Human Resource Development

Sector Report

July 2021

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Preface

The Government of India (GoI) spends close to Rs. 14 lakh crores annually on development activities, through nearly 750 schemes implemented by Union Ministries. To improve the effectiveness and efficiency of public finance, and the quality of service-delivery to citizens, all schemes have been mandated to undergo third party evaluations, to provide an evidentiary foundation for scheme continuation from 2021-22 to 2025-26. In 2019, the Development Monitoring and Evaluation Office (DMEO), NITI Aayog was assigned the task of evaluating 28 Umbrella Centrally Sponsored Schemes (UCSS), which are schemes/programmes funded jointly by the Centre and the States and implemented by the States. This historic exercise, undertaken between April 2019 and February 2021, evaluated 125 Centrally Sponsored Schemes (CSS), under 10 Sectors, together covering close to 30% of the GoI's development expenditure, amounting to approximately Rs. 3 lakh crore (USD 43 billion) per annum.

In order to fulfil this mandate to the highest standard possible, to optimize both the robustness and the uptake of the evidence generated, DMEO adopted a nationally representative mixed methods evaluation methodology and a consultative review process for the reports. Through qualitative and quantitative analysis of secondary literature, analysis was done at three levels: the sector, the umbrella CSS and the scheme itself. The studies thus produced then underwent a review process involving consultations with NITI Aayog subject matter divisions, concerned Ministries and Departments, and external experts.

The present report is an outcome of this evaluation study and presents an analysis of the Human Resource Development Sector based on primary and secondary data collection. In this Report, we seek to cover the education sector in India, identifying the intended and actual contribution of GoI schemes to sector outcomes. This includes areas for more focused effort to achieve national priorities/SDGs. It also identifies opportunities for convergence of the schemes within the sector to other developmental programmes of the Central and the State Governments as well as with private sector, corporate social responsibility (CSR) efforts, international, multilateral and bilateral aid, etc.

We hope that this Report will further our understanding of the Human Resource Development Sector and help us move towards achieving the Sustainable Development Goals and the National Development Agenda, to promote the well-being of all sovereign citizens of India.

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List of Acronyms

AEC	Adult Education Centre
AIE	Alternative Innovative Education Component
AICTE	All India Council for Technical Education
AISHE	All India Survey of Higher Education
AISSCE	All India Senior School Certificate Examination
AISSE	All India Secondary School Examination
AMS	Automated Monitoring System
ARMS	Automated Reporting and Management System
AROR	Average Rate of Return
ARWSP	Accelerated Rural Water Supply Programme
ASER	Annual Status of Education Report
AWP&B	Annual Work Plan and Budget
BS	Block Coordinators
BDO	Block Development Officer
BEO	Block Education Officer
BITE	Block Institute of Teacher Education
BRC	Block Resource Centre
BRGF	Backward Regions Grants Fund
BRICS	Brazil, Russia, India, China and South Africa
BTC	Basic Training Certificate
CABE	Central Advisory Board of Education
CAGR	Compounded Annual Growth Rate
CAG	Comptroller and Auditor General
CAL	Computer Aided Learning
CBCS	Choice Based Credit System
CBSE	Central Board of Secondary Education
CSF	Central Square Foundation
CCH	Cook Cum Helper
CEO-ZP	Chief Executive Officer-Zila Parishad
CGA	Comptroller General of Accounts
CGBA	Centre for Budget and Governance Accountability
CGFEL	Credit Guarantee Fund for Educational Loans
CII	Confederation of Indian Industry
CNNS	Comprehensive National Nutrition Survey
COE	Centre of Excellence
CONCOR	Container Corporation of India Ltd.
CRC	Cluster Resource Centre
CSS	Centrally Sponsored Scheme
CSR	Corporate Social Responsibility
CSSTE	Centrally Sponsored Scheme on Teacher Education
CTE	College of Teacher Education
CTET	Central Teacher Eligibility Test
CUHS	Central University of Himalayan Studies
CWSN	Children with Special Needs
DBT	Direct Benefit Transfer
DC	District Coordinators
DEIC	District Early Intervention Centres
DEO	District Education Officer
DIB	Development Impact bond
D. El. Ed.	Diploma in Elementary Education
DIET	District Institute of Education and Training
DoSEL	Department of School Education and Literacy
DPEP	District Primary Education Program
DPO	District Project Officer

EBB	Educationally Backward Blocks
ECCE	Early Childhood Care and Education
ECD	Early Childhood Education
EdCIL	Education Consultants of India Limited
EGS	Education Guarantee Scheme
EQUIP	Education Quality Upgradation and Inclusion Programme
EVS	Environmental Studies
FDI	Foreign Direct Investment
FGD	Focus Group Discussions
FM&P	Financial Management and Procurement
FPO	Farmer Producer Organization
FY	Financial Year
GAR	Gross Access Ratio
GDP	Gross Domestic Product
GER	Gross Enrolment Ratio
GERD	Gross Expenditure on Research and Development
GIAN	Global Initiative for Academic Network
GoI	Government of India
GP	Gram Panchayat
GPDP	Gram Panchayat Development Plan
GPI	Gender Parity Index
GSDP	Gross State Domestic Product
HEFA	Higher Education Financing Agency
HEGC	Higher Education Grants Council
HEI	Higher Educational Institutions
HH	Household
HR	Human Resource
HRD	Human Resource Development
IASE	Institute of Advanced Studies in Education
ICDS	Integrated Child Development Services
ICSE	Indian Certificate of Secondary Education
ICT	Information and Communication Technology
IDMI	Infrastructure Development of Minority Institutions
IEC	Information, Education and Communication
IEDSS	Inclusive Education for Disabled at Secondary Stage
IIT	Indian Institute of Technology, Bombay
IIIT	Indian Institute of Information Technology
IISER	Indian Institute of Science Education and Research
IIEST	Indian Institute of Engineering Science and Technology
IMPRINT	Impacting Research Innovation and Technology
IMPRESS	Impactful Policy Research in Social Science
IoE	Institution of Eminence
INR	Indian Rupees
ISSE	Integrated Scheme for School Education
IT	Information Technology
IVRS	Interactive Voice Response
JRM	Joint Review Mission
JSS	Jan Shikshan Sansthans
KGVB	Kasturba Gandhi Balika Vidyalaya
KII	Key Informant Interview
K12	Kindergarten to Grade 12
KRP	Key Resource Person
KVS	Kendriya Vidyalaya Sangathan
LEP	Learning Enhancement Programmes
LOI	Learning Outcome Indicators
LPG	Liquified Petroleum Gas
LWE	Left Wing Effected Districts

M&E	Monitoring and Evaluation
MDC	Model Degree Colleges
MDMS	Mid-Day Meal Scheme
MDG	Millennium Development Goals
MHFW	Ministry of Health and Family Welfare
MOE	Ministry of Education
MIS	Management Information System
MM	Mixed Method
MMC	Madrasa Management Committees
MME	Management, Monitoring, and Evaluation
MMER	Management, Monitoring, Evaluation and Research
MNRE	Ministry of New and Renewable Energy
MoIB	Ministry of Information and Broadcasting
MoMA	Ministry of Minority Affairs
MOOC	Massive Open Online Courses
MoU	Memorandum of Understanding
MPLADS	Members of Parliament Local Area Development Scheme
MSDE	Ministry of Skill Development and Entrepreneurship
MT	Master Trainer
MTR	Mid-Term Report
MWCD	Ministry of Women & Child Development
NAAC	National Assessment and Accreditation Council
NABL	National Accreditation Board for Testing and Calibration Laboratories
NAS	National Achievement Survey
NCERT	National Council of Educational Research and Training
NCFTE	National Curriculum Framework for Teacher Education
NCMEI	National Commission for Minority Educational Institutions
NCPCR	National Commission for Protection of Child Rights
NCTE	National Council for Teacher Education
NDA	National Development Agenda
NP-NSPE	National Programme of Nutritional Support to Primary Education
NEP	National Education Policy 2020
NER	Net Enrolment Ratio
NGO	Non-Government Organization
NHERC	National Higher Education Resource Centre
NHERA	National Higher Education Regulatory Authority
NHPS	National Health Protection Scheme
NIEPA	National Institute of Education Planning and Administration
NIC	National Informatics Centre
NIF	National Investment Fund
NIRF	National Institutional Ranking Framework
NIOS	National Institute of Open Schooling
NIT	National Institute of Technology
NKC	National Knowledge Commission
NLM	National Literacy Mission
NLMA	National Literacy Mission Authority
NMCME	National Monitoring Committee for Minorities' Education
NPE	National Policy on Education of 1968
NPE-PoA	National Policy on Education of 1968 and Programme of Action 1992
NPNSPE	National Programme of Nutritional Support to Primary Education
NRF	National Research Foundation
NRSC	National Remote Sensing Server
NTP	National Tutor Program
NIEPA,	National University of Educational Planning and Administration
NVS	Navodaya Vidyalaya Samiti
OBC	Other Backward Castes
OECD	Organization of Economic Cooperation and Development

OOMF	Output Outcome Monitoring Framework
OoSC	Out of School Children
PAB	Project Approval Board
PDS	Public Distribution System
PFC	Power Finance Corporation
PFMS	Public Financial Management System
PG	Postgraduate
PGI	Performance Grading Index
PISA	Programme for International Student Assessment
PLFS	Periodic Labour Force Survey
PMMMNMTT	Pandit Madan Mohan Malviya National Mission on Teachers and Teaching
PMU	Project Management Unit
PPP	Public Private Partnership
PPS	Probability Proportional to Size
PRI	Panchayati Raj Institution
PSSB	Professional Standard Setting Bodies
PSSCIVE	Pandit Sundarlal Sharma Central Institute of Vocational Education
PTA	Parent–teacher association
PTR	Pupil Teacher Ratio
QCI	Quality Council of India
QPR	Quarterly Progress Report
QS	Quacquarelli Symonds
R&D	Research and Development
RBSK	Rashtriya Bal Swasthya Karyakram
REC	Rural Electrification Corporation
REESI+E	Relevance, Effectiveness, Efficiency, Sustainability, Impact, Equity
REMS	Research, Evaluation, Monitoring and Supervision
RFFP	Request for Proposal
RIAP	Remedial Instructional Aides Program
RMSA	Rashtriya Madhyamik Shiksha Abhiyan
RO	Reverse osmosis
RSA	Rastriya Shiksha Aayog
RTE	Right to Education
RTGS	Real-time gross settlement
RTI	Right to Information Act
RUSA	Rashtriya Uchchatar Shiksha Abhiyan
SB	Saakshar Bharat
SC	Scheduled Caste
SCERT	State Council of Educational Research and Training
SCSP	Scheduled Caste Sub-Plan
SDG	Sustainable Development Goals
SDP	School Development Plan
SEMIS	School Education Management Information System
SEQI	School Education Quality Index
SEZ	Special Economic Zone
SGRY	Sampoorna Grameen Rozgar Yojana
SHEC	State Higher Education Council
SHEP	State higher Education Plan
SHG	Self Help Group
SIEMAT	State Institutes of Educational Management and Trainings
SIS	State Implementation Society
SLMA	State Literacy Mission Authority
SMC	School Management Committee
SMDC	School Management Development Committee
SOS	State Open School
SPARC	Scheme for Promotion of Academic and Research Collaboration
SPD	State Project Director

SPEMM	Scheme for Providing Education for Madrasas and Minorities
SPQEM	Scheme for Providing Quality Education in Madrasas
SRC	State Resource Centre
SSA	Sarva Shiksha Abhiyan
ST	Scheduled Tribe
STARS	Scheme for Transformational and Advanced Research in Sciences
STC	Special Training Centres
TEI	Teacher Education Institute
TEQIP	Technical Education Quality Improvement Programme
TET	Teacher Eligibility Test
TISS	Tata Institute of Social Sciences
TLM	Teaching Learning Material
ToC	Theory of Change
TRYSEM	Training of Rural Youth for Self-Employment scheme
TSG	Technical Support Group
TSP	Tribal Sub-Plan
TVET	Technical and Vocational Education
UC	Utilization Certificates
UCSS	Umbrella Centrally Sponsored Scheme
U-DISE	Unified District Information System for Education
UEC	University Education Commission
UEP	Universal Education Programme
UG	Undergraduate
UGC	University Grants Commission
UN	United Nations
UNESCO	United Nations Educational, Scientific and Cultural Organization
UNICEF	United Nations International Children's Emergency Fund
UP	Uttar Pradesh
UR	Unemployment Rate
URG	Underrepresented Groups
UT	Union Territory
UWEP	Urban Wage Employment Programme
VC	Video Conference
VE	Vocational Education
VEC	Village Education Committee
VO	Voluntary Organization
VT	Voluntary Teacher
WePMIS	Web Based Planning & Monitoring Information System
Y-o-Y	Year on Year

Education Sector

India is on the quest to become a USD 5 trillion economy by 2024-25[1] with the goal to emerge as a knowledge economy globally. India has a number of structural advantages with respect to the envisaged economic growth, the chief amongst these is its rich demographic dividend. India has one of the largest working-age populations (over 58 per cent)[2], with an average age of 29. In the economic and socio-political developmental path of the nation, education can play a critical role to be one of the key levers for the anticipated economic growth. With this vision envisaged for the country, it is important to assess the existing status of the education sector, key trends and possible roadblocks for the sector for its optimal performance. This report discusses the overview of the sector, assesses the status quo of the sector and possible measures to improve the overall outcomes.

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[1] India's 10- point 'Vision for the Decade'
[2] MOSPI First Advance Estimates of National Income 2018-19

1 School Education

1.1. Overview of school education

India has one of the largest school education systems in the world

With more than **15 Lakh schools, 25 crore students and 89 lakh teachers**, India has the largest, most diverse and complex learning system in the world[3].

Of the 15 lakh schools, the number of primary and upper primary schools in India was approximately **14.85 lakh**[4], while the number secondary and higher secondary schools was roughly **3.84 lakhs** in 2017-18[5]. Of the total schools, roughly 71 per cent of schools are government-run, while 25 per cent of schools are private (aided and unaided schools). The remaining 4 per cent of schools are unrecognized schools and recognized and unrecognized Madrasas. The high share of Government schools in elementary education in India is attributed to the flagship scheme of the Government of India viz., Sarva Shiksha Abhiyan scheme.

Management Category	No of Schools	% of Total
Department of Education	817038	52%
Tribal/Social Welfare Department	45077	3%
Local Body	225780	14%
Private Aided	84420	5%
Private Unaided	322201	21%
Others	64387	4%
Total	**1558903**	**100%**

Table 1: Schools by Management Category, 2017-18

Source: U-DISE

The total number of students **enrolled in elementary schools in India was approximately 18.78 crore** in 2017-18[6]. Of this, about 10.46 crore students were in government-run schools and 1.39 were in government aided schools in 2017-18 accounting for over 63 per cent of the overall enrolment. **Total enrolment in secondary and higher secondary was roughly 6.32 crores in 2017-18. Roughly 40 per cent of students in secondary and higher secondary were enrolled in government schools.

There are a variety of stakeholders involved in the delivery of school education

Education is a concurrent subject in India and is the responsibility of both the central as well as the state governments. The Ministry of Education (MOE) is the key authority overseeing elementary, secondary, higher secondary and formal higher education. The Ministry is supported by state-level Departments of School and Higher Education. However, pre-school education is under the aegis of the Ministry of Women and Child Development.

Various other agencies and apex bodies are also involved in the regulation of education delivery through special provisions of the central and state governments. Bodies such as the Central Board of Secondary Education (CBSE), National Council of Educational Research and Training (NCERT), All India Council for Technical Education (AICTE), University Grants Commission (UGC), are responsible for quality assurance, curriculum management, licensing, admissions, accreditation,

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[3] National Institute of Educational Planning and Administration. (2016-17). U-DISE Flash Statistics 2016-17 Retrieved from http://udise.in/flash.htm
[4] UDISE. (2017-18). Retrieved from http://14.139.60.149/ReporterModule/ReportModule/Startup/Startup.aspx
[5] ibid
[6] UDISE. (2017-18). Retrieved from http://14.139.60.149/ReporterModule/ReportModule/Startup/Startup.aspx

course administration, fee determination, instructional administration, affiliation and grant disbursal, among others.

Within the Indian education sector, there are formal and informal segments. The **formal education segment** typically comprises school and higher education institutions. The **informal** segment includes pre-school, coaching and test preparation centres and some vocational education centres.

Figure 1: Stages of education along with primary ownership of management by the Government
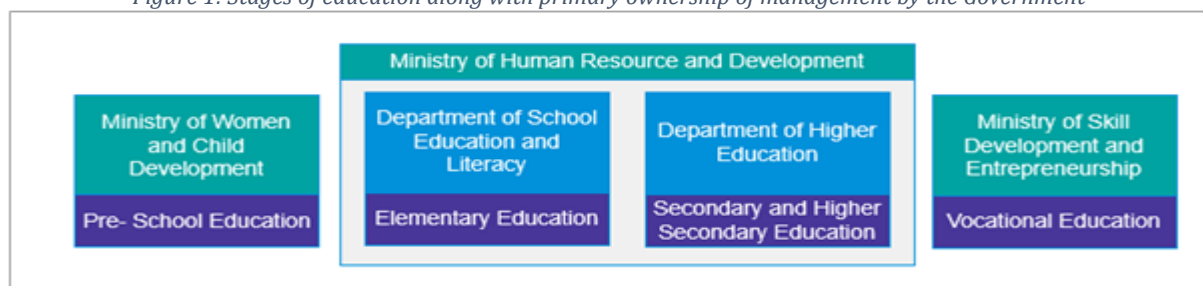
The school education sector of India is growing at a steady rate

The **estimated size of K12 education sector in India in FY19 was INR 3,700 billion[7].** The overall K12 education sector grew at a CAGR of ~16 per cent over the period FY16 to FY19. The **significant growth in the K12 education sector** is primarily attributed to the growth in private unaided school education (estimated to have grown at a ~20 per cent CAGR during the period). The K12 Education sector is further expected to grow at a CAGR of ~12 per cent to ~14 per cent[8].

Figure 2: Size of K12 Education sector in India, INR Billion
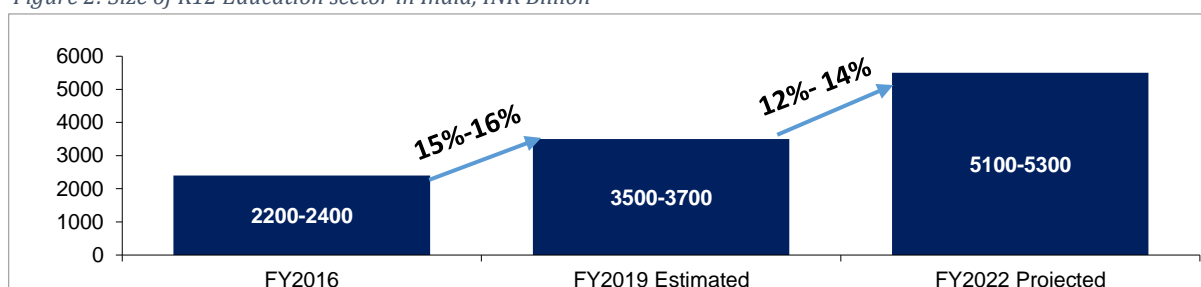
Source: CRISIL Research. (September 2019). *Enrolment lags behind target despite rising investments.* Retrieved from www.crisilresearch.com

This continuous predicted growth in education sector underpins the need to evaluate the existing policies and improve the same as needed.

Government spending on school education is also increasing but expenditure is still lower than recommended

The overall outlay (as well as actual expenditure) for the Department of School Education and Literacy in India has grown from **INR 41,800 crores in 2015-16 to INR 56,537 crores in 2019-20**, accounting to a CAGR of 7.8 per cent[9].

