

Equity in Access and Learning:

A Way Forward for Secondary Education in India

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Abstract: The future development of the Rashtriya Madhyamik Shiksha Abhiyan (RMSA) has to link access, equity, efficiency and effectiveness to an increased flow of children through the school system. Planning must reconcile high aspirations with realistic goals and allocate resources in ways which reflect demography, constraints on growth arising from the flow of children up to grade 8, efficient teacher deployment, and curricula and pedagogies relevant to new learners. It also needs to tailor expansion to promote pro-poor and more equitable access to quality secondary schooling. The challenge for RMSA is to identify ways to accelerate progress that are financially sustainable, demographically realistic, democratically accessible, and which lead to universal access and higher levels of educational achievement.

1.0 Introduction

The *Rashtriya Madhyamik Shiksha Abhiyan* (RMSA) is an initiative of the Government of India in partnership with State governments which seeks to universalise enrolment in grades 9 and 10 across India. It supports the upgrading of existing schools, the building of new schools to reach under-served areas, investments in quality improvement, and contributions to recurrent costs. The goal set was to universalise entry into secondary school by the end of 2017 and achieve universal completion of grade 10 by the end 2020 (Government of India, 2007, 2012; MHRD, 2009, 2010). Achievement of this goal will lessen the gap between India and other low middle income countries, increase international competitiveness through investment in human capital and enhance social justice and the extension of the Right to Education to the age of 16. It builds on the report from the Council of the Advisory Board for Education (CABE), (Government of India, 2005, 2015). The challenge for RMSA is to identify ways to accelerate progress that are financially sustainable, demographically realistic, democratically accessible, and which lead to expanded capabilities indicated by higher educational achievement and attainment.

This paper summarises and reflects on research undertaken over the last decade across India by the RMSA TCA group of the Ministry of Human Resource Development (MHRD) with support from the National University for Educational Planning and Administration (NUEPA) and assistance from the UK Department for International Development¹.

The research addressed issues of access, equity and financing which have been long standing concerns of Professor Govinda (e.g. Govinda, 2006, 2011; Govinda and Bandyopadhyay, 2008, 2010; Govinda and Biswal, 2006) and is written as a contribution to his Festschrift. This research builds on many other contributions to the development of policy on secondary education expansion in India (e.g.

¹ This chapter draws on research reported in

<https://keithlewin.net/wp-content/uploads/2016/05/0.-Synthesis-Equity-in-Access-and-Learning-in-India.pdf>. The research team was led by Keith Lewin and included Shashiranjan Jha, Gaurav Siddhu and Joanna Harma, and who contributed extensively to the data collection and analysis and provided insights and illumination to the findings. [The programme was](#) undertaken by the Technical Cooperation Agency (TCA) of the RMSA, MHRD, Government of India. The research was supported by grants from the United Kingdom, Department for International Development.

Tilak,2008,2020; Lewin,2008, 2011; Bandyopadhyay,2020; Prakesh and Biswal, 2007; Reddy,2008; Siddhu,2010; World Bank,2009; Biswal,2011; Jha,2016).

This paper has several sections. The first part identifies patterns of enrolment in secondary school. The next sections discuss five dimensions of recent educational development in India. These are demographic transition, school size, location, household affordability and public financing. The issues that arise are then synthesized into ten conclusions that will shape the agenda for planning and define policy dialogue over the next decade.

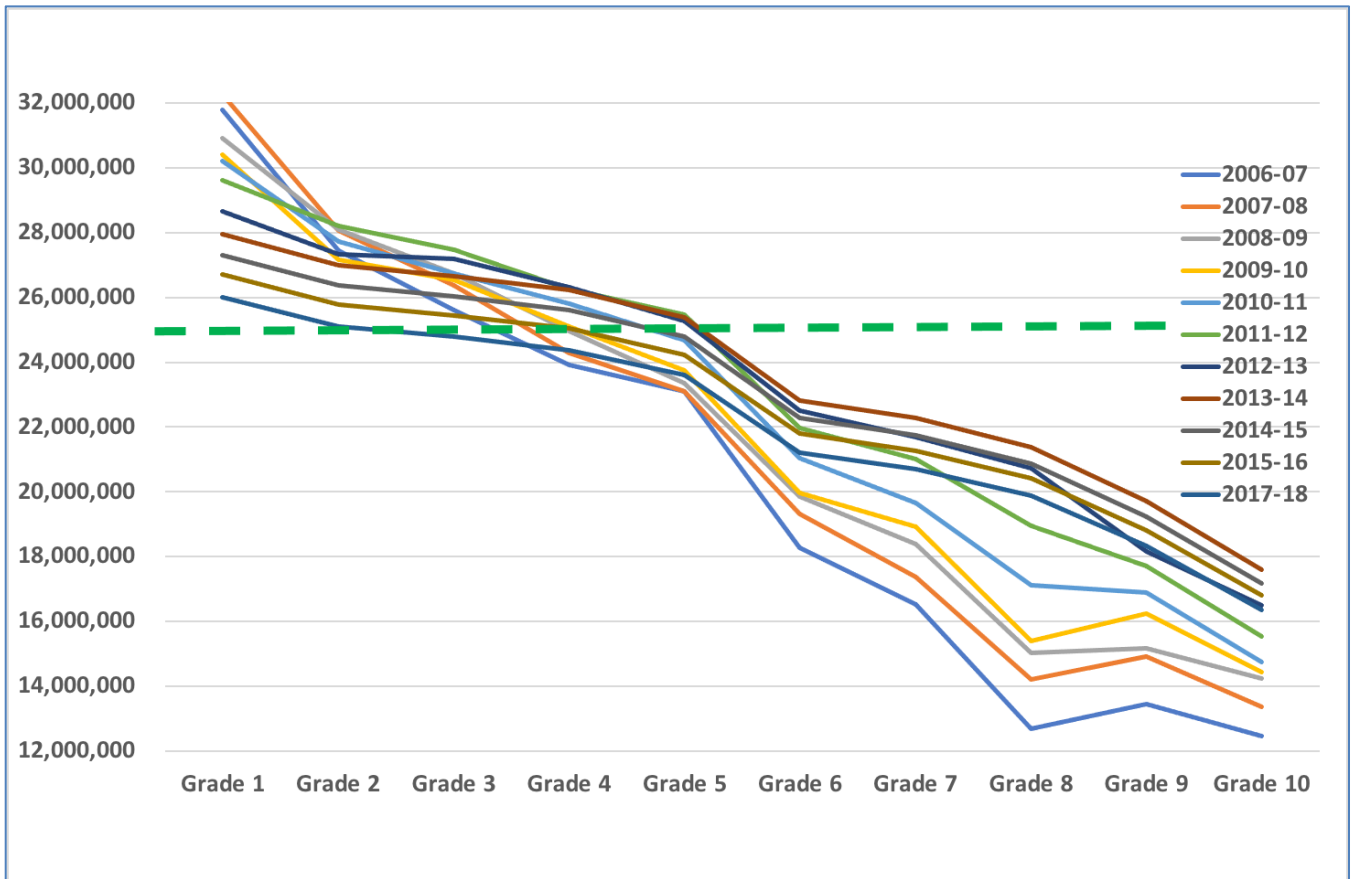
2.0 Patterns of Enrolment in Secondary School

India's progress in improving access to secondary education has been considerable but it has been uneven and has fallen behind the expectations of the 11th and 12th Five Year Plans and the ambition that no child would be excluded from grades 9 and 10 because of their social group affiliation or the wealth of their households. Though gross enrolment rates (GERs) at the secondary level have reached exceeded 70 per cent, average net enrolment rates (NERs) still linger at not much more than 45 per cent, indicating that many of those who reach grade 9 are over age².

The National Achievement Survey (NAS) data shows that at least half of all children are performing poorly, confirming that many secondary school students would fail to reach the Programme for International Student Assessment's (PISA) minimum score levels in core subjects. As a result of drop out and under-achievement, no more than 60 per cent of all Indian children complete secondary school to grade 10 successfully. Examination Board qualifications indicate wide variations between schools in mastery of the national curriculum. Those from scheduled tribes and castes and from other educationally marginalised groups, are especially disadvantaged. Girls' enrolments and achievement lag behind those of boys in low enrolment States, but girls often outperform boys where enrolment rates are high.

About 27 million children are enrolled in grade 1 across India as shown in Figure 1. This total includes many over-aged and some under-aged children. By grade 5, the total number enrolled is similar to the number of 10-year olds in the population (indicated by the dotted line). From grade 6 upwards, there are fewer children enrolled than there are in the relevant age group, and by grade 9, after the transition to secondary school, enrolments have fallen to about 19.7 million. Over the last ten years enrolments have grown at every grade level. However, drop out has not fallen rapidly and the numbers surviving to grade 8 are becoming a constraint on growth at secondary level. Figure 1 shows enrolments by grade over time for all India. It is highly aggregated and patterns differ greatly between States, districts and blocks. There are also large differences between the social groups (i.e. Scheduled Castes (SC), Scheduled Tribes (ST), Other Backward Castes (OBC), those with disability, etc.). Figure 1: Enrolment by grade, All India

² Statistics on participation are drawn from the Selected Statistics of the Government of India (SES for various years, the National Sample Survey Office (NSSO) and census data.



