Universalisation of Secondary Education Can it be achieved in the Near Future?

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Abstract

Ever since the Constitution was adopted in 1950, the focus of educational programmes has remained on elementary education. The constitutional commitment being free and compulsory education to all children up to the age fourteen, all efforts aimed at achieving the goal of universal elementary education. However, despite significant progress in every sphere of elementary education, the goal to achieve universal elementary enrolment is still a far distant dream. Within elementary education, primary education remained in the focus all through. The coverage of District Primary Education Programme (DPEP) also remained limited to the primary level only. Of late, upper primary education now has started getting attention of the planners and policy makers. The DPEP is being extended to the upper primary level initially in the phase one 52 districts. Sporadic attempts have been made in the past to consider both primary and upper primary education as one component. The Bihar Education Project and the World Bank Uttar Pradesh Basic Education Project considered the entire elementary education as one unit. The new initiative, namely the Sarva Shiksha Abhiyan (SSA) also envisages the entire elementary education as one component. The Government recently constituted a task force on secondary education. Otherwise, secondary education had never been in the focus as all the activities remained concentrated on elementary education. There is now at least some mention of Universalisation of Secondary Education also.

Introduction

Like other levels of school education, a significant progress has also been made in various spheres of secondary education. More than 84 per cent habitations in 1993-94 had a secondary school/section within a distance of 8 km as compared to 70 per cent within 5 km. The number of unserved habitations declined from 21 per cent in 1986-87 to 15 per cent in 1993-94. During 1950-51 to 1999-2000, the number of secondary and higher secondary schools increased from 7 thousand to 117 thousand. The increase (over 16 times) is much more rapid than the corresponding increase in primary (3 times) and upper primary (14 times) schools. In the latest decade (1990 to 99), more than 37 thousand

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secondary and higher secondary schools were opened. The ratio of upper primary to secondary schools also improved from 1.83 in 1950-51 to 1.69 in 1999-2000.

The number of secondary and higher secondary teachers increased from 127 thousand in 1950-51 to 1,720 thousand in 1999-2000. Despite increase in the number of teachers, pupil-teacher ratio increased from 21:1 in 1950-51 to 32:1 in 1999-2000 indicating significant increase in enrolment at this level. From a low 1.5 million in 1950-51, it has now increased by more than 19 times to 28.2 million in 1999-2000. The girls' enrolment during the same period increased from 13 per cent to about 38 per cent. Enrolment in secondary and higher secondary level increased by almost double the rate than the increase in primary enrolment. The Gross Enrolment Ratio, though low, improved from 19.3 per cent in 1990-91 to 30.0 per cent in 1993-94 and further to 41.2 per cent in 1998-99. Almost 50 per cent children of age group 14-17 years were attending schools in 1995-96. Retention rate (I to IX) also improved but it is still low at 27 per cent. Transition rate from upper primary to secondary level is as high as 83 per cent.

Like enrolment and teachers, facilities in secondary schools over a period of time also improved impressively. The majority of secondary schools have now got school buildings (69 per cent). The average number of instructional rooms in a secondary school is as high as 8. More schools have got drinking water (41 per cent), urinal (77 per cent) and lavatory (57 per cent) facilities. More than 63 per cent schools have got furniture for teachers and almost the same percentage science laboratories. Plan allocation on secondary education increased from Rs. 20 crore during the First Plan to more than Rs. 2,600 crore in the Ninth Plan. However, expenditure on secondary education always remained below one per cent of the GDP.

Like secondary level, impressive progress has also been made both at the primary and upper primary levels of education. But despite all these significant achievements, the goal of universal elementary education (UEE) still remains out of sight without which the goal of universal secondary education also cannot be achieved.

Study Alternatives

An attempt has been made in this article to project enrolment in secondary classes. By using five alternatives, enrolment in Grade IX and total secondary enrolment (Grades IX-X) has been projected up to the year 2015. The existing set of enrolment projections (Mehta, 1998; Varghese and Mehta, 1999) have been extensively used in projecting secondary enrolment. Attempt has also been made to analyze implications of UEE on secondary education in terms of enrolment. Needless to mention that secondary education cannot be expanded unless upper primary education system sends adequate number of elementary graduates to the secondary level. Once the students complete elementary education, they are expected to transit to secondary level. An attempt has also been made here to see how students transact between secondary classes. For this purpose, transition rate from upper primary to secondary level and between secondary grades have been computed and analyzed. Trends in enrolment from primary to secondary level are also

analyzed for which a long time series is constructed. The following five alternatives have been used to project enrolment in secondary classes:

- Alternative I: In Proportion of Grade VIII to total upper primary enrolment;
- Alternative II: UEE, if achieved by 2010;
- · Alternative III: Based on past growth rates;
- · Alternative IV: Grade IX enrolment in relation to enrolment in Grade I; and
- Alternative V: Universal Secondary Enrolment, if achieved, by 2015.

Data Used

Though the focus here is on secondary level, wherever necessary, information pertaining to lower levels, such as upper primary and primary levels have also been presented and analyzed. However, analysis is confined only to the all-India level. The analysis presented and projections made are based on the publications of the NCERT and MHRD. Education in India and Selected Educational Statistics of the MHRD have been extensively utilized. In addition, population projections provided by the Standing Committee of Experts on Population Projections have also been used in carrying out enrolment projections. Since the Standing Committee estimates are based on the population data up to the 1991 Census, the same needs revision. However, a cursory look at the projected and actual population for 2001 suggests that the same may not change significantly because the deviation noticed between the two estimates is not significant.

Age-Specific Child Population

The total population of India of 846 million in 1991 increased at an annual rate of 1.95 per cent to 1,027 million in 2001 (against projected 1,012 million). A perusal of Table 1 reveals that irrespective of the age group, population is likely to increase during the period 1991-2001. However, the same trend may not continue during the following decade i.e. 2001-2011 as the population in age groups 6-11, 11-14 and 14-16 years would start declining. However, population of age group 16-18 years is expected to increase marginally. The decline in population (6-11 years) indicates comparatively a lower clientele in 2011 than it was in 1991. However, this may not minimize the unfinished task of universal enrolment, as upper primary enrolment depends on primary graduates and not on population of age group 11-14 years. This is also true for secondary enrolment, which depends on upper primary graduates and not on population of age group 14-16 years.

