Elementary Education in Bihar: Some Reflections from DISE Data

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Abstract

Free and compulsory education has been enshrined in the Indian Constitution since its inception. It became a guiding force in the form of Article 45 for providing basic education for all the children up to the age of fourteen years. Even after more than 60 years of independence some states in India are still struggling to achieve Universal enrollment, retention and quality education. The present status of progress of elementary education is varied in nature. In some states the progress is distinctly noticeable, while on the other hand some Indian states are still struggling to achieve the goal of Universalization of Elementary Education (UEE) for all. In the first part of this article the authors have made an attempt to analyze the educational development of the State of Bihar vis-a-vis all the states of India. The entire analysis is based on the District Information System for Education (DISE), 2006 07 data base of its published analytical report, flash statistics and state report cards which is collated and published by the National University of Educational Planning and Administration (NUEPA).The article has been divided into two parts, the first part deals with the development of DISE in India as a whole and its implications regarding elementary education. It stresses upon Bihar's progress in achieving the goal of UEE. In the second part of the article, the educational development of two states i.e. Bihar with Kerala have been compared in terms of different educational indicators which are vital for providing Universal Elementary Education.

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Part-I

I. Introduction

Development of a sound information system is critical for successful monitoring and implementation of any programme. Design of a school information system has, therefore, been accorded priority from the very beginning of the District Primary Education Programme (DPEP) in 1994, as a result of which the District Information System for Education (DISE) was developed by the National University of Educational Planning and Administration (NUEPA). Importance of an Educational Management Information System (EMIS) was reiterated when Sarva Shiksha Abhiyan (SSA) was launched in 2001. SSA guidelines envisage development of a transparent EMIS and preparatory activities of the programme including substantial strengthening of MIS infrastructure in the States and Union Territories (UTs) of the country. All the States and UTs of the country have adopted DISE and established EMIS units both at the state and district levels across the country. One remarkable feature of DISE is that it has drastically reduced the time-lag in the availability of educational statistics which is now down from 7-8 years to less than a year at the national level and only a few months at the district and state levels. In the present article an attempt has been made to analyze the state of elementary education in Bihar by using the DISE data.

Since independence, the central and state governments have been expanding the provision of elementary education through formal and non-formal education to realize the goal of Universalisation of Elementary Education (UEE). A number of initiatives have been made in order to achieve the UEE. Some of the major interventions to achieve UEE are Non Formal Education (NFE), Operation Black Board (OBB), Bihar Education Project (BEP), Uttar Pradesh Basic Education Project (UPBEP), Lok Jumbish, Shiksha Karmi Project (SKP), Janshala, Mahila Samakhya, District Primary Education Programme (DPEP) and ongoing Sarva Shiksha Abhiyan (SSA).

Sarva Shiksha Abhiyan (SSA) is the recent initiative of the Government of India to achieve the goal of Universalisation of Elementary Education. The main objectives of the SSA were to achieve the goal of Universal Primary Education by 2007 and Universal Elementary Education by 2010. To bridge all gender and social category gaps at primary

stage by 2007 and at Elementary Education Level by 2010 were the other objectives of SSA. SSA also made an attempt to provide an opportunity for improving human capabilities to the poor children, through community-owned quality education in a mission mode. SSA has also realized the importance of early childhood care and education and looks at the 0-14 age as a continuum.

Under SSA, District Information System for Education (DISE) is now operational in more than 609 districts across 35 States and UTs of the country. Comprehensive data on all the four components of Universal Elementary Education is now available from school to cluster, block, district, state and national levels. School Progress Report Cards are being fed back to all the schools covered under DISE. The unit of data collection under DISE is school, and district is the main unit of dissemination. The frequency of data collection is once per annum and September 30 of each year is the date of reference. All the recognized schools imparting elementary education, irrespective of the 'school type', are covered under DISE which includes schools run by the government as well as private managements. Government managements include the Departments of Education, Tribal and Social Welfare Departments, and local bodies; and private managements run schools including the private-aided and unaided schools In addition, there are other managements also which are neither covered under the Government nor come under private managements. At present there is no provision of data collection from the unrecognized schools which are quite large in number all across the country. The unrecognized schools do not fall under the category of private-aided or private-unaided schools. Since these schools are not recognized, government does not maintain list of all such schools.