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[7] CRISIL Research. (September 2019). Enrolment lags behind target despite rising investments. Retrieved from www.crisilresearch.com

[8] CRISIL Research. (September 2019). Enrolment lags behind target despite rising investments. Retrieved from www.crisilresearch.com

[9] For FY17, actual was 98% of revised budget outlay and for FY16, actual expenditure was 107.1% of revised budget outlay (expenditure was greater than outlay). Hence, as the difference between revised budget and actual expenditure is minimal, the actual expenditures have been used for comparison instead of budget outlay

Figure 3: Components of budget of Department of School Education and Literacy, INR Cr
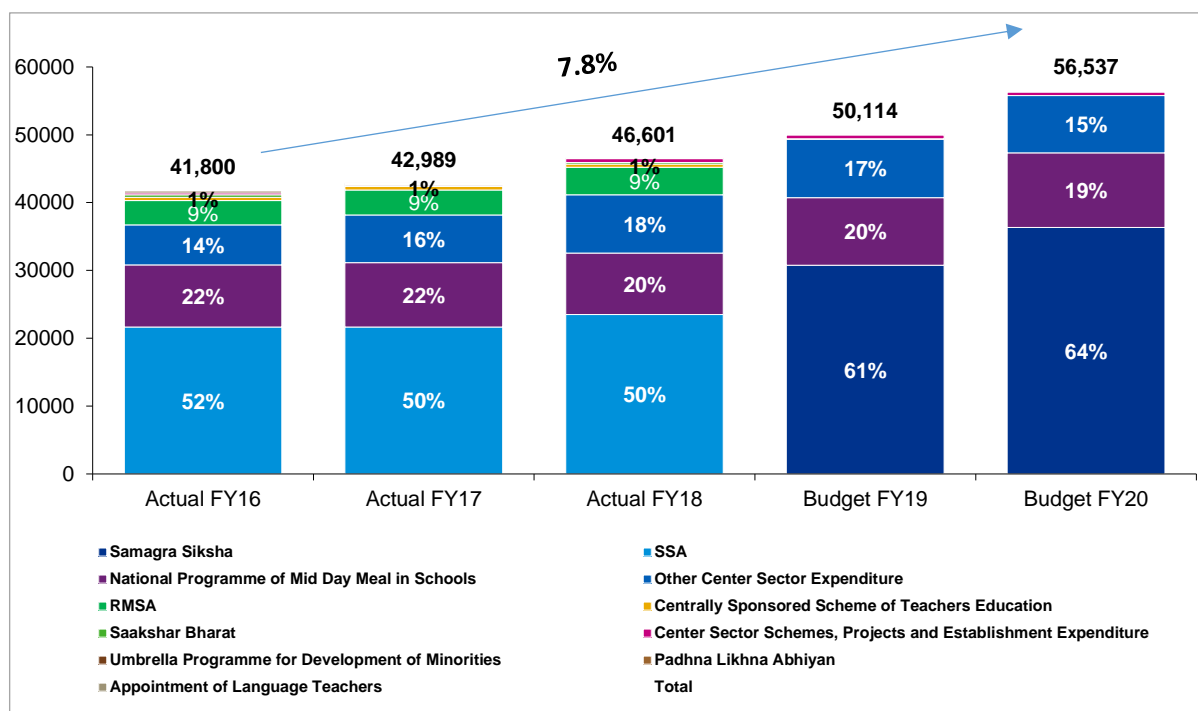
Source: Union Budget as extracted from indiabudget.gov.in (FY16 to FY19)[10]

Of the annual budget, roughly **85 per cent is allocated to various Centrally Sponsored Schemes** (CSSs). About **15 per cent of the budget was towards non-scheme expenditure** including funding to autonomous bodies such as Kendriya Vidyalayas, Navodaya Vidyalayas and National Investment Fund. Less than 1 per cent of the expenditure was towards departmental bodies including Education Secretariat and Directorate of Adult Education.

The budgeted expenditure as percentage of GDP on education for FY20 was around 3.1 per cent for the Education Department[11]. In contrast, the average expenditure on education of OECD countries was 5 per cent as of 2015, while it was over 6 per cent for Brazil and South Africa in 2017[12][13]. The expenditure on education as per cent of total expenditure is also only ~10.1 per cent (budgeted for FY20) as compared to the recommended norm of 20 per cent[14]. In India, the per student expenditure expressed as a percentage of the GDP per capita, in 2013, was 10.5 per cent at pre-primary level, 9.7 per cent at primary level, 16.8 per cent at secondary level, 24.3 per cent at upper secondary level, and 49.2 per cent at tertiary level. *While India's per student expenditure as a per cent of GDP is at par or more with other BRICS countries for secondary and higher secondary, the values are lower for primary (19 per cent vs 10 per cent), indicating the need to enhance the spending at the primary level especially for quality interventions since performance along standardized tests have been inadequate.*

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[10] It should be noted that in FY20, SSA, RMSA and schemes pertaining to Teacher Education were integrated into the Samagra Shiksha Abhiyan. However, the budget head for Teacher Training and Adult Education has an allocation for INR 125 Crores, which is split as INR 75.4 Crores for Padhna Likhna Abhiyan (which is a replacement for Saakshar Bharat) and INR 50 crores for appointment of Language Teachers

[11] Ministry of Finance (2019-20) Economic Survey 2019-20, Volume 2, Social Infrastructure, Employment and Human Development, Retrieved from https://www.indiabudget.gov.in/economicsurvey/doc/vol2chapter/echap10_vol2.pdf

[12] Ministry of Education (2020). National Education Policy. Retrieved from https://www.mhrd.gov.in/sites/upload_files/mhrd/files/NEP_Final_English_0.pdf

[13] https://nces.ed.gov/programs/coe/pdf/coe_cmd.pdf

[14] Ministry of Finance (2019-20) Economic Survey 2019-20, Volume 2, Social Infrastructure, Employment and Human Development, Retrieved from https://www.indiabudget.gov.in/economicsurvey/doc/vol2chapter/echap10_vol2.pdf

1.2. Key goals and policies shaping school education

Since independence, there has been a continual progression of policies and priorities in the education sector aimed at creating a strong ecosystem needed to develop productive human capital. The educational priorities of India have accordingly evolved considerably over the last few decades. The policies and priorities of the education sector over last few decades helped in considerable structural alignment and growth of the sector. The key goals and activities of the country over next few years would be guided by the New India @ 75, by NITI Aayog[15], the National Education Policy (2020) and corresponding International Benchmarks, outlined in the form of Sustainable Development Goals by UN[16].

Sustainable Development Goals (SDGs)

India became a signatory to the 2030 Agenda for Sustainable Development in September 2015. SDG 4, which aims to "**ensure inclusive and equitable quality education and promote lifelong learning opportunities for all**" by 2030 is particularly relevant to school education. The key goals of SDG 4, along with India's progress on the same are listed below:

Table 2: Goals and Targets for education sector in Transformational Phase under Sustainable Development Goals (SDGs)

SDG Goal	Target 2030	Achieved (2017-18)
Adjusted NER at Elementary and Secondary education (%)	100	74.53
Children in the age group 6-13 who are out of school (%)	0	2.8
Average annual drop-out rate at secondary level (%)	0	19.83
Per cent of students in grade 3, 5, 8 and 10 having minimum proficiency in nationally defined learning outcomes	100	71
Disabled children (5-19 years) attending educational institution (%)	100	61.18
Proportion of trained teacher by education level	100	78.84
Percentage of schools with pupil teacher ratio less than equal to 30	100	70.43

Source: SDG India Dashboard

Strategy for New India @75

In December 2018, NITI Aayog unveiled its **Strategy for New India @75** with clearly defined National Development Agenda for education sector among others to be achieved by 2022-2023. The plan rearticulates the need for universalization of education till the Secondary level. The key goals articulated to be achieved under New India @75 are as follows:

Figure 4: Goals and Targets for education sector in Transformational Phase as per India@ 75 Strategy

School Education

- Hundred per cent enrolment and retention at elementary education and secondary education levels; achieve zero dropouts until Class X.
- Equitable participation by all society segments, in terms of attendance, retention and years of schooling to ensure maximum social inclusion.
- Improvement in learning outcomes for elementary and secondary education, as measured by successive rounds of the National Achievement Survey (NAS).
- Creating a robust framework for tracking individual students across their schooling years that incorporates data on their learning outcomes.
- Providing a real and viable alternative path for vocational education starting at higher levels to improve employability.
- Strengthening support for children as part of the school curriculum to improve child mental health.

Source: Strategy for New India @75, NITI Aayog

[15] NITI Aayog (2016-17) Strategy for New India @ 75 Retrieved from https://niti.gov.in/sites/default/files/2019-01/Strategy_for_New_India_0.pdf
[16] United Nations (2015) Transforming the World: The 2030 Agenda for Sustainable Development, Retrieved from https://sustainabledevelopment.un.org/content/documents/21252030%20Agenda%20for%20Sustainable%20Development%20web.pdf

The National Education Policy emphasizes the quality of education delivery

- Every child in the age group of 3 to 6 years must have developmentally appropriate care and education
- All students to achieve foundational literacy and numeracy by Grade 5
- Ensure pupil-teacher ratio of less than 30:1
- Revision of the curriculum framework; introduction of three-languages in school; vocational courses for secondary and higher secondary schools
- Assessments must be designed to support student learning

The new National Education Policy recommends the consolidation of education to ensure high quality and governance

- Early childhood care and education to be brought under the Ministry of Human Resources Development
- Curricular and pedagogical design to be guided by a 5+4+4+3 framework of foundational stage (ages 3-8), preparatory stage (ages 8-11), middle stage (ages 11-14) and secondary stage (ages 14-18)
- Schools to be grouped into complexes that will be semi-autonomous units. These school complexes to share resources, create a community of teachers and principals who will work together.

The National Education Policy focuses on ensuring universal access and retention at all levels of school education in India

- The policy states that there should be 100 per cent GER in pre-school to secondary school by 2030
- The participation and learning of all students must be ensured by tracking attendance and learning outcomes of all students, tracking dropouts and out of school children

The following section summarizes the sectoral performance over the last few years.

1.3. Key trends in school education

India, since its Independence, has come a long way in terms of achieving key outcomes in the school education sector. The sector has witnessed a plethora of policies and initiatives to improve the overall performance on educational outcomes. The Government support to improving the basic resources available with the education sector in India and in turn improve the overall sectoral performance is mainly through the Centrally Sponsored Schemes of Sarva Shiksha Abhiyan for elementary education, Rashtriya Madhyamik Shiksha Abhiyan for secondary education and partly for higher secondary education and Centrally Sponsored Scheme on Teacher Education (CSSTE) for teacher education. The primary outcomes of all the initiatives in education sector was to improve the performance of India on the pillars of educational development initiatives viz., Access, Equity and Quality. The concerted performance of these scheme over the last decade entails that the access to basic education is no longer the most pressing concern in the sector. Over 90 per cent of the eligible students have access to basic elementary education while over 88 per cent of the students have access to secondary education. The next phase of the Indian

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[17] Ministry of Education (2020). National Education Policy. Retrieved from https://www.mhrd.gov.in/sites/upload_files/mhrd/files/NEP_Final_English_0.pdf

education ecosystem would be driven by taking necessary last mile steps to ensure universalization of education at the elementary and secondary levels, ensuring greater uptake of higher education and simultaneous improvements on other parameters like equity and quality. The following section highlights the performance of the education sector over last five years on the key performance indicators.

India has increased overall access to school education

Sarva Shiksha Abhiyan (SSA) and Rashtriya Madhyamik Shiksha Abhiyan (RMSA) aimed to achieve universalization of education at the elementary and secondary level by 2015 and 2017 respectively. Concentrated efforts under these schools, along with the Mid-Day Meal (MDM) scheme have resulted in increased enrolment. An analysis of past evaluation studies and secondary data indicates that **India has improved overall access to education for a majority of the school-age population**[18].

> **Perspectives of external stakeholders on access**
>
> *"SSA was the need of the hour in 2000-2001 when it was introduced. India achieved good progress under the scheme on ensuring the access to education"*
>
> *(Source: Anita Karwal, Chairperson, CBSE)*
>
> *"India built many schools and recruited very high number of teachers over the past decade. For elementary and secondary education, access of education is not an issue. However, this may not be the right solution. Schools with less than minimum enrolment/ multi-grades are a serious concern,"*
>
> *(Source: Marc Shotland, Director-Technical Team, IDinsight).*

SSA, RMSA and Samagra Shiksha aim(ed) to enhance access to schools by ensuring a primary school within 1 km radius of every habitation, upper primary school within a 3 km radius and secondary school within a 5-7 km radius; this coverage is measured through the Gross Access Ratio (GAR). Towards this objective, the GAR in India for primary education was 97.27 per cent, at upper primary level was 96.82 per cent, secondary education was 91.49 per cent and higher secondary education was 68.36 per cent in 2019-20[19].

A study by Mukta Mukherjee indicates that increased access to schools for those residing in remote areas resulted in higher enrolment[20]. The study concluded that students are more likely to attend schools if they were present in a nearby vicinity. The higher accessibility of elementary schools coupled with the introduction of the Right to Education Act (RTE) led to higher enrolment at the elementary level. In comparison, enrolment rates at secondary schools were less since students had to travel greater distances to attend. The primary interactions across the stakeholders also highlight that access is no more the most pressing concern for the country primarily due to the results achieved under Sarva Shiksha Abhiyan (SSA) and Rashtriya Madhyamik Shiksha Abhiyan (RMSA).

However, the last-mile access remains an issue in some habitations in the country

Approximately 3-4 per cent of habitations still do not have access to elementary schools while around 12-14 per cent schools do not have access to secondary and higher secondary education facilities. The accessibility to secondary and higher secondary education is a concern especially in the North East region. The availability of educational facilities in the vicinity has positive

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[18] Department-related parliamentary standing committee on Human Resource Development. Accessed from http://164.100.47.5/newcommittee/reports/EnglishCommittees/Committee%20on%20HRD/283.pdf
[19] MOE Data
[20] Mukherjee, Mukta. "Do Better Roads Increase School Enrolment? Evidence from a Unique Road Policy in India." Evidence from a Unique Road Policy in India (August 28, 2012)

correlation with student's participation. The primary survey also indicates that the access to education is not a concern for the beneficiaries wherein 96 per cent of elementary school respondents reported a government school within 1-2 kms (as per the scheme norm of SSA) while all of the secondary school going beneficiaries reported at least 1 Government Secondary school in their vicinity within 7-10 KM (as per the scheme norm for RMSA).

Gross enrolment rates have stagnated across all grades along with considerable regional disparities observed

A paper on promising EFA practices in the Asia Pacific Region, as a case study on participation of Civil Service Organizations in Sarva Shiksha Abhiyan in the states of Madhya Pradesh and Rajasthan, concludes that while SSA had helped improve access significantly during the decade since its inception in 2001-2002 to 2015, universalization had not been attained and there persists significant variation in the extent of achievement across states. The study on *Inequalities in Secondary Education: A Study of Rashtriya Madhyamik Shiksha Abhiyan* (Gaurav Singh and Protiva Kundu, Centre for Budget and Governance Accountability, 2016) focused on the reach of RMSA amongst the different social groups in Bihar and Himachal Pradesh. It also observed that while there was success achieved in access to secondary education, a deeper look showed that there were disparities across regions and different social groups. According to the two hundred and eighty third report of the parliamentary standing committee, while tremendous achievements have been realized on access to education, India would still need to improve significantly to achieve the goals of providing universal, equitable and excellence in educational standards for students.

Analysis of secondary data also highlights similar findings. India attained an overall **Gross Enrolment Rate (GER) of 93.03 at elementary education** in 2018[21], an eleven per cent increase from 2001 (GER of 81.6). While India managed to attain GER levels of 94.21 in FY19 in primary education, the country lags behind global peers viz., Brazil (113.9 in 2016), Russia (102.1)[22].

During the FY15 to FY18 period, the overall elementary education GER decreased from 96.39 in 2014-15 to 93.03 in 2017-18. The World Bank Implementation Completion Report for Sarva Shiksha Abhiyan attributes these minor reductions in enrolment levels to the Government of India initiative of assigning a Unique ID based on Aadhar of the student. While this was undertaken for 2016-17 data, the data for the past years had not been cleaned[23]. The GER further decreases at the secondary and higher secondary levels. The **GER for Secondary Education was 79.38 per cent** and the higher secondary rate was even lower at 56.50 per cent[24]. The goal of universalization of education at secondary level needs significant measures going forward.

Figure 5: GER for all levels of Education- Source: U-DISE Report Cards
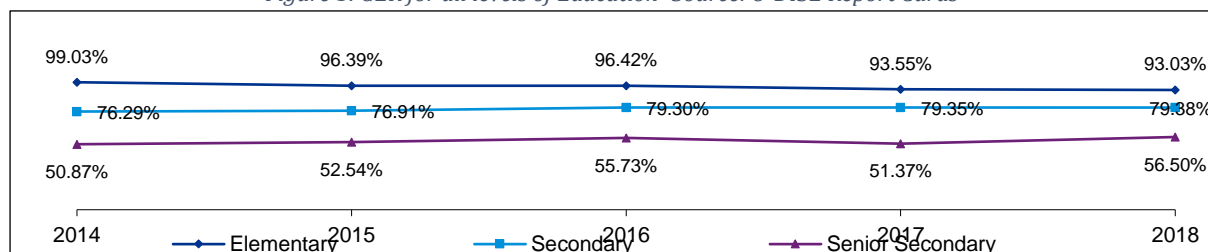
	2014	2015	2016	2017	2018
Elementary	99.03%	96.39%	96.42%	93.55%	93.03%
Secondary	76.29%	76.91%	79.30%	79.35%	79.38%
Senior Secondary	50.87%	52.54%	55.73%	51.37%	56.50%

Source: U-DISE School Report Cards: http://14.139.60.149/ReporterModule/ReportModule/Startup/Startup.aspx

[21] U-DISE School Report Cards Retrieved from http://14.139.60.149/ReporterModule/ReportModule/Startup/Startup.aspx
[22] Source: World Bank EdStats
[23] World Bank (2017). World Bank Implementation Completion Report India Elementary Project 3 http://documents.worldbank.org/curated/en/397001536766146941/pdf/ICR4464-PUBLIC.pdf
[24] U-DISE School Report Cards Retrieved from http://14.139.60.149/ReporterModule/ReportModule/Startup/Startup.aspx

There is also a significant regional disparity in GER across all stages of education. States/UTs such as Andaman and Nicobar Islands, Andhra Pradesh, Jammu and Kashmir, Chandigarh, Daman and Diu, Lakshadweep, Dadra and Nager Haveli, Puducherry and Uttar Pradesh continue to report GER of less than 85 per cent at elementary education[25]. As per the UNESCO's 'EFA Global Monitoring Report, 2014', a 12 per cent decrease is estimated in global poverty if all students in low-income countries attain basic reading skills in schools and a 10 per cent increase in earnings globally for one year of schooling. While no significant relationship is visible between education and higher wages for education till primary level[26], there are studies[27] which highlight strong interlinkages between improved education with improved livelihood standards, health, employability and overall socio-economic development of countries. Furthermore, there is a significant positive correlation between the Average Rate of Return (AROR) with education at the secondary level[28]. This indicates that while access has improved at the elementary level, there is still a need for concerted efforts to ensure every last child is enrolled in schools across the country to gain from the possible socio-economic impact of the same.

Evidence Box: 1: Impact of reducing the Cost of School Participation in ensuring inclusion [29]

Small changes in the timing of a conditional cash transfer (CCT) can affect the ability of families to save and pay for school and can affect school enrolment decisions. The impact of cash transfer programmes on education has been found to be sensitive to the timing of support: matching the timing of transfers to when large education expenditure takes place makes it easier for families to save the transfers for education expenditure[30].

- A CCT programme in Colombia included a transfer pay-out schedule to provide a larger lump-sum payment when re-enrolment fees were due. Compared to a traditional CCT programme, the timed transfers reduced drop out and increased enrolment in tertiary schools[31].
- Another CCT evaluation in Colombian secondary schools found that providing "graduation bonuses" around the time of enrolment in tertiary education greatly increased subsequent enrolment compared to a traditional CCT programme[32].

Students are not enrolled in age-appropriate grade levels

Despite the RTE mandate of age-appropriate enrolments, several states indicated instances of enrolment of over age and under-age children in schools even at the elementary stage. The overall Adjusted Net Enrolment Rate (NER), which represents age-appropriate enrolment was lower than the Gross Enrolment Ratio and has reduced marginally over the last three years. There is a slight fall in adjusted NER at elementary levels from ~91.56 per cent to ~89.24 per cent from FY '14 to FY '17. The 24th JRM and the World Bank Implementation Completion Report for Sarva Shiksha Abhiyan attributes these minor reductions in enrolment levels reflecting in GER as well

[25] NIEPA (2017-18) School Report Cards Retrieved from http://14.139.60.149/ReporterModule/ReportModule/Startup/Startup.aspx
[26] Rate of Return to Education in India: Some Insights, Satadru Sikdar (2019). Retrieved from https://www.semanticscholar.org/paper/Rate-of-Return-to-Education-in-India%3A-Some-Insights-Sikdar/1541e0be2415cfae1f7103d2fe94a685e6014c1d
[27] UNESCO's 'EFA Global Monitoring Report, 2014
[28] Rate of Return to Education in India: Some Insights, Satadru Sikdar (2019). Retrieved from https://www.semanticscholar.org/paper/Rate-of-Return-to-Education-in-India%3A-Some-Insights-Sikdar/1541e0be2415cfae1f7103d2fe94a685e6014c1d
[29] JPAL, Education Evidence Summary note for DMEO, NITI Aayog
[30] Abdul Latif Jameel Poverty Action Lab (J-PAL). 2018. "Reducing costs to increase school participation." J-PAL Policy Insights. Last modified April 2018.
[31] Barrera-Osorio, Felipe, Marianne Bertrand, Leigh Linden, and Francisco Perez-Calle. 2011. "Improving the Design of Conditional Transfer Programs: Evidence from a Randomized Education Experiment in Colombia." American Economic Journal: Applied Economics. 3(April): 167-95.
[32] Barrera-Osorio, Felipe, Leigh L. Linden, and Juan E. Saavedra. 2019. "Medium- and Long-Term Educational Consequences of Alternative Conditional Cash Transfer Designs: Experimental Evidence from Colombia." American Economic Journal: Applied Economics.

as NER to the Government of India initiative of assigning a Unique ID based on Aadhar of the student and cleaning of enrolment data on DISE. There is also a rise in adjusted NER at Secondary level from ~48.04 per cent to ~51.77 per cent, and a drop in Higher Secondary levels from ~32.42 per cent to ~30.95 per cent respectively from FY '14 to FY '17[33].