During 1991-2001, child population (age group 6-11 years) might have increased at the rate of 0.13 per cent per annum (2001 Census figures are not yet available). The lower rate is due to decline in birth rate during the same period. During 2001 to 2011, population of age group 6-11 years is expected to decline at an annual rate of 0.80 per cent, all that supports a decline in the clientele population. It is not only that population of age group 6-11 years (during 2001-2011) would decline but its share to total

population is also expected to decline by more than 4.50 percentage points. Individually, age groups 6-11 and 11-14 years had 116.71 and 53.01 million population in 1991, which is 13.79 and 6.26 per cent of the total population now is likely to decline to 9.25 and 5.30 per cent in 2011.

TABLE 1
Age-specific Child Population: 1991-2016

			(Fig	ures in Million
Age-group	1991	2001	2011	2016
6-11			73.00	70.17
Boys	60.31	60.42	56.04	59.47
Girls	56.40	57.84	53.09	56.33
Total	116.71	118.26	109.13	115.80
11-14				
Boys	27.88	38.50	32.10	34.08
Girls	25.13	35.97	30.42	32.32
Total	53.01	74.47	62.52	66.40
14-16				
Boys	19.52	24.74	22.27	21.87
Girls	16.68	22.53	21.34	20.68
Total	36.20	47.27	43.61	42.51
16-18			32.74	44.44
Boys	14.71	23.50	23.20	21.26
Girls	12.99	20.95	22.40	20.12
Total	27.70	44.45	45.60	41.38
Total Population	846	1012	1179	1264

Source: Expert Committee on Population Projections as reported in the Selected Educational Statistics: 1999-2000, MHRD, Government of India, New Delhi, 2001.

In 1991, there were about 1,670 million children of age group 6-14 years compared to 36.20 and 27.70 million respectively of the age groups 14-16 and 16-18 years. It is estimated that there would be about 193 and 172 million children of age group 6-14 years respectively in the years 2001 and 2011. Age groups 14-16 and 16-18 years had 63.90 million children in 1991, which might have increased to 91.77 million in 2001 are likely to decline to 89.21 million in 2011. Individually, age groups 14-16 and 16-18 years would have an estimated population of 47.27 and 44.45 million in 2001 and 43.61 and 45.60 million in 2011. The percentage share of 14-16 and 16-18 years to total population, which was 4.28 and 3.27 per cent in 1991, projected to increase to 4.67 and 4.39 per cent in 2001 would decline to 3.70 and 3.86 per cent the following decade. This indicates a growth of 2.70 and 4.84 per cent per annum during 1991-2001 respectively in the age groups of 14-16 and 16-18 years. The projected single age '6' population is presented in Table 2.

TABLE 2 Projected Population, Age '6': 1991-2016

			, 0
Year	Boys	Girls	Total
1991	11.99	11.36	23.36
2001	12.13	11.76	23.89
2011	11.25	10.80	22.05
2016	11.94	11.46	23.39

Note: Projected on the basis of share of age '6' to total population (6-11 years) in 1991 and projected 6-11 population in different years.

Growth in Enrolment

Enrolment during 1950-51 to 1999-2000 at different levels of school education is presented in Table 3. A perusal of the Table reveals that irrespective of the level of education, enrolment has shown consistent and significant increase throughout this period. This is also true for girls' enrolment, which has increased at much faster rate than increase in boys' enrolment. Enrolment at the primary level increased from 19.2 million in 1950-51 to 97.4 million in 1990-91 and further to 113.6 million in 1999-2000. This shows that the same is increased by more than six times in a period of about fifty years. The girls' enrolment during the same period increased from 5.4 million in 1950-51 to 49.5 million in 1999-2000. In percentage terms, share of girls' enrolment increased from 28.13 per cent in 1950-51 to 41.48 per cent in 1991 and further to 43.58 per cent in 1999-2000. The share of girls' enrolment at upper primary and high/higher secondary level increased from 16.13 to 40.38 per cent and 13.33 to 38.99 per cent during the same period. In the latest decade (1991 to 2000), enrolment at the primary level increased at the rate of 1.72 per cent compared to 2.40 and 4.43 per cent increase in upper primary and high and higher secondary enrolment.

Compared to primary and upper primary levels, enrolment at the secondary and higher secondary level initially had a low enrolment base. In 1950-51, total enrolment in secondary and higher secondary classes was only 1.5 million, of which girls constituted 13.33 per cent or 0.2 million in absolute terms. During 1991-2000, the same increased at the rate of 4.43 per cent per annum, which is more than double the increase in upper primary enrolment. During 1950-51 to 1999-2000, girls and overall secondary and higher secondary enrolment increased by more than 55 and 19 times This shows average growth of 8.52 and 6.17 per cent per annum which is higher than the corresponding growth in enrolment at other levels of school education.

TABLE 3
Growth in Enrolment: 1950-51 to 1999-2000

Year	Primary			U	pper Pri	mary	High/Hr. Secondary		
	Girls	Total	% Girls	Girls	Total	% Girls	Girls	Total	% Girls
1951	5.4	19.2	28.13	0.5	3.1	16.13	0.2	1.5	13.33
1961	11.4	35.0	32.57	1.6	6.7	23.88	0.7	3.4	20.59
1971	21.3	57.0	37.37	3.9	13.3	29.32	1.9	7.6	25.00
1981	28.5	73.8	38.62	6.8	20.7	32.85	3.4	11.0	30.91
1991	40.4	97.4	41.48	12.5	34.0	36.76	6.3	19.1	32.98
1998	48.2	110.9	43.46	16.3	40.3	40.45	10.5	27.8	37.77
1999	49.5	113.6	43.58	17.0	42.1	40.38	11.0	28.2	38.99
Rate of									
Growth								16.74	
1951-1999	4.63	3.72		7.46	5.57	-	8.52	6.17	-
1991-2000	2.29	1.72		3.48	2.40	-	6.39	4.43	-

Source: Selected Educational Statistics: 1999-2000, MHRD, 2001. Growth rates calculated by the author.