II. Need for an Information System in Education: Origin of DISE

The Indian educational system is one of the largest in the world. Planning as well as management of school education has primarily been a state subject although the central government also legislates in this area. The large size and complex educational structures across Indian states makes the matters of policy making, planning and monitoring highly complex and complicated. In order to improve the quality and effectiveness of educational planning and management, not only variety of data are required but they are

also needed in-time and in a format that conforms to the requirements of the user agencies operating at various geographical and administrative hierarchies. The complexity of the multi-level decision-making process and control mechanism increases due to wide geographical dispersion of institutional network representing a variety of school locations and endowments. Further, due to the large variations in school structures, endowments and availability of teaching learning resources, the matters become more complicated.

At present DISE covers all schools imparting education up to elementary stage. The system collects and computerizes detailed data on school location, management, teachers, school buildings and equipment, environment by gender and age, incentives and the number of disabled children in various grades. The districts/states have flexibility of adding additional variables according to their needs.

In addition to the DISE, many additional mechanisms for data validation and quality control of school statistics were also introduced. First, a 5-10% validation check was undertaken in all districts immediately after data collection. Second, the software provides for many consistency and validation checks. Third, a national survey was conducted every 2-3 years to establish the quality and reliability of DISE data. Fourth, the reverse flow of data has been strengthened to ensure transparency and dissemination of data up to the school level.

II. Description of the tool

A school level data capture format was developed by NUEPA for collection of school level data base from all the states of India. It consists of eight parts seeking to collect information regarding the following heads:

1. School Particulars : This includes information about the school in terms of the type of school, year of establishment, category of the schools, educational qualifications of the principals, type of residential schools, total number of teachers, previous academic year details, staff category, status and type of school building, number of block and classrooms with their conditions, infrastructural facilities available.
2. Enrolment: This includes information about students in terms of the total number of boys and girls caste category-wise in each class, students in terms of total number

of boys and girls in each class on the basis of standard, attendance including that attendance of disabled children.

3. Repeaters and Re-Admission: This includes information about the students in terms of total number of boys and girls in each class in the category of failures, long absentees and re-admissions.
4. Extra facilities: This includes information about the mid-day meal provided to students from different age, and category.
5. Examination Results: This includes information about the results of the previous academic session.
6. Feedback of Investigators: This part of the tool consists of feedback of the investigators regarding response of the school, number of visits made by them for data collection and kind of problems faced by the investigators during data collection in the school.

IV. Bihar Elementary Education Scenario as per DISE data

During the year 2006-07 under the DISE, information from as many as 53,884 schools imparting elementary education across 37 districts of Bihar was collected. Out of these schools 850 schools (1.6%) were private recognized ones and the remaining 53,034 schools were government schools (98.4%). Regarding the location of the schools, it was seen that about 94.8% schools in Bihar are located in the rural areas. This means that the majority of schools imparting elementary education are operating in the rural areas.

Table 1 Distribution of Schools in Bihar by Location

	Government Schools	Private Schools	Total
All	53034	850	53884
Located in Rural Area	50464 (95.15%)	627 (73.7%)	51091(94.8%)

Source: Analytical Report, DISE 2006-07, NUEPA

Category-wise distribution of schools reveals that majority of the schools (94.28 percent) are independent primary schools. The increase in the number of schools is also reflected in the ratio of primary to upper primary schools/sections, which clearly shows the impact of Sarva Shiksha Abhiyan under which a large number of schools have been opened in the recent past. This ratio (for all India level) for the year 2006-07 is one upper primary school/section for every set of 2.45 primary schools/sections compared to 2.57 in

2005-06 and 2.68 schools/sections in 2004-05. However in Bihar the ratio is quite high i.e. 3.61, as a result it still needs to be improved.

The distribution of schools by types of building shows that 68.96 percent primary schools have pucca (permanent) buildings as compared to 4.68 percent having partially *pucca* and another 0.78 percent having *kuchcha* (temporary) buildings. In fact small percentages are also functioning in a tent (0.04 %). Efforts should be made to provide all schools a pucca school building. The percentage of single-classroom schools during 2006-07 was 8.61 percent. The number of single classroom schools in absolute terms is significant, which needs intervention without delay.