Figure 6: GER vs NER across all levels of education

Source: U-DISE School Report Cards: http://14.139.60.149/ReporterModule/ReportModule/Startup/Startup.aspx
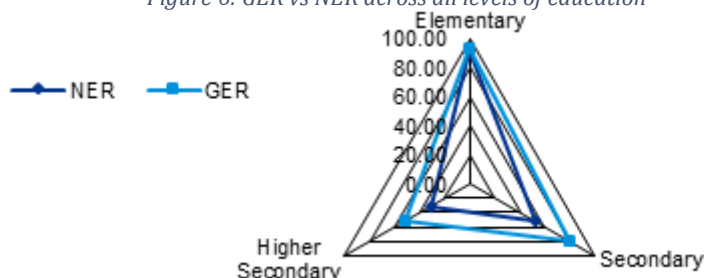
Student retention and transition from elementary to secondary are still areas of concern

The overall **retention rate for elementary education was 71.1 per cent** in 2017-18 and has improved marginally by 67.4 per cent over 2014-15. While the retention rate at the secondary level was 57.7 per cent. The retention levels in both elementary as well as secondary education show significant variation across states. While the retention rates for girls is higher at elementary level as compared to boys (71.76 per cent for girls and 70.40 per cent for boys), the same is lower for girls at the secondary level (56.85 per cent for girls and 58.55 per cents for boys).[34]

- In elementary education, over 23 states had retention levels of lesser than 85 per cent in 2018-19.[35] States such as Andhra Pradesh, Arunachal Pradesh and Mizoram have retention rates as low as 41.9 per cent, 35.1 per cent and 45.6 per cent respectively. On the other hand, states such as Kerala, Goa and Chandigarh have retention rate levels of 142 per cent, 110 per cent and 126.8 per cent respectively.
- In secondary education, over 29 states have retention rate levels of lesser than 85 per cent in 2018-19. States such as Arunachal Pradesh, Assam and Jharkhand have retention rate levels as low as 27.5 per cent, 34.2 per cent and 32.1 per cent respectively. On the other hand, states such as Kerala, Rajasthan and Chandigarh have retention rate levels of 147.4 per cent, 113.4 per cent and 108.3 per cent respectively[36].

As per the paper on promising EFA practices in the Asia Pacific Region as a case study on participation of Civil Service Organizations in Sarva Shiksha Abhiyan in the states of Madhya Pradesh and Rajasthan, it concludes that while the participation of students in education might have increased, indicators such as drop-out rate, retention rate, transition rate, student and teacher absenteeism reveal inadequacy in attainment of the objectives. The analysis of the GER data also suggests that while the enrolment rate of the students at secondary level had increased, the low retention rate is one of the significant barriers towards the vision of universalization of elementary and secondary education.

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[33] U-DISE Retrieved from http://udise.in/src.htm
[34] MOE, 2017-18
[35]MOE. Educational Indicators Data
[36] ibid

The transition rates from primary to upper primary school and from upper primary to secondary were 91 per cent and 89 per cent respectively in 2017-18. However, the transition rate from secondary to higher secondary is much lower at 67.09 per cent.[37] This indicates that for every 100 students enrolling at secondary level, around 33 students are not completing secondary education and moving to the higher secondary level. The 24th JRM for SSA (undertaken in 2017) also observed the slow growth in transition rate of elementary education, raising concerns about sectoral intervention having the desired impact on the ground level.

Figure 7: Transition Rate in Elementary and Secondary Education

	2014-15	2015-16	2016-17	2017-18
91.6		90.6	90.3	90.8
89.7		90.1	88.6	89.2
67.7		69.0	66.4	67.1

— Transition Rate from Primary to Upper Primary   — Transition Rate from Upper Primary to Secondary
— Transition Rate from Secondary to Higher Secondary

Source: U-DISE School Report Cards: http://14.139.60.149/ReporterModule/ReportModule/Startup/Startup.aspx
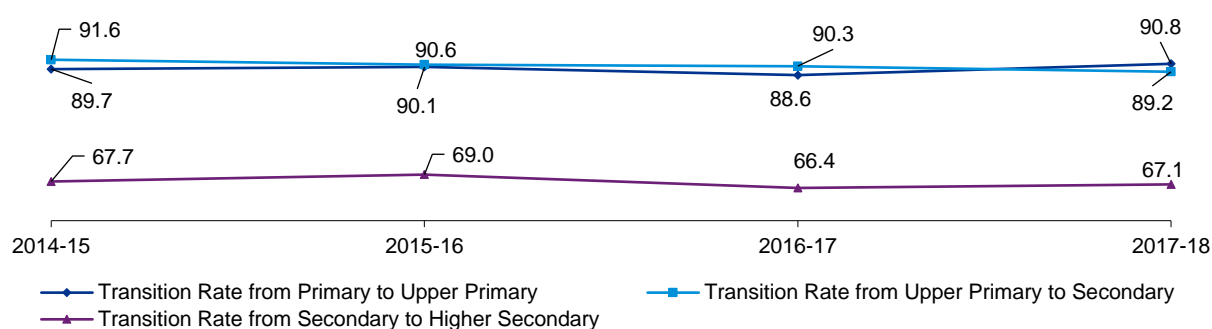
The transition rates for girls are more than boys from Primary to Upper Primary and Secondary to Higher Secondary. However, the transition rate is lower for girls from Upper Primary to Secondary level by around three per cent points.

Table 3: Transition Rates (2017-18)

Level	Boys	Girls
Primary to Upper Primary	90.47	91.10
Upper Primary to Secondary	90.82	87.52
Secondary to Higher Secondary	66.66	67.58

U-DISE School Report Cards

In order to achieve 100 per cent retention and transition rates by 2022 (as per the National Development Agenda), there needs to be significant focus on the same.

The overall drop - out rates have increased in the school education

The UDISE data suggests that the drop - out rates at upper primary and secondary level has increased over the last four - year period, while the drop - out rate at primary level showcased marginal decrease. The drop - out rates for Secondary classes in 2017-18 was as high as 19 per cent in 2017-18. *The Parliamentary Standing Committee (report number 312) observed high drop out of students especially at secondary stage to be a major area of concern in education sector*[38].

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[37] NIEPA, U-DISE School Report Cards (2018-19) Transition Rate. Retrieved from http://14.139.60.149/ReporterModule/ReportModule/Startup/ViewReport.aspx?g=&C=0&ST=0&ay=2017-18&rt=4&stc=&dc=&bc=&sm=0&sc=null&lev=10&rur=0&rpt=4_6&rt2=1&ag=&STN=India&DSN=&Bn=&Dis=0
[38] Report no. 312 Demands for Grants 2020-21 (Demand No. 58) of the Department of School Education and Literacy, 5 March 2020, https://rajyasabha.nic.in/rsnew/Committee_site/Committee_File/ReportFile/16/123/312_2020_3_12.pdf

Figure 8: Drop-Out Rate in Elementary and Secondary Education

Source: U-DISE School Report Cards: http://14.139.60.149/ReporterModule/ReportModule/Startup/Startup.aspx
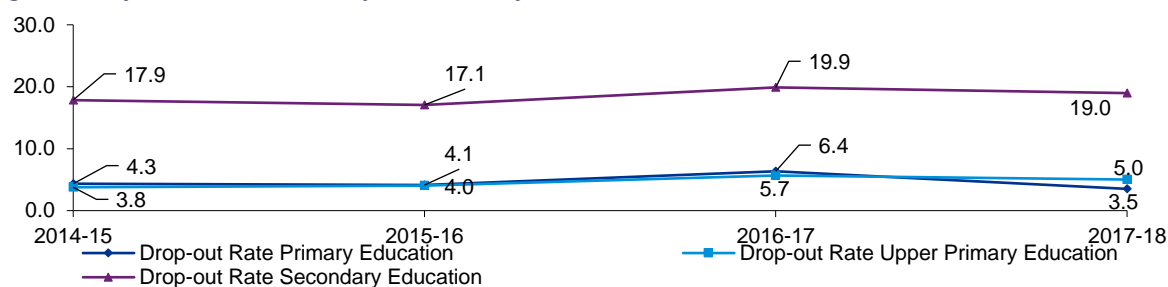
While the average Annual dropout rate for girls was lower than boys at Primary and secondary level, at the Upper Primary level, higher share of girls dropped out of school than boys as seen in the Table.

Furthermore, the drop-out rate in government managed schools is found to be higher than the overall drop-out rate across other managements. In 2016-17, the drop - out rate in government managed institutions was 7.43 per cent in primary education, 12.98 per cent in upper primary education, 9.27 per cent for overall elementary education and 26.96 per cent in secondary education.[39] The key reasons for female drop outs as highlighted by the National Sample Survey Organization (2018) includes engagement in household chores (30 per cent), early marriage (13 per cent) and lack of interest in education (15 per cent) [40]. While for the male child, engagement in wage earning activities (37 per cent) and economic considerations (24 per cent) accounts for around two-third of the households' reasons for student drop-out[41]. The primary survey in the present study also noted the high dropout rates of students attributed primarily to financial constraints, engagement in wage generation activities and household chores. Under its commitment towards the National Development Agenda, the country aims to achieve zero drop out by 2022. The high level of drop - outs suggest a strong need to continually track the attendance level of enrolled students so that pre-emptive early interventions can be rolled out to bring them back into mainstream education.

Table 4: Average Annual Dropout Rate for Boys and Girls

Annual Average Dropout Rate (2017-18)		
Level	Boys	Girls
Primary I-V	3.7	3.3
Upper Primary	4.5	5.6
Secondary (IX-X)	19.2	18.7

Source: U-DISE School Report Cards: http://14.139.60.149/ReporterModule/ReportModule/Startup/Startup.asp

There are still considerable number of 'Out-of-School' children in the country and majority of the mainstreamed 'OoSC' didn't have adequate participation

In 2014-15, over 17.24 lakh out-of-school children were identified of whom 11.83 lakh were enrolled into elementary schools. By 2018-19, the number of out-of-school children had dropped to 8.34 lakh, of whom 6.7 lakh children were enrolled into elementary schools. As of 2018-19, around 1.63 lakh children remain unenrolled in elementary schools[42]. Of the 50.94 lakh children

[39] NIEPA (September 2016) Flash Statistics on School Education 2016-17. Retrieved from http://udise.in/Downloads/Publications/Documents/Flash_Statistics_on_School_Education-2016-17.pdf
[40] Key Indicators of Household Social Consumption on Education in India, NSS 75th Round (2018), Ministry of Statistics and Programme Implementation. Retrieved from http://www.mospi.gov.in/sites/default/files/publication_reports/KI_Education_75th_Final.pdf.
[41] Key Indicators of Household Social Consumption on Education in India, NSS 75th Round (2018), Ministry of Statistics and Programme Implementation, http://www.mospi.gov.in/sites/default/files/publication_reports/KI_Education_75th_Final.pdf.
[42] ibid

identified as out-of-school during this period (2014-15 to 2018-19), over 45 per cent of the children were identified in the three states of Rajasthan, Bihar and Jharkhand respectively. By 2018-19, Rajasthan and Jharkhand were able to effectively reduce the number of out-of-school children in their respective states by almost 70 per cent. As a result, in 2018-19, it was observed that majority of the out-of-school children were identified in the states of Andhra Pradesh, Assam and Bihar, constituting 39 per cent of all the Out of School Children identified in the country[43].

While the number of OOSC reduced over last few years, however, a survey commissioned by MOE in 2014 indicates that around 56 per cent of the mainstreamed Out of School children did not complete their elementary education indicating a huge gap in the overall intervention and lack of their adequate inclusion.

Also, while the data suggests 1.6 cr. 'Out of School' elementary age children in India, the CAG report[44] has identified considerable data gaps in the assessment of the Out of School Children over FY15 and FY16 in India as the sources viz., UDISE, AW&B, State survey and MOE survey had different values towards the same indicating a lack of standardized process for the same thereby negatively impacting the overarching goals of RTE. Furthermore, data pertaining to out-of-school children is not available for the secondary education stage unlike other countries such as Kazakhstan which collects the OoSC data till secondary age.

India has the shortest period for compulsory education among BRICS countries

India has the shortest period of mandatory school education for children amongst all the BRICS countries. Brazil supports mandatory school education for 12 years'; Russia has mandated school education for 11 years while South Africa and China have provision for compulsory school education for students for 9 years. The provision of free and compulsory education to students in India from 6-14 years only enables a high enrolment of students till elementary level. However, immediately after the elementary level, the GER at secondary and higher secondary reduces significantly due to high instances of student drop - outs and low transition rate. The mean years of schooling follow a very similar trend, indicating a high level of inter-dependence.

Figure 9: Mean years of Schooling vs Per Capita income
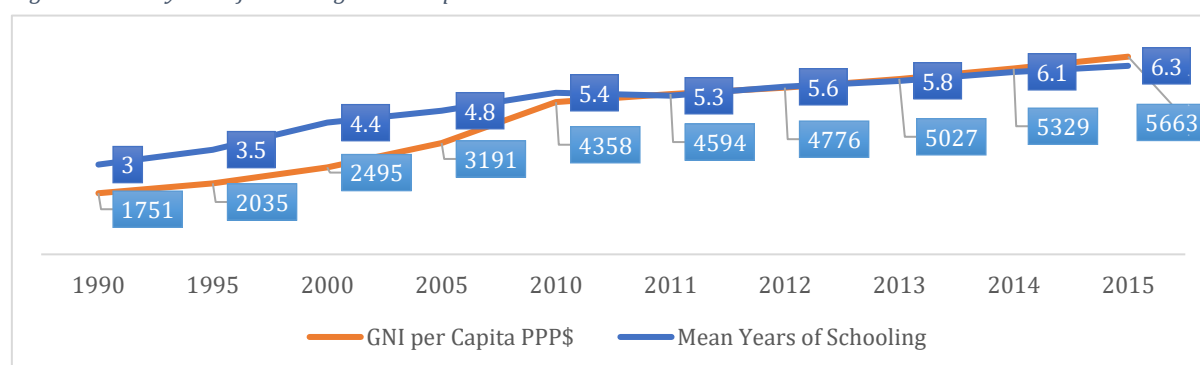
Source UN HDR 2016 Statistical Annex

[43] ibid

[44] Report of the Comptroller and Auditor General of India on Implementation of Right of Children to Free and Compulsory Education Act, 2009; Report no. 23 of 2017(2016). Retrieved from https://cag.gov.in/sites/default/files/audit_report_files/Report_No.23_of_2017_%E2%80%93_Compliance_audit_Union_Government_Implementation_of_Right_of_Children_to_Free_and_Compulsory_Education_Act%2C_2009.pdf

This leads to a considerably low mean years of schooling

While the access to education has improved, the mean years of schooling in India is very low. **India is ranked 130 out of 189 countries in the world on** the Global Education Index, which is a component of the Global Human Development Index that is measured by the United Nations Development Programme. The value of Education Index is estimated to be 0.556 for India. The Education Index is calculated primarily based on the mean years of schooling (average number of years of schooling received by adults of 25 years of age and above during their lifetime) as well as expected years of schooling that a child below 18 years of age should receive. In order to achieve the country's developmental goals, it is necessary to ensure a higher mean of years of schooling with mandatory and proactive measures to ensure retention beyond the primary level.

The overall enrolments are decreasing, and number of small schools are increasing impacting efficacy of government schools

The absolute number of school-going students in India have decreased over the period 2014-15 to 2017-18. In line with the decreasing school going students, the enrolment density in all management schools has experienced a gradual decline at elementary level during the given period. However, the enrolment density in government schools has been less than 50 per cent of that in government aided or private unaided schools. This renders inefficiency in the vast investments done in the schooling facilities done by the government.

Table 5: Enrolment density across schools of all management

Type of School	2014-15	2015-16	2016-17	2017-18
Government	110	109	104	99
Government Aided	237	230	212	201
Private Unaided	220	221	209	206

Source: U-DISE School Report Cards: http://14.139.60.149/ReporterModule/ReportModule/Startup/Startup.aspx

Parallel analyses indicate that, of the nearly 10.6 lakh government elementary schools, standalone primary and standalone upper primary schools account for nearly 82 per cent of all the elementary schools. The presence of large number of standalone primary and upper primary schools is attributed to the RTE (2009) norm of neighbourhood schools. Composite schools that offer secondary or higher secondary grades apart from elementary grades account for only 7 per cent of all the schools. This necessitates that students studying in the 82 per cent of *government* standalone schools shift themselves to re-enrol in new schools on completion of either grade 5 or grade 8, in order to complete their education. If transition into secondary education from elementary education is considered, children studying in nearly *93 per cent of government primary/upper primary/ primary + upper primary schools* have to re-enrol themselves into new schools for pursuing secondary education. This transition leads to drop out of several students between elementary and secondary grades. Furthermore, majority of the standalone schools in India are working with sub-minimal student density with enrolment less than 50 affecting financial viability of operation.

Table 6: Break up of standalone schools in India along with minimum share of enrolment

Type of School	Standalone Primary Schools	Standalone Upper Primary Schools	Standalone Elementary (Primary + Upper Primary)	Composite Schools (Primary to H Sec) or (Primary to Sec) or (Upper Primary to H Sec) or (Upper Primary to Sec)
Number of School	6,98,426	1,18,485	1,68,136	75,117

Type of School	Standalone Primary Schools	Standalone Upper Primary Schools	Standalone Elementary (Primary + Upper Primary)	Composite Schools (Primary to H Sec) or (Primary to Sec) or (Upper Primary to H Sec) or (Upper Primary to Sec)
% share of Total Schools in Elementary Education	66%	11%	16%	7%
% schools with less than 50 enrolment	52.9%	35.6%	13.2%	2.3%

Source: U-DISE School Report Cards: http://14.139.60.149/ReporterModule/ReportModule/Startup/Startup.aspx

The Economic Survey (2019) indicates a gradual decline of the elementary age population in India over the period 2021 to 2041[45]. This would have further implications on the enrolment density of the Government schools diminishing the economic viability.

Case Study 1: School Consolidation in Rajasthan for Improvement of Enrolment Density and overall Quality of Education[46]

Summary: The state of Rajasthan implemented a school consolidation exercise for improving the overall enrolment density, efficiency of operations and overall competitiveness of government schools for elementary schools between 2011-12 and 2017-18. The state also had instances of multiple primary or upper primary schools existing in the same revenue village resulting in poor enrolment density. The total number of government elementary schools was over 77,833 in 2011-12 and 78,870 in 2012-13 during the initiation of the school consolidation initiative. This reduced to 66,753 government elementary schools by 2017-18.

Objectives and Rationale: The state of Rajasthan experienced a decline in enrolment in elementary government schools from 130 million in FY12 to 119 million in FY15. While the state had over 78,870 government elementary schools, nearly 56 per cent (class 1 to 5) were standalone elementary schools and 28 per cent were standalone elementary schools (class 1 to 8). As a result, students had to shift schools at grades 5 or 8 to continue consecutive years of education. This affected transition rates and drop-out rates in government schools in grades 5 and 8 at elementary levels. Further, it was also observed that several revenue villages had more than one primary or upper primary schools, resulting in schools with lower enrolment density.