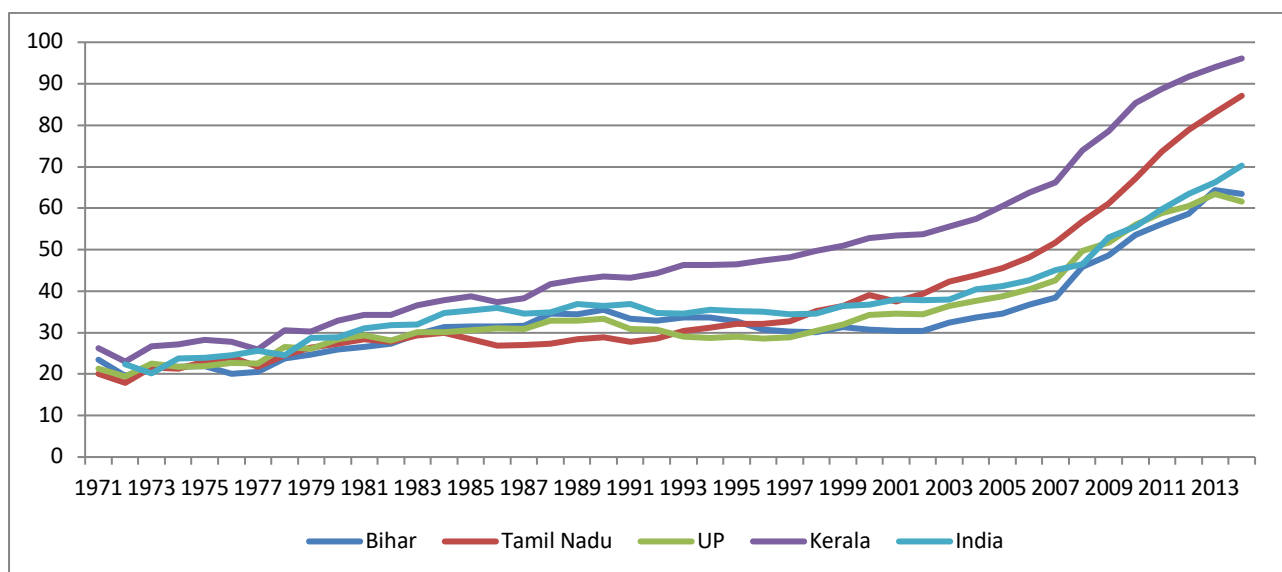
Source: Selected Education Statistics, Ministry of Education, MHRD 2018 and previous years

Participation in secondary school is highly unequal. Only about 11 per cent of children in the lowest quintile of household expenditure are likely to reach secondary school whilst almost all of those in the richest quintile complete grade 10. The average number of years of schooling received by all children varies by more than 2:1 between States. Children who are two or more years over-age make up more than 30 per cent of children enrolled in grade 5, and only 30 per cent of 14-year old children are in the correct grade for their age. Boys entering school at age 10 have one-eighth of the chance of attending secondary schools of those entering at the age of 6, and over-aged girls only one-sixteenth the chance.

Gross enrolment rates have increased consistently over the last twenty years. The growth in participation partly reflects the success of *Sarva Shiksha Abhiyan* (SSA) in increasing the flow of students into grade 8. Future growth will be concentrated in low enrolment States and districts, and will need to be much higher amongst SCs, STs and OBCs than other caste groups. It is important to note that though RMSA attracted support from development agencies, it has been overwhelmingly financed from domestic revenue with the consequence that reforms have been endogenously driven, not led by external partners. This anticipates new relationships between development partners (Lewin (2020)).

Completion rates for secondary schooling have followed a trajectory of slow growth, accelerating since 2007. There was a steady increase from the 1970s when about 20 per cent completed secondary school, until 2006 when the average across India was around 45 per cent. After this, participation accelerated rapidly in most States. There is evidence that gaps between the more and less developed States began to widen as growth accelerated, as is made clear in Figure 2 which shows completion rates across four States. Since 2015 growth in enrolment and completion has slowed as increased participation has been balanced by falling numbers in the age group.

Figure 2: Percentage completing secondary in five-year cohorts from 17-22 years olds

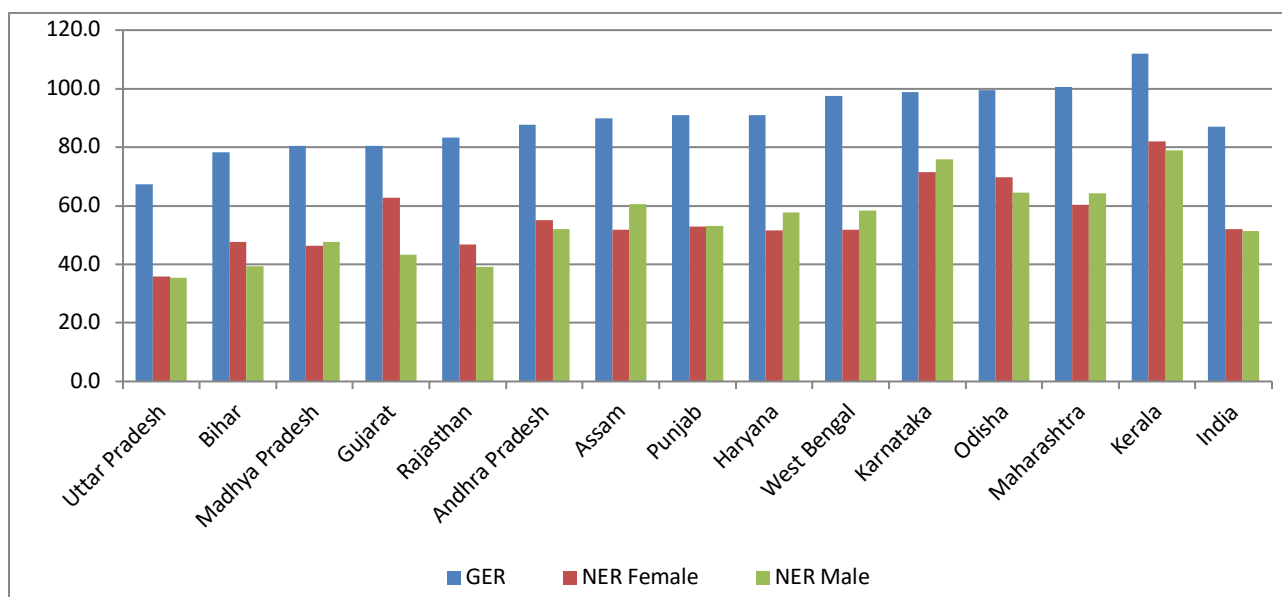


Source: National Social Survey Organisation: 70th Round June 2014)
Government of India

The first critical issue for RMSA is managing the flow of new students into the expanded secondary school system. In some States the number of children reaching and successfully graduating from grade 8 is insufficient to support universal access to grade 9 (MHRD 2015b). Repetition is still common and transition rates from grade 5 to 6 and from grade 8 to 9 remain substantially well below 100 per cent in low enrolment States. They are especially low for SCs and STs.

The gap in enrolments between boys and girls in secondary schools has closed considerably. Whilst there were three times as many boys as girls enrolled in 1970, by 2015 boys' enrolment was only 5 per cent more than that of girls. Nearly half (15 out of 36 States) have more girls than boys enrolled in secondary. Figure 3 shows how GERs at secondary vary by sex and how much lower the age-specific enrolments are in different States. Many children are not on schedule to complete secondary school by the age of 17 years and are over-age because of late entry to grade 1 and repetition in higher grades. There are strong associations between being over-age and failure to transition to secondary school.

Figure 3: Gross Enrolment and Age Specific (14-15 years) Enrolment Rates



Source: Selected Education Statistics, Ministry of Education, MHRD 2018 and previous years

The differences in enrolment rates by gender are much smaller than the differences related to household wealth. Children from the poorest quintile can have a less than 30 per cent chance of completing secondary compared with over 80 per cent in the richest group. The poorest 20 per cent of children are eight times less likely to complete secondary school than the richest 20 per cent in Gujarat and Rajasthan. These differences related to income are much bigger than those associated with urban and rural residence though these are also substantial. Differences between girls and boys are concentrated amongst the poorest with almost no difference between boys and girls in the richest quintile.