TABLE 4
Gross Enrolment Ratio: 1950-51 to 1999-2000

Year	Primary (Grades 1-V. 6-11 Years)			Upper Primary (Grades VI-VIII, 11-14 Years)			High/Hr. Secondary (Grades IX-XII, 14-17 Years)
	Boys	Girls	Total	Boys	Girls	Total	Total
1950-51	60.6	24.8	42.6	20.6	4.6	12.7	NA
1960-61	82.6	41.4	62.4	33.2	11.3	22.5	10.6
1970-71	95.5	60.5	78.6	46.5	20.8	33.4	19.0
1980-81	95.8	64.1	80.5	54.3	28.6	41.9	17.3
1990-91	114.0	85.5	100.4	76.6	47.0	62.1	19.3
1998-99*	100.9	82.9	92.1	65.3	49.1	57.6	30.8**
1998-99	104.1	85.2	94.9	67.2	49.7	58.8	30.0***

*Provisional thereafter, ** 1992-93, *** 1993-94

Source: Selected Educational Statistics: 1999-2000, MHRD, 2001; & Education in India: 1992-93 & 1993-94, MHRD, New Delhi.

A perusal of Table 4 reveals that Gross Enrolment Ratio between the period 1950-51 to 1999-2000 improved significantly but the same is not adequate to attain the status of universal enrolment. As against GER of 100.4 and 62.1 per cent in 1990 at the primary and upper primary level, the corresponding ratio in 1999-2000 was 94.90 and 58.80 per cent. Compared to primary and upper primary levels, GER at high and higher secondary

level is quite low. In 1990-91, it was only 19.3 per cent but improved to 30.0 per cent in 1993-94. For the latest year, the same is estimated to be around 41 per cent. The NSSO data indicates a Gross Attendance Ratio of 51 and 32 per cent respectively in the classes IX-X and XI-XII. Within these classes, a significant differential is noticed between boys/girls and rural/urban areas. The Net Attendance Ratio was low at 26 and 15 per cent respectively in the classes IX-X and XI-XII. This suggests that the majority of children of age groups 14-17 and 18-24 years in 1995-96 were not attending schools. The Age-specific Attendance Ratio was only 50 per cent; suggesting that 50 per cent of the population of age group 14-17 years were not attending schools and those attending may not necessarily be in the secondary classes.

Re-defining Universalisation

The analysis presented above reveals that at all levels of school education, a significant progress in enrolment is achieved but a large number of children still remain out of school, their estimated number in 1999-2000 being about 67 million/6-14 years, (Mehta, 2002). Unless these children are brought under the education system, the goal of universal elementary education cannot be achieved.

It may, however, be noted that without attaining the status of universal primary enrolment, the goal of universal elementary education too cannot be achieved. Primary enrolment depends on 6-11 year population but the same is not true in case of the upper primary enrolment. Upper primary enrolment is not only a function of 11-14 year population but it is also a function of primary graduates. Only primary graduates can be admitted in upper primary classes. It is quite possible that many children of 11-14 years age group are out of the system; there may also be drop-out children; and a few of them may still be in primary classes. Without bringing these children to schools, the goal of universal elementary education cannot be realized. The upper primary level of education cannot be expanded in isolation of the primary level. This is also true for secondary level, which cannot be expanded independent of upper primary level. All children of age group 14-16 years cannot be enrolled in Classes IX-X unless the goal of universal elementary education is achieved. Many children of this age group may still be in primary or upper primary classes or may even be out of school.

Thus, availability of graduates' (primary and upper primary) along with transition from primary to upper primary and upper primary to secondary level would decide the future expansion of upper primary and secondary levels of education. Further expansion of primary education and high transition from primary to upper primary level will generate more intensive demand for upper primary education to expand. Once the goal of universal elementary enrolment is realised, secondary level may then expect to receive a quantum jump in enrolment. This may happen in year 2010, if the goal of newly launched Sarva Shiksha Abhiyan is realised by that year.

Transition Rates

The inter-stage transition rates i.e. transition from Grade V, the terminal grade of primary to Grade VI, the initial grade of upper primary education and transition from terminal grade of upper primary level i.e. Grade VIII to Grade IX, the initial grade of secondary level are presented in Table 5. A close scrutiny of the Table reveals that transition rate from primary to upper primary level has been reasonably high to start with and improved consistently. In 1998-99, transition rate from primary to upper primary level was 93.37 per cent with boy/girl differential of only 5 per cent. Similarly, transition from upper primary to secondary level also remained high throughout the period from 1970-71 to 1998-99. In the latest year 1998-99, it is as high as 82.95 per cent with negligible boy/girl differential. The relatively high transition from primary to upper primary level and low gender difference suggest that unless the efficiency of primary education system is improved, the goal of universal elementary education cannot be realized. The efficiency of primary education system to expand. An inefficient primary education system will continue to send fewer primary graduates to the upper primary level.

TABLE 5 Transition Rates: 1970-71 to 1998-99

Year		Grade V	/VI		Grade VI	II/IX
	Boys	Girls	Total	Boys	Girls	Total
1970-71	86.80	74.08	82.56	17		-
1980-81	92.11	81.77	88.35	88.58	83.16	86.89
1981-82	93.77	86.41	91.10	88.67	81.67	86.47
1982-83	95.11	87.18	92.22	85.95	79.72	83.92
1983-84	92.89	86.71	90.62	86.14	81.56	84.64
1984-85	91.90	86.84	90.02	88.24	83.55	86.69
1985-86	90.79	82.01	87.45	83.93	79.02	82.28
1986-87	93.61	85.49	90.50	87.63	81.47	85.55
1987-88	91.59	83.56	88.50	84.13	79.75	82.63
1988-89	94.48	84.15	90.45	85.67	82.67	84.65
1989-90	98.32	91.30	95.56	89.37	84.64	87.72
1990-91	95.20	93.22	94.42	84.93	79.56	83.01
1991-92	87.00	83.00	85.00	79.30	70.49	76.05
1997-98*	89.00	91.00	86.00	86.34	82.64	84.89
1998-99	95.59	90.33	93.37	83.15	82.66	82.95

^{*:} Provisional thereafter

Source: Varghese & Mehta (1999); 1997-98 onwards computed by the author.