Due to the presence of a large number of small elementary schools, each Block Elementary Education Officer managed nearly 275 schools across 30 to 40 Gram Panchayats. This resulted in challenges in monitoring of the schools by the BEEOs. In addition, government schools had only 0.65 teachers per grade, resulting in multi-grade teaching. Nearly 18 per cent of the elementary schools were single teacher schools as of 2012-13, with nearly 32 per cent of standalone primary schools being single teacher schools. Apart from teaching resources, other requisite infrastructure such as boundary walls, ramps, electricity, libraries and playgrounds were absent in a significant share of schools. Nearly 43 per cent schools did not have library facilities, 62 per cent did not have playgrounds and 64 per cent did not have electricity. The number of secondary and higher secondary schools was also not commensurate to the number of elementary schools which resulted in lower transition rates from elementary to secondary education. In order to address these key issues, the Government of Rajasthan undertook initiatives such as Adarsh schools, State Initiative for Quality Education (SIQE) as well as consolidation of government schools to improve the overall efficiency and monitoring systems in elementary education

Key Stakeholders: The key stakeholders involved were as follows:
1. Rajasthan Education Department

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[45] Economic Survey (2019) India's Demography at 2040: Planning Public Good Provision for the 21st Century Retrieved from https://www.indiabudget.gov.in/budget2019-20/economicsurvey/doc/vol1chapter/echap07_vol1.pdf
[46] Centre for Policy Research, August 2019, Retrieved from School Consolidation in Rajasthan, Implementation and Short- Term Effects, Retrieved from https://www.cprindia.org/research/papers/school-consolidation-rajasthan-implementation-and-short-term-effects

2. State Education Directorates: Directorate of Elementary Education and Directorate of Secondary Education
3. Block Education Officers and District Education Officers

Implementation Strategy: The school consolidation initiative was of three types:

a. Consolidation of elementary schools with other elementary schools
b. Consolidation of elementary schools with secondary schools
c. Consolidation of secondary schools with other secondary schools

The implementation strategy is as described below:

The main criteria ensured during selection of schools was based on instances of low enrolment density of less than 15 to 30, with at least two such primary or upper primary schools existing in the same revenue village

The school consolidation exercise was coupled with the set-up of Adarsh schools (composite secondary and higher secondary government schools offering class 1 to 10/12), such that the primary or upper primary schools could combined be combined into composite schools with secondary and higher secondary grades. The principal of each Adarsh school designated at the Panchayat Elementary Education Officer (PEEO) for managing all the elementary schools within the Gram Panchayat.

The overall implementation process is as described below:

Resource Utilization: The entire school consolidation initiative was undertaken by the Directorate of Elementary Education and Directorate of Secondary Education. The physical and soft infrastructure resources of the closed schools were transferred to the consolidated schools. The teachers from the closed schools were also transferred to the consolidated schools. This helped improve overall resource efficiency
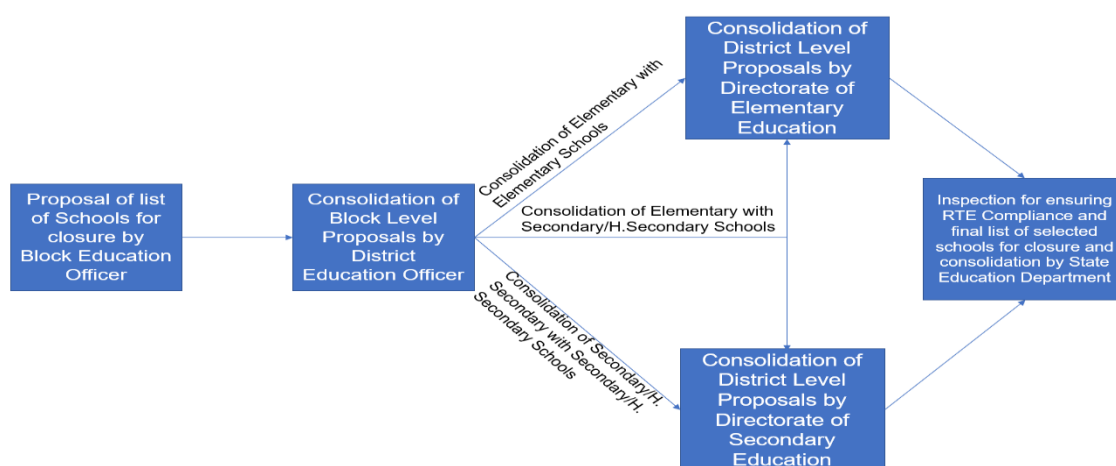
Impact: As a result of the school consolidation initiative, the total number of elementary government schools reduced from nearly 78,870 in 2012-13 to 66,753 in 2017-18. Coupled with other initiatives such as Adarsh schools (for creation of composite secondary and senior secondary school in each Gram Panchayat) as well as SIQE (State Initiative for Quality Education), the overall transition rates improved. Transition rate from primary to upper primary improved from 90 per cent in 2012-13 to 95 per cent in 2017-18. Similarly, transition from upper primary to secondary improved from 90 per cent in 2012-13 to 93 per cent by 2017-18. In addition, the total number of schools to be managed by the BEEO reduced to 165 by 2017-18 from 275 in 2012-13. Overall, the performance of Rajasthan in NAS 2017 in elementary education was better than majority of states across subjects. The state was also able to increase enrolment in government elementary schools from 59.4 lakhs in 2014-15 to 61.7 lakhs in 2017-18.

Overall, with regards to hard and soft infrastructure, the school consolidation initiative increased the availability of playgrounds, electricity, boundary walls and libraries. The overall number of teachers per school and pupil teacher ratio also improved. Teacher grade ratio improved resulting in a reduction in instances of multi-grade teaching in the consolidated schools.

Key Challenges and Lessons Learnt: The school consolidation undertaken in Rajasthan involved decision making by block, district and state education functionaries. The perspectives of the school principals and teachers were not analysed. In addition, it was crucial to ensure that the school consolidation exercise did not result in exclusion of socio-cultural groups due to increase in school distance

Replicability and Sustainability: The school consolidation exercise was undertaken in two phases in Rajasthan- in 2014-15 and in 2016-17, indicating potential for replicability and sustainability. However, it is crucial to ensure suitable provisions to ensure access such as through transportation facilities. Further, it is critical to ensure that the consolidation does not alienate or reduce participation across all socio-economic groups.

Shifting preference of parents towards private school education can further impact efficacy of government schools

An analysis of student enrolment and the findings of the 24th JRM for SSA (2016-17) revealed a gradual shift of students towards the private schools in India. Over the period from 2014-15 to 2016-18, an overall reduction of over 1 crore in enrolment in elementary schools was observed. During the same time period, there was an increase in student enrolment in private unaided schools by over 30 lakh children, indicating a growing shift of students from public school infrastructure to private. The RTE Act provides for reimbursement of school fees for 25 per cent seats. However, the world bank implementation completion report highlighted high percentage of vacant seats under the provisions for admission of the children from economically weaker sections in private unaided schools. The report attributed this to poor community awareness about the provision, resulting in the target segment not availing the provision. Further, the report highlighted the need for a centralized monitoring portal to monitor the implementation of the scheme with regards to aspects such as admissions (of the economically weaker sections) and online applications for the seats.

Significant effort has been made to increase equity in education

An analysis of past evaluation studies and secondary data indicates that India has achieved equity for a majority of the students in the country. The 24th JRM report acknowledges SSA's contribution to increased inclusion of disadvantaged social categories in elementary education, identifying that, as of 2015-16, the elementary enrolment shares of SCs, STs and Muslims were more than their respective proportions in the overall population[47]. The Word Bank Report also cites similar findings for 2016-17, noting that the increase in the habitation coverage under public elementary school system and the supply of free uniforms and textbooks has been significantly instrumental in bringing SC and ST students into school[48]. A research paper by Dr. Aififa Aisha Rahmat on 'Sarva Shiksha Abhiyan: Major Challenges', (published in 2017, International Journal of Research in Social Sciences) mentions that equity goals have been achieved predominantly in the country. The Mott MacDonald assessment report on Rashtriya Madhyamik Shiksha Abhiyan with the Department of School Education and Literacy (2014) which assessed the states of Tamil Nadu, Bihar and Rajasthan across the parameters evaluated under RMSA, identifies positive equity outcomes for urban females. However, due to a variety of reasons such as poverty, lack of awareness, lack of motivation in parents, the gap is greater in rural areas. Primary research also indicates positive achievement under equity warranting the need to shift focus on further improving the participation of students from various socio - economic categories along with achieving equity in learning.

Perspectives of external stakeholders on equity

"The country has made progress in reducing the equity gap in gender and social categories. However, there is huge equity gap in the learning outcomes/ quality of education between the students in top 10 per centile and the remaining 90 per centile. We need to look at equity not only from the lens of gender/ social category but also from the perspective of how many students are left behind in the classrooms because of difficulty in learning. There is so much heterogeneity in the country that a large proportion of children are left behind because of the equity gap in learning outcomes. However, as highlighted by prof. Karthik Muralidharan, the biggest equity problem is not around gender/ social categories, but rather on equitable distribution of the learning outcomes of the students." (Source: Bikkrama Daulet Singh (Co-Managing Director, CSF), Shubhra Mittal (Sr. Program Manager, Advocacy and Policy, Central Square Foundation (CSF).

The gender parity in school education is positive however, the country lags behind its global peers

The Gender Parity Index (greater than 1) in FY19 indicates equity at all levels of school education reflecting that equity in terms of gender has been achieved at elementary and secondary level.[49]

Table 7: Gender Parity Index (GPI) by Education Levels, 2018-19

Level	Gender Parity Index (GPI)
Elementary	1.06
Secondary	1.04

Source: 2018-19, UDISE+ for School Level Data & For Higher Education: AISHE

While the 24th JRM has acknowledged the significant contribution of KGBVs in inclusion of girls from socio-economically disadvantaged families, who had previously dropped out of school[50], the

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[47] 24th JRM
[48] World Bank SSA III Project completion Report,
[49] ibid
[50] 24th JRM

World Bank Implementation Completion Report identifies the increase in the proportion of schools with gender segregated toilets and the increase in the proportion of female teachers as key factors responsible for the rise in girl's enrolment.

The GER for girls has shown a similar trend as the overall GER across school levels in education. In fact, the GER in elementary education for girls is greater than that for boys (90.78 per cent) as of 2017-18. At the elementary level, the GER for girls has marginally dropped from 98.45 per cent in 2014-15 to 95.58 in 2017-18[51]. At the secondary level, the GER for girls has improved from a 77.45 per cent in 2014 -15 to 80.62 per cent in 2017-18[52]. The GER for girls in Higher secondary has increased from 52.55 in 2014-15 to 57.03 in 2017-18[53].

Figure 10: GER of Girls in school education

Source: U-DISE School Report Cards: http://14.139.60.149/ReporterModule/ReportModule/Startup/Startup.aspx
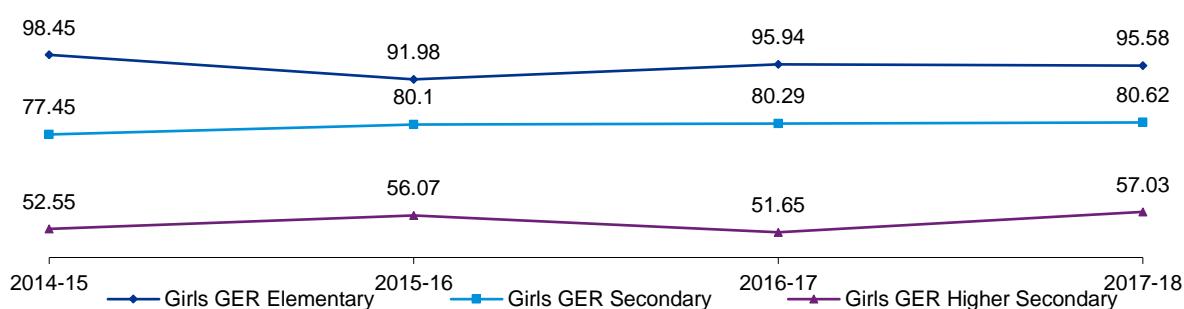
Overall, as indicated by the Gender Parity Index, there is minimal difference in the GER of girls and boys, with some states like Uttar Pradesh, Punjab, Puducherry, Chandigarh and Daman and Diu having greater GER levels of girls as compared to GER of boys. Instances of wide disparities in GER between girls and boys across education levels are found in few UTs such as Andaman and Nicobar, Dadra and Nagar Haveli and Lakshadweep Islands.

However, while the inclusion in primary school education has improved, the country lags behind its global peers such as Brazil (112.4 in 2016) and Russia (102 in 2016)[54].

Children from minority communities have higher dropout rates and lower transition rates

As per Census 2011, the literacy rate among Muslims is the lowest amongst all religious groups with an overall literacy rate of 68.5 per cent while the national average was 73 per cent[55,56]. The drop-out rates of Muslim students are greater than overall dropout rates while the transition rates have been lower than the national average. As of 2017- 18, the transition rates of Muslims from primary to upper primary and from upper primary to secondary are 86.15 per cent and 82.81 per cent respectively. This is lesser than overall transition rates for 90 per cent from primary to upper primary and 89 per cent for upper primary to secondary respectively for 2017-18. Similarly, the dropout rate of Muslims in primary and upper primary education was 7.68 per

[51] Ibid.
[52] Ministry of Education. Statistics of School Education (2009-10), Retrieved from https://www.educationforallinindia.com/Statistics_of_School_Education_2009-10,%20MHRD.pdf and UDISE Flash Statistics 2017-18
[53] Ibid.
[54] World Bank EdStats
[55] Census of India website. (2020, February). Retrieved from http://censusindia.gov.in/
[56] Higher Education for Muslim Women Empowerment in India (2016), Ranjita Biswas. Retrieved from https://www.semanticscholar.org/paper/Higher-Education-for-Muslim-Women-Empowerment-in-Biswas/493b6254bb70c9633dc5f5af8be12cb25f5b2611

cent and 8.45 per cent respectively, compared to overall drop-out rates of 3.51 per cent and 5.02 per cent for primary and upper primary education respectively. The dropout rates for Muslims in secondary education was 23.03 per cent as compared to overall dropout rate in secondary education of around 19 per cent. Currently 11.5 per cent[57] of all school going Muslim students are enrolled in Madrasas. As a result of the RTE and huge expansion of the system, access to school education has become near universal. In spite of several enacted measures, children from Muslim population continue to remain incapable to fully leverage and benefit completely from the education system. To ensure quality education for minorities, the Government has implemented the Scheme for Providing Education to Madrasas and Minorities (SPEMM).

There are gaps in equitable education for Children with Special Needs

As per the SDG goals, India aims to have 100 per cent of Children with Special Needs in schools by 2030. Towards the same, there are several policy measures in place such as investments in CWSN friendly infrastructure, hostel facilities, and provision of home - based schooling. Past studies have observed that there has been significant growth in the enrolment of CWSN since the implementation of SSA and with the advent of RTE. The infrastructure development for CWSN has also showed progress[58]. By 2017-18, over 61 per cent of children with special needs (CWSN) eligible for elementary and secondary/ higher secondary school were either enrolled in schools or being provided with home-based education[59]. However, around 40 per cent of the students are not benefitted with educational opportunities. Around one fourth of the Children with Disability aged 5-19 years do not attend educational institute[60]. With the Rights of Persons with Disabilities Act, 2016, the rights of CWSN are further expected to receive a thrust.

Quality of learning continues to be a major challenge

Learning outcomes for a majority of children in India continues to be an area of concern, which is substantiated by findings from literature review. A research paper by Dr.

Perspectives of external stakeholders on quality of learning

"The learning level of majority of students in India is still a challenge and not as per expectations. Without quality and learning, access has no meaning. There needs to be a higher focus on improving the quality of education in India. There had been a lot of effort of the central and state governments in data collection of the learning levels of the students (done through NAS, SLA, NITI Aayog's learning assessments for aspirational districts). However, the utilization of this data for evidence - based decision making to improve classroom transactions, professional development of teachers, systemic improvements is not done very clearly. Children in school are from diverse backgrounds, pluralistic classrooms, language, background comes into play (especially in the early years) – so need to be mindful of that when we are increasing systemic capacity to support learning."

(Source: Terry Durnnian (Chief Education, UNICEF), Ramachandra Rao Begur (Education Program Specialist, UNICEF)

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[57] School Report Cards - U-DISE. (2020, January). Retrieved from http://14.139.60.149/ReporterModule/ReportModule/Startup/Startup.aspx
[58] EFA Global Monitoring Report, 2015 UNESCO
Promising EFA practices in the East-Asia Region: India Sarva Shiksha Abhiyan, UNESCO 2015
Inclusion and Exclusion of Students in the School and in the Classroom in Primary and Upper Primary Schools, MOE, Government of India.
Democratic participation in educational reform: The case of Sarva Shiksha Abhiyan (campaign for universal education) in rural India, January 2017
Department-Related Parliamentary Standing Committee on Human Resource Development 283rd Report, The Implementation of Sarva Shiksha Abhiyan and Mid-Day-Meal Scheme, December 2016
[59] SDG India Dashboard.f
[60] State of the Education Report for India - Children with Disabilities, UNESCO (2019). Retrieved from https://unesdoc.unesco.org/ark:/48223/pf0000368780

Aififa Aisha Rahmat on 'Sarva Shiksha Abhiyan: Major Challenges', (published in 2017, International Journal of Research in Social Sciences) concludes that while access and equity goals have been predominantly achieved in the country, challenges pertaining to quality persists. Other studies have shown that children are not acquiring basic skills during their schooling[61]. The 283rd report of the parliamentary standing committee on implementation of Sarva Shiksha Abhiyan and Mid-Day Meal Scheme for the period (2014-2015 in comparison to 1998-99) [62] also highlights poor learning outcomes of students and need to improve the same. Primary interactions with beneficiaries also indicate quality of education to be a key cause of concern necessitating **mission mode approach to ensure minimum learning proficiency** for children, especially at foundational level.

Research indicates that investment in the early childhood care supports in building the cognitive abilities of the students especially from the disadvantaged backgrounds.

Learning outcomes for students decreases with higher grades

The National Council of Education Research and Training (NCERT) conducts the National Achievement Survey (NAS) periodically. The last cycle of NAS was conducted in 2017 for over 2.2 million students in Grades 3, 5, 8 and 10 in 1.2 lakh schools across 701 districts of the country. The analysis of NAS 2017 scores at elementary as well as secondary level indicates very low level of grade specific proficiency amongst the students. *In addition to the poor learning levels, the comparison of NAS 2015 with NAS 2012 for class V also indicates a falling level of learning outcomes in India over the three- year period despite the expenditure per student increasing in the same time frame.*

A comparison of the performance of students in NAS (2017) across subjects and grades also indicate a progressive decline of student learning outcomes from Grade 3 to Grade 8. Majority of the students (over 70 per cent) are only able to answer over half of the test items correctly in grade 3. In grade 5 and grade 8, a lower share of students (just over 60 per cent in grade 5 and 30 per cent in grade 8) are able to answer even half of the test items correctly.

Table 8: Average Performance of Students in NAS 2017

Subject	Class 3		Class 5		Class 8		Class 10	
	Male	Female	Male	Female	Male	Female	Male	Female
Language	66	67	57	58	56	57	36	36
Math	63	63	53	53	41	42	34	34
EVS/ Science	63	64	56	57	44	44	34	35
Social Science	-	-	-	-	43	44	39	40
Modern Indian Language	-	-	-	-	-	-	48	50
Source: National Achievement Survey, 2017								

Similarly, at any given grade, the average performance is the lowest in mathematics, and highest in language. Across the grades, Rajasthan, Andhra Pradesh and Karnataka were observed to have the highest average score in all subjects. Arunachal Pradesh was observed to have the poorest score across all subjects in all grades.

Analysis of the NAS data at secondary level highlights that the overall average NAS score obtained across subjects in grade 10 was lesser than in grade 8, which is an indication of declining achievement of grade specific learning outcomes amongst students progressing from elementary

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[61] Accountability Initiative Budget Briefs Vol 9/ Issue 2
[62] Department-related parliamentary standing committee on Human Resource Development. Accessed from http://164.100.47.5/newcommittee/reports/EnglishCommittees/Committee%20on%20HRD/283.pdf

to secondary education. The subject scores indicate a similar trend in secondary as in elementary, where students are able to perform better in language as compared to mathematics or science. The average performance of girls is almost equivalent to boys across all subjects.

Table 9: Average Score in National Achievement Survey (NAS) for Class 10

Subjects	Modern Indian Language	English	Mathematics	Science	Social Studies
Average NAS Score (Government)	48	33	33	34	38
Average NAS Score (Government Aided)	49	36	33	34	39
Average NAS Score (Private)	52	43	36	36	41
Source: National Achievement Survey, 2017					

The ASER 2018 study also revealed that *as compared to government schools, the performance of students in private schools are better.* At least 20 per cent more children in class 5 private schools could read class 2 level text and at least 15 per cent more children in private schools could do division than students from Government school.

Low acquisition of learning levels and cognitive skills amongst the students would have considerable socio - economic impact on the country. The discussion paper viz., Value for Money from Public Education Expenditure on Elementary Education in India (April 2016) attributes a low value for money for public sector expenditure on school education in India as compared to private school on account of lower acquisition of cognitive skills amongst the students. The low acquisition of cognitive and basic skills also adversely impacts the future learning and earning potential of the students. The discussion paper viz., Value for Money from Public Education Expenditure on Elementary Education in India (April 2016) estimated that decline in learning levels observed in parallel to increase in public expenditure in India may result in nearly 11.9 per cent reduction in student's expected wages. Further, the paper noted that the Value for Money from government schools was expected to be at least 3.25 times lesser than private schools.