From the analysis of a range of data sets we note that:

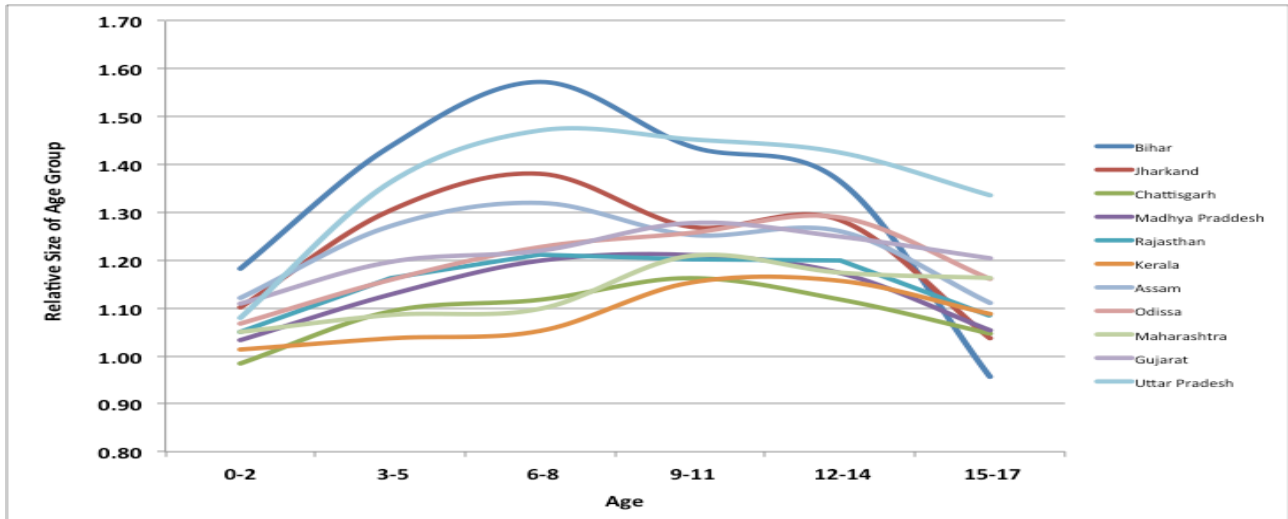
- About 40 per cent of children fail to reach grade 9 as a result of drop out in grade 8 and below. Gaps in enrolment rates between more and less advanced States may have increased during the recent period of rapid growth.
- The all India participation rates of boys and girls is approaching parity though differences remain between States. Parity does not mean that there are similar numbers enrolled since there are up to 15 per cent more boys in the school age population in parts of some States like Gujarat and Punjab.
- Scheduled Tribe (ST) students have much lower enrolment rates than other groups and Scheduled Tribes and Castes (STCs) and Other Backward Castes (OBCs) also have further to go to reach universal enrolment.
- Students from the poorest quintile of households have a much smaller chance of enrolling in secondary school than others. Most future growth in provision needs to be in free government schools since it is those in the poorest quintiles who are most excluded by a wide margin.

3.0 Demographic transition and enrolment projection

Demographic transition and migration condition the demand for school places. India's fertility rates are declining. The population of six-year olds is already shrinking in most States, foreshadowing shrinkage in the numbers of secondary age children (MHRD, 2015c). Alongside demographic transition, urban migration is progressing rapidly and is changing where secondary school-aged children live. Where

rates of migration are 7 per cent a year, the numbers of children seeking school places will double every ten years. There are risks that school location decisions based on current population distributions will be rapidly outdated and result in overcapacity in some places and shortages of places in others. The number of 6-year olds for all-India is expected to decline from almost 25 million in 2011 to 17 million in 2025, or by more than 30 per cent. The population of children aged 14 and 15 (secondary school age) is likely to decline from over 50 million to under 39 million in the same period. Expanded capacity needs to be profiled against demand otherwise there is a risk of overshoot as more places are created and the school age population starts to fall.

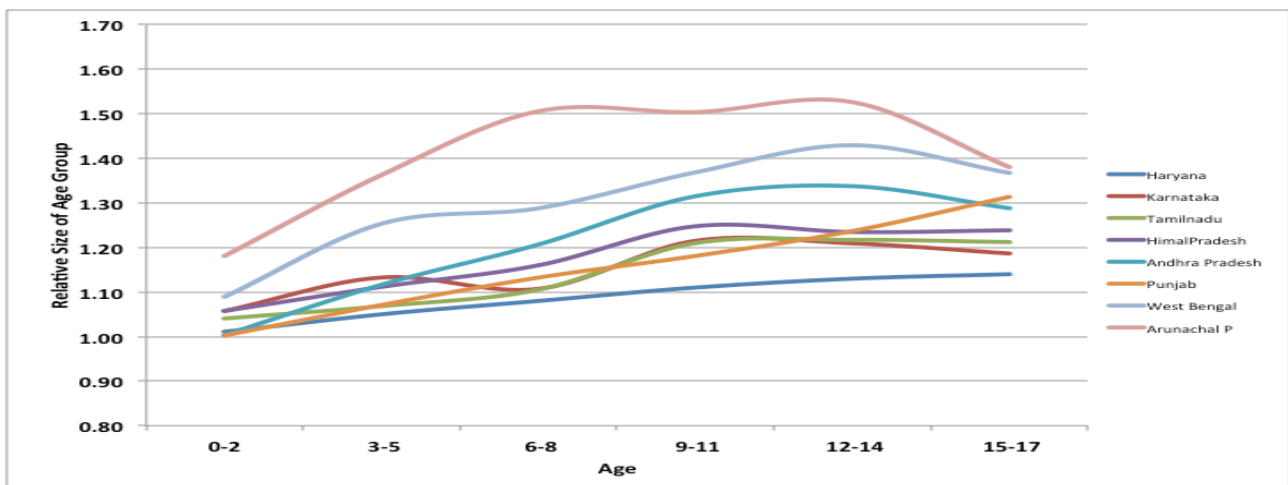
Figure 4: Relative size of age group by age band compared to birth cohort (1)



Source: Census, 2011, GoI 15th Round Census Data, Projection.

Figure 4 identifies States where the number in an age cohort peaked in the 6-8 or 9-11 age group and entered demographic transition to low growth according to census data. In all the States listed, the total number of secondary age children has been falling since 2015. Figure 5 identifies the States that have experienced an earlier demographic transition to lower growth. Here the declining numbers in the age group amongst 12-14 and 15-17 were already a reality in 2011 - hence older children outnumber younger children.

Figure 5: Relative size of age group by age band (2) compared to birth cohort



Source: Census, 2011, Government of India 15th Round Census Data, Projection.

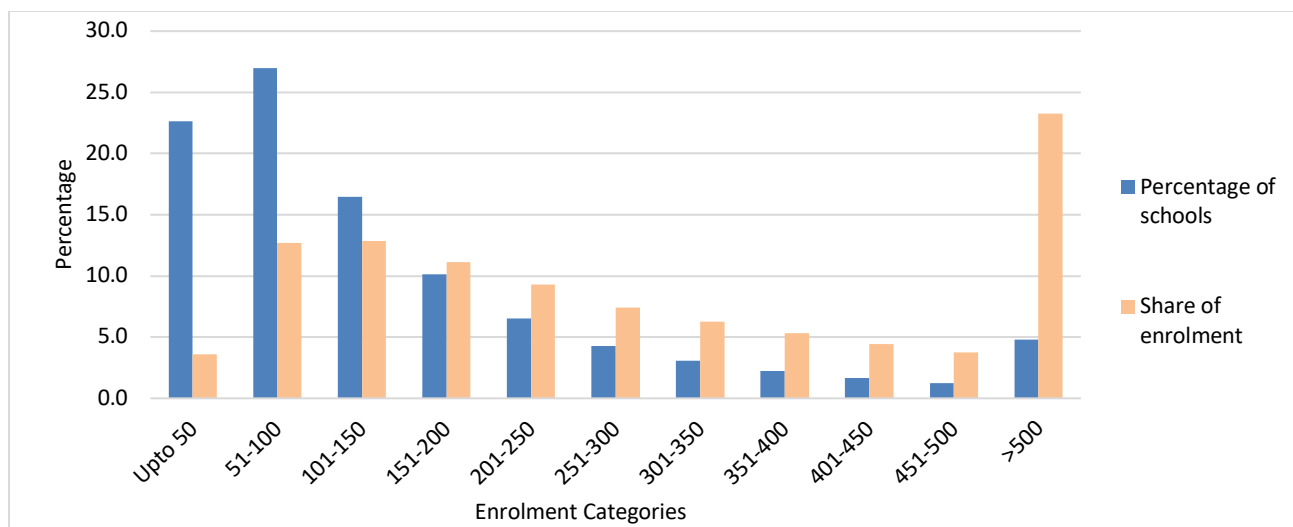
The decline in the size of the age group will continue for at least the next 15 years. This makes it easier to achieve higher levels of enrolment at secondary. However, it carries the risk of overshoot in capacity if more schools are opened when overall demand is set to fall. Local conditions, especially urban migration, may create patterns of demand that diverge from the overall trend towards a falling student population. Falls will be greatest where existing enrolments are lowest and where increased participation rates compensate for falling numbers of school age children.

- Modelling shows that the flow of students to grade 8 acts as a constraint on the expansion of secondary schooling since large proportions of students drop out of school before completing grade 8.
- Demographic transition means that the number of 14-year-olds will start to decline before 2020 almost everywhere. There is a risk that meeting peak demand before the number of 14-year-olds starts to fall will result in overcapacity.
- New classrooms and other facilities are needed in existing secondary schools and new schools need to be strategically located and built to service areas with no secondary schools but only at a rate consistent with the changes in the size of the age group.
- Scheduled Tribe and Scheduled Caste children enrol in secondary school at half (or less) of the rate of their more privileged peers. Higher participation rates can only be achieved if the most excluded groups triple or quadruple their enrolment rates.

4.0 School Size

The third issue is that the expansion in the number of secondary schools has resulted in large proportions of small schools. More than 50 per cent of all secondary schools in some States have fewer than 100 students in grades 9 and 10. Across India about 66 per cent of secondary schools had fewer than 150 children and 23 per cent less than 50 children in the middle of the last decade (Figure 6). In terms of enrolment share, only 3.6 per cent students attended the smallest schools with less than 50 enrolled. The price is that the cost per student in these schools may be as much as four times greater than for schools with more than 300 students.