The transition between secondary and higher secondary grades (Table 6) reveals that majority of children transit from Grade IX to Grade X but the same is not true in case of promotion from Grade X to XI and Grade XI to XII. It has also been noticed that more

girls transit from Grade IX to X and also from Grade X to XI. The promotion rate from Grade IX to X in 1998-99 was as high as 86.68 per cent (Boys 85.13 and Girls 89.19 per cent). However, only 44.29 per cent children transited from Grade X to XI; thus contributing a lot to wastage in the system. On the other hand, majority of children transited from Grade XI to XII (95.52 per cent). Here again, more girls transited from Grade XI to XII than their counterpart boys. The low transition from Grade X to XI has serious implications for universalisation of senior secondary education.

TABLE 6
Grade-to-Grade Transition Rates between
Secondary and Higher Secondary Grades

Year	Sex	IX to X	X to XI	XI to XII
1990-91	Boys	87.13		
	Girls	89.56		3.
	Total	87.95		
1991-92	Boys	84.32		1.4
	Girls	81.74	-	
	Total	83.44		
1997-98	Boys	87.39	43.28	94.10
	Girls	90.66	44.22	93.79
	Total	88.62	43.63	93.98
1998-99	Boys	85.13	43.19	93.82
	Girls	89.19	46.06	98.30
	Total	86.68	44.29	95.52

Source: Calculated by the author on the MHRD data.

Enrolment Projections

The techniques of enrolment projections can broadly be divided into two groups, namely mathematical and analytical techniques. Mathematical methods assume that past trend in enrolment would continue in the future. On the other hand, analytical techniques (based on 'student cohort' analysis) takes into account the demographic pressures on education. In the absence of the latest grade-specific enrolment, it is not possible to undertake analytical methods. Recently, Mehta (1998) projected enrolment both at the primary and upper primary levels of education by using trend and cohort analysis. In addition, Varghese and Mehta (1999) also projected enrolment in upper primary classes by using a set of alternatives.

TABLE 7
Projected Enrolment: Primary Classes I-V

Year			A	Iternativ	e Scenari	ios			
				11		111		IV	
	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls	
2000-01	63.21	49.28	62.34	51.67	60.28	49.73	51.58	47.18	
2005-06	62.27	50.92	60.43	51.98	53.67	48.33	53.47	48.32	
2007-08	61.87	51.63	59.96	52.10	54.48	48.82	54.15	48.81	
2008-09	61.69	52.01	59.84	52.16	54.49	48.90	54.18	48.90	

Source: EFA in India: Enrolment Projections by Arun C. Mehta, NIEPA and Vikas, 1998,

New Delhi.

Note: The projections should be examined in the light of period of the data used.

(a) Primary and Upper Primary Level

By using Grade Transition method, Mehta (1998) used four alternative scenarios to project enrolment in primary classes. The projected figures are presented in Table 7. Varghese and Mehta (1999) projected upper primary enrolment on the basis of projected primary enrolment and percentage of upper primary to total primary enrolment. In the second alternative, trend analysis was carried out to project upper primary enrolment. In the third alternative, enrolment was projected on the basis of growth rates. As an alternative to the first three, in the last alternative, upper primary enrolment was projected on the basis of percentage share of Grade V enrolment to the total primary enrolment. The projections based upon the third and the fourth alternatives were noticed to be close, both in 2002-03 and 2008-09 (Table 7). The projected enrolment in upper primary classes is presented in Table 8.

TABLE 8
Projected Enrolment: Upper Primary Classes, VI-VIII
(Different Alternatives)

(Figures in Million)

Alternatives	2	002-03	2008-09		
	Enrolment	Enrolment Rate	Enrolment	Enrolment Rate	
11	45.25	63.41	52.18	81.76	
II	54.96	77.02	68.4	107.18	
Ш	50.23	70.39	60.16	94.27	
IV	50.02	70.1	63.04	98.78	
Age-specific Population 11-14 Years		71.36		63.82	

Source: Varghese & Mehta (1999), Universalisation of Upper Primary: Education in India: An Analysis of Present Status and Future Requirements, NIEPA, New Delhi.

(b) Secondary Level

Since the grade-specific enrolment at the upper primary level is not projected, it is not an easy task to project enrolment in secondary classes. Nor the Grade Transition Method can be applied because of the data that is not available. Second, the method is best applicable to project enrolment in primary classes only. Lastly, because of the changes in the definition of universalisation, the same is not appropriate to apply both at the upper primary and secondary levels of education. Therefore, various alternatives are tried to project enrolment in secondary classes details.

Alternative I: In Proportion of Grade VIII to Total Upper Primary Enrolment

In the first alternative, percentage of Grade VIII enrolment to total upper primary enrolment (Classes VI-VIII) in 1998-99 (provisional) is applied to projected enrolment at the upper primary level to obtain enrolment in Grade VIII. At present, the share of Grade VIII enrolment is 29.87 per cent. The transition rate from upper primary to secondary level (84.89 per cent, Table 5) is then applied to projected Grade VIII enrolment to obtain total enrolment in Grade IX, which is multiplied by two to obtain total enrolment in secondary classes (all the Grade IX children may not necessarily transit to Grade X, at present the rate is about 87 per cent but in case of universalisation, it will further improve and will fast approach hundred per cent). This was applied to all the four scenarios developed by Varghese and Mehta (Table 8) to obtain enrolment in secondary classes (Classes IX & X). The projected figures are presented in Table 9.

TABLE 9
Projected Enrolment: Secondary Classes*
(Different Alternatives)

(Figures in Million)

Scenarios	Gra	ade IX	Grades IX-X	
	2004-05	2010-11	2004-05	2010-11
1	11.47	13.23	22.94	26.46
П	13.94	17.34	27.88	34.68
III	12.81	15.25	25.62	30.50
IV	12.68	15.98	25.36	31.96

Based on percentage of Grade VIII to total upper primary enrolment (29.87 per cent) and transition from upper primary to secondary level (84.89 per cent) by assuming that all children of age group 6-11 years will be enrolled in 2001/2007 as per projected upper primary enrolment presented in Table 8.