Research cited in UNESCO's Global Education Monitoring Report for 2016 also highlights that acquisition of basic cognition skills by all children in low middle-income countries before 2030 could translate into a 28 per cent overall increase in GDP over the subsequent 40 years as compared to GDP returns expected through existing skill levels amongst these children .

Evidence Box: 2: Impact of building cognitive abilities in Early Childhood[63]
Early Childhood Stimulation (Ages 0-3 years)
The results of 17 randomised evaluations from 11 low- and middle-income countries suggest that programmes that teach and encourage caregivers to implement early childhood stimulation (ECS) with children aged 0–3 can improve the quality and quantity of play in children's home environments and can improve children's cognitive development[64].
• **ECS programmes can have the greatest impacts for the most disadvantaged children,** such as those who are stunted or underweight or have lower cognitive outcomes before an intervention. In Jamaica[65] and Bangladesh[66], where researchers found large short-term improvements in

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[63] JPAL, Education Evidence Summary note for DMEO, NITI Aayog

[64] Abdul Latif Jameel Poverty Action Lab (J-PAL). 2020. "Encouraging early childhood stimulation from parents and caregivers to improve child development." J-PAL Policy Insights. Last modified April 2020.

[65] Grantham-McGregor, Sally, Christine Powell, Susan Walker, and John Himes. 1991. "Nutritional Supplementation, Psychosocial Stimulation, and Mental Development of Stunted Children: The Jamaican Study." The Lancet 338 (8758): 1–5

[66] Hamadani, Jena D., Syeda F Mehrin, Fahmida Tofail, Mohammad I Hasan, Syed N Huda, Helen Baker-Henningham, Deborah Ridout, & Sally Grantham-McGregor. 2019. "Integrating an early childhood development programme into Bangladeshi primary health-care services: an open-label, cluster-randomised controlled trial." The Lancet Global Health, 7(3), e366-e375.

development, programmes were implemented in low-income, disadvantaged neighbourhoods and focused on stunted and underweight children, respectively.

- **However, whether the effects persist beyond the intervention period varies.** In Jamaica, a small-scale study which followed participants for 20 years found that increased stimulation at home during early years led to long-term gains in cognition, academic achievement, employment, mental health, and adult earnings[67] [68]. In Colombia, impacts of a large-scale programme on child development faded two years after the programme ended[69].

Pre-school math curriculum (Ages 4-6 years)

Between 2013-2019, researchers conducted a series of randomised evaluations[70] to measure the impact of a curriculum strengthening innate numerical and geometrical abilities i.e. *non-symbolic math abilities* on preschool children's school math performance i.e. *symbolic math abilities* in Delhi, India. The findings from these evaluations suggest that strengthening innate mathematical abilities through games does lead to sustained improvements in symbolic math abilities.

However, researchers found that unless there is a direct link with symbolic mathematics, simply improving innate abilities does not translate into improvements in school math performance. While games focusing exclusively on either innate or formal math abilities do lead to improvements in their respective domains, games integrating components aimed at improving both abilities show sustained improvements across both these domains.

The Government schools still lack basic infrastructural facilities

The primary and secondary research indicate that availability of critical infrastructure mandated by RTE is still a cause of concern in the beneficiary schools. As per UDISE data and primary research, a majority of the government-run and government-aided schools still lack basic infrastructural facilities for elementary schools as mandated by RTE. Critical facilities such as separate toilets for boys and girls and drinking water facilities are not yet available across all schools as of 2017-18[71]. Primary research indicated that where infrastructure was available, it was sometimes not usable or maintained adequately. A comparison of facilities available as per U-DISE data and primary research is shown below.

Table 10: Status of infrastructural facilities in Elementary Govt. schools as per RTE

Particulars	Facilities available in school as per U-DISE, 2017-18	Facilities available in school as per primary survey
Building	98.9	100
Office-cum-Store	47.83	71.13 (Principal Room)
One Classroom/Teacher	71.2	63.92
Ramp	38.62	55.67
Separate Toilets- Boys	96.23	86.6
Separate Toilets- Girls	98.38	90.72
Drinking water	97.13	100
Boundary wall	58.8	58.77
Playground	56.7	73.2

Source: U-DISE+ and Primary Survey

[67] Walker, Susan, Susan Chang, Marcos Vera-Hernández, and Sally Grantham-McGregor. 2011. "Early Childhood Stimulation Benefits Adult Competence and Reduces Violent Behavior." Pediatrics 127 (5): 849–857.

[68] Gertler, Paul, James Heckman, Rodrigo Pinto, Arianna Zanolini, Christel Vermeersch, Susan Walker, Susan Chang-Lopez, and Sally Grantham-McGregor. 2014. "Labor Market Returns to an Early Childhood Stimulation Intervention in Jamaica." Science 344(6187): 998-1001

[69] Andrew, Alison, Orazio Attanasio, Emla Fitzsimons, Sally Grantham-McGregor, and Costas Meghir, and Marta Rubio-Codina. 2018. "Impacts 2 years after a Scalable Early Childhood Development Intervention to Increase Psychosocial Stimulation in the Home: A Follow-up of a Cluster Randomised Controlled Trial in Colombia." PLOS Medicine, 15(4): e1002556

[70] Dillon, Moira R., Harini Kannan, Joshua T. Dean, Elizabeth S. Spelke, and Esther Duflo. "Cognitive science in the field: A preschool intervention durably enhances intuitive but not formal mathematics." Science 357, no. 6346 (2017): 47-55.

[71] NIEPA (2017-18) School Report Cards Retrieved from http://14.139.60.149/ReporterModule/ReportModule/Startup/Startup.aspx

The evaluation of erstwhile Sarva Shiksha Abhiyan in 2016-17 indicated that as of 2017, several states had failed to meet RTE norms pertaining to infrastructure, specifically with regards to presence of boundary walls, playgrounds, designated classroom for all teachers, library facilities, and availability of functional computers in upper primary schools[72].

The primary findings undertaken as part of the present study in 2020 also corroborate that separate toilet for girls which is evidenced to be one of the critical infrastructures is missing in 10 per cent facilities. Even in the facilities where it was available, it required improvement such as latches, door, availability of water, cleanliness etc. in nearly 31 per cent of surveyed schools. The present scheme of Samagra Shiksha has a specific initiative viz., Padhe Bharat, Bade Bharat to increase the reading culture amongst the students studying in government and government aided schools. However, the primary findings indicate unavailability of libraries in majority of the schools. Only 38 per cent of the surveyed elementary schools has a dedicated library facility of which only 64 per cent were found to be in use during facility survey. Furthermore, only 42 per cent of respondents indicated that they had a separate time period for library which is important to improve the reading culture amongst the students. The primary findings undertaken as part of the present study in 2020 also corroborate that separate toilet for girls which is evidenced to be one of the critical infrastructures is missing in 10 per cent facilities. Even in the facilities where it was available, it required improvement such as latches, door, availability of water, cleanliness etc. in nearly 31 per cent of surveyed schools.

The primary survey also highlights that around one third of the surveyed schools had adverse teacher classroom ratio against the RTE mandate, an which was also raised in the CAG report number 23 of 2017[73]. Furthermore, in over 37 per cent of the surveyed schools, combined classrooms were observed for multiple grades. Around 10 per cent of the sampled schools did not have sufficient teachers across all the grades.

Table 11: Status of infrastructure in Govt. and Govt. aided schools in Secondary and Higher Secondary Education

S#	Particulars	Facilities available in school as per U-DISE, 2017-18	Facilities available in school as per primary survey
1.	Building	85.89	100
2.	Office-cum-Store	85.8	87.7
3.	Ramp	43.72	56.92
4.	Separate Toilets- Boys	93.52	89.23
5.	Separate Toilets- Girls	96.4	92.3
6.	Drinking water	92.65	75.39
7.	Boundary wall	89.72	60.00
8.	Playground	83.01	83.08
9.	Functional Computer	37.9	40.00
10.	Computer Lab	36.29	53.84
11.	Science lab	40.26	66.15
12.	Library	61.82	55.38

Source: U-DISE+ and Primary Survey

72 Evaluation of Sarva Shiksha Abhiyan, Datamation Consultant (2016-17). Retrieved from http://globalforum.items-int.com/gf/gf-content/uploads/2019/06/ssaevaluationreportmarch2019.pdf
73 Report of the Comptroller and Auditor General of India on Implementation of Right of Children to Free and Compulsory Education Act, 2009; Report no. 23 of 2017(2016). Retrieved from https://cag.gov.in/sites/default/files/audit_report_files/Report_No.23_of_2017_%E2%80%93_Compliance_audit_Union_Government_Implementation_of_Right_of_Children_to_Free_and_Compulsory_Education_Act%2C_2009.pdf

The school education system is faced with a large teacher shortage particularly shortage of professionally qualified teachers

The school education system faces a large teacher shortage. While most states have been able to maintain an average Pupil Teacher Ratio (PTR) for elementary education, an analysis of the data indicates inter-state variation[74].

- Overall, in 2017-18, only 72 per cent of government schools have managed to maintain the RTE mandated Pupil Teacher Ratio in elementary education (30:1 for primary and 35:1 for upper primary)[75]
- In 2017-18, in Bihar only 27.9 per cent of government schools, in Jharkhand over 44.5 per cent of government schools, and in Uttar Pradesh only 58.5 per cent of the schools have RTE mandated Pupil Teacher Ratio levels[76].

Furthermore, while Pupil Teacher Ratio at the secondary level is at par with the recommended norms, a majority of the schools do not have a full complement of subject specific teachers. According to the RMSA Results Framework Document, this is currently below 25 per cent.

A meta-analysis of randomized experiments in developing countries showed that professional development of teachers along with the number of students handled by the teachers have an impact on student learning[77]. Of the full-time teachers employed at the elementary level, approximately 12 per cent do not have requisite professional qualifications as defined by NCTE. The situation is more alarming for contractual teachers, where almost 29 per cent of contractual teachers at elementary level have no degree. The greatest share of full-time teachers without any professional qualifications are found in Tripura, Nagaland and Meghalaya, where more than 55 per cent of school teachers do not have any professional qualification. In the case of secondary education, as of 2016-17, ~11.4 per cent teachers in government schools and 8.9 per cent teachers in government aided schools do not have requisite professional qualification. There is a need to ensure 100 per cent professionally qualified teachers as per NCTE mandate.

Teacher absenteeism along with utilization of teachers for non-academic work results in loss of teaching time

In addition to the high vacancy rates of teachers, teacher absenteeism in India is also a cause of concern. The analysis of the Annual Status of Education Report (ASER) over the last few years indicates an average teacher attendance of 85 per cent in the Government and the Government aided schools in India. The primary survey with the beneficiaries also highlighted an average teacher absenteeism of around 15 per cent. Poor learning levels despite high PTR is exacerbated by teacher absenteeism. Karthick Muralidharan et al, in the paper titled "The fiscal cost of weak governance: Evidence from teacher absence in India[78]" estimate through a nationwide representative sample that 23.6 per cent teacher were absent during a surprise visit, and this amounted to a fiscal loss of nearly USD 1.5 billion per year. The paper advocates greater school - based monitoring and supervision to reduce teacher absenteeism as a solution to improve instructional time instead of other cost intensive policies of increasing supply of teachers. *As per*

[74] MOE. Educational Indicators Data
[75] ibid
[76] ibid
[77] Improving Learning in Primary Schools of Developing Countries: A Meta-Analysis of Randomized Experiments. Review of Educational Research. September 2015, Vol. 85, No. 3, pp. 353–394. https://doi.org/10.3102%2F0034654314553127
[78] Karthik Muralidharan, Jishnu Das, Alaka Holla, Aakash Mohpal (January 2017). The fiscal cost of weak governance: Evidence from teacher absence in India. Journal of Public Economics Volume 145, Pages 116-135. https://www.sciencedirect.com/science/article/pii/S0047272716301621?via%3Dihub

the paper, a policy measure of increasing the frequency of school - based monitoring is ten times more cost effective in reducing teacher availability than hiring of teachers.

However, a paper by Azim Premji Foundation indicates that the actual teacher absenteeism without any reason is ONLY around 2.5 to 5 per cent. The other instances are mostly related to their utilization for other activities such as training, school related administrative work etc.[79].

The existing teachers are also involved in managing several non-teaching activities in schools such as census, election duty, Aadhar enrolment, vaccination campaigns, procuring school supplies, MDM implementation in schools, etc. Section 25 (2) and Section 27 of the RTE Act prescribes the role of teacher beyond teaching to be only used for election duties, census surveys and disaster reliefs. However, as per the draft Report of NIEPA study on Involvement of Teachers in non-teaching activities (2020) covering 28 districts across 17 States and UTs, teachers spend 33.91 % of time on core activities i.e., planning & preparing lesson, remedial teaching, assessment of learners, test correction, sports & co-curricular activities, etc., and spend 21.57 % of the time in teaching. The National Education Policy also highlights that one of the critical challenges faced by teachers in India is a considerable loss of teaching time on non - academic activities. As per our primary research, it was observed that about 3 full-time, regular teachers per school are engaged in MDM related. As per the feedback from teachers, it was observed that the engagement of teachers into MDM related activities led to loss of teaching time of about half an hour to two hours per day, and in some cases, it was reported to be even three hours of lost teaching time per day.

There is also a need for integration of vocational streams in school education

As recommended by the National Education Policy of 2019, greater introduction of vocational education, integration with school curriculum and enabling seamless transition between formal education and Technical and Vocational Education (TVET) would help in addressing challenges pertaining to dropouts and ensuring retention. Presently, only 5 per cent of the population undergoes vocational education and there is an urgent need to improve the same.

The sub-district level governance for school education is weak

As per the MOE notification No.F.1-2/2013-EE.13, dated September 2013, a common District Level Committee was constituted to monitor the four schemes of erstwhile SSA, erstwhile RMSA, erstwhile Saakshar Bharat and the Mid-Day Meal Scheme. The committee was tasked with the monitoring of output and outcome parameters of these schemes and undertaking quarterly review meetings[80]. However, despite the mandate, weak governance structures are observed at the sub-district level, where UDISE 2016-17 revealed that nearly 45 per cent government schools and nearly 54 per cent government aided schools were not visited by BRC personnel. Similarly, 32 per cent government schools and 40 per cent government aided schools were not visited by CRC personnel during the same year.

At the school level, monitoring is to be undertaken by the School Management Committee, as mandated in the RTE Act, 2009 for elementary education. SDMCs constituted at the school level are involved in undertaking monitoring in secondary and higher secondary schools. As per U-DISE 2016-17, nearly 50 per cent of government elementary schools and nearly 90 per cent of government secondary schools did not have at least 9 meetings in 2016-17. As schemes in school education such as erstwhile SSA, erstwhile RMSA and present Samagra, rely on community

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[79] Teacher Absenteeism Study (2017), Azim Premji University. Retrieved from https://azimpremjiuniversity.edu.in/SitePages/pdf/Field-Studies-in-Education-Teacher-Absenteeism-Study.pdf
[80] https://MHRD.gov.in/sites/upload_files/MoE/files/upload_document/DLC-2-SSA-MDM-RMSA-SB.pdf

participation to ensure accountability and transparency at the school level, low levels of participation by the SMCs can result in weak governance structures at school level. As per RTE Act, 2009, SMCs are required to ensure accountability of teachers and principal to ensure they are not involved in non-teaching and non-academic activities. Past JRMs for erstwhile SSA have also revealed poor awareness among SMC members about their very roles and responsibilities.

Secondary literature reveals that poor governance and monitoring systems translate into fiscal inefficiencies. Karthik Muralidharan et al, in their paper titled 'The Fiscal Cost of Weak Governance: Evidence from Teacher Absence in India' estimate that poor governance structures result in teacher absenteeism. They estimate teacher absenteeism to be over 23.6 per cent resulting in a fiscal cost of USD 1.5 billion per year. The paper reveals the presence of a strong correlation between increase in frequency of inspection and lower teacher absence. In fact, the paper estimates greater cost efficiency gains through increasing governance structures to monitor teacher attendance, instead of increasing the number of teachers in the system.

2. Higher Education

2.1. Overview of higher education

Given the demographic dividend in India, with majority of the population under 28 years, the country will have one of the highest university ready pool in the world by 2020 and second largest graduate pool globally. In this context, Higher Education is of utmost importance for the country and is accorded a significant position in economic planning in India at both the central and state government levels.

India has one of the largest higher education systems in the world

India has one of the largest higher education systems in the world with **993 Universities, 39,931 colleges and 10,725 Stand Alone Institutions**[81]. Over the last decade, there has been a significant focus on increasing access and make higher education accessible to future generations. This has resulted in almost doubling of the GER, with an increase from 19.4 in 2010-11 to 26.3 in 2018-19. The Higher education segment in India comprises of central universities, state universities, deemed (public and private) universities, Institutes of National Importance and private universities (state aided private and unaided private institutes).

Multiple stakeholders are involved in delivery of higher education

Higher Education in India is delivered by the Ministry of Education with support from state government and various regulatory bodies at the national level, including the Universities Grants Commission (UGC).

Figure 11: Overview of regulatory bodies in higher education
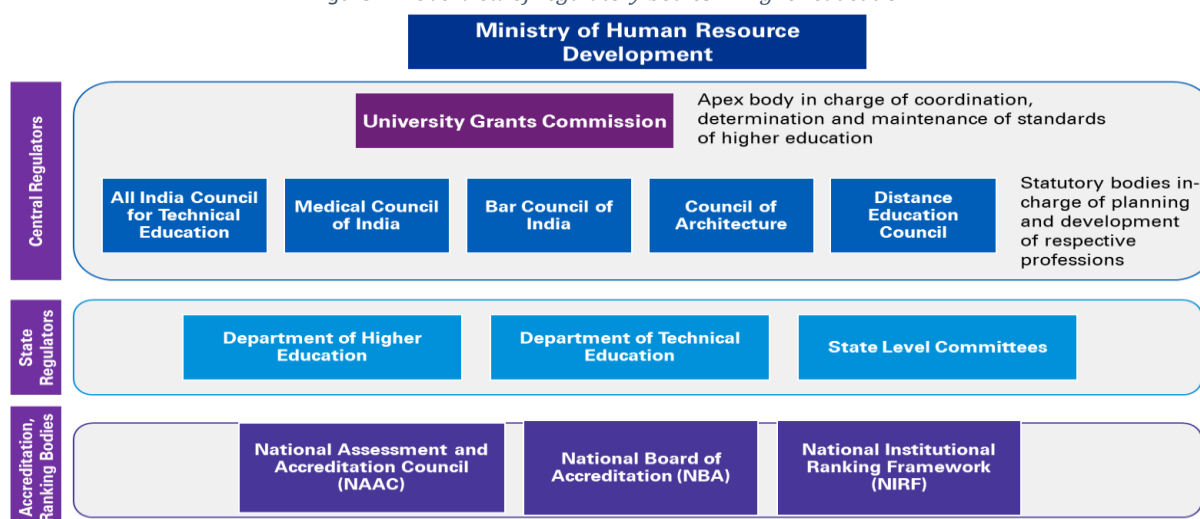
There has been a growth in number of higher education institutions (HEIs) and corresponding enrolment

Over the last decade, **there has been a significant growth in number of HEIs in India[82]**.

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[81] Ministry of Education (2018-2019). All India Survey on Higher Education 2018-19. Retrieved from http://aishe.nic.in/aishe/reports
[82] Reports on higher education in India/annual reports, UGC/MOE

- The number of Universities has grown from 760 to 993 between 2014-15 and 2018-19
- The number of colleges has grown from ~38,500 to ~40,000 during the same period
- The CAGR of universities and colleges in India between 2014-15 and 2018-19 is around 6.9 per cent and 0.9 per cent respectively.

The key drivers for growth of higher education institutions in India include reforms undertaken by government to promote private investments in higher education. The **higher education GER in India has increased considerably** over last six years, with overall enrolment increasing at CAGR of over 2.3 per cent from 342 lakhs in 2014-15 to 374 lakhs in 2018-19[83].