V. Facility Indicators

Availability of basic facilities in schools not only attracts more children to schools but also help in improving retention rate. More than 90 percent schools had drinking water facility available in 2006-07 compared to 87.7 percent in 2005-06. Like drinking water facility, more schools now have common toilets and separate toilets for girls. About 47 percent schools had common toilets in schools in 2006-07, compared to 35 percent schools in 2005-06; and 16 percent schools in 2006-07 had separate toilets for girls compared to only 12 percent in 2004-05.

Table 2: DISE 2006-07: Bihar Vis-a-Vis All India Selected Indicators

Sl. No.	Indicators	Primary Schools		All Schools	
		Bihar	India	Bihar	India
1.	% Single Classroom Schools	11.51	13.79	8.61	9.71
2.	% Single Teacher Schools	6.79	15.90	5.12	11.76
3.	% Schools with pre-primary sections	8.72	26.69	9.45	24.22
4.	% Schools with Common Toilet	38.88	53.75	46.73	58.13
5.	% Schools with Girl's Toilet	10.28	34.06	16.21	42.58
6.	% Student in schools having electricity connection	1.60	21.39	3.60	33.23
7.	% Govt. Management schools having drinking water facility	88.35	82.19	90.13	83.93
8.	Pvt. Management schools having drinking water facility	97.18	84.31	95.29	89.64
9.	% Schools with having ramps	15.52	25.82	17.74	26.61
10.	% Schools with PTR ≥100	16.35	5.21	17.17	4.94
11.	% of Primary Schools Established since 1994	12.44	33.20	9.08	31.94
12.	% Enrolment in Government schools	99.33	87.43	98.66	78.56

13. Student-Classroom Ratio (SCR)	92	40	91	36
14. % Schools having playground	26.86	45.89	33.57	52.48
15. % Girls Enrolment (Primary)	45.89	48.09	45.17	47.67
16. % Girls Enrolment (Upper Primary)	41.66	46.51	45.17	47.67
17. % SC enrolment	17.62	20.11	16.85	19.87
18. % SC girls to SC Enrolment	43.72	48.01	43.02	47.53
19. % ST Enrolment	1.82	11.36	1.69	10.69
20. % ST girls to ST Enrolment	45.76	47.98	45.35	47.24
21. %of enrollment in schools with SCR ratio ≥ 60	77.99	36.42	81.37	31.33
22. % Female Teachers	28.41	40.89	27.91	41.86
23. Pupil Teacher Ratio(PTR)	62	39	64	34
24. Gender Parity Index (GPI)	0.85	0.93	0.82	0.91

Source: Analytical Report, DISE 2006-07, NUEPA

During the period 2006-07, a small percentage of schools in Bihar were also having computers (2.62 %). The percentage of primary schools with computers is 2.16 percent compared to 2.86 percent in case of independent upper primary schools. The percentage of schools with ramps increased significantly from 12 percent in 2005-06 to17 percent in 2006-07; this may help in attracting more physically challenged children to schools. Together with enrolment by nature of disability, DISE is perhaps the only source that provides comprehensive information about physically challenged children in schools. In 2006-07, about 1,04,319 disabled children were enrolled in elementary classes across the state of Bihar, of which 89,831 were in primary and 1,44,88 were in upper primary classes.

Providing nutritious food to all children under the mid-day meal scheme is one of the ambitious programmes of the government. For the first time, a variable on availability of kitchen-shed in school was added to DISE during 2006-07. It reveals that about 8 percent of schools managed by the government and aided schools have kitchen shed in the school. During the year 2005-06, about 83 percent schools received school development grants and out of them about 82 percent also utilized these grants. About 69 percent schools received Teaching Learning Material (TLM) grant during 2005-06. About 89 percent of them utilized the teaching learning material grant. The GER at primary level, for all India level is estimated to be 110.86 percent, corresponding to 92.75 percent NER. The GER at primary level for Bihar based on the DISE data is estimated to be 105.86 percent, corresponding to 99.5 percent NER. GER at upper primary level as

per DISE data is estimated to be 36 percent, corresponding to about 33 percent NER at this level.

