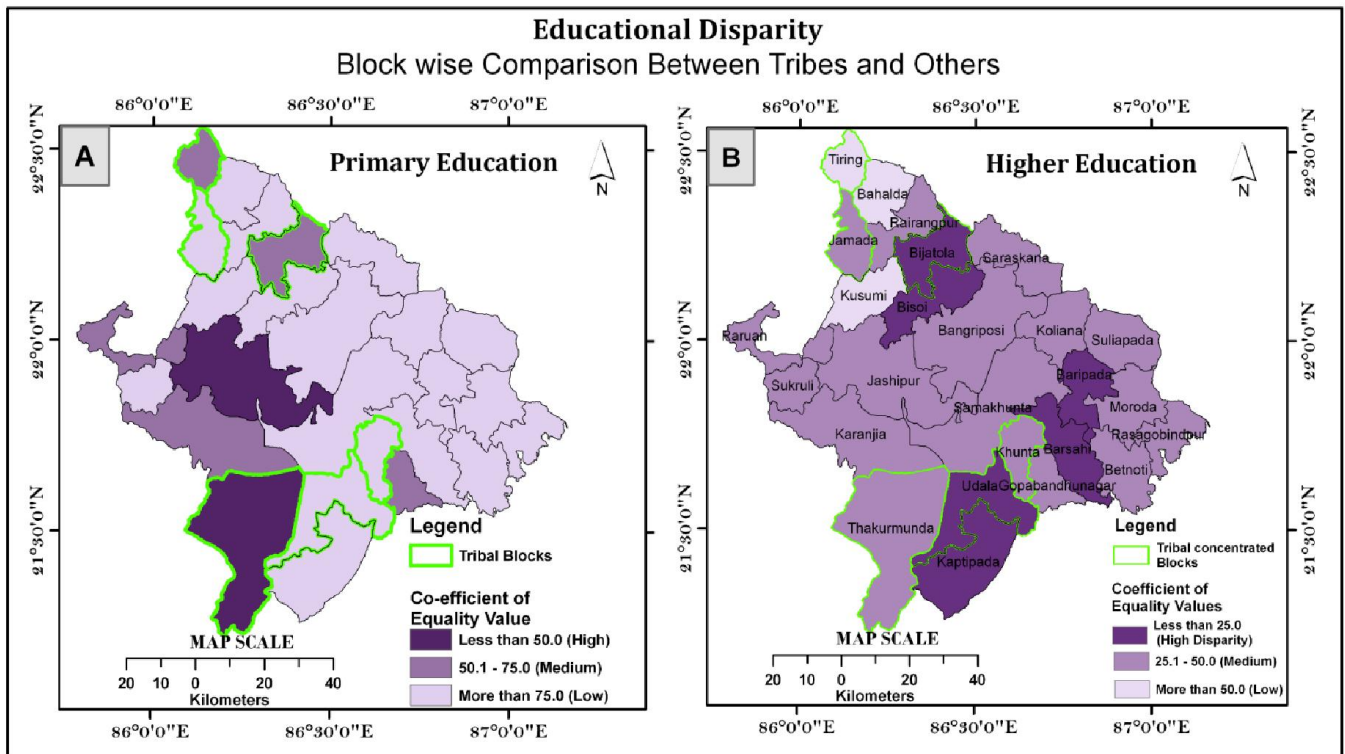

Fig.5. Gender-wise Literacy Rate

Fig.6. Co-efficient of Equality in Education

Universal Primary Education, but there is a remarkable gap between boy's and girl's enrolment in school education. *Gender Parity Index* indicates that educational disparity in school enrolment is high in case of higher or college education, as in case of Primary education, lowest Gender Parity Index value ranges from 85 to 125 (Except Jashipur), while in case of higher education lowest GPI value is 28 (Tiring). According to GPI values of primary education, disparity between boys and girls are relatively high in Jashipur followed by Suliapada, Thakurmunda and Karanjia (Fig.8/A) and even in eleven blocks, girl's enrolment is higher than boys.