The projected figures presented in Table 9 reveal that enrolment in Grade IX in 2005 is expected between 11.47 million under Scenario I to 13.94 million under Scenario II. Varghese and Mehta (1999) retained Scenario IV for projecting financial requirements of universalizing upper primary education. According to this scenario, enrolment in Grade IX is likely to be 12.68 million in 2005. It may, however, be noted that at present (1998-

99) enrolment in Grade X is only 9.90 million (Boys 6.12 and Girls 3.78 million). Thus, if UPE is achieved by 2001 and children transit to upper primary level and then to Grade IX (the first grade of secondary level), the system is expected to receive a quantum jump in enrolment in the year 2005. But since the universalisation has not yet been achieved (in 2001), this alternative is not retained for further analysis.

Alternatively, if the UPE is achieved by 2007, enrolment in secondary classes can also be projected accordingly. In 2007, it is projected that there would be around 57.75 million boys and 54.94 million girls of age group 6-11 years. At present, transition rate from upper primary to secondary level is 84.89 per cent and promotion rate from Grade IX to X is 88.62 per cent. These rates are expected to further improve in case of universalisation in 2007. Therefore, by assuming that all children in Grade IX will transit to Grade X and transition rate from upper primary to secondary level improves to 90 per cent, enrolment in Grades IX-X is projected. The projected enrolment in 2011 comes out to be 33.90 million (GER, 77.73 per cent); the corresponding enrolment in Grade IX would be 16.95 million. At present, the total enrolment in secondary classes is 18.45 million. UPE, in 2007, thus would result into about two-fold increase in secondary enrolment in 2011 from its present level. In case no improvement takes place in the existing rates, enrolment in secondary classes is alternatively projected to be 31.96 million, as against 15.98 million in Grade IX in year 2011 (Table 9).

Alternative II: UEE, if Achieved, by 2010

The SSA envisages achieving the goal of UEE by 2010 (MHRD, 2000). Therefore, under the Alternative II, enrolment is projected by assuming that the goal of universal elementary enrolment will be achieved by 2010. The projected population suggests that there would be around 63.62 million children of age group 11-14 years in 2010 (Table 10). The existing share of Grade VIII to total upper primary enrolment (29.87 per cent) may further improve if drop-out rates between upper primary classes decline. However, it may be noted that the existing drop-out rates are very low compared to drop-out rates between primary classes. It may also be noted that, repetition rates in upper primary classes is a bit higher than the drop-out rates. Therefore, no assumption is made on future share of Grade VIII enrolment. It is assumed that it will remain constant at its present value. In addition, universalisation of elementary education will further improve transition from upper primary to secondary level (say about 90 per cent).

Thus, if the goal of universal upper primary education is achieved by year 2010 and 90 per cent children transit to the secondary level, it is estimated that enrolment in Grade IX in the year 2012 would be around 17.10 million (Table 10). In case no improvement takes place in transition rate, the same would be around 16.13 million. In case both the transition rate as well as the share of Grade VIII enrolment improves, Grade IX enrolment is projected to be 20.04 million. Alternatively, if transition rate remains constant but share of Grade IX improves to 35 per cent, projected Grade IX enrolment comes out to be 18.90 million. Altogether, enrolment at the secondary level under different assumptions is projected between 32.26 to 40.08 million in 2012. Thus,

universalisation in 2010 will result into a quantum jump in secondary enrolment from its present level if both the transition as well as share of Grade VIII to total upper primary enrolment improves slightly.

TABLE 10
Alternative II: Goal of UEE, if Achieved, by 2010

(In Million)

Assumptions	Projected Enrolment			
	Grade IX, 2010	Grades IX-X, 2012		
(A) Improved Transition Rate from Upper Primary to Secondary Level (90 per cent)	17.10 (A & C)	34.20 (A & C)		
(B) Constant Transition Rate (84.89 per cent)	16.13 (B & C)	32.26 (B & C)		
(C) Constant Share of Grade VIII to Total Upper Primary Enrolment (29.87 per cent)	18.90 (B& D)	37.80 (B & D)		
(D) Improved Share of Grade VIII to Total Upper Primary Enrolment (35 per cent)	20.04 (A & D)	40.08 (A & D)		
Projected 11-14 Year Population in the year 20	10=63.62 Million	425.36		

Alternative III: Based on Past Growth Rates

In addition to the above alternatives, using the recent growth rates, enrolment at the secondary level is projected. For this purpose, both the MHRD and the NCERT set of enrolment data have been used. Needless to mention that projections based on growth rates are crude in nature as neither the age-specific population nor the elementary graduates are considered in projections. Second, once the goal of universal elementary education is achieved, the growth rates will further improve to a significant effect up to a certain period after which they will settle down. However, they give reasonably enough indication about future size of enrolment.

(a) Based on the MHRD Data

By using the growth rates between the periods 1988-89 to 1998-99, enrolment in secondary classes is projected. During 1988-89 to 1998-99, enrolment in secondary classes increased at the rate of 3.31, 5.54 and 4.10 per cent per annum respectively in case of boys, girls and overall enrolment (Table 11). By assuming that the growth rates will remain constant, it is projected that enrolment in secondary classes would be around 23.49, 28.72 and 35.11 million respectively in the years 2005, 2010 and 2015. This gives a GER of 51, 65 and 82 per cent in the years 2005, 2010 and 2015. Table 11 further reveals a significant boy/girl differential in the projected GER in 2005 and 2010. In 2015, the differential is estimated to be around 7 percentage points.

TABLE 11
Projected Enrolment (Grades IX-X): Based on MHRD Data

_				/
	Year	Boys	Girls	Total
	1988-89	8.23	4.12	12.34
	1998-99	11.34	7.05	18.45 (41.17)
	Rate of Growth (%)	3.31	5.54	4.10
	2004-05	13.86	9.75	23.49
		(58.43)	(44.22)	(51.32)
	2009-10	16.31	12.76	28.72
		(72.49)	(59.46)	(65.33)
	2014-15	19.20	16.71	35.11
_		(87.51)	(80.85)	(82.13)

Note: Projected GER is presented in the parentheses.