Gender Parity Index (GPI) and percentage of girls' enrolment in primary and upper primary classes reveal that there is consistent improvement both in GPI and girls' share in enrolment. The average of 609 districts in 2006-07 indicates a GPI of 0.93 in primary classes and 0.87 in case of upper primary classes. In 2004-05, GPI respectively in primary and upper primary enrolment was 0.91 and 0.83. GPI in primary enrolment indicates that the index is above 0.90 in 28 states. The overall gender parity index for India in the year 2006-07 is 0.93. In Bihar for the year 2006-07 the gender parity index is 082 . The improvement in girls' enrolment is also reflected in girls share to total enrolment. In primary classes, the share of girls' enrolment in 2006-07 was 48.6 percent compared to 45 percent in the previous year. Girls share in total enrolment at upper primary level is 40.3 percent; it was 35 percent in 2005-06. At the primary level, the share of SC and ST enrolment with respect to total enrolment works out to 17. 6 and 13.1 percent respectively. OBC enrolment in the primary and upper primary classes is 59.4 and 58.4 percent respectively.

As a result of concerted efforts over a period of time, the student-classroom ratio for all India level has shown improvement. On an average about 40 students are sitting in one classroom in primary schools. However, in case of primary schools, the student-classroom ratio in Bihar (91) is still very high. Increase in the number of teachers is also reflected in the pupil-teacher ratio which has shown consistent improvement. PTR (for all India level) both at primary and upper primary levels, is quite comfortable (primary, 39:1 and upper primary, 29:1) and is below 40:1. At upper primary level, Bihar reported a high PTR of 62:1 at primary as well as upper primary level.

With improvement in the number of schools, facilities in schools and enrolment, the dropout rate for cohort 2005-06 indicates an average drop-rate of 8.61 percent in primary grades against 9.96 percent during the previous cohort (for all India). However Bihar with a dropout rate of 9.34 percent seems to be far away from the goal of universal retention at primary level. Preliminary analysis of data suggests that there are about 40 districts in the country which have 25 percent or more muslim students in primary

classes. In Bihar 8.9% students at the primary level and 6.6% at the upper primary level are muslims.

VI. Educational Development Index

Based on the DISE data, an effort has been made to compute Educational Development Index (EDI) separately for primary and upper primary levels of education as also the composite index for the entire elementary education. The EDIs can play a significant role in assessing progress towards UEE as well as in deciding the future course of investment on elementary education. About 23 indicators were used which were further re-grouped into four sub-groups, namely access, infrastructure, teachers, and outcome indicators. The major findings of EDI showed that the Bihar ranked at 35 in case of composite primary and upper primary levels of education with an EDI as low as 0.321 which is much lower than the same compared to the top ranked states. Bihar had lower EDI values in 2006-07 than in 2005-06 which is by and large (barring upper primary) true for both primary and composite primary and upper primary level.