Figure 12: Y-o-Y enrolment of students in Higher Education in India, Lakh
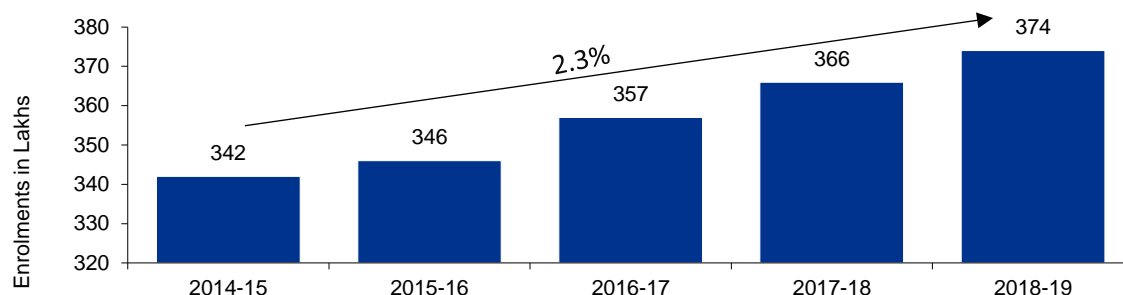
Source: Reports on higher education in India/annual reports, UGC/MOE

However, the uptake of higher education in India is still very low as compared to countries like China (44 per cent) and Brazil (50 per cent) in 2019[84]. This is mainly due to the following:

- Limited access in disadvantaged geographies as identified in the NEP
- Fragmented system with 20.1 per cent of the Colleges having enrolment less than 100 and only 4.1 per cent Colleges have enrolment more than 3000[85].
- High levels of graduate unemployability attributed to the ineffective education ecosystem.

To address the issue of low uptake of students in higher education, the government has launched a mission mode program viz., Rashtriya Uchchatar Shiksha Abhiyan (RUSA) which aimed to achieve 32 per cent Gross Enrolment Ratio (GER) in higher education by 2022.

There is a preference for publicly supported higher education

In higher education, there is a greater preference for government and government aided institutes, with 55 per cent college students and 75 per cent university students enrolled in government and government aided institutes.

Table 12: Share of Govt and Govt Aided Institutes and Enrolment in Govt and Govt Aided Institutes

Type of Institute	Total Institutes	Enrolment
Govt and Govt Aided Colleges	13,638 (~35.7% of total colleges)	145 Lakhs (~55% of total enrolment)
Govt and Govt Aided Universities (Central and State)	608 (~61.2% of total Universities and INIs))	56.33 Lakhs (~75% of total enrolment)

Source: All India Survey for Higher Education

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[83] Ministry of Education (2014-2015) and (2018-19). All India Survey on Higher Education 2014-15 and All India Survey on Higher Education 2018-19
[84] MOE (2020) National Education Policy, Retrieved from https://www.mhrd.gov.in/sites/upload_files/mhrd/files/NEP_Final_English_0.pdf
[85] AISHE Survey 2016

Increased budgetary outlay for higher education over the last five years

The Department of Higher Education has witnessed an increase in expenditure and budgetary outlay from INR 25,439 crores to INR 38,317 crores during the FY16 to FY20 period[86].

Figure 13: Budgetary components of Department of Higher Education
Source: Union Budget (FY18-FY20), Department of Higher Education
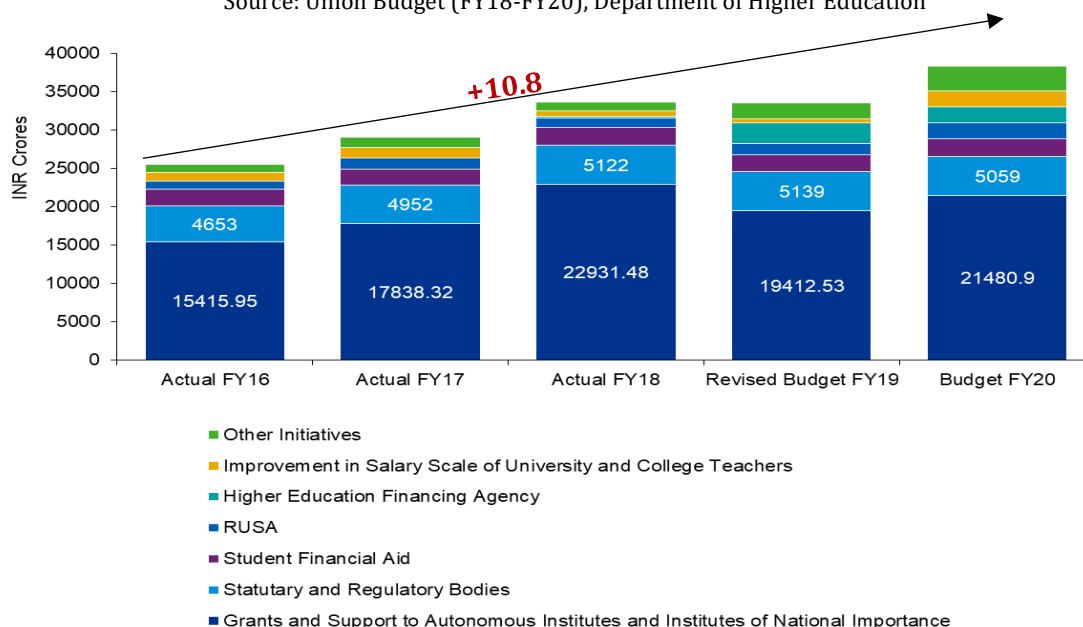
An analysis of the actual expenditure and budget outlays for the Department of Higher Education over the period FY16-FY20 indicates the following[87]:

- The overall expenditure and outlay for the Department of Higher Education increased by a 10.8 per cent CAGR during this period.
- The budget for Higher education increased by 2,450 Crores during the same period
- Grants and support to institutes of national importance and autonomous colleges continue to account for largest share of the pie, however the percentage allocation has seen a minor decrease over time (68 per cent in FY 18 to 56 per cent in FY 20)
- There is a greater allocation for initiatives and schemes directed at overall quality improvement (E.g., RUSA, EQUIP, EAP) as well as specific schemes in areas of faculty development, research and innovation, digital learning and so on.

While the expenditure on higher education in India is increasing, it is still considerably lower than the global benchmarks.

Increasing focus on outcomes and excellence

A look at the recent scheme announcements in higher education over the last 5-6 years reveals a shift in priorities to one of increased quality and outcome focus. Schemes centre around overall quality improvement, as well as targeting specific areas of faculty quality improvement, research and innovation, promoting India as global destination and so on.

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[86] For FY17, actual was 97.7% of revised budget outlay and for FY16, actual expenditure was 100.2% of revised budget outlay (expenditure was greater than outlay). Hence, as the difference between revised budget and actual expenditure is minimal, the actual expenditures have been used for comparison instead of budget outlay
[87] Union Budget. (FY16-FY20). Ministry of Education Demand No. 58 Department of Higher Education. Retrieved from https://www.indiabudget.gov.in/budget2019-20(I)/ub2019-20/eb/sbe58.pdf; https://www.indiabudget.gov.in/budget2018-2019/ub2018-19/eb/sbe58.pdf; https://www.indiabudget.gov.in/budget2017-2018/ub2017-18/eb/sbe58.pdf;

Figure 14: Key higher education scheme/initiatives announced in the last 5-6 years

2015 – Global Initiative of Academic Networks (GIAN)
To improve quality of higher education through facilitating participation of high quality international academicians

2016 – Startup India Initiative in Higher Educational Institutions
To promote student driven innovations & start-ups

2017 – Higher Education Financing Agency (HEFA)
To finance creation of capital assets in premier educational institutions to boost research and innovation

2018 – Study in India
To increase the number of inbound students and to position brand India as an educational destination

2019 – Scheme for Transformational and Advanced Research in Sciences (STARS)
To promote science projects which have direct implications for the progress of country

2019 – Education Quality Upgradation and Inclusion Programme (EQUIP)
To promote access, equity, quality and excellence in HEIs

2015 – IMPRINT India
To boost original scientific and technological research

2017 – Visiting Advanced Joint Research Faculty Scheme (VAJRA)
To bring a strong international connect to the R&D ecosystem of India

2018 – Scheme for Promotion of Academic and Research Collaboration (SPARC)
To facilitate academic and research collaborations between Indian Institutions and the best institutions in the world

2018 – Impactful Policy Research in Social Sciences (IMPRESS)
To support social science research in HEIs and to enable research to guide policy making

2019 – UGC Paramarsh
To improve quality of non-accredited HEIs through a mentoring system

2019 – World Class Institutions
To promote excellence, and put Indian HEIs on the global map

In addition to the above, other schemes/initiatives announced by the Government directed at quality improvement include:

- Technical Education Quality Improvement Programme of Government of India (EAP)
- Digital India e-Learning: Various category heads under this theme include National Mission in Education Through ICT, e-shodh Sindhu (a consortium for higher education electronic resources), setting up of virtual classrooms and massive open online courses (MOOCs)
- Pandit Madan Mohan Malviya National Mission on Teachers and Teaching (PMMMNMTT), National Institutional Ranking Framework (NIRF), Skill Based Higher Ed, Programme for Apprenticeship Training
- Expenditure/allocation has also been provided for establishment expenditure as well as other Central Sector Schemes in Higher Education. These include schemes such as the Prime Minister's Girls' Hostel, national initiatives on sports, wellness, social responsibility, national research professors as well as for establishment of multi-disciplinary research universities.

2.2. Key goals and policies shaping higher education

The key goals and activities of this phase would be guided by the New India @ 75, by NITI Aayog[88], the National Education Policy (2019) and the corresponding International Benchmarks, outlined in the form of Sustainable Development Goals by UN[89]. The key pathways guiding the education in India in Transformational Phase is as discussed below.

Sustainable Development Goals (SDGs)

The key goal to be achieved under SDG 4 specific to higher education is SDG 4.3 which states. "By 2030, ensure equal access for all women and men to affordable and quality technical, vocational and tertiary education, including university".

Other goals that are related to higher education include:

- SDG 4.4: By 2030, substantially increase the number of youth and adults who have relevant skills, including technical and vocational skills, for employment, decent jobs and entrepreneurship.
- SDG 4.5: By 2030, eliminate gender disparities in education and ensure equal access to all levels of education and vocational training for the vulnerable, including persons with disabilities, indigenous peoples and children in vulnerable situations.
- SDG 4.b: By 2020, substantially expand globally the number of scholarships available to developing countries, for enrolment in higher education, including vocational training and information and communications technology, technical, engineering and scientific programmes, in developed countries and other developing countries.
- Target 4.c: By 2030, substantially increase the supply of qualified teachers, including through international cooperation for teacher training in developing countries, especially least developed countries and small island developing States

Higher education also forms an important part of other goals related to poverty (SDG1); health and well-being (SDG3); gender equality (SDG5) governance; decent work and economic growth (SDG8); responsible consumption and production (SDG12); climate change (SDG13); and peace, justice and strong institutions (SDG16)[90].

Strategy for New India @75

In December 2018, NITI Aayog unveiled its **Strategy for New India @75** with a clearly defined National Development Agenda for the education sector to be achieved by 2022-2023. At the Higher Education level, there is a focus domestically on improving enrolment and employability of students. To align itself with international standards, the New India plan talks about associating performance linked funding and incentives, which would in turn lead to increased employability in the long run, as well as would help achieve the SDG goal of increasing financing at the higher education level. For teacher education, the focus of the plan is to improve regulations to produce a better standard of teachers in the coming years.

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[88] NITI Aayog (2016-17) Strategy for New India @ 75 Retrieved from https://niti.gov.in/sites/default/files/2019-01/Strategy_for_New_India_0.pdf

[89] United Nations (2015) Transforming the World: The 2030 Agenda for Sustainable Development, Retrieved from https://sustainabledevelopment.un.org/content/documents/21252030%20Agenda%20for%20Sustainable%20Development%20web.pdf

[90] UNESCO, (n.d.) Higher Education and Sustainable Development Goals Retrieved from https://en.unesco.org/themes/higher-education/sdgs

National Education Policy (NEP)

The National Education Policy has ushered mechanisms to revitalize higher education in India.

- **Institutional restructuring and consolidation**: Reorganization of institutional architecture (Type 1, 2 and 3 institutions with clear research/teaching focus) and gradual phasing out of affiliated colleges.
- **Liberal education to energize UG programs**: 4-year Bachelor of Liberal Arts program in every district and transforming uni-disciplined programs to liberal education programs
- **Optimal learning environment** through technology, ODL interventions
- Learning outcome improvement through a **streamlined National Higher Education Quality Framework (NHEQF)**
- **Energised, engaged, capable faculty**: through strengthened, streamlined FDPs, department of education I n every University
- **National Research Foundation** to serve as pivotal body anchoring all research initiative

The policy has clearly laid out directions for mainstreaming professional education, vocational and teacher education, use of digital for transforming higher education and strengthening internationalization

- **Revitalisation of teacher education programs** through the Integrated B. Ed structure
- **Strengthening of professional education** through changing regulatory structures (NHERA as sole regulator) and standard setting processes
- **Integration of vocational education** within higher education
- **Greater thrust on digital transformation** through initiatives such as National Education Technology Forum, NRED (National Repository of Educational Data)
- **Internationalization** by inviting select universities to set up campuses, permissions for setting up offshore campuses, Study In India program

The policy also provides directions on financing higher education, empowered governance and effective leadership

- **Financing education:** Incremental increase of 1 per cent every year till it reaches 20 per cent of public expenditure, new class of grant-making private institutions as part of enabling mechanism
- National Higher Education Regulatory Authority (NHERA) as **sole regulator of Higher Education**
- **Accreditation as basis for regulation** and revamped NAAC; greater transparency through public dissemination of data and information
- **Push for greater institutional and faculty autonomy**

The Policy also provides a direction on evolving tiered governance structure and has set a direction for promoting institutional strengthening. It also provides guidance on perspective planning at state level to address regional needs, increasing use of data and governance, disclosure of information and use of latest technology for effective administration

2.3. Key trends in higher education

The following are some of the salient aspects arising out of literature review and analysis of secondary data pertaining to key trends and emerging areas in higher education.

Access to Higher Education is increasing

India made considerable progress on higher education GER over the last few years. The higher education **GER increased from 19 per cent in 2014 to 26.3 per cent in 2018-19**. However, there is a significant drop in participation of students after completion of post-secondary education. As of 2018-19, nearly three fourth of the population in the 18 to 23-year age group was still not enrolled in post-secondary education. The GER of India is considerably lower than its peers viz., Brazil (50.5 in 2016), Russia (81.8 in 2016) and China (51 in 2017)[91].

Also, while India has achieved considerable growth in GER in recent years, the growth has been slow, in comparison with what is required, as well as other similar countries like China. India has grown by only 6 percentage points from 19.4 in 2010-11 to 25.2 per cent in 2016-17 whereas China has grown by 17 percentage points (25 per cent in 2010-11 to 42 per cent in 2016-17)[92] in the same phase. The low access to higher education in India is attributed to several factors such as prohibitive cost of education, lack of facilities, insufficiency of quality institutions in certain pockets of the country etc.

However, there are vast regional disparities with respect to the availability of higher education

Wide inter-state disparities are observed with regard to concentration of colleges vis-a-vis population in the age group 18-23. The following table provides the comparison of the eligible share of tertiary education population in India and the density of institutes available to them in select states of India.

Table 13: Comparison of 18-23 Year Population and College Density in 2018-19

State	Population of 18-23-Year-Old (Lakhs)	Colleges per Lakh Population
Uttar Pradesh	217.36	28
Maharashtra	113.31	33
Bihar	99.88	7
Karnataka	60.5	53
Andhra Pradesh	47.3	49
Telangana	34.38	50
Kerala	25.29	45
Puducherry	1.29	46

Source: All India Survey for Higher Education, 2018-19

The number of colleges per lakh population varies from as low as 7 in Bihar to 53 in Karnataka and 50 in Telangana. While Uttar Pradesh, Bihar and Madhya Pradesh have 35 per cent of the share of 18-23-year-olds in India (which constitute the college going population), they have very few colleges per lakh population. On the other hand, the density of colleges is high in Karnataka, Andhra Pradesh, Telangana, Kerala and Puducherry, which account for only 14 per cent of the total share of 18-23-year-old population in India.

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[91] World Bank EdStats
[92] World Bank, School Enrolment, Tertiary (%)

Figure 15: Colleges per Lakh Population and Average Enrolment Density in Colleges

Source: AISHE 2018-19
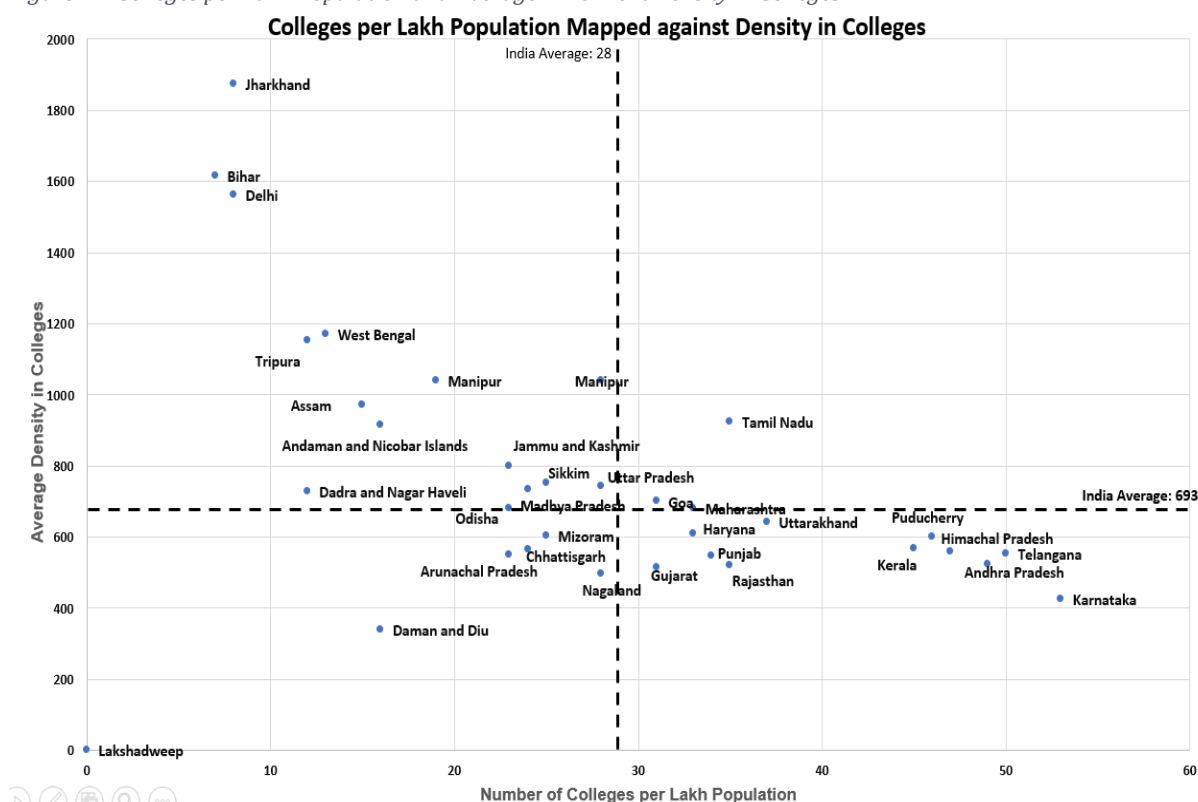
Similar disparities were observed with respect to the number of enrolments per college, the average enrolment in the college varies from as low as 426 in Karnataka to 2034 in Chandigarh. States such as Karnataka, Andhra Pradesh, Kerala and Telangana which have a greater percentage share of the total colleges in India have enrolments of lesser than 600 per institute, which is much lesser than the all-India average of 698 per college.

Even though access has increased, significant gaps in social inclusion continue to exist

Data from AISHE report shows that GER among females has increased since pre-RUSA days in higher education over the last few years. The female GER is 25.4 per cent and the Gender Parity Index is 1, indicating equity in higher education with regards to female participation. While the gender parity in higher education is 1, the GER for girls in tertiary education is lesser than that of global peers viz., Brazil (58.8 in 2016), Russia (89.3 in 2016) and China (51 in 2017)[93].

There are challenges with regard to representation of SCs and STs in higher education, with GER among **former standing at 21.8 per cent and latter standing at 15.9 per cent in 2018-19**. The below table showcases the change in GER among females, SC, and ST students in higher education.

Table 14: Change in GER among SC, ST, women

Year	Overall Higher Education GER		SC Higher Education GER			ST Higher Education GER		
	Overall	Female	Overall	Male	Female	Overall	Male	Female
2018-19	26.3	26.4	23	22.7	23.3	17.2	17.9	16.5
2014-15	21.5	20.1	19.1	20	18.2	13.7	15.2	12.3
% Increase	22.3%	31.3%	20.4%	13.5%	28.0%	25.5%	17.8%	34.1%

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[93] World Bank EdStats

Year	Overall Higher Education GER		SC Higher Education GER			ST Higher Education GER		
	Overall	Female	Overall	Male	Female	Overall	Male	Female
Source: AISHE 2018-19 report								

There also exist vast **inter-state disparities in equity** achievement. The relative performance of states on enrolments of SCs and STs in higher education can be ascertained from following figures.