But Gender Parity Index of higher education reveals that only in Sukruli Block girl's enrolment is high than boy's enrolment. In higher education gender disparity in enrolment is very high in Tiring, Rairangpur and Udala (Fig.8/B). Among these three blocks, Udala and Tiring are tribal concentrated which indicates that disparity in enrolment is high in tribal concentrated blocks. The lower enrolment of girls than boys among the scheduled tribes is attributed mainly to (i) extremely low female literacy rate (among tribal females), (ii) low percentage of female teachers and (iii) low percentage of tribal teachers. District-wise estimates of gender parity index indicates that in higher education the girls are at par with their boys counterparts in the blocks of Bangriposi, Baripada, Barsahi, Betnoti, Gopabandhunagar, Jamada, Rasagobindpur and in Sukruli.
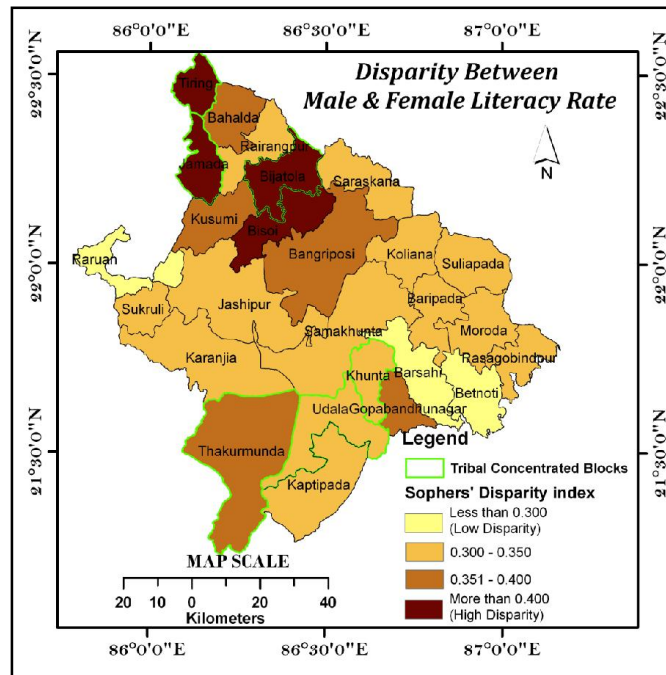

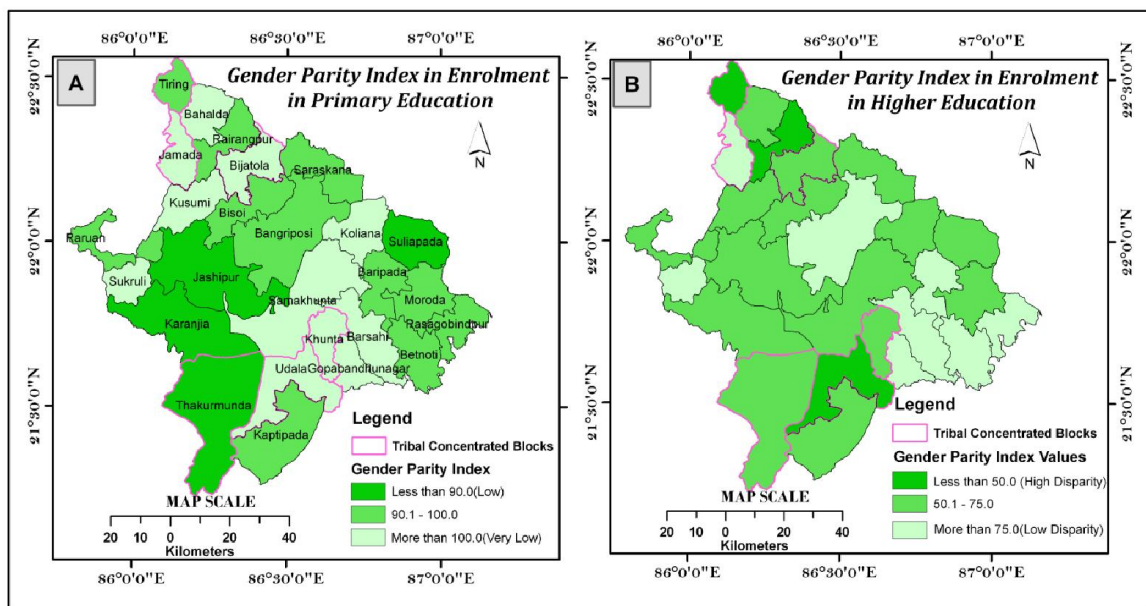**Fig.7. Block-wise and Gender-wise Disparity in Literacy**

Fig.8. Block-wise and Gender-wise Disparity in Enrolment

Block and Gender-wise Educational Disparity

To maintain the quality of classroom teaching, the national norms for primary and upper primary schools are respectively 40 and 35 students per teacher, whereas 25 students per teacher is considered desirable (**DHDR, Mayurbhanj, 2011**). The Student-Teacher Ratio is reasonably better in middle schools (16 to 38 students) and colleges (6 to 34 students/ teacher) of the district.

Blocks only 10 blocks maintained the national norms of Teacher-Student Ratio (1: 35) (Fig.9).