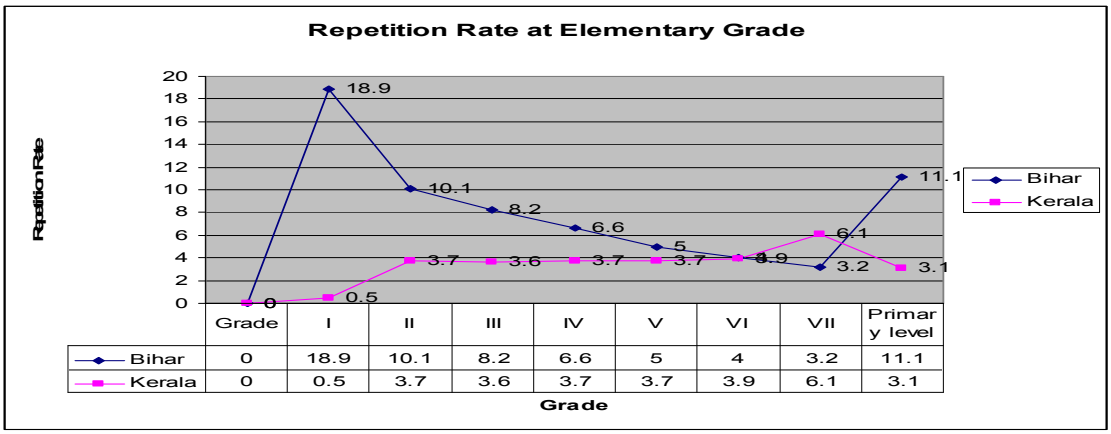
Part-II

VII. Steps forward towards UEE

Even though the educational scenario has shown considerable changes, but there are significant disparities in attaining UEE among states in India. An attempt has been made to compare the educational development in two Indian states, i.e. Bihar and Kerala. Bihar is situated in the northern part of India, with an average literacy of 47%, out of which male literacy is 59.7% and female literacy rate is 33.1%. Till date the state has not achieved the goal of UEE and considered one of the most educationally backward states in India. The state is less industrialized and less urbanized. Due to one or other reason educationalscenario has not improved significantly in the state. On the other hand Kerala has shown remarkable improvement in education despite all the barriers. The state possesses a literacy rate of 90%, out of which male literacy rate is 94% and female literacy rate is 87%.

A. Enrollment based Indicators

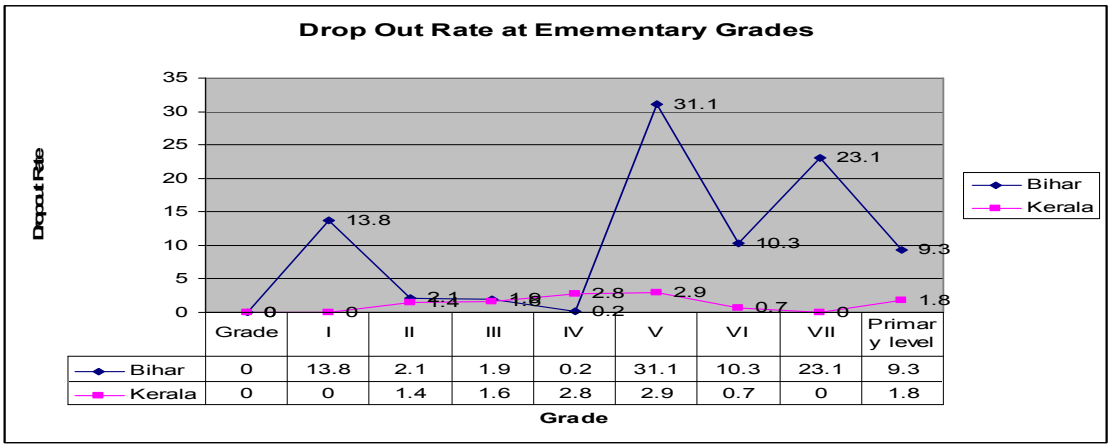
There is significant progress in enrollment in the elementary schools mainly because of the different innovative strategies adopted under SSA. The special enrollment drives in the beginning of each academic year attracts children to register at schools. The incentives like free text book, uniform, stationeries and free mid day meal draws more new entrants to the school education system. If we compare the repetition rate and drop out rate of the states of Kerala and Bihar, it shows a significant difference.



Grade	I	II	III	IV	V	VI	VII	Primary level
Bihar	0	18.9	10.1	8.2	6.6	5	4	3.2	11.1
Kerala	0	0.5	3.7	3.6	3.7	3.7	3.9	6.1	3.1

Source: Analytical Report, DISE 2006-07, NUEPA

The above graphical representation shows the number of students repeating a particular grade in a particular academic year. If we compare the repetition rate at elementary grades of both the states it shows around 18.9% students repeat a class-I in a particular year in contrast to 0.5% students in Kerala. Though the rate declines significantly in the next elementary grades in Bihar, this reflects a good number of students though enrolled do not complete a particular grade and thus gives rise to wastage from the system. How ever, if we consider a particular level of education i.e. primary level it shows on average 11.1% students repeat each grade in Bihar in contrast to 3% children of Kerala.