Figure 16: Relative performance of the states on SC Higher Education GER in 2019

Figure 17: Relative performance of the states on ST Higher Education GER in 2019
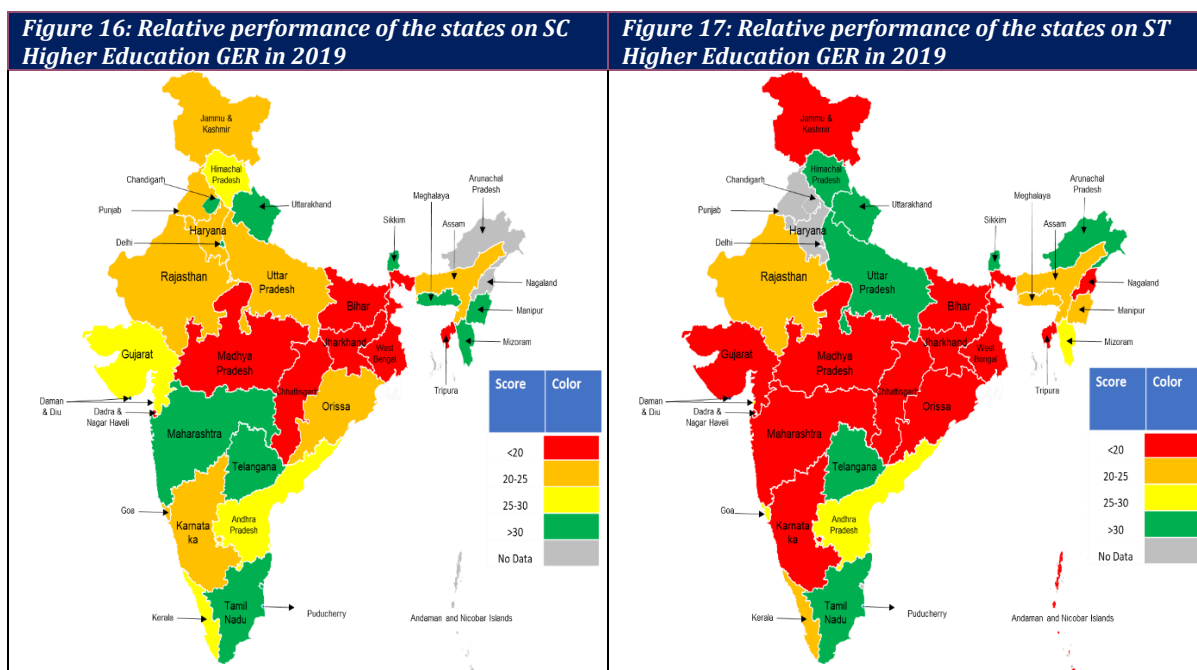
Source: AISHE reports

The GER among SCs and STs is particularly low (<20) in states of Madhya Pradesh, Bihar, Jharkhand, West Bengal and Chhattisgarh.

Technology as a means to enhance reach, quality and equity to be given a boost

Technology has been widely cited[94] as a bridge to enhance access of higher education to disadvantaged groups, including differently abled students, women, and students living in remote areas. Recognizing this, the government has created various platforms such as SWAYAM, NPTEL, e-Shodh Sindhu and the National Digital Library.

- NPTEL, government's e-learning portal, has seen a growth from 1 course to ~400 courses since its launch in 2014. Enrolments have seen 30x increase during the same period from ~50,000 to ~18 lakhs, touching students across 1300 education institutions[95].

- SWAYAM, India's e-learning portal has seen a significant growth in uptake as well, with the portal today seeing 1 crore+ enrolments across 2,200 courses. In addition to its online presence, SWAYAM has seen an addition of 3800 local chapters to aid faculty and students[96].

- Similar uptake has been witnessed in other digital learning initiatives such as e-Shodh Sindhu and National Digital Library.

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[94] National Education Policy (2020), Education Quality Upgradation and Inclusion Programme (EQUIP) Five Year Vision Plan 2019-2024
[95] Retrieved from nptel.ac.in
[96] Retrieved from Swayam.gov.in

Recognizing the importance, the government allocates on an average, INR 500 crores towards Digital India e-Learning[97]. In the next wave of growth, as technology interventions widen, this must be accompanied with appropriate technology upgradation, capacity development measures and quality improvement of MOOCs to ensure quality and equity.

Student loans, aid and other sustainable financing mechanisms to promote access

As India works towards its ambitious higher education GER target of 50 by 2035 (as per the National Education Policy), the higher education system will see an addition to nearly 45 million students. This will require concerted efforts to promote access, a key component of which is financing. Various forms of financing mechanisms such as scholarships, loans, alternative financing mechanisms will play a key role in promoting equitable access, particularly as enrolments in private institutions increase, as has been the trend in recent past.

A commonly cited policy option to address the growing cost of education is to create scholarships for economically and socially backward students in private HEIs[98]. The other commonly available form of financing is loans, which has seen a CAGR increase 4-5 per cent between 2014 and 2019, with total education loan outstanding estimated to be INR 760 billion as of 2019[99]. However, the Brookings India report on Reviving Higher Education in India noted that, between loans and scholarships, **less than 10 per cent of enrolled few students have access to financial support**[106]. Thus, it is imperative for government to sustain its support through aid and look to improve access to student loans and other sustainable financing mechanisms.

Faculty availability, quality and professional development to be given impetus for better outcomes

According to UGC, over 35 per cent of professor posts, 46 per cent of associate professor posts and 26 per cent of assistant professor posts are vacant in various central universities. Secondary data also indicates an increase in faculty shortages, as marked by the **increase in faculty student ratio from 21 to 29 between 2014-15 and 2018-19**[100]. The faculty student ratio of 29 is significantly higher compared to other BRICS countries such as Brazil (19.2 in tertiary education in 2017) or other countries such as Singapore (13.3 in tertiary education in 2017)[101].

Faculty shortages aside, **poor quality of faculty, limited opportunities provided for professional development and suboptimal working conditions** are cited to be other faculty-related deficiencies, as per the Education Quality Improvement and Upgradation Programme (EQUIP) committee report[102].

Integration of future, professional, industry relevant skills for better employability

Another challenge plaguing the sector is that of poor employability of its graduates. As per the India Skills Report-2019, more than **50 per cent of the graduates in India are unemployable and are not industry ready**[103]. The issue is graver for students from traditional courses such as BA/ B.Com. As per the report, only 29 to 30 per cent of B. Com and B.A students are employable.

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[97] Union Budget (FY 18-20), Ministry of Education, Department of Higher Education, Demand No. 59
[98] Birla-Ambani Committee Report (2000): Report on a Policy Framework for Reforms in Education
[99] CRISIL Research
[100] AISHE 2014-15 and AISHE 2018-19
[101] World Bank (2019) Pupil-teacher ratio in tertiary education (headcount basis). Retrieved from https://databank.worldbank.org/indicator/UIS.GTCTR.2.M?id=c755d342&report_name=EdStats_Indicators_Report&populartype=series
[102] Department of Higher Education, MOE (2019). Education Quality Upgradation and Inclusion Programme (EQUIP) Five Year Vision Plan 2019-2024
[103] India Skill report 2019

The study does reveal a year-on-year increase in employability over past five years, however there is still a dire need to improve employability by imparting suitable industry relevant skills. The low employability can be attributed to many reasons - mismatch between what is taught in classrooms, and the knowledge, skills and behaviour businesses look for, lack of integration of hands-on learning within pedagogy and insufficient monitoring of employability outcomes of HEIs at a state, and even institution level.

Figure 18: Year wise employability percentage since 2014
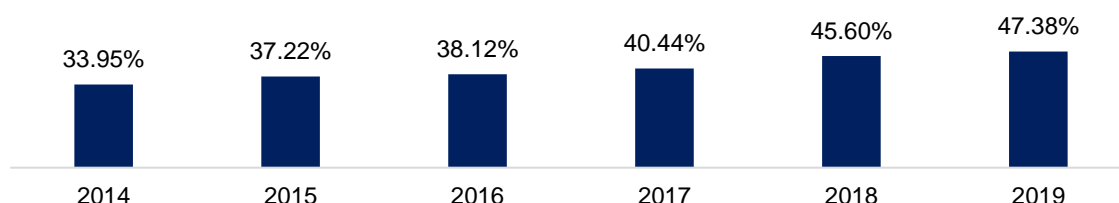
Source: India Skills Report 2019

Integration of vocational education into mainstream higher education providing pathways for better employability of graduates

Low employability, changing market and industry demands present a need for higher education sector to align itself better to needs of the market. However, there is an **absence of convergence between higher education and skill ecosystem**[102]. There is a need to integrate skilling as part of the education framework and to incentivise students for outperforming in skill-based courses along with their regular courses in higher education[104]. It is expected for this area to receive much focus and impetus in the coming years.

India's R&D ecosystem in higher education is characterized by low support, spends on research and funding being limited to a few.

Placing **less thrust on research and innovation** has been cited as one of the shortcomings of Indian HEIs. They have been criticised for reducing themselves to centres of teaching and examining masses[105]. As a result, although the system has seen an increase in the number of research publications in recent years, the quality and impact has been low[106]. This has been attributed to various reasons such as absence of a dedicated body, low spending on research, fund flow being concentrated to select few institutions[107] and inadequate capacity development, training provided to faculty[106].

Amongst the BRICS countries, India has the lowest focus on Research and Development outputs as indicated by expenditure as well as number of researchers.

Table 15: Comparison of the research output of India with respect to the global benchmarks

Country	% GDP Expenditure on R&D	Number of Researchers per Million
India	0.6 (2018)	252.7 (2018)
Brazil	1.26 (2017)	887.7 (2014)
China	2.15 (2017)	1224.8(2017)
Russia	1.11 (2017)	2821.5 (2017)
South Africa	0.82 (2016)	492 (2016)

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[104] Prem Kumar Kalra & K. Soami Daya, (n.d.), Vocational Education and Skill Development in Higher Education: A systems approach
[105] Yash Pal Committee, 2009
[106] Brookings India (2019), Reviving Higher Education in India
[107] Sumit Kumar Banshal, Vivek Kumar Singh and Philipp Mayr (2019), Comparing research performance of private universities in India with IITs, central universities and NITs

India's spending on R&D as a percentage of GDP as well as number of researchers per million is **not commensurate with global peers** belonging to the BRICS group, as indicated in table below[108]. Unlike other countries, the ratio of government funds on R&D is 0.60 per cent, while for countries like China and USA it is 16 per cent and 11 per cent respectively[109].

Table 16: Comparison of the research output of India with respect to the global benchmarks

Country	% GDP Expenditure on R&D	Number of Researchers per Million
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China	2.15 (2017)	1224.8(2017)
Russia	1.11 (2017)	2821.5 (2017)
South Africa	0.82 (2016)	492 (2016)

Another reason identified for low research productivity is the limited private participation through philanthropic endowments, investment from alumni and corporates. Unlike other countries, the ratio of government funds on R&D is 60 per cent, while corresponding figure for countries like China and USA is 16 per cent and 11 per cent respectively[110].

Autonomy, accreditation and continuous quality improvement needs significant strengthening and focus going forward. Despite recognizing its importance, there has been minimal progress in pushing for greater institutional autonomy

Institutional autonomy has been long viewed to be a strong enabler for achieving excellence in higher education[111]. Despite the long-held view, **India only has 747 autonomous colleges, out of its nearly ~39,000 institutions**. This marks a miniscule 2 per cent of all colleges that are autonomous. While quality is a pre-requisite for granting autonomy, and the number of colleges meeting quality criteria is a contributor to the total number of autonomous colleges, past studies reveal several other reasons for the poor proportion of autonomous colleges in India. They include:

- Perception that autonomy implies reduction in public funding, preventing/causing apprehensions among many to apply for autonomy.[112]
- Reluctance of state governments to give up their power control over colleges[113]
- Reluctance among faculty to assume complete responsibilities over fear of additional workload.

With both the EQUIP committee report and National Education Policy, 2020 making strong recommendations for all affiliated colleges to move towards gaining autonomy, this is expected to receive greater thrust and momentum in near future.

Penetration of accreditations, accreditation capacity and inter-regional disparities in quality remain a challenge

The UGC mandates accreditation as a mandatory criterion for HEIs after 6 years or two batches whichever is earlier. The National Development Agenda of NITI Aayog also envisages accreditation as the mandatory quality assurance framework for HEIs in India. However, analysis of accreditation status highlights severe deficiencies in the system. As of June 2019, **only 33 per cent of the Universities (325 Universities) and 14 per cent of the total colleges (5417 colleges) in India are accredited**. Within the accredited institutes, only 26 per cent of all

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[108] Source: UNESCO Institute for Statistics (uis.unesco.org)
[109] Ministry of Finance, Economic Survey 2017-18
[110] Ministry of Finance, Economic Survey 2017-18
[111] Kothari Commission, 1964-66
[112] National Education Policy, 2020
[113] K. Sankaran, GV Joshi, (n.d.), Autonomy for Excellence in Higher Education in India.

accredited colleges had a NAAC accreditation of grade A and above. Over 56.9 per cent of the 325 accredited universities had a NAAC accreditation of grade A and above.[114]

Accreditations being optional for institutions, and all accreditations being routed through NAAC and NBA, and their limited accreditation capacity have acted as key barriers in achieving greater proportion of accreditations in the country.

Besides, **vast inter-state variances** exist in terms of quality of institutions, as indicated by NIRF rankings and proportion of NAAC A/A+ accredited institutions in the state. Nearly 60 per cent of the Top 200 colleges in NIRF rankings belong to just five states viz. Tamil Nadu, Maharashtra, Karnataka, Andhra Pradesh and Telangana, whereas the more populous states such as Bihar, Madhya Pradesh and Jharkhand see a meagre presence of quality institutions. Nearly 28 of the top 100 ranked NIRF colleges are from Delhi and nearly 34 of the top 100 ranking NIRF colleges are from Tamil Nadu. As indicated by NAAC, under 10 per cent of colleges in Bihar and Jharkhand are NAAC A/A+ accredited (out of total NAAC accredited institutions). This compares to 51, 44 and 39 per cent in states of Kerala, Punjab and Tamil Nadu respectively. Hence, there is significant disparity in the quality of HEIs across the country.

Increasing focus on attracting global talent to make India a talent hub

Riddled with quality concerns, there is **lack of global standards in Indian HEIs**, impeding them from appearing in international rankings[102]. In 2020, none of the Indian HEIs featured in top 100 QS global rankings. Similarly, India is not seen as much as a global destination for higher education, as indicated by its low inbound mobility statistics vis-à-vis outbound mobility. Recognizing the need, the government through various initiatives such as Institutes of Eminence, World Class Institutions, Study in India scheme announced in the recent past is aiming to promote competitiveness and excellence among institutions. This is expected to receive greater thrust in coming years.

Lack of globally recognized institutes

In the higher education segment, very few Indian Institutions feature in the global rankings undertaken by the key international ranking organizations. In 2020, none of the Indian higher education institutions featured in the top 100 QS Global rankings or the top 300 World University Rankins by Times Higher Education. Only 3 Indian institutions ranked in top 200 in the prestigious QS world university rankings indicating poor quality of education. In terms of Higher Education, India is significantly behind the competition in terms of enrolment. India also lags behind its peers in terms of quality parameters as signified by India's standing in international rankings and India's research performance.

Table 17: Status of Indian Higher Education Institutes on Global rankings

Parameters	TIMES Higher Education	QS Global Rankings
Number of Institutions ranked	56 Indian Institutes in ranking list of 1300 institutes	23 Institutions within 1000 ranks
Highest Ranking Obtained	• IISc and IIT Ropar ranked in 301-350th bracket of institutions	• IIT Bombay ranked 152 • 3 Institutes among top 200
Source: Times Higher Education Ranking and QS Ranking		

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[114] NAAC

Use of data for better governance, technology for effective delivery and administration

India has made considerable progress in tracking data for better governance and decision-making through mechanisms such as the All-India Survey of Higher Education (AISHE). However, the **current data capturing mechanisms vastly focus on tracking input metrics**, particularly related to access and equity. There exist gaps in capturing critical quality-related metrics. For instance, data pertaining to faculty attainment, research productivity, graduate employability, graduation quality are not captured at a systemic level. Particularly with advent of technologies such as AI and Blockchain, there is a need for strong data capturing mechanisms to drive a culture of data-driven decision-making, thereby enhancing efficiency.

3. Teacher Education

3.1. Overview of teacher education

Teachers are at the core of the educational ecosystem

As per UNESCO (2006), teachers are the most significant element in determining the quality of education received by children in classrooms. Teachers play an important role in improving the educational outcomes of the students especially in the initial years of child's development. One of the most critical factors affecting student's achievement is in-class teacher effectiveness and quality of instruction; which has been iterated across multiple research studies[115]. To improve the overall quality of educational ecosystem and learning outcomes for students, it is of utmost importance to improve the quality of teachers by ensuring the are professional qualified and provided with continuous professional development opportunities. Teacher education in India is provided by Teacher Education Institutes (TEIs) at the pre-service level (for teacher preparation) and in-service level (training of school teachers).

Multiple stakeholders are involved in delivery of teacher education in India

The pre-service teacher education is formally managed **by National Council for Teachers' Education (NCTE)** which was established under the NCTE Act of 1993. NCTE, a statutory body with four regional committees viz., Northern, Eastern, Western and Southern regional committees, is responsible for determination, maintenance and recognition of teacher education standards and affiliated teacher education programmes. The minimum qualification norms for teachers in school education as recognized by NCTE are:

- Senior Secondary School certificate or Intermediate or its equivalent for primary teachers.
- Diploma or certificate in basic teachers' training of a duration of not less than two years or Bachelor of Elementary Education; Graduate with Bachelor of Education (B.Ed.) or equivalent is also considered for upper primary teachers.
- Graduate with Bachelor of Education or Four years integrated B.Sc., B.Ed. is required for secondary school teachers
- Master' degree in relevant subject with B.Ed. or Two years MSc. Ed. course is the minimum mandate for higher secondary teachers

At the national level, the National Council of Education Research and Training (NCERT) along with National Institute of Educational Planning and Administration (NIEPA) and MOE prepares teacher training modules and undertakes training for schoolteachers as well as teacher educators, that is trainers of TEIs. At the state level, in-service training component is managed by State Council of Education Research and Training (SCERTs) along with Colleges of Teacher Education (CTEs) and Institutes for Advanced Learning in Education (IASEs). These institutes are engaged in preparing training modules and providing training to secondary school teachers and trainers at TEIs. At district level, in-service training is provided by District Institutes of Education and

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[115] Wright, S. P., Horn, S. P., & Sanders, W. L. (1997). Teacher and classroom context effects on student achievement: Implications for teacher evaluation. Journal of Personnel Evaluation in Education, 11(1), 57–67. https://doi.org/10.1023/A:1007999204543; Butler, R., & Shibaz, L. (2014). Striving to connect and striving to learn: Influences of relational and mastery goals for teaching on teacher behaviors and student interest and help seeking. International Journal of Educational Research, 65, 41–53. http://dx.doi.org/10.1016/j.ijer.2013.09.006; Retelsdorf, Jan, & Günther, Catharina (2011). Achievement goals for teaching and teachers' reference norms: Relations with instructional practices. Teaching and Teacher Education, 27, 1111–1119. http://dx.doi.org/10.1016/j.tate.2011.05.007

Training (DIETs) with the help of Block Resource Centres (BRCs) and Cluster Resource Centres (CRCs) to school teachers.

## *Private Institutes form the backbone of pre-service teacher education*

Currently there are 16,917 pre-service teacher education institutions in India recognized by NCTE, with the ability to cater to roughly 19 lakh students with teacher education programmes[116]. Out of these, about 90 per cent institutions are privately owned standalone institutes. These institutions primarily train teachers through Bachelor of Education (B.Ed.) and Diploma in Elementary Education (D. El. Ed.) programmes. At present, there are around 15 types of teacher education programmes offered by the existing Teacher Education Institutes in India[117]. It has been observed that most of these private owned institutions are running single programmes with intake capacity as low as 50 students[118].

For in-service education, the country has a large network of teacher training institutions. As per MOE data, India has about 661 DIETs, 124 CTEs, 36 IASEs and 70 BITEs for in-service teacher training. There are about 32 SCERTs across states and Union Territories except for Dadar Nager Haveli, Lakshadweep Islands, Daman and Diu and Puducherry. Additionally, the in-service teacher training is also provided through various Centrally Sponsored Schemes in India.

There is a robust growth in enrolment across the Teacher Education Institutions

In 2018-19, there were ~15.81 lakh students enrolled across various programs in TEIs in the country[119]. The enrolment in teacher education programmes during FY15-FY19 grew at a CAGR of ~10 per cent[120] primarily due to mandatory requirement of education degree in order to teach in government schools and the ever-increasing demand for schoolteachers across the country.