In the present exercise, enrolment in Grade IX is also projected by assuming that the past growth rates in enrolment will continue. During 1988-89 to 1998-99, enrolment in Grade IX increased at the rate of 2.72, 5.01 and 3.54 per cent per annum in case of boys, girls and total enrolment. If the growth rates continue, it is projected that enrolment in Grade IX would be around 12.20, 14.51 and 17.27 million respectively in the years 2005, 2010 and 2015 (Table 12).

TABLE 12
Projected Enrolment (Grade IX): Based on MHRD Data

(Figures in Million)

		, ,	
Year	Boys	Girls	Total
1988-89	4.68	2.31	6.99
1998-99	6.12	3.77	4.33
Rate of Growth (%)	2.72	5.01	3.54
2004-05	7.19	5.06	12.20
2009-10	8.23	6.46	14.51
2014-15	9.41	8.26	17.27

(b) Based on the NCERT Data

It may be noticed that the above projections are made by using the official set of enrolment data. In the past, a significant deviation in enrolment is noticed between the MHRD and the NCERT set of data (Mehta, 1996). It may also be noticed that the official estimates of enrolment irrespective of survey (2nd to 6th) have been found overestimated

compared to the all-India survey estimates. Because of these reasons, an alternative is also tried to project enrolment in secondary classes by using the data between the Fifth (1986-87) and Sixth (1993-94) surveys.

TABLE 13
Projected Enrolment (Grades IX-X): Based on NCERT Data

		(Figures in Million)		
Year	Boys	Girls	Total	
1986-87	7.87	3.65	11.52	
1993-94	9.67	5.55	15.22	
Rate of Growth (%)	2.99	6.17	4.06	
2004-05	13.37	10.72	23.58	
	(56.37)	(48.62)	(51.52)	
2009-10	15.49	14.47	28.77	
	(69.56)	(67.43)	(65.44)	
2014-15	17.43	18.38	33.74	
	(79.44)	(88.33)	(78.92)	

Note: Projected GER is presented in the parentheses.

During 1986-87 to 1993-94, enrolment in secondary classes increased at an annual rate of 4.06 per cent. The corresponding increase in case of boys and girls enrolment was 2.99 and 6.17 per cent (Table 13). It may be noticed that despite the different sets and periods of data, the overall secondary enrolment increased almost at the same rate of 4 per cent per annum. Also, in both the sets of statistics, girls' enrolment increased at a much faster rate than the increase in boys' enrolment. This is because of the lower girls' enrolment in the base year. The projected enrolment presented in the Table 13 reveals that enrolment in secondary classes would be about 23.58, 28.77 and 33.74 million in 2005, 2010 and 2015. This gives a GER of 51.52, 65.49 and 78.92 per cent respectively in the years 2005, 2010 and 2015.

TABLE 14
Projected Enrolment (Grade IX): Based on NCERT Data

	(Figures in Million)		
Boys	Girls	Total	
4.35	2.06	6.41	
5.33	3.10	8.43	
2.95	6.01	3.99	
7.33	5.89	12.97	
8.48	7.89	15.77	
9.52	9.97	18.44	
	4.35 5.33 2.95 7.33 8.48	Boys Girls 4.35 2.06 5.33 3.10 2.95 6.01 7.33 5.89 8.48 7.89	

By using the same set of data, enrolment in Grade IX is also projected for years 2005, 2010 and 2015. During 1986-87 to 1993-94, Grade IX enrolment increased at the rate of 3.99 per cent per annum. Again, girls' enrolment in Grade IX increased at a much faster rate (6.01 per cent) than the increase in boys' enrolment (2.95 per cent). The projected enrolment (Table 14) reveals that total enrolment in Grade IX in 2005 would be around 12.97 million against the present 9.90 million. This is likely to increase further to 15.77 million in 2010 and to 18.44 million in the year 2015.

A glance at Tables 11 to 14 reveals that not much deviation is noticed between the projected secondary enrolment based on the Official and NCERT set of data. As against the projected enrolment of 23.49 million in 2005 based on the MHRD set of data, the corresponding estimate based on the NCERT data comes out to be 23.58 million. Similarly, enrolment in 2010 is projected to be 28.72 million (MHRD) and 28.77 million (NCERT). However, a gap of about 1.37 million is noticed between the two estimates in year 2015. Quite a similar trend is also noticed in case of the projected Grade IX enrolment. As against, 12.20 million enrolment based on the MHRD data, the corresponding enrolment in 2005 based on the NCERT data is 12.97 million. The projected Grade IX enrolment in 2010 comes out to be 14.51 and 15.77 million respectively in case of MHRD and NCERT data sets. It may be noticed that the projected enrolment in Grade IX under present alternative is close to earlier estimates presented above.

Alternative IV: Enrolment in Grade IX in Relation to Enrolment in Grade I

In the next alternative, enrolment in secondary classes is projected on the basis of Grade IX enrolment as a proportion of Grade I enrolment. For this purpose, first the ratio of Grade IX to Grade I enrolment eight years back is calculated separately for boys and girls. This requires grade-wise enrolment over a period of time, which is available from the Education in India (Volume I). But separate enrolment in this publication is not available for Grades XI and XII. However, the same is also available from one of the other publications of the MHRD, namely, the Selected Educational Statistics. The transition rates as well as the ratio of Grade IX to Grade I is presented in Tables 5, 6 and 15.

Table 15 reveals that only 37 per cent children who had taken admission in Grade I in 1990-91 managed to reach Grade IX in 1998-99. The corresponding percentages for boys and girls in the same year were 39 and 33; thus, showing a boy/girl differential of 6 percentage points. The trend in retention at the secondary level further reveals that it has improved from a low 27 per cent in 1989-90 to 33 per cent in 1992-93 and to 41 per cent in 1997-98 but declined to 37 per cent the following year. The boy/girl differential in retention during the same period also declined from 8 percentage points in 1989-90 to 6 percentage points in 1998-99. It may also be noted that only 27 children could reach Grade X in 1992-93 out of 100 in Grade I in year 1983-84. This indicates that over 18 million children dropped out from the system in the process out of 25.55 million enrolled in Grade I in 1983-84, thus contributing a lot of wastage in the system.