Source: Analytical Report, DISE 2006-07, NUEPA

Similarly if we compare the drop out rate of students at elementary grades the difference is noteworthy. At class one 3.8 % of the students are leaving the school system in Bihar in contrast to absolute '0' students from Kerala. This clearly signifies the lack of Bihar education system to retain its all children to continue to the next grade. The other reasons might be the enrollment duplication or fake enrollment figures. A striking difference is noticed again at the completion of class V which is a transition phase from primary to upper primary education in Bihar. It shows 31% of the students leave the school just after completing the primary level of education. The reason behind may be due to the problem of getting an access to upper primary school. The aggregate primary level drop out of both the states reveals that around 9.3% students leave the education system in Bihar in contrast to 2% students in Kerala.

B. Infrastructure based Indicators

Infrastructural resources are pre-requisites to provide an opportunity to quality learning. As per the recommendations of National Policy on Education, 1986, the Operation Black Board scheme was launched in many parts of the country. Though significant changes have been observed in the school premises, but even then there are several hindrances in providing meaningful quality teaching learning at school level. The minimum basic facilities are necessary requirements for enhancing the learning environment in a school. There is significant difference in terms of the basic facilities in both the states as well.

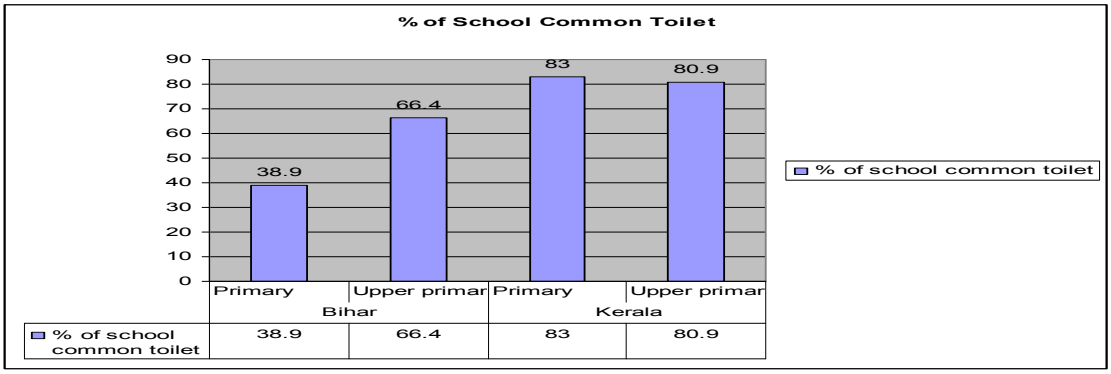
The analysis of DISE findings in terms of various indicators in this regard have been compiled in the Table 3 given below:

Table 3: Indicators of Basic Facilities at Elementary level in Bihar and Kerala

	Bihar		Kerala	
Indicators	**Primary**	**Upper primary**	**Primary**	**Upper primary**
Average number of class rooms	2.1	4.1	6.1	10.6
Schools without building	2800	15	62	4
% of teachers received in-service training	43.9	34.8	65.7	61.8
% of single classroom schools	11.5	2.9	0.8	0.1
% of single tr. Schools	6.8	2.3	0.5	0.1
% of schools with SCR>=60	66.1	60.7	1.4	1.3
% of school common toilet	38.9	66.4	83	80.9
% of schools having drinking water	88.4	93	92.9	95.6
Average number of teachers per school	3.4	5.7	6.4	11.6
PTR	62	62	25	25
% of schools< 50 students	3.8	6	11.6	7
% of female teachers	28.1	18.3	74.3	68.4
% of schools having ramps	15.5	19.8	52.5	48.9

Source: Analytical Report, DISE 2006-07, NUEPA

The above analysis reveals that there are on an average six class rooms in a primary school and ten classrooms per upper primary school in Kerala in contrast to average two class rooms in primary and four classrooms per upper primary school in Bihar. It shows Bihar still struggles to provide a good number of classrooms for each grade. Bihar has a depressing figure of 2800 schools at primary schools and 15 upper primary schools without a classroom. Similarly 11% primary schools are single class room schools in Bihar, in contrast to 0.8% schools in Kerala. Again 0.5% of primary schools are single teacher school in Kerala whereas 6.8% schools in Bihar are managed by single teacher for five primary grades. Along with the other official administrative work quality education to the enrolled children must be distant dream for them. It directly focuses on the problem of inadequacy of teachers in primary schools of Bihar in comparison to primary schools of Kerala.