Figure 6: Distribution of secondary schools by enrolment size, categories and enrolment share

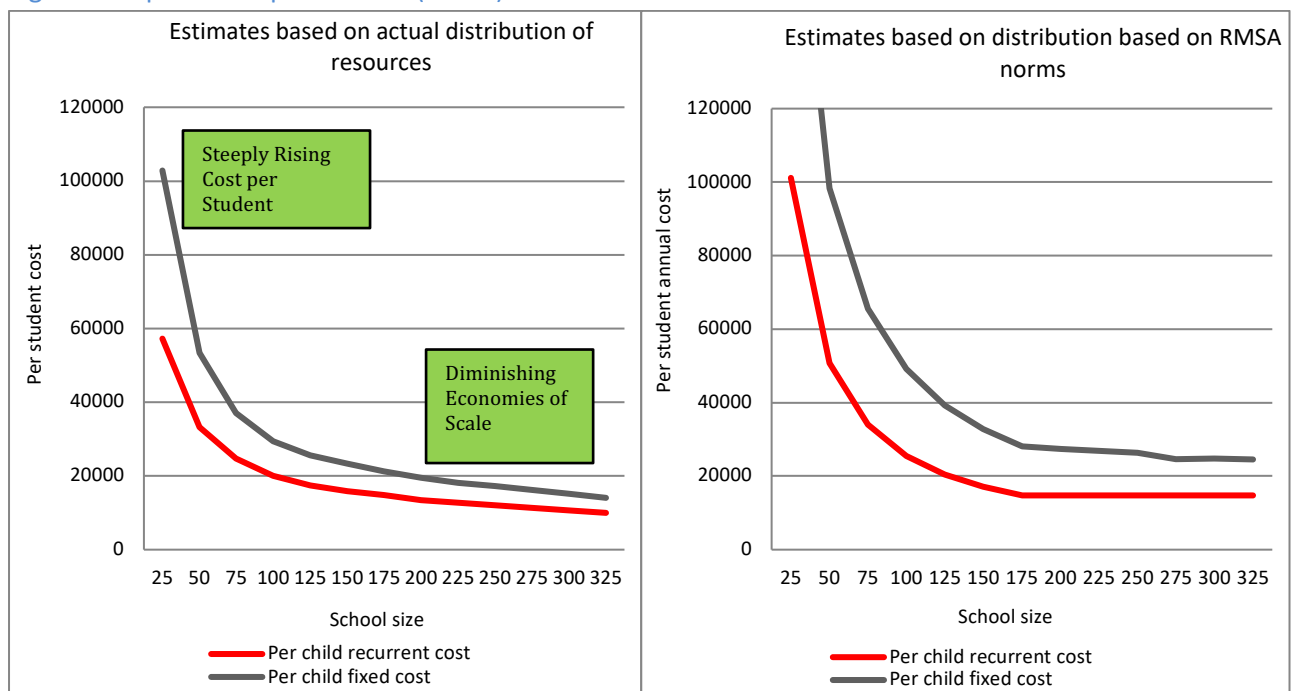


Source: Selected Education Statistics, Ministry of Education, MHRD 2018 and previous years

Academic performance in small schools is lower as a result of the difficulties of providing qualified staff for all subjects and adequate facilities. In six States more than 70 per cent of all schools are small and unlikely to be fully staffed with qualified teachers in all core subjects. An increasing proportion of schools have been established as standalone schools which only offer grades 9 and 10 and these account for more than 20 per cent of new schools.

Small schools have much higher costs than larger schools (MHRD, 2015f). Recurrent costs are primarily determined by teachers' salaries and pupil teacher ratios. RMSA norms produce a cost per student profile that show that schools below enrolment of 150 have rapidly rising costs (Figure 7).

Figure 7: Expenditure per student (in INR) - Actual Distribution and Norms Based Distribution



Source: Author data reported in Lewin et al <http://keithlewin.net/wp-content/uploads/2016/05/5.-Cost-and-Equity-in-Accessing-Secondary-Education.pdf>

This research identifies several factors that influence the growth of small schools. These include:

- Norms and standards allow schools to be established when there are only 25 students in grade 8. Such small schools cannot provide sufficient teaching lesson periods to all teaching staff when fully staffed according to the norms that provide for a minimum of six teachers per school.
- Population density shapes the distribution of schools by size. Low density areas have widely dispersed communities that may be fragmented by social status and religious affiliation. Travel times of much more than an hour to and from school may become exclusionary and can also have substantial costs.
- In some parts of India private fee-paying schooling has been growing and this may have the effect of hollowing out public school systems by attracting richer students leaving small enrolment public schools.
- Pupils in larger composite schools consistently out-perform pupils in smaller schools. The positive effect on learning achievement of school size holds for Scheduled Castes (SCs) but not for

Scheduled Tribes (STs). This may be because STs at secondary level may be outside tribal areas and attend schools similar to those of the general population.

The last reason for small schools to exist relates to the raw politics of patronage. If it is not addressed then refining norms and standards may have a limited impact on improving the efficiency of the secondary education system (Little, 2008). School building and classroom construction offers opportunities to award jobs to supporters and capture contracts. The small schools provide opportunities for conflicts of interest in the use of public monies.

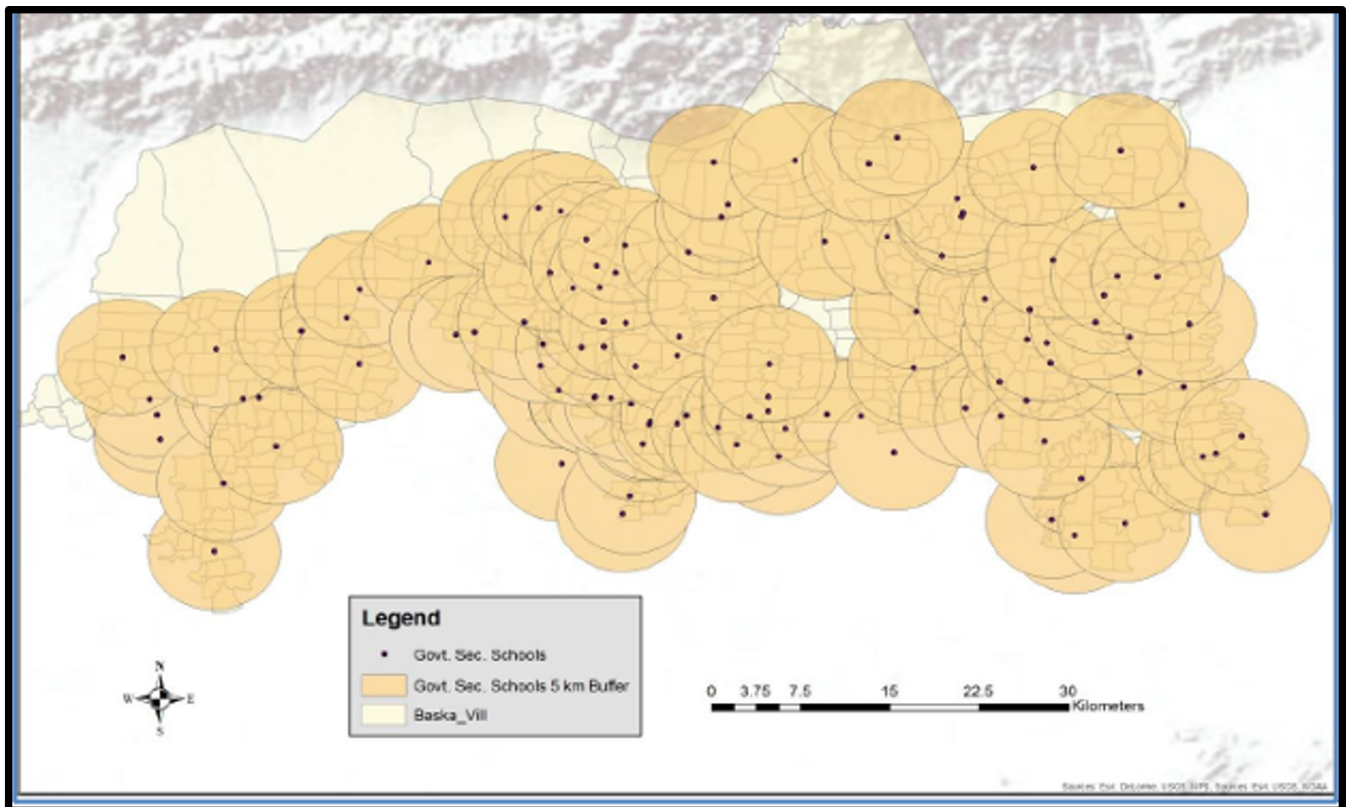
5.0 School Location

The fourth set of concerns relate to school location. RMSA stipulated that there should be access by all households to a secondary school within 5 kilometres. Analysis shows that in some States, secondary schools are now located much closer together than 5 km (MHRD, 2015e). There has also been a tendency to co-locate primary and secondary schools without combining school administration and thereby creating economies of scale. Under-enrolled schools and small schools may utilise classrooms less than 70 per cent of the time and teachers cannot have a full workload.