Dropout Rates among Tribal Children

The dropout rate being serious problem in elementary education is one of the important criteria to assess the internal efficiency of the education system.
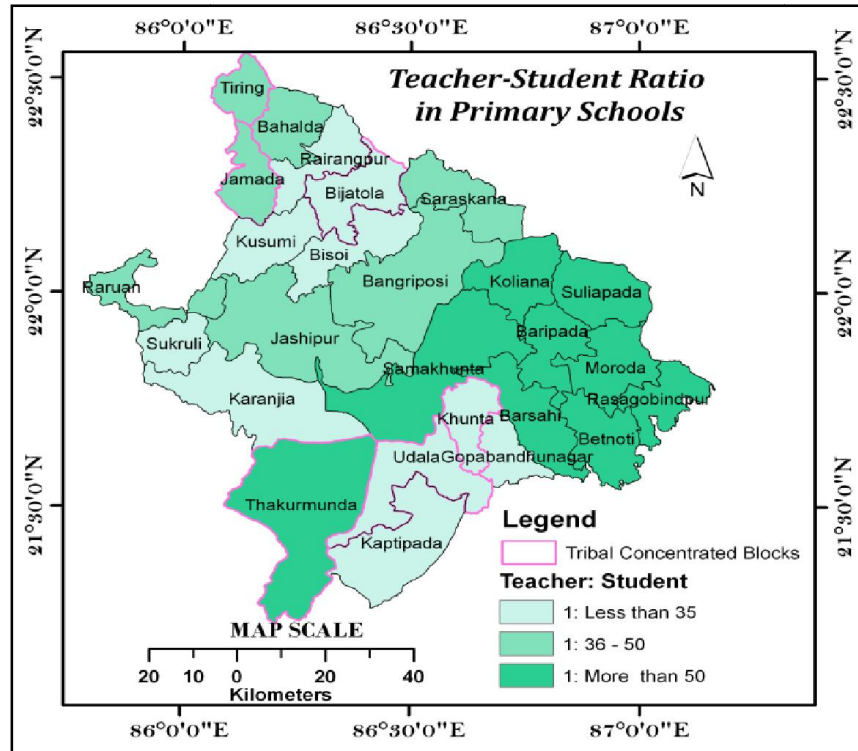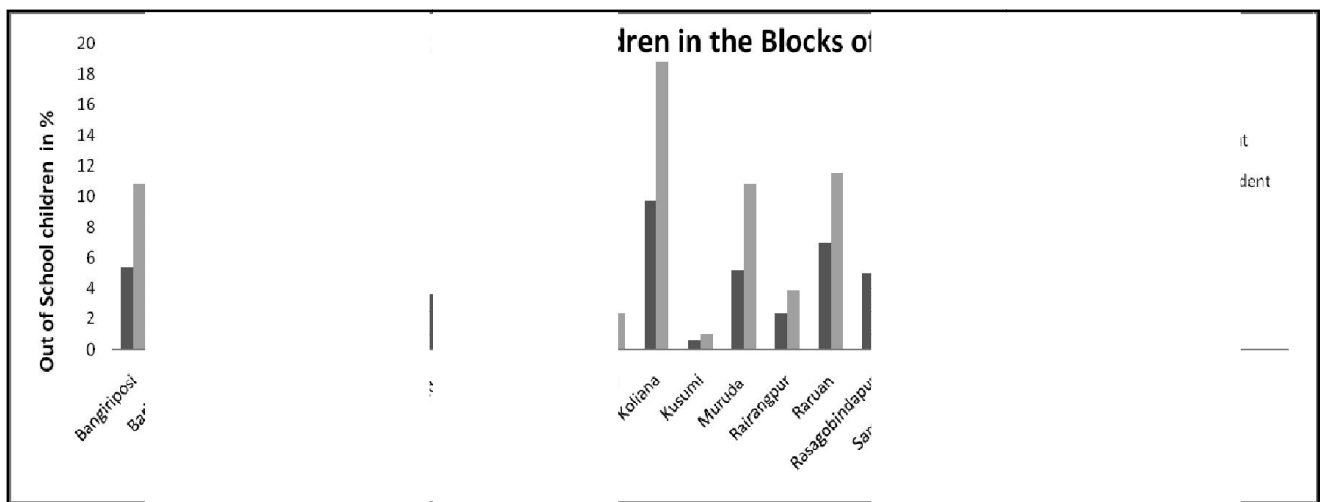

Fig.9. Student-Teacher Ratio

Fig.10. Percentage of Out of School Children

But the situation is worse at primary level in rural areas where a primary school teacher is required to teach 48 pupils on an average. The average student load of a primary school teacher in Rasagobindpur, Muruda, Betnoti and Barsahi Blocks is very high at 80, 79, 73 and 71 respectively. Actually out of 26