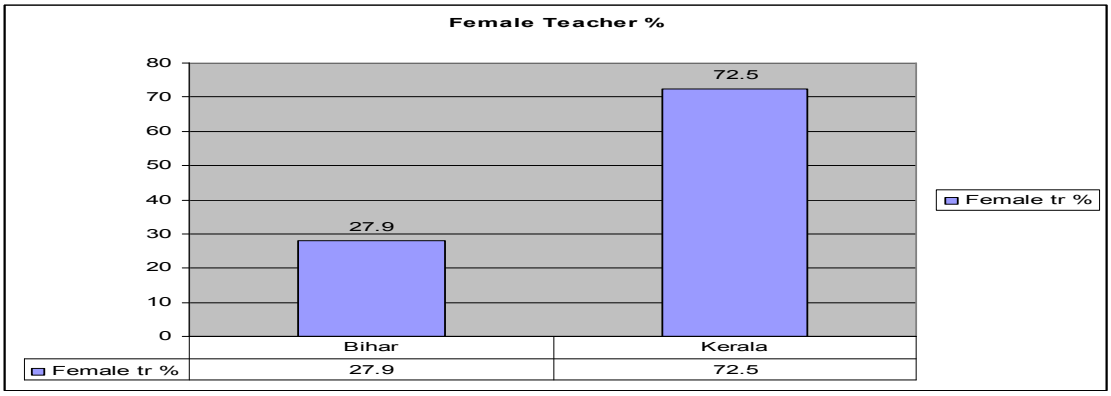


Source: Analytical Report, DISE 2006-07, NUEPA

The above graphical representation clearly reveals that 83% of primary and 80% upper primary schools in Kerala have common toilet facilities whereas Bihar has toilet facilities in only 38% primary and 66% upper primary schools. It indicates thatmost of the schools of Kerala have common toilets. Similarly in Bihar only 16.2% of schools have girls' toilet facilities in contrast to 77% schools in Kerala. This situation horizontally reflects upon the reason of the lower participation of girls in the primary education in Bihar. The Table 3 also depicts that 92.9% primary schools have drinking water facility in Kerala whereas 88% schools in Bihar have potable drinking water facilities.

C. Teacher Related indicators

To cater to the growing enrollment in elementary schools new teachers have been recruited in both the states. The average number of teachers in a school in Kerala is 6.4% whereas Bihar still struggles with 3.4% teachers at primary level. It emphasizes inadequate number of teaching force still persists in the school education system. The average pupil teacher ratio at the primary level is 26 students per one teacher in Kerala where as the figure is 62 in Bihar, which is quite high than the national prescription of 40:1 teacher.



Source: Analytical Report, DISE 2006-07, NUEPA

The 1986 policy emphasizes recruitment of more female teachers in the school education system. Kerala has rightly appointed more female teachers to the tune of 74.3% in contrast to Bihar which has 27.9% female teachers only. To provide a barrier free education to the disabled children, both the states have taken initiatives providing ramps in the school premises for disabled children. 52.5 % schools in Kerala have ramp facility as compared to 15.5% in Kerala in primary grade. In Bihar 17.7% schools have got ramp facility while 15.5 % schools at primary grade level have got ramp facilities.

Table 4: Indicators at Elementary level in Bihar and Kerala

	Bihar	Kerala
% Teachers involved in non –teaching activities	24.7	20.6
No of days assigned	25	6
Instructional days	217	173
% of schools having computer	2.62	60.98
EDI rank	35	1
Ratio of PS to UPS	2.3	6.1