A basic school map of a sample district is shown in Figure 8. This illustrates that in this district in Assam the density of schools on the plain beneath the mountains is high with an average distance between secondary schools of no more than two kilometres and many primary and upper primary schools within a kilometre. About 70 per cent of schools are being operated at less than 50 per cent of their capacity. Large savings would be available from rationalising school provision. If there were half the number of schools, substantial investments could be made in enhancing quality and infrastructure.

Location-allocation analysis was used to determine the best locations of schools using different distance norms and criteria of appropriateness. Three different average school sizes were modelled (of 160, 340 and 520 students) with optimisation of average distance to secondary school and access to the secondary school age population. Figure 8 shows the extent to which school catchment areas overlap and are much less than 5 km. There are many schools which are less than 5 kms of several other secondary schools in a district, largely on level ground with no exceptionally difficult terrain.

Figure 8: Example of School Mapping of Secondary Schools with 5km Catchment Radius



Source: Original data reported in <http://keithlewin.net/wp-content/uploads/2016/05/4.-Efficient-School-Siting-Using-GIS-Modelling.pdf>

This case study concludes that:

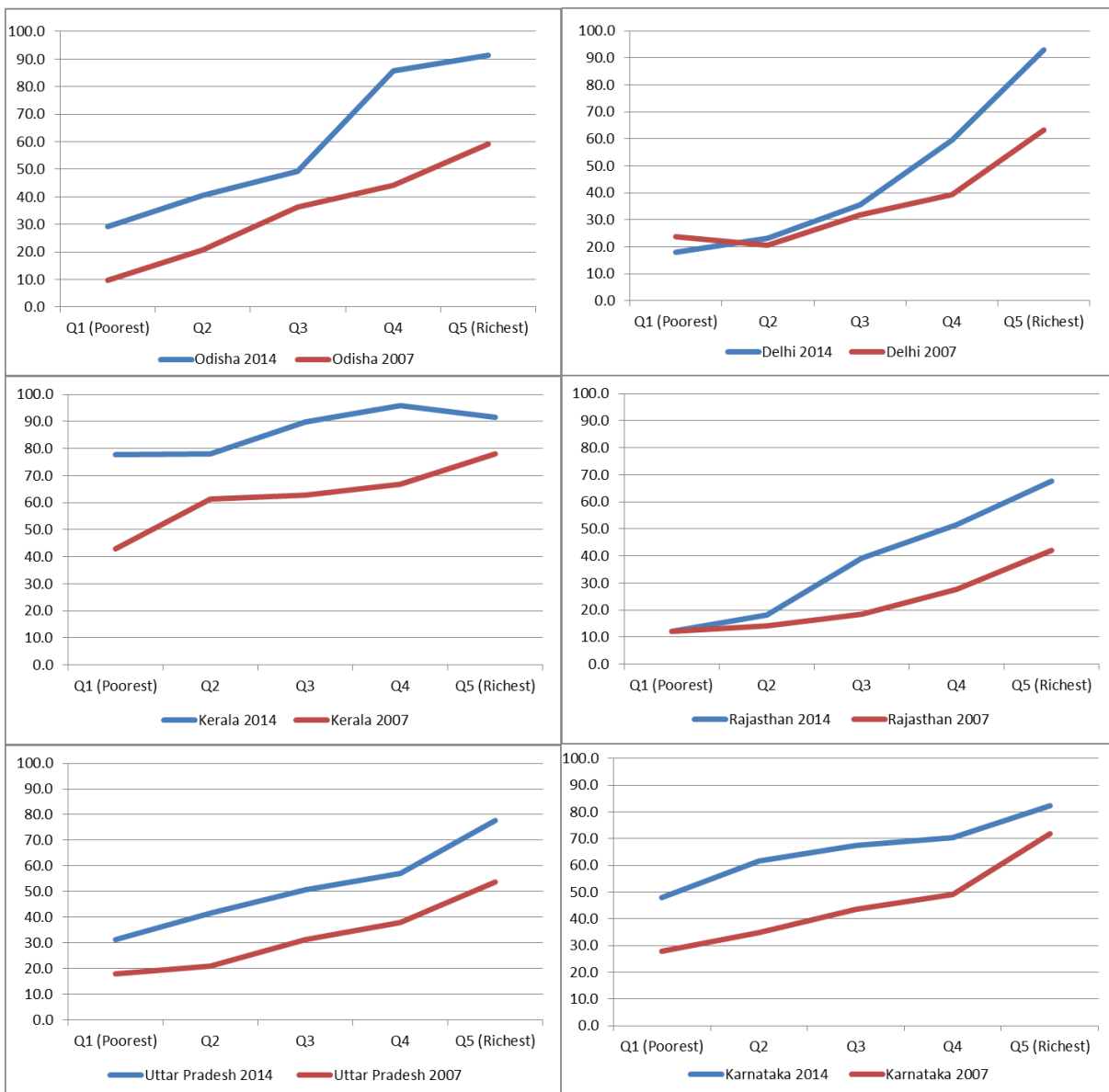
- On average, secondary schools are located less than 2 km from each other and are less than 1 km from primary and upper primary schools. As a result, there is a proliferation of small schools with inadequate catchment areas.
- School utilisation rates indicate that 71 per cent of government secondary schools are operating at or below 50 per cent capacity with corresponding low enrolments and low student-teacher ratios.
- Demographic data for villages indicates that the secondary school-age population over the next 5-10 years will decline.
- If the average school size is increased to about 160 and demographic transition takes its course, the analysis indicates that the total costs of providing 75 schools would be approximately 520.3 million Rupees. Only 300 classrooms would be required and 375 teachers for the 75 schools compared to the present 150 schools and 1800 secondary teachers. The teacher salary bill would decrease from 539.4 million Rupees to 112.5 million Rupees per year.

6.0 Inequality and Household Affordability

The fifth issue is that there are six patterns of unequal access linked to household income as illustrated in figure 9 which shows how enrolment rates in secondary school varied during a period of rapid growth. In Delhi the lowest three quintiles of household wealth did not see an improvement in access, and this is also the case for the poorest quintile in Rajasthan. In both locations the richest groups (those in quintiles four and five) benefitted most from expanded participation. In Odisha while the participation of the poorest has improved, it is only by half as much as the improvement for the richest 40 per cent of people. Other States with similar patterns of unequal growth include Bihar, Gujarat, and Punjab.

More equal growth has occurred in Uttar Pradesh where all income quintiles have enjoyed increased participation but the gap between rich and poor has not changed dramatically. Madhya Pradesh and West Bengal also follow this pattern. Andhra Pradesh has a different pattern where the richest and the poorest have benefitted less than those in the middle; Maharashtra and Tamil Nadu are similar. Lastly in Kerala the greatest beneficiaries of increased participation have been the poorest, which has also been the case in Assam and Karnataka.

Figure 9: Secondary completion rates by wealth quintile for selected States, 2007 and 2014



Source: NSSO data from 71st and previous Rounds of Social Surveys

Future growth in participation will have to be more equitable and focused on the poorest who have the lowest enrolment rates. Affordability is a serious constraint on universalising access to secondary school. Costs to households may be more than four times those for enrolment at local primary schools

depending on location and school type. Household poverty interacts with other sources of inequality including caste, language, gender and disability. Additional demand for secondary education will come from marginalised groups not previously able to enrol. These groups disproportionately include children from low income households, those from rural areas and from urban slums, those from scheduled tribes and castes and other backward castes, and, in some States, girls. This research estimates that poor households need to spend as much as 30 per cent of household disposable expenditure on every child in public secondary schools. The next poorest quintile has to spend at least 12 per cent. In grant-aided schools the proportions are 50 per cent and 17 per cent for quintiles 1 and 2, and in private schools, 75 per cent and 29 per cent. These levels are clearly unaffordable.

A final observation is that one-third of all parents appear to borrow money to pay for secondary schooling, including 39 per cent of private unaided school parents, and 35 per cent of government school parents. Nearly a third of government and private school parents borrow money to pay for private tuition (29 per cent and 32 per cent respectively) with around the same proportion of parents having to pay school fees late (34 per cent and 32 per cent respectively). Interest rates for borrowing from private lenders in rural areas can exceed 100 per cent Annual Percentage Rate (APR). This is unaffordable and likely to sink families deeper into poverty.