Out of thirty districts, Mayurbhanj is the only district in Odisha, where more than 70% Out of School children are ST (73.42%) whereas the average of the state is 35.64%. Out of School children means dropouts from schools and those who had never enrolled themselves in a school. Figure 10 shows the

status of out-of-school children in different blocks of the district. It shows that about 7.6 % of the total numbers of children in the age-group of 6-14 years were out of school in 2007-08. This proportion is found to be the highest among the ST (9.9%) children. The percentage of all out of school children varied from 1.1% in Kusumi Block to 18.8% in Koliana Block. In all the blocks of Mayurbhanj, the rate of Out of school children of tribes is high than other Out of School children.

According to *District Human Development Report* of **Mayurbhanj (2011)**, the main cause of Out of school is ignorance of parents. Lack of interest among illiterate parents and their ignorance about the relevance of education is 33 percent responsible for this high rate of Out of School. More than one-fourth of total Out of School children blamed domestic help and work outside home as the underlying causes for their dropouts. Poverty and financial constraints are also reported as reasons for keeping children away from school (Fig.11). Child marriage is another important cause for drop out of girl children. 55% of girls below 18 are married off in India; 41.2% in Mayurbhanj.

sound health and mindset, which essentially necessitates the basic services like availability of nutrition, supply of safe drinking water and sanitation facilities. In addition, their economic conditions can be improved through the promotion of indigenous tribal art on commercial basis. Appropriate development of education needs HDI mapping through rating and approach. On the basis of the level of backwardness, financial assistance should be extended by the government to the tribal dominated areas. People should also be aware about existing facilities so that they can utilize the facilities for their development. In this regard a mass awareness campaign on education related development programmes may be organized at regular interval in tribal areas. In this context government may collaborate with NGOs and others. Strong political will and commitment at the administrative level is also needed for providing better services to the backward communities. Student-Teacher Ratio should be maintained as per government norms. Availability of trained, qualified female teachers and developed infrastructures like separate toilets for girls, drinking water, roads etc will help to increase the female literacy rate.
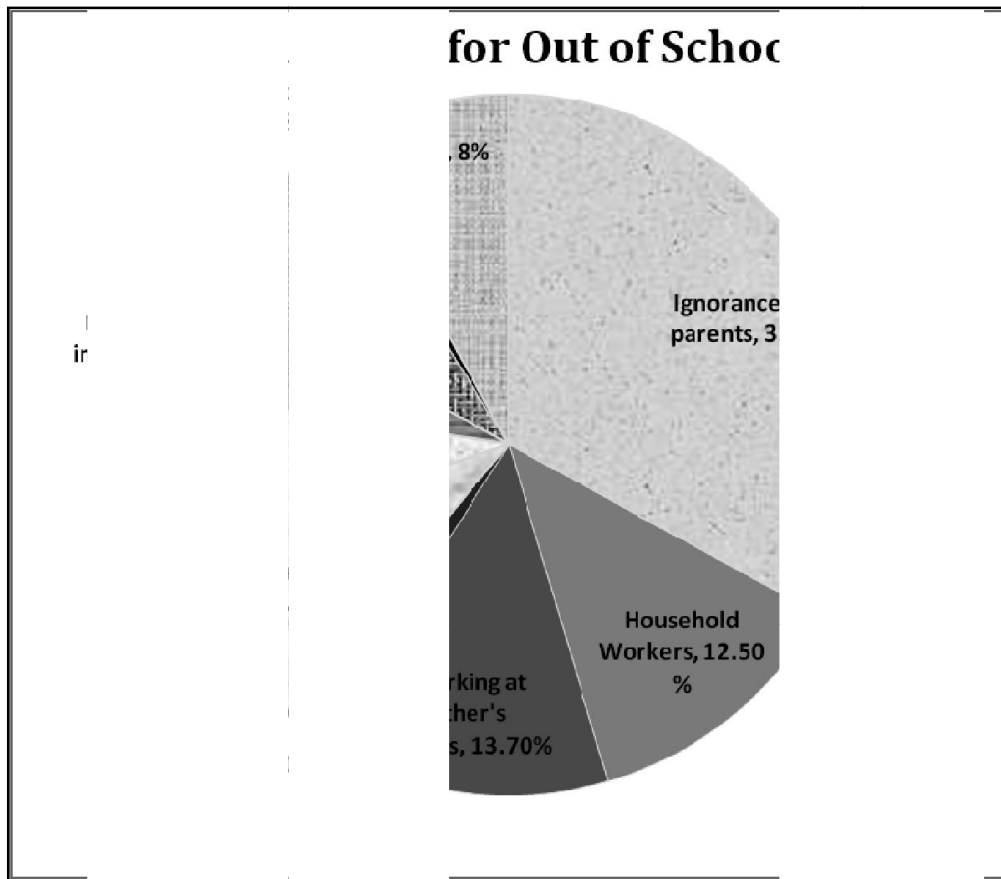