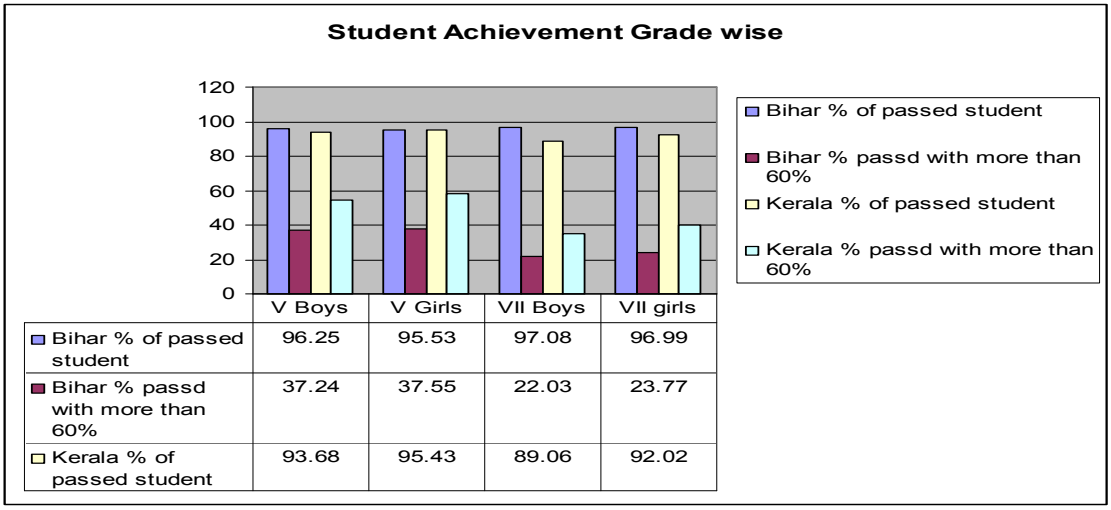
Source: Analytical Report, DISE 2006-07, NUEPA

At times teachers are assigned non-teaching jobs. This is an important issue at the national level discussion. The involvement of teachers in non-teaching assignments distracts their emphasis from teaching thereby affecting the students' achievement. 20% of the total teaching community in Kerala and 24.7% of the total teachers in Bihar are involved in non-teaching business during 2005-06. The total numbers of working days spent for this purpose are 6 and 25 in Kerala and Bihar respectively. The total number of instructional days in Kerala is 173 and in Bihar there are 217 instructional days in

elementary schools. Computer education is getting popular in elementary schools. The Table 4 reveals that 61% of schools in Kerala have the provision of computer facilities in contrast to 2.6% of schools in Bihar.

D. Student Achievement at Elementary Schools

One of the important objectives of SSA is to provide quality learning to the students. The graph below provides the grade-wise achievement of elementary level students.



	V Boys	V Girls	VII Boys	VII girls
Bihar % of passed student	96.25	95.53	97.08	96.99
Bihar % passd with more than 60%	37.24	37.55	22.03	23.77
Kerala % of passed student	93.68	95.43	89.06	92.02

Source: Analytical Report, DISE 2006-07, NUEPA

The above analysis reflects that the percentage of students passed at primary and upper primary grades with more than 60% of marks is quite significant in both the states. Out of the total students passing at a particular level of education, data regarding students scoring more than 60% depicts that in Kerala 55% boys and 58% girls are scoring more than 60% marks. In contrast to this Bihar shows a poor performance of 37% only for both boys and girls. Similarly the figure for upper primary level reveals 34% boys and 40% girls in Kerala in contrast to 22% students in Bihar are scoring more than 60%. The reason behind this difference in gender-wise achievement is quite vital to understand the quality of education in both the states.

VIII. Concluding Remarks

The analysis of the data reveals that in order to universalize elementary education for all in respect of Bihar much more needs to be done in terms of the infrastructure, as it has got a high student classroom ratio of 91(against the all India figure of 36). More than

17% of schools have got a single teacher teaching for more than 100 pupils. Further much more needs to be done for providing technology-enhanced-learning opportunities to the children in Bihar as only about 3% schools have computer facilities. The State also needs to make an initiative in providing electricity to all the schools as the figures of schools with electricity connections are quite dismal. The provisions as well as utilization of elementary education facilities across the country have been increasing after interventions made under SSA. Much more needs to be done in the State of Bihar in terms of improving infrastructure, investing in more teachers and improving their quality. The underlying reasons for lagging behind in educational achievement, gender gaps in terms of enrollment and achievement need to be identified. For this suitable measures need to be taken up at grassroot level.

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