In case, the goal of universal primary enrolment (as envisaged in SSA) is achieved by 2007, all children of age '6' would have to enrolled by 2002-03 and retained thereafter in the system. It is assumed that the existing ratio of Grade IX to Grade I (37 per cent) will remain constant. The projected population shows that there would be about 11.95 million boys and 11.57 million girls of age '6' in year 2002-03. Accordingly, it is projected that there would be around 4.42 million (Boys) and 4.28 million (Girls) in Grade IX in year 2011.

TABLE 15
Ratio of Grade IX to Grade I Enrolment Eight Years Back

Year	Ratio of Grade IX to I Enrolment						
	Boys	Girls	Total	Boy/Girl Differential (%)			
1989-90	30	22	27	8			
1990-91	35	26	31	8			
1991-92	36	28	32	8			
1992-93*	37	28	33 (27.06)	10			
1997-98**	45	36	41	9			
1998-99	39	33	37	6			

^{*} In the parentheses ratio of Grade X to I is presented.

The projected enrolment in Grade IX (8.70 million) is found much lower than the actual enrolment in Grade IX in the year 1998-99 (9.90 million). This may be because of the large number of over-age and under-age children in Grade I. In 1998-99, the percentage of over-age and under-age children in Grade I was around 30.80 (Boys 42.98 and Girls 16.67 per cent). Thus, the projected population of age '6' in year 2002-03 is inflated by the corresponding percentage of over-age and under-age children and enrolment in Grade IX is estimated. However, the percentage of overage and underage children is expected to decline as we approach UPE. Needless to mention that a slight change in age '6' population will dramatically change the projected enrolment at the secondary level. The revised enrolment in 2011 thus comes out to be 6.32 million (Boys), 4.99 million (Girls) and 11.37 million (Total). The projected Grade IX enrolment is then multiplied by two to obtain enrolment in Grades IX-X. There would be around 22.74 million enrolment in secondary classes in year 2012.

The projected enrolment under the present alternative is found lower than the earlier projections. This may be because of the ratio of Grade IX to I itself. Earlier projections were independent of this ratio. Second, it has been assumed that the existing ratio (37 per cent) will remain constant throughout the projection period, which may not remain true in years that follow. Third, the projections under the present alternative are independent of transition from upper primary to secondary level. No method is expected to produce

^{**} Provisional thereafter.

reliable estimates of secondary enrolment unless elementary graduates and transition rates are considered in projections. The same under the present alternative is not possible to use. However, assuming that the percentage of Grade IX to Grade I enrolment will improve each year by five percentage points to 42, 47 and 52 per cent respectively in the years 2012, 2013 and 2014, enrolment is projected. The projected enrolment in secondary classes thus comes out to be 25.84, 28.92 and 32.00 million respectively in the years 2012, 2013 and 2014, which are close to the earlier projections. However, keeping in view the existing status of retention, it may not be an easy task to improve the share of Class IX to Class I by 5 percentage points each year.

Scenario V: Universal Secondary Enrolment, if Achieved, by 2015

If the goal of universal secondary enrolment (Grades IX-X) is achieved by 2015, enrolment in Grade IX can also be projected accordingly. But one has to first define the meaning of universalizing secondary education. Universalizing secondary education means that (i) all children of age group 14-16 years are enrolled in secondary classes (NER, 100 per cent); (ii) they remain in the system (retention rate, 100 per cent); and (iii) transit to the first grade of the next education cycle. However, initially it may not be possible to achieve hundred per cent net enrolment and retention in the secondary classes. This is more so specific keeping in view the present status of elementary education in the country. Even, in developing countries that have achieved the goal of universal enrolment, it is not hundred per cent. Then, what should be the goal in the Indian context? Maybe, it is 85, 90 or 95 per cent. Achieving universalisation of secondary education in 2015, thus means that 85/90 per cent children who take admission in Grade I in 2007 will reach Grade IX in 2015. It is projected that there would be about 22.76 million children of age '6' in year 2007. All these children would require enrolling and 80 per cent of them would need to retain till Grade IX (18.21 million). Under these assumptions, enrolment in secondary classes is projected to be 36.42 million in year 2015. The under-age and over-age children in Grade I (30.80 per cent), if considered, will give an enrolment of 47.63 million. This can be repeated to obtain enrolment in any given year by which the goal of universal secondary education is achieved.

The available data suggests that the goal of UPE has not yet been achieved in 2001. If this is so, then the goal of universal secondary enrolment also cannot be achieved at least by the year 2009. Even if the goal of UEE is achieved by 2010, the goal of universal secondary enrolment can only be achieved in 2012. This implies that all upper primary graduates will transit to the first grade of secondary level. They will also remain in the system and complete Grade X. The existing pass percentages across the country, however, do not suggest that it can be achieved by 2012.

The summary of projections is presented in Table 16.

TABLE 16 Summary of Projections Under Different Alternatives (in Million)