Fig.11. Reasons for Out of School

Suggested Measures to overcome the Problems of Educational Development

Poverty is considered to be the biggest evil against education and almost all tribal dominated districts are suffering from this evil. Motivation and involvement in education depend on

Conclusion

Tribes are the most neglected section of the society. In Odisha as well as in Mayurbhanj educated developed society and improved educational infrastructures over regions is desirable to enhance their capabilities to participate in mainstream

economic development. Otherwise, rapid economic growth and educational development of the state in general and district in particular will be hampered. It is clear that the educational conditions in the district has improved remarkably over the years but the disparities in terms of caste and gender continue to be a major problem mostly in tribal and backward areas. In the field of Education, Mayurbhanj as a whole is lagging behind the State average. Out of School and Dropout Rates are high among Tribal Children. In Primary Education, Teacher-Student Ratio in maximum blocks is above the National norms. It is also clear that any type of Educational Disparities is high in case of Higher Education. In case of Female Literacy, the tribal Blocks are far behind than other Blocks. So there is a greater need for expansion of education particularly in less developed regions and among backward population to bring them into mainstream of society.

REFERENCES

Basu S. 1994. A Health Profile of Tribal India. Health for the Millions. 2: 124.

Census of India Report, 2013. Ranking of states and union territories by literacy rate: 2011 downloaded from http://censusindia.gov.in/2011-provresults/data_files/ india/Final_PPT_2011_chapter6.pdf on 28.11.2014

Das A. B. and Sahoo D. 2012. Regional Disparities in Education: A Comparative Study between Kbk and Non-Kbk Districts of Odisha, India; *International Journal of Humanities and Social Sciences,* Vol.1: 1, pp. 39-52

Debi S. and Mahesh E. Development of Education of Scheduled Tribes in Odisha: The Role of PESA Act: *CMDR Monograph Series, No. – 52.* Centre for multi-disciplinary development research, Karnataka, India

Department of Education. Government of India. *Educational Safeguards(*http://web.archive.org/web/20090619063917/h ttp://www.education.nic.in/cd50years/g/S/I6/0SI60301. htm). Retrieved on 27 November 2014.

Desai, S. and Kulkarni, V. 2008. Changing Educational Inequalities in India in the Context of Affirmative Action.

Demography, Volume 45-Number 2, May 2008: 245–270

DHDR, 2011. District Human Development Report: Mayurbhanj. *Planning and Coordination Department.* Government of Orissa. Available at http://phdmaodisha.nic.in/Reports/HDRS/ Mayurbhang-DHDR.pdf (Accessed on 08.08.2014).

Husain, Z. 2010. Gender Disparities in Completing School Education in India Analyzing Regional Variations, Draft dated 24/11/2010: V2.1: Population Research Centre, *Institute of Economic Growth,* Delhi University

Kundu, A. and Rao, J. M. 1986. Inequity in educational development: Issues in measurement, changing structure and its socio-economic correlated with special reference to India. In Raza, M. (Ed.), Educational planning: A long term perspective (pp. 435–466).

Laskar, M. H. 2010. Rethinking Reservation in Higher Education in India. ILI Law Review Vol. 1: 1 pp-25-53. Downloaded from http://web.archive.org/web/201204 25081633/http://www.ili.ac.in/pdf/article_2.pdf access on 27/11/2014

Schultz, T. W. 1961. Investment in Human Capital. *The American Economic Review*, 51, (1), 1-17.

Sen, A. 1985. Commodities and Capabilities. Amsterdam: North Holland.

Sen, A. 1999. Development as Freedom. New York: Knopf.

Sopher, D. E. 1980. Sex disparity in Indian literacy. In D. E. Sopher (Ed.), An exploration of India: Geographical perspectives on society and culture (pp. 130–188). New York: Cornell Press.

Sopher, D. K. 1974. "Measurement of Disparity", *The Professional Geographer*, 26/4, (November), pp.380-392.

Thakur D. S., Thakur D. C. and Saini A.S. 1991. Socio-Economic Impact of Tribal Development Programmes in Himachal Pradesh. *Journal of Rural Development*, Vol-10: pp-823-30.

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