7.0 Sustainable Public Financing

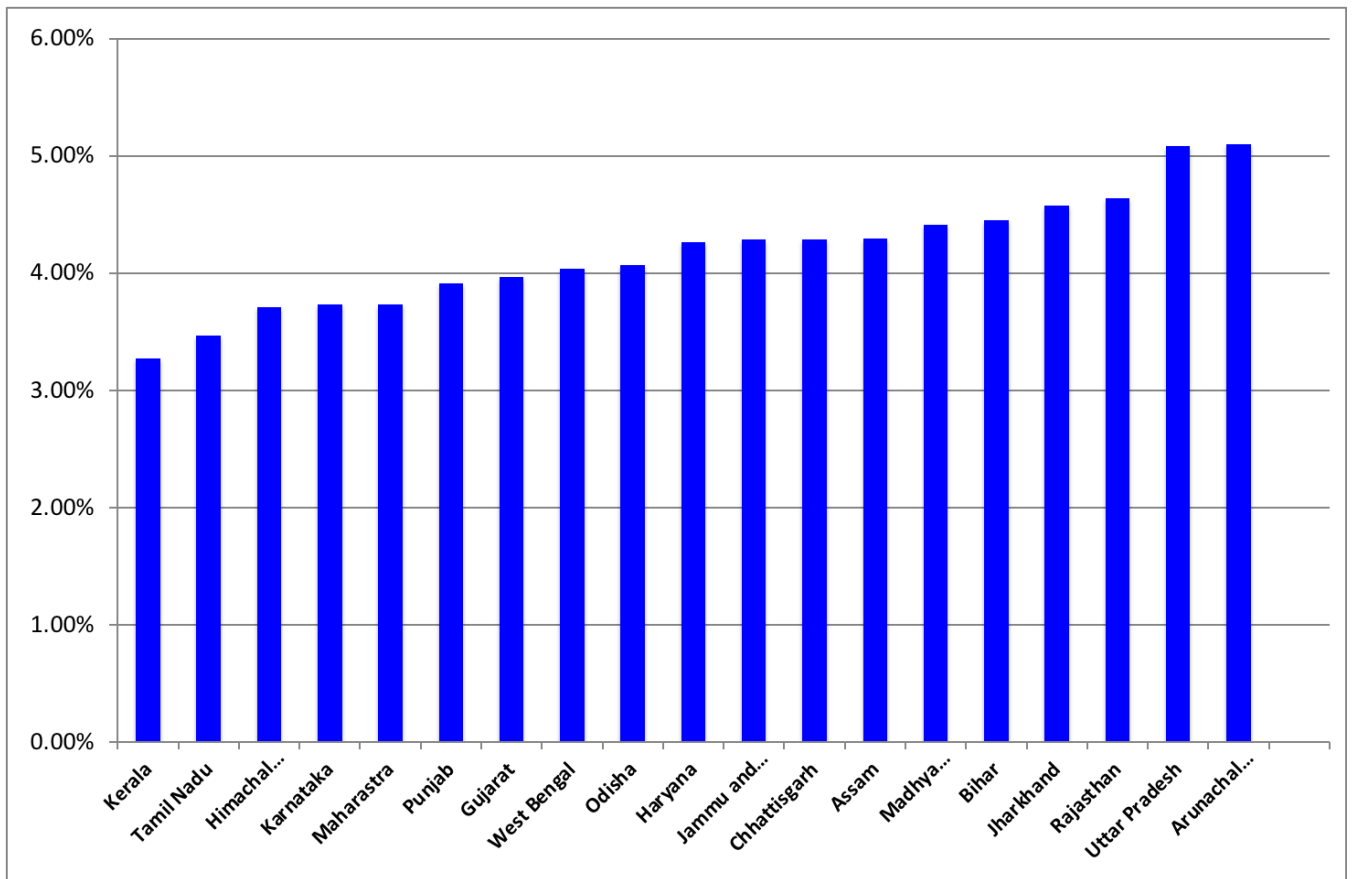
The sixth issue is that expanded participation has to be publicly financed by State governments who receive centrally-allocated funds. The cost to the public budget depends on:

- the number of secondary age children
- the costs of secondary school places
- the willingness to allocate public spending to secondary education

Taken together these determine the fiscal demand to support universal access to different levels of education (Lewin (2015)).

On average, a little over 4 per cent of children are of secondary age with the smallest proportions in Andhra Pradesh, Kerala and Tamil Nadu. Rajasthan, Uttar Pradesh and Arunachal Pradesh have much higher proportions of school age children as a result of higher population growth (Figure 10). In many States the number of secondary school age children has started to fall as a result of declining fertility as noted in Figures 4 and 5 above.

Figure 10: Secondary school-aged children as a percentage of State population

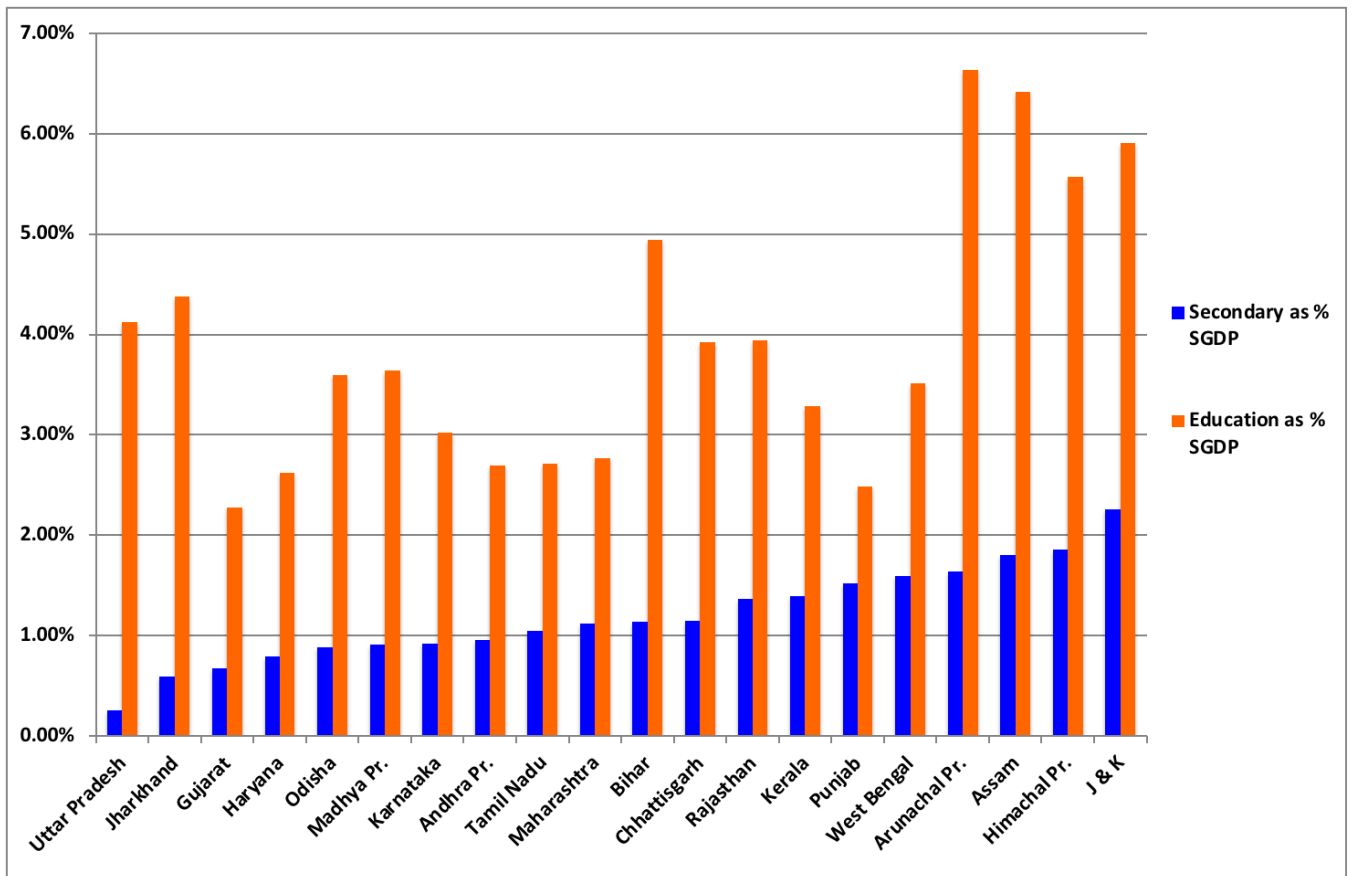


Source: Census, 2011, Government of India. 15th Round Census Data, Projection.

Costs per child are determined by teachers’ salaries, non-teaching salaries, and non-salary recurrent costs and other expenditure (MHRD, 2015d). The costs of infrastructure and building works also needs to be financed. Universal provision will be difficult if not impossible where unit costs at secondary are more than twice those at primary level. The availability of public finance is indicated by proportion of State GDP allocated to secondary education (figure 11). The amount of tax collected determines the domestic revenue from which funds are drawn for public services. This in turn depends on State GDP and fiscal measures which differ between States. Costs per child to government vary from about INR 6,000 (e.g. Bihar) to over INR 20,000 (e.g. Assam). Secondary schools have to be financed at costs per child that do not exceed about 30 per cent of State GDP per capita if universal participation is to be affordable.

Providing universal secondary education with current costs per student is projected to require as much as 2 per cent of State GDP (SDGP) in States where pupil teacher ratios are low and costs per student are high. This level is financially unsustainable without a disproportionate allocation of the State budget to secondary education. In contrast, some States spend less than 0.7 per cent on secondary schools which suggests they are underinvesting. Planning should plan finance at levels that are sustainable and which are not likely to cost more than 1 per cent of SGDP.

Figure 11: Expenditure on secondary level education and total education as a percentage of SGDP



• Source: [Analysis of Budgeted Expenditure on Education: 2015-16 to 2016-17, Government of India, MHRD](#)

In absolute terms, the poorest 20 per cent of households spend less than one-ninth of the amount the richest spend on secondary schooling. Average household expenditure in government schools is typically about half that for private-aided schools and one quarter the average for private-unaided schools (MHRD, 2015f). Students from more advantaged castes spend twice as much on school attendance as those from SCs or STs, not least because they are often richer. Secondary schooling is typically about 2.5 times more expensive than primary schooling for the poorest, but less than 1.3 times more for the richest who have a much more even pattern of spending by educational level. The largest expenditure for the poorest is to access private tuition. Private tuition represents 36 per cent of the total expenditure associated with accessing government schools, 22 per cent for aided schools and 13 per cent for private schools (MHRD, 2015h).