Alternatives	Year	Projected Population 14-16 Yrs.	Grade IX	Grades IX-X	Projected Enrolment Ratio
Alternative I: In Proportion of Grade VIII to Total Upper Primary Enrolment Constant share of Grade VIII to total upper primary enrolment (29.87 per cent) & improved transition from upper primary to secondary level (90%) and UPE by 2007. Upper Primary Enrolment = 63.04 million, 2007	2011	43.61	16.95	33.90	77.73
Constant share and constant transition rate (84.89%) & UPE by 2007	2011	43.61	15.98	31.96	73.29
Both the share of Grade VIII and transition rate remain constant & UPE by 2001, Upper Primary Enrolment = 50.02 million, 2001	2005	45.76	12.68	25.36	55.42
Alternative II: UEE by 2010 (Population, 11- 14 Years = 63.62 million) With improved transition rate (90%) and constant share (29.87%)	2012	43.75	17.10	34.20	78.17
With constant transition rate (84.89 %) and constant share	2012	43.75	16.13	32.26	73.74
Constant transition and improved share (35%) Improved transition and improved share	2012 2012	43.75 43.75	18.90 20.04	37.80 40.08	86.40 91.60
Alternative III: Rate of Growth Method MHRD Data: 1988-89 to 1998-99 (G.R, 4.10% Grades IX-X & 3.54%, Grade IX)	2005 2010 2015	45.76 43.97 42.24	12.20 14.51 17.27	23.49 28.72 35.11	51.33 65.32 82.12
NCERT: 1986-87 to 1993-94 (G.R, 4.06% Grades IX-X & 3.99%, Grade IX)	2005 2010 2015	45.76 43.97 42.24	12.97 15.77 18.44	23.58 28.77 33.74	51.53 65.43 79.88
Alternative IV: Grade IX in Relation to Grade I Enrolment 8 years back (Projected Population Age '6', 2003 = 23.52 million), Over-age/ under-age = 30.80 per cent Constant ratio of Grade IX to Grade I 37 % Improved ratio of Grade IX to Grade I 42% 47% 52%	2011 2012 2013 2014	43.61 43.75 42.93 42.24	11.38 12.92 14.46 16.00	22.76 25.84 28.92 32.00	52.19 59.06 67.37 75.76
Alternative V: Universalisation of Secondary Education, if Achieved, by 2015 Enrolment Ratio, 80%	2015	42.24	18.21	36.42	86.22
Same as above but adjusted for under-age/over- age children @30.80 per cent)	2015	42.24	23.81	47.63	112.46
Present Enrolment	1999		9.90	18.45	1.1.

Concluding Remarks

SSA envisages that the goal of UPE will be achieved by 2007 and that of UEE in 2010. Keeping this in view, a number of alternatives have been tried and enrolment in secondary classes was projected. In addition, a few other alternatives were also tried. In the first alternative, secondary enrolment was projected on the basis of proportion of Grade VIII to total upper primary enrolment by assuming that UPE will be achieved in 2007. The enrolment in 2011 thus comes out to be 31.96 million (GER, 73 per cent). A slightly improved transition rate will give a GER of 78 per cent. Under Alternative II, it is assumed that UEE would be achieved by 2010 and the existing transition rate from upper primary to secondary level and share of Grade VIII to total upper primary enrolment will remain constant. Under this alternative, projected GER in 2012 comes out to be 74 per cent (32.26 million). If the transition rate improves to 90 per cent, the system will have even higher GER of about 78 per cent (34.20 million). However, keeping in view the present status of educational development, out-of-school children and drop-out rates do not suggest that UPE and UEE will be achieved by 2007 and 2010 respectively. Therefore, by using the most recent growth rates, enrolment in secondary classes is projected under the Alternative III. However, the present growth rates may not continue in years that follow but they give reasonably good indication about the future size of secondary enrolment. Under this alternative, enrolment in 2010 is projected to be 29 million (GER, 65 per cent) and 35 million (GER, 82 per cent) in 2015. The other most appropriate method that was attempted is Grade IX enrolment in relation to Grade I enrolment eight years back. According to this, it is projected that secondary classes would have at least 22.76 million enrolment in 2007. The ratio (Grade IX to I, 37 per cent), if improved each year by five percentage points to 52 per cent in 2014 would give an enrolment of 32 million (GER, 76 per cent) provided that the existing level of Grade I enrolment is maintained in 2002. In case Universal Secondary Education (GER, 80 per cent) is achieved by 2015, enrolment is also projected accordingly (Alternative IV). A GER of 80 per cent (36.43 million) in 2015 from now may not be an easy task to achieve, especially keeping in view its present level i.e. 41 per cent.

The projections attempted should be viewed in the light of assumptions made and period of data used in making projections. The share of Grade VIII to total upper primary enrolment and also transition from upper primary to secondary level is based upon the provisional data, which may change as and when final set of data is available. Projections beyond 15 years from now is not likely to remain valid, especially keeping in view the year for which the latest enrolment data is available and also the quality of data which is often questioned by data users. Needless to mention that once the latest set of population and enrolment estimates are available, one has to re-look into the projections.

The projections clearly reveal beyond doubt that the goal of universal secondary enrolment is not likely to be realized at least by the year 2015. The projected enrolment indicates that enrolment in secondary classes in 2007 would be around 23 million. The system would have about 32 million enrolment in 2012 and 35 million in 2015. All this indicates a quantum jump in enrolment from its present level (18.45 million) in years that

follow. If realized, it would have serious implications on schooling facilities that would be required in future. Eventually, it will decide the future expansion and investment priorities in the education sector. At present, secondary schools have an average enrolment of 230. At this rate, the 35 million enrolment would require an additional 88 thousand schools/sections in 2015. An average of 5 teachers per school would require an additional 440 thousand secondary teachers in 2015. At the present per pupil cost of Rs. 2200, 35 million enrolment in secondary classes would require an investment of Rs. 7,700 crore in 2015. Though the above calculations are preliminary in nature, they do give enough indication about the size of investment that would be required in future.

It is also a misconception that universalisation of secondary education in India means a GER ranging between 65 and 75 per cent. However, the projections attempted here clearly show that GER of 80 per cent is feasible. It may not be difficult to achieve even if the existing transition rate and share of Grade VIII to total upper primary enrolment is maintained. The existing transition rates from primary to upper primary and upper primary to secondary levels are high. Drop-out rate between the upper primary grades is low and promotion rate from Grade IX to X is high. Universalisation of elementary education will further improve transition rate; in that case a GER of more than 80 per cent is not ruled out. The analysis presented further shows that upper primary education system is more efficient than primary education system. The goal of universal secondary education cannot be achieved unless the efficiency of primary education system is improved, without which even the goal of UEE cannot be achieved. Once the goal of USE is achieved, only then one can think of universalisation of senior secondary education (USSE), which is nowhere in sight. It is also observed that pass percentage from Grade X to XI is very low, which does not suggest that goal of USSE is possible in the next 20-25 years. Within the senior secondary grades, however, the transition rate between Grade XI to XII is quite high. The major areas of concern are: (i) inefficient status of primary education system; (ii) large number of unserved habitations and very low pass percentage from Grade X to XI; (iii) comparatively low participation of girls across educational levels; and (iv) very low attendance rates especially in secondary classes. Without significant improvement, the goal to achieve universal secondary education cannot be dreamt of.

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