The issues of affordability are central to the success of RMSA. Most of what may need to be done is likely to revolve around incremental change to improve the efficiency and effectiveness of existing systems. This requires a sustained ambition to make secondary schooling more affordable to the state and to households.

8.0 Issues Arising

The challenge for RMSA is that no more than 65 per cent of all Indian children complete secondary school successfully and net enrolment rates are little more than 45 per cent, suggesting that many are overage for their grades and that the system is far from providing universal access. In the northern States less than half of all children transition to secondary school. Participation is inequitable. Those from scheduled tribes and castes, OBCs and from other educationally marginalised groups are especially disadvantaged. Girls' enrolments lag behind those of boys in some States and there are fewer girls in the

child population than boys in some States. Only 11 per cent of children in the lowest quintile of household expenditure are likely to reach secondary school whilst almost all of those in the richest quintile complete grade 10. The average number of years of schooling received by all children varies by more than 2:1 between States.

Inequalities are reflected in system inefficiencies. This for example children who are two or more years over-age make up more than 20 per cent of all poor children enrolled and over 30 per cent of children enrolled in grade 5. Across India, only 28 per cent of 14 year old children are in the correct grade for their age, greatly affecting access to secondary school. Boys entering school at the age of 10 had one eighth of the chance of attending secondary schools of those entering at the age of 6, and over age girls only one sixteenth. More generally data on student flows indicates that the internal efficiency of the education system is low with bottlenecks at grade 5 and grade 8, planning not closely linked to demographic changes, poor spatial location of schools, too many uneconomic small schools, inefficient mega schools in some states, and chronic under-funding of public secondary schools.

At the same time issues of effectiveness are endemic. These are visible in the widespread concerns that levels of achievement in grade 8, as evidenced by data from the National Achievement Survey (NAS), indicate many students are not ready to succeed in mastering the curriculum in grades 9 and 10. Drop out is closely associated with low levels of achievement and high rates of repetition to improve grades. Around half of those completing grade 10 of secondary school fail to acquire high level Board qualifications that would demonstrate mastery of the national curriculum. This is not much more than 30% of all children in the age group.

These realities indicate that RMSA has to address issues that compromise system efficiency and effectiveness and improve the flow of students from elementary schools through to the end of grade 10. Expanded access may lead to even more unequal patterns of participation as enrolment is rationed by the direct and indirect costs of secondary schooling. Without better matching of curriculum and pedagogy to the capabilities and aspirations of students who are the first generation in their families to reach secondary level efficiency will suffer and the number of successful graduates will stagnate.

The analysis in this study identifies ten concerns that will shape secondary school development in India over the next decade through until 2030.

First, most States will find it difficult to achieve secondary level GERs of 105 per cent and will not succeed until well into the 2020s³. The reasons include insufficient numbers of students reaching grade 8; inadequate levels of achievement of grade 9 entrants: insufficient access to secondary school places in some areas and oversupply in others; poor attendance of students and absenteeism by teachers; wide variations between schools in staffing, class size and availability of learning materials; and failure to ensure adequate financing.

Second, demographic transition means that in low enrolment States demand for secondary school places is likely to decline after 2020 and the number of secondary age children will fall by 20 per cent or more over the next decade. Planning will have to manage a peak and then declining demand and avoid creating excess capacity that will become redundant as numbers fall.

Third, additional demand for secondary education will come mostly from marginalised groups not previously able to enrol in and complete elementary education. The needs of these new students will

³Universal access and completion would result in GERs over 100% as a result of repetition and overage enrolment. If an education system is efficient the GER would not normally be more than GER = 105%.

have to be addressed through changes in pedagogy and curriculum to avoid higher levels of drop out. Pipeline effects will increase demand for higher levels of education with consequences for educational finance and diversification of the curriculum (Varghese 2014).

Fourth, increased participation of marginalized groups will increase average distances to travel to secondary school and result in additional costs to poor households as demand grows. Safety and security issues are also problematic in some States especially for adolescent girls. School type and location and working practices need to address these concerns.

Fifth, there is a surfeit of small schools with low pupil teacher ratios (PTRs) and high recurrent costs in some States (e.g. Assam where more than 50 per cent of secondary schools have enrolments below 100 in grades 9 and 10). In other States ‘mega schools’ have developed with PTR over 150 and enrolments in grade 9 and 10 of over 600 (e.g. Bihar). In some situations, small schools are unavoidable and new models are needed for staffing and pedagogy which are affordable. Mega schools are likely to be unwieldy institutions which suffer diseconomies of scale, very poor attendance, and difficulties in ensuring no children are left behind.

Sixth, less than half of all grade 10-aged children take Board examinations with even lower percentages graduating successfully and being rewarded by places in higher education and job opportunities. New qualifications and courses suited to those who will leave school and seek employment after grade 10 will be needed to reduce the chances of a decline in pass rates and ensure higher relevance of secondary schooling.

Seventh, the distribution of teachers is very uneven with PTRs within the same district varying from below 10 to above 100. In some States less than 14 per cent of schools have teachers qualified in all four of the main subject areas (as in Assam and Odisha) despite very low PTRs and high teacher per class ratios. Expanded secondary schooling requires many more qualified teachers covering all major subjects and electives. Merging small schools, and making use of multi-subject and multi-grade teachers could reduce the costs of small schools and allow more investment in quality.

Eighth, secondary education expansion will be constrained by costs to households. Those at or below the poverty line will need cash transfers to support the direct and indirect costs of secondary school attendance and to avoid contracting debt at high interest rates that will make them poorer. No child should be excluded from secondary school by the costs of attendance. This means that secondary school should be fee free and supported by scholarships or cash transfers for those in the lowest two quintiles of household expenditure.

Ninth, financing universal secondary education with current cost structures in some States could require more than 2 per cent of State GDP. This level is unsustainable and planning should allocate at least 1 per cent of SGDP. In States with higher current per-student expenditure,, the additional costs of universal participation require cost saving reforms that increase efficiency and effectiveness (e.g. in Assam and Odisha). In States with low per pupil expenditure (such as Bihar) there is likely to be a need to increase expenditure per student linked to reforms designed to improve quality and achievement towards national averages.

Finally, growth in participation may be inequitable. The relatively advantaged within excluded groups will benefit more than the most excluded. Thus children from richer SC, ST and OBC households may increase their chances of completing secondary school at the expense of those in the same groups from lower income levels. There is a need to monitor who benefits from expanded access to ensure that the

most marginalised are also reached. The political economy of educational reform mediates the implementation of all of the possibilities identified (Little, 2020; Little and Lewin, 2011).

9.0 In conclusion

A matrix of policy options has been developed following the thematic concerns developed within this research. Twelve major reforms would be transformational for the landscape of secondary education in India⁴.

- Implement a district level medium term planning process using District Five-Year Rolling Plans. These would use school mapping, geographic information system (GIS) and demographic projection to analyse supply and demand for school sites, teachers, learning materials, infrastructure, school size and distance travelled to existing and new schools.
- Promote equity and monitor indicators of inequality and place data in the public domain. Reduce variation in key indicators of participation, achievement and attainment between and within States. All main indicators that have distributional characteristics should be reported in terms of average, range and standard deviation.
- Abolish fees for children from wealth quintile 1 and quintile 2 and provide scholarships for all boys and girls below the poverty line (BPL). Offer free secondary schooling to all those who cannot afford the direct and indirect costs. Replace income from fees with capitation grants to schools.
- Develop a new secondary school curriculum to recognise the broader range of capabilities, aspirations and preferences of grade 9 students. Embed the systematic management and tracking of learning in the curriculum with regular school based formative assessments.
- Develop curriculum teachable in small secondary schools with staffing and other costs no more than 50 per cent of average costs per student in schools with 500 students.
- Develop a diagnostic entry test to be used in schools for grade 9 to provide baseline data for teachers to use to target pedagogic support to new students. This requires the National Achievement Survey (NAS) for instance, to produce detailed pedagogic guides and systematic intervention programmes to identify learning difficulties.
- Reform Board examinations to increase their predictive validity and reliability, offer different pathways for different students, improve their relevance to life futures, and reduce the incentives for private tuition.
- Commit States to ensure every child in secondary school is taught by qualified teachers possessing the necessary subject content and pedagogical knowledge, and manage teachers to achieve this goal.
- Extend the Right to Education (RTE) requirement to at least 25 per cent of enrolment of the Economically Weaker Section (EWS) students in private secondary schools. The rationale is similar to RTE for the 6-14 years.
- Regulate the growth of the private schools so that they are complementary to public schools rather than in direct competition for students and locations.
- Develop a predictable system of funding of public secondary schools that guarantees adequate resources for learning and a qualified teacher in all core subjects. This needs an allocation between

⁴ This discussion is developed more at length in MHRD (2015a)

0.7 - 1 per cent of SGDP to secondary schools and cost-effective delivery so that school places cost no more than 30 per cent of SGDP per capita otherwise expansion will be unaffordable.

- Provide all core learning materials free of cost, copyright free and on-line through a national portal. Include core texts, pod casts, video clips *et al.* Develop on-line enrichment and examination preparation materials to give access to additional tuition to all students, independent of household wealth.

Policy dialogue can be structured around the four themes of access, equity, efficiency and effectiveness since these are the key aspects of development that will shape RMSA over the next decade. It is essential that the future development of RMSA should link access, equity, efficiency and effectiveness to the flow of children through the school system. Planning must reconcile high aspirations with realistic goals and allocate resources in ways which reflect demography, constraints on growth arising from the flow of children through to grade 8, efficient teacher deployment, curricula and pedagogies relevant to new learners. It needs to tailor expansion to promote pro-poor and more equitable access to quality secondary schooling (Lewin, 2021). These are themes that resonate with Professor Govinda's life work and enduring themes of concern across the NUEPA and the MHRD as India progresses towards realising the goals of universalising access to secondary schools of quality.

References

- Bandyopadhyay M. and Chough S (2020): "Status of Secondary Education in India: A Review of Status, Challenges and Policy Issues" in Tilak J B G (2020) *Universal Secondary Education in India: Issues, Challenges and Prospects*. New York: Springer.
- Biswal, K. (2011): "Secondary Education in India: Development policies, programmes and challenges". Create Pathways to Access. Research Monograph No. 63. Falmer: CREATE, University of Sussex, UK.
- Government of India, (GoI) (2007): *11th Five Year Plan*. New Delhi, Government of India.
- Government of India, (GoI) (2012): *12th Five Year Plan*. New Delhi, Government of India,
- Government of India, (2005): *Report of the Council of Advisory Board on Education (CABE) Committee on Universalizing Secondary Education*. New Delhi, Government of India.
- Government of India (2015): *CABE sub-committee on extension of RTE to pre-school and secondary education 2015-17*. New Delhi, National University of Educational Planning and Administration,
- Govinda, R. (2006): "Literacy and Elementary Education in India: regional imbalances and social inequities". New Delhi. National Seminar on the Education Commissions at the India Habitat Centre, Dec 26-28, 2006.
- Govinda, R. and Biswal, K. (2006): "Elementary Education in India: promise, performance and prospects: a background paper for Mid Term Assessment of Tenth Plan," New Delhi. HDRC and UNDP.
- Govinda, R. & Bandyopadhyay, M. (2008): "Access to Elementary Education in India: Country Analytical Review" Falmer, University of Sussex, Consortium for Research on Educational Access, Transitions and Equity with NUEPA, Delhi.
- Govinda, R. & Bandyopadhyay, M. (2010): "Social Exclusion and School Participation in India: Expanding Access with Equity". Paris, France. *Prospects* 40: 337-354 UNESCO,
- Govinda, R. (Ed), 2011: *Who goes to school? Exploring Exclusion in Indian Education*. Delhi, India. Oxford University Press.

- Jha, S. (2015): “Universalising secondary education in India: Seeking efficiency, effectiveness and equity in planning enhanced access and improved quality”. New College, Oxford, UK. Proceedings of the 13th UKFIET Conference,
- Lewin, K. M. and Cailloids, F. (2001): *Financing Secondary Schools in Developing Countries: Strategies for Sustainable Growth*. Paris, France. International Institute for Educational Planning, UNESCO.
- Lewin, K. M. (2006): “Financing Secondary Education in Commonwealth Countries: New Challenges for Policy and Practice”. Cape Town, South Africa December 10-15, 2006. Position paper for Ministers presented at 16th Conference of Commonwealth Education Ministers,
- Lewin, K. M. (2008): “Secondary Education in India: Managing Expansion with Affordable Costs: Policy Guidance Note for Ministry of Human Resource Development (MHRD)”. New Delhi. Government of India.
- Lewin, K. M. (2011): “Beyond Universal Access to Elementary Education in India: Is it Achievable at Affordable Costs?” Pathways to Access No 53, Consortium for Research on Educational Access, Transitions and Equity, Centre for International Education. Falmer. University of Sussex, UK.
- Lewin, K. M. (2015): *Educational Access, Equity and Development: Planning to Make Rights Realities*. Fundamentals of Educational Planning, Number 97. Paris, France. International Institute for Educational Planning, UNESCO,
- Lewin, K. M. (2020): “Beyond Business as Usual: Aid and Financing Education in Sub-Saharan Africa”. International Journal of Educational Development Vol 78, 102247. Elsevier.
- Lewin, K. M. (2021) “Unequal Access to Education: Accounting for Change and Counting Costs” in Rose, P. Arnot, M., Jeffery, R. and Singal, N. (eds) *Reforming Education and Challenging Inequalities in Southern Contexts*. London. Routledge pp37-59.
- Little, A. (2008): “Size Matters for EFA” Pathways to Access Research Monograph No 26. Consortium for Research on Educational Access, Transitions and Equity. Institute of Education, London. London International Development Centre (LIDC),
- Little, A.W. (2021): “Education for All in India and Sri Lanka: the drivers and interests shaping egalitarian reforms” in Rose, P. Arnot, M., Jeffery, R. and Singal, N. (eds) *Reforming Education and Challenging Inequalities in Southern Contexts*. London. Routledge.
- Little, A.W. and Lewin, K.M. (2011): “The Policies, Politics and Progress of Access to Basic Education”, *Journal of Education Policy*, 26. 4 London, UK. Taylor and Francis.,
- Ministry of Human Resource Development (MHRD) (2009): “Framework for Implementation of the Rashtriya Madhyamik Shiksha Abhiyan (RMSA)”. New Delhi, Government of India.
- Ministry of Human Resource Development (MHRD), GoI (2010): “Centrally Sponsored Schemes in Secondary Education”. New Delhi. Government of India.
- Ministry of Human Resource Development (MHRD), 2015a: “Equity in Access and Learning: A Way Forward for Secondary Education”. RMSA-TCA Research Report 0. New Delhi. Government of India. Available at <http://keithlewin.net/wp-content/uploads/2016/05/0.-Synthesis-Equity-in-Access-and-Learning-in-India.pdf>
- Ministry of Human Resource Development (MHRD), 2015b: “Making it Past Elementary School”. RMSA-TCA Research Report I. New Delhi. Government of India. Available at <http://keithlewin.net/wp-content/uploads/2016/05/1.-Making-it-Past-Elementary-Education.pdf>
- Ministry of Human Resource Development (MHRD), 2015c: “Demographic Transition and Educational Planning”. RMSA-TCA Research Report II. New Delhi. Government of India. Available at <http://keithlewin.net/wp-content/uploads/2016/05/2.-Demographic-Transition-and-Education-Planning.pdf>
- Ministry of Human Resource Development (MHRD), 2015d: “Equity and Efficiency in the Expansion of Secondary Schools”. RMSA-TCA Research Report III. New Delhi. Government of India. Available at <http://keithlewin.net/wp-content/uploads/2016/05/3.-Equity-and-Efficiency-in-Expansion-of-Secondary-Schools.pdf>

Ministry of Human Resource Development (MHRD), 2015e: “Efficient School Siting Using GIS Modeling”. RMSA-TCA Research Report IV. New Delhi. Government of India. Available at <http://keithlewin.net/wp-content/uploads/2016/05/4.-Efficient-School-Siting-Using-GIS-Modelling.pdf>

Ministry of Human Resource Development (MHRD), 2015f: “Cost and Equity in Accessing Secondary Education”. RMSA-TCA Research Report V. New Delhi. Government of India. Available at <http://keithlewin.net/wp-content/uploads/2016/05/5.-Cost-and-Equity-in-Accessing-Secondary-Education.pdf>

Ministry of Human Resource Development (MHRD), 2015g: “The Shifting Terrain of Government and Private Provision”. RMSA-TCA Research Report VI New Delhi. Government of India. Available at <http://keithlewin.net/wp-content/uploads/2016/05/6.-The-Shifting-Terrain-of-Public-and-Private-Provision.pdf>

Ministry of Human Resource Development (MHRD), 2015h: “Private Tuition: Extent, Patterns and Determinants”. RMSA-TCA Research Report VII. New Delhi. Government of India. Available at <http://keithlewin.net/wp-content/uploads/2016/05/7.-Private-Tuition-Extent-Patterns-and-Determinants.pdf>

Prakesh, V. and Biswal, K. (eds) (2007): *Perspectives on Education and Development: Revisiting the Education Commission and After*. New Delhi. National University for Educational Planning and Administration (NUEPA).

Reddy, A. N. (2008): “Public Expenditure on Secondary Education in India: Emerging Trends and Issues”. New Delhi. National University for Educational Planning and Administration (NUEPA).

Siddhu, G. (2010): “Can families in rural India bear the additional burden of secondary education? Investigating the determinants of transition”. Pathways to Access Research Monograph No. 50. Falmer, Sussex. Consortium for Research on Educational Access, Transitions and Equity. Centre for International Education University of Sussex, UK.

Tilak, J. B. G. (ed) (2008): *Financing of Secondary Schooling in India*. New Delhi, India 2007. National University for Educational Planning and Administration (NUEPA),

Tilak, J. B. G. (2020): *Universal Secondary Education in India: Issues, Challenges and Prospects*. New York, Springer.

Varghese, N. V. 2014: *The Diversification of Secondary Education*. Paris, France. UNESCO IIEP.

World Bank, (2009): “Secondary education in India: Universalizing opportunity”. Washington, DC: USA. World Bank,

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