Figure 19: Enrolment trend in Teacher Education stream in recent years, in Lakhs
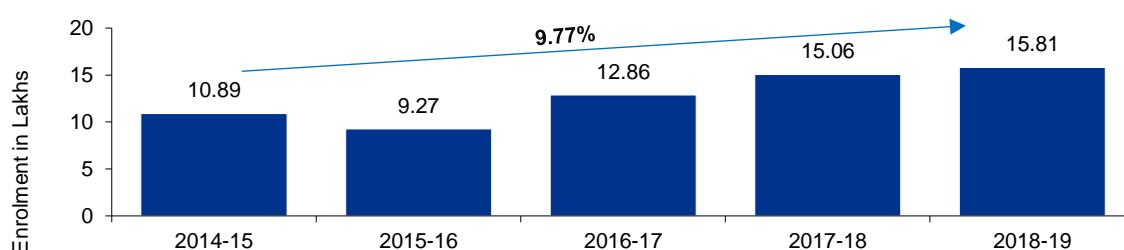
Source: Reports on higher education from AISHE]

The two courses in Teacher Education with greatest demand are B. Ed (B.Ed., and integrated B.Ed. courses).and D. El. Ed, contributing to 80 per cent and 17 per cent of total enrolments respectively in 2018-19. M.Ed. courses accounted for 3 per cent of the enrolment in teacher education stream in higher education[121].

Increasing focus on quality and outcomes

A look at recent scheme announcements related to teacher education over the last 5-6 years reveals the shift of priorities in teacher education with one of increased quality and outcome focus. Schemes centre around overall quality improvement, as well as targeting specific areas of improved in-service training systems, increased systemic accountability for student learning

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[116] Data provided by NCTE in January 2020
[117] ibid.
[118] OUTCOME BUDGET 2016-17; Department of School Education and Literacy; Ministry of Education; Government of India; New Delhi
[119] Reports on higher education from AISHE
[120] Ministry of Education (2012-2019). All India Survey on Higher Education. Retrieved from http://aishe.nic.in/aishe/reports
[121] ibid

outcomes and imporved faculty quality at TEIs and so on. Key initiatives announced by the government are listed below:

Table 18: Key teacher education initiatives announced in last 5-6 years

Key Scheme/ Initiatives	Description of initiative
Minimum qualification of Teachers	Amendments introduced in Section 23 (2) of the RTE Act to ensure all untrained in-service teachers (in government, government-aided and private unaided schools) are professionally trained as per NCTE norms.
Equality in Education	The erstwhile centrally sponsored schemes of school education – Sarva Siksha Abhiyan (SSA), Rashtriya Madhyamik Siksha Abhiyan (RMSA) and Centrally Sponsored Scheme on Teacher Education (CSSTE) subsumed under an integrated scheme for school education, Samagra Shiksha. The key objective of integrated scheme is to ensure equitable quality and inclusive education at all levels.
E-Learning material for students and teachers	MOE developed a Digital Infrastructure for Knowledge Sharing (DIKSHA) platform to provide supplementary teaching learning material for students and upgrading skills of teachers. The portal aims to augment technical skills of teachers.
Educational Channels	Using satellite communication technologies, transmission of educational e-contents through 32 National Channels has been initiated under SWAYAM PRABHA DTH-TV. The Central Institute of Educational Technology (CIET) - NCERT is the national coordinator for DTH channel – Kishore Manch and NIOS is running five channels for teachers for secondary and senior secondary levels and for sign language.
NISHTHA	The National Initiative for School Heads' and Teachers' Holistic Advancement (NISHTHA) under the Centrally Sponsored Scheme of Samagra Shiksha was launched to ensure capacity building of all government elementary school teachers in the country. The programme is introduced considering current educational needs of teachers as well as students (learners at school level). The programme aims to build awareness among teachers and help them in skill development especially required to address key components of RTE Act as well as of National Education Policy, 2020 namely inclusivity in education, competency-based learning and testing, improved learning outcomes, learner cantered pedagogy, ICT inclusive methodologies and reforms in school-based assessments.
Grading System	The Performance Grading Index (PGI) is launched to grade the states and UTs by objectively evaluating performance of the school education system in the states and UTs across 70 indicators. Out of these 70 indicators, about 4 indicators under Category 2 Governance and Management are mapped directly to teacher education. This grading system will assist the states and UTs to identify the gap and design appropriate interventions to bridge them.

3.2. Key goals and policies shaping teacher education

The key goals and activities for teacher education would be guided by the New India @ 75, by NITI Aayog[122], the National Education Policy (2020) and the corresponding International Benchmarks, outlined in the form of Sustainable Development Goals by UN[123]. The key pathways guiding education in India are discussed below.

Sustainable Development Goals (SDGs)

The teacher education component contributes to SDG 4 (Ensure Inclusive and Equitable quality of Education and Promote Life-long Learning Opportunities for All), SDG 8 (Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for

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[122] NITI Aayog (2016-17) Strategy for New India @ 75 Retrieved from https://niti.gov.in/sites/default/files/2019-01/Strategy_for_New_India_0.pdf
[123]United Nations (2015) Transforming the World: The 2030 Agenda for Sustainable Development. Retrieved from https://sustainabledevelopment.un.org/content/documents/21252030%20Agenda%20for%20Sustainable%20Development%20web.pdf

all) and SDG 16 (Promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable and inclusive institutions at all levels). The key goal articulated to be achieved under SDG 4 specific to higher education is SDG 4.3 which aims to "By 2030, ensure equal access for all women and men to affordable and quality technical, vocational and tertiary education, including university".

Strategy for New India @75

In December 2018, NITI Aayog unveiled its **Strategy for New India @75** with clearly defined National Development Agenda for education sector to be achieved by 2022-2023. One of the key objectives of the strategy for New India@75 by NITI Aayog is to revamp the entire ecosystem of teacher education both at the school and college level in order to build a quality education system. At the teacher education level, a part of the central government's 15 initiatives is to improve teaching standards in India.

National Education Policy

The National Education Policy (NEP) suggests mechanisms for multidisciplinary approach for effective teacher education.

- Moving **teacher education into university system,** the **four-year integrated B.Ed. programme** and **improvising pedological aspects** of 4 years integrated B.Ed. programme
- **Two-year B.Ed. programme for lateral entry into teaching** for example subject teachers for secondary and middle school with strong practical component.
- **Specialised instructors for specialised subjects.**
- Closing down of substandard standalone TEIs
- Need for **specialist teachers,** for example subject teaching for CWSN at the middle and secondary school level, education of children with singular interests and talents and teaching of specific learning disabilities.

The new National Education Policy (NEP) suggest mechanisms for effective teacher recruitment and deployment.

- **Merit-based scholarships** to encourage outstanding students to enter teaching profession
- Ensuring rigorous, transparent and accountable **teacher recruitment planning and deployment process** by conducting TET followed by NTA test for relevant subjects and authenticated database suggesting teacher vacancies and requirement.
- **Induction of freshly trained teachers into schools through BRC, CRC, BITE or DIET,** associated with the school complex

The new National Education Policy (NEP) suggest that teachers must be ensured necessary infrastructure and resources to perform their roles.

- **Rejuvenating academic support institutions** (SCERT, BITE, DIET, BRC, CRC, CTE, IASE)
- Revamping **Continuous Professional Development (CPD)**
- **Online resources** for Continuous Professional Development (CPD)
- **In-school teacher development processes** through clearly laid and defined professional standards and norms

3.3. Key trends in teacher education

The following are some of the salient aspects arising out of literature review pertaining to teacher education in India.

Access to Teacher Education is increasing, however there are regional disparities

Access to teacher education institutes, especially in terms of number of institutes available within reach of students, is increasing. Primary survey indicates that on an average about 2 teacher education institutes are available in the locality for candidates aspiring to become teachers. NCTE data indicates that India has widespread TEIs across geographies. However, there are vast regional disparities in the spread of TEIs. The northern zone has highest concentration of TEIs followed by southern, western and eastern zones. The northern zone comprises 46 per cent of total TEIs, eastern zone comprises of only 11 per cent of total TEIs, southern zone comprises of about 25 per cent of total TEIs and western zone comprises of about 18 per cent of total TEIs. Within zones, there is disparity in distribution of TEIs as well. For example, in northern region, which has ~46 per cent of total TEIs, Uttar Pradesh has largest number of TEIs. Out of 46 per cent of total TEIs located in north zone, about 61 per cent TEIs are concentrated only in Uttar Pradesh. This is so due to higher share of population in these regions. The same should be re-examined and planned.

Quality of teacher education programmes and trainings provided to students and school teachers is low

Research[124] has indicated poor quality of pre-service and in-service teacher training in India. The pass percentage in Central Teacher Eligibility Test (CTET), conducted by CBSE indicate that the quality of teacher education programmes and trainings are of sub-optimal quality.

Poor pass-percentage in CTET

The **Teacher Eligibility Test (TET)** is an eligibility test conducted by CBSE**.** The CBSE's Annual Report for 2018-19 indicate that CTET was conducted across 92 cities with about 19.5 Lakhs registered candidates; of these, **only 15 per cent were declared as qualified**. The trend continues for past years as well and indicates that a very large number of students who have professional degrees fail to qualify through the TET. This reflects that the quality of entry level candidates is poor owing to the sub-optimal quality of the pre-service teacher education programmes. The quality of teacher education programmes across the country are not at par with the requirement of teachers in schools. The primary interaction with MOE and sector expert indicates that students attending pre-service training at DIETs perform better in CTET exams as compared to candidates from other private institutions.

No marked improvement in terms of in-service teacher education programmes

NAS 2017 indicates that more than 50 per cent States and Union Territories have their learning outcomes at Class III, V and VIII below national averages. Also, it is observed that most in-service teacher education programmes are centrally aligned and focused on meeting training targets of SSA and RMSA. The UNESCO report on *Teaching and Learning: Achieving Quality for All (2014)* highlights the current teacher education systems to be isolated from universities and pre-service providing state institutions. The weak collaboration amongst the institutions has resulted in ad-hocism in teacher training programmes. The in-service training need of teachers is not well

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[124] Ibid.

recognized and has led to sub-optimal quality of training. To improve the impact of in-service teacher training programmes, MOE has launched an integrated teacher training programme - NISHTHA (National Initiative for Teachers and School Heads Holistic Advancement) under Samagra Shiksha on 21 August 2019. With launch of this programme, the government aim to build capacities of all teachers and head of schools at elementary level, faculty members of State Councils of Educational Research and Training (SCERTs), District Institutes of Education and Training (DIETs) as well as officials and Resource Persons from Block Resource Centres (BRCs) and Cluster Resource Centres (CRCs) in all States and UTs. The government plans to launch NISHTHA-Phase II for all teachers at the secondary level government schools in FY21. This will help sector have a coordinated and learning outcome-based training programme.

Availability of qualified teachers has increased however still shortage of Professionally qualified teachers exists as per the norms

With the focus of Right to Education Act on increasing the PTR in schools, several teachers (full time and part times) were introduced in the school education system which were not sufficiently qualified as per the norms. Section 23 of the Right to Education Act of 2009 (RTE Act) mandates all teachers from government and government aided schools to possess minimum qualifications as laid down by the National Council of Teacher Education (NCTE). Secondary teachers are required to have at least a graduate qualification with 50 per cent or above. For Upper Secondary, the requirement is of a post-graduate qualification with 50 per cent or above[125]. These requirements have been mandated to ensure quality of education delivered at school level does not falter. In accordance with this Act, the teachers were mandated to adhere to the same by March 2015 which was subsequently extended to be achieved by 31 March 2019 through amendment of section 23(2) of the RTE Act.

However, despite almost a decade of RTE mandate the same had not been achieved. Of the full-time teachers employed at the elementary level, around 12 per cent[126] of the teachers are not at par with the minimum defined professional qualification (where professional qualification refers to a Bachelors/Diploma in Education or equivalent, Bachelors/Diploma in Elementary Education, Master's in Education or equivalent, Bachelors/master's in special education or a state recognized qualification). The situation is further alarming for contractual teachers wherein almost 29per cent of the contractual teachers at elementary level have no degree. The greatest share of full-time teachers without any professional qualifications are found in Tripura, Nagaland and Meghalaya, where more than 55per cent of the school teachers do not have any professional qualification. In case of secondary education, as on 2016-17, ~11.4 per cent teachers in govt. school and 8.9 per cent teachers in govt. aided school do not have the requisite professional qualification.

With reference to RTE amendment in 2017, the National Institute of Open Schooling (NIOS) was entrusted to train the untrained teachers, in 'Open Distance Learning Mode'. The course started from 3 October 2017 and approximately 9.58 lakh teachers had successfully completed the training by March 2019. Subsequently, a supplementary examination was also conducted in January 2020 to give chance to those teachers who had failed to clear earlier.

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[125] https://ncte.gov.in/Website/PDF/Minimum%20Qualification_2015.pdf
[126] UDISE. Retrieved from http://udise.schooleduinfo.in/dashboard/elementary#/

However, while the number of teachers with professional qualifications has increased over the last few years however, it needs to be ensured that 100 per cent of the teachers acquire the minimum qualification in accordance with RTE mandate.

Emphasis on In-service professional development of teachers in also low[127]

In 2017-18, of the total 46.25 lakh teachers (full time and contractual) in elementary education, only around 27 per cent (12.42 lakh) teachers have been reported to have undergone in-service teacher training. The trends are very similar for secondary education as well wherein of the total 12.95 lakh Secondary School teachers across the Government and Government aided schools in India, only ~19 per cent (2.46 lakh) received in-service training in the year 2017 – 18. Of the 8.53 lakh teachers in Higher Secondary Schools in India, only 12 per cent (1.04 lakh) teachers received any form of teacher training.

There are also regional disparities observed with respect to the availability of professionally trained teachers. A large proportion of untrained teachers, both at elementary and secondary level exist in states like Bihar, West Bengal, Tripura and Nagaland.

The existing system of professional development activities for teachers is also ad-hoc and not linked to individual developmental needs of the teachers and learning outcomes of the students both at TEIs level as well as school level. The professional development of teachers needs to ensure capacity building activities based on student outcomes and existing competency of teachers instead of using 'one size fits all' approach. Improving the quality of in-service teachers through training is instrumental in improving the student outcomes which needs to be strengthened going forward. This in turn affects learning outcome of students.

Broad mandate of NCTE overlaps with other bodies

The institutional set up for teacher education has autonomy but lack functional rigor. Institutional bodies set up at national and state level have conflict of interest and thus are unable to regulate, monitor and report clearly on various components of teacher education programmes.

While NCTE regulates most of the teacher education programmes and their mandate is very broad. They conduct a wide spectrum of roles and responsibilities related to teacher education programmes, teacher training programmes, research and other courses related to adult education, non-formal education, distance learning courses etc. It is noted that these roles and responsibilities are in conflict with other national bodies like NCERT that is looking towards integrated teacher education programme, CBSE and other affiliating bodies such as UGC.

The recognition process of teacher education programmes is poor

It has been observed that NCTE and its four regional committees (north, south, east and west), regulate the teacher education in India. The provision of NCTE Act, 2009 invites applications for teacher education programmes to be offered. The regional committees accord recognition to the teacher education programmes on behalf of NCTE. However, there is lack of coordination between regional committees and NCTE that has led to commercialization and massive proliferation of substandard TEIs in teacher education space.

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[127]	NIEPA	(2017-18)	School	Report	Cards	Retrieved	from http://14.139.60.149/ReporterModule/ReportModule/Startup/Startup.aspx)

Lack of benchmarking norms and standards for teacher education programmes

There is no institutional mechanism set up for review of norms and standards set by NCTE for teacher education programmes. Also, there is no mechanism to benchmark the norms and standards with global standards on one hand and need/requirement of TEIs on the other hand. As per NCTE norms, recognition is provided to teacher education courses rather than the Institutions itself. This has led to proliferation of large number of standalone institutions with specific teacher education programmes.

There is a need for review of qualifications, admission norms and assessments for teacher education programmes

Minimum eligible qualification at entrance level

The minimum qualifications laid down by NCTE, for admission to pre-service education programmes is 50 per cent marks in higher secondary. This minimum qualification for elementary school teachers indicates low bar of admission for teacher education programmes.

Non-uniform admission process

The admission process for students to pre-service programmes varies from state to state and institute to institute. TEIs affiliated to different universities follow different admission procedures. Some universities conduct entrance test followed by counselling or merit-based counselling or combination of both. This lack of uniformity leads to varied quality of students entering the teacher education eco-system. These varied admission process and approach also leads to issues such as underutilization of intake capacity of TEIs, private TEIs seats filled through management quota or spot admission and risk of unfair and malpractices.

Weak process to assure professionally qualified teachers for in-service teachers

The RTE norms mandate all teachers to complete annual hours of in-service training at schoolteacher level, headmaster level and educators at school and TEI level. However, it has been observed that the in-service teacher training lacks clear eligibility qualifications for each course and selection of teacher for training programmes. The TEIs as well as education sector as a whole clearly lacks examination and assessment of training programmes, quality of these training programmes as well as translation of teacher training into learning outcomes.

High teacher vacancies persist despite an estimated potential for over-supply of qualified teachers

The Annual Work Plan and Budget, 2019-20 of CSSTE, MOE indicates that there is a deficit of teachers across elementary, secondary and higher secondary levels in government, government aided schools. As per NCTE data, the existing TEIs can generate about 16 lakh freshly trained teachers every year as against the estimated annual requirement of 3 lakh teachers per year. Considering there are about 94 Lakhs teachers across all schools in India, every year the teacher education eco-system will be producing one-fifth of the total number of schoolteachers. This indicates a potential for over-supply of qualified teachers. However, on the other hand, there is a high number of vacancies in teacher positions at the school education level. Around ~11 lakh of the sanctioned ~51 lakh positions for elementary education in government schools were vacant in FY '20. In addition to the high vacancies, the existing distribution of teachers across schools is very uneven. In secondary education, over 18 per cent of the sanctioned subject teacher posts (1.34 lakh out of the sanctioned 7.3 lakh posts) in government secondary schools were vacant in FY 20. In higher secondary education, over 26 per cent of the sanctioned subject teacher posts

(0.94 lakh out of sanctioned 3.53 lakh posts) in government secondary schools were vacant in FY 20. There is also a wide disparity in teacher vacancy across various states and UT's. The figure shared below represents the numbers of teacher vacancies across various states and levels:

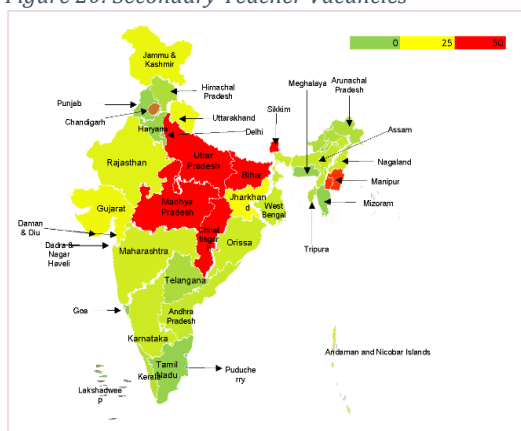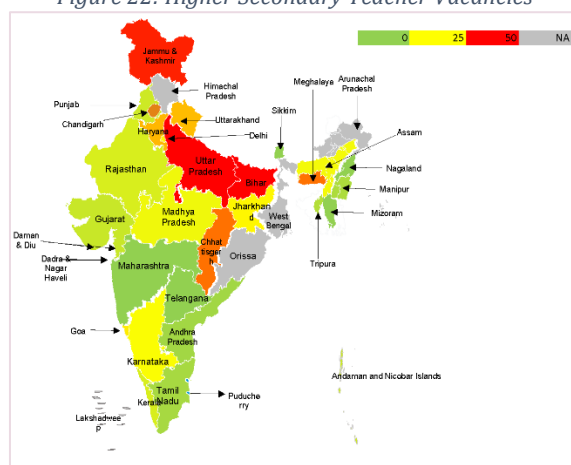Figure 20: Secondary Teacher Vacancies

Figure 21: Elementary Teacher Vacancies

Figure 22: Higher Secondary Teacher Vacancies

Source: Annual Work Plan and Budget, 2019-20, CSSTE, MOE

Despite concerns on teacher development, the budgetary allocation for teacher education in India remains low

The total spending on Teacher Education and Adult Training as compared to total spending on other Centrally Sponsored Scheme (CSSs) by the Department of School Education and Literacy of MOE is only 2 per cent[128]. A study conducted by The Centre for Budget and Governance Accountability (CGBA) and Child Rights and You (CRY) revealed that the share of teacher training budget is less than one per cent for the ten states that participated in the study[129].The analysis of state budgets pan India also indicates limited allocation towards teacher training along with wide geographic variations. The budgetary allocation for teacher education under Samagra Shiksha scheme for 2018[130] ranges between 0 to 4 per cent among states and Union Territories. States like Kerala, Punjab and Gujarat allocated higher proportions to teacher education such as 4 per

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[128] Sources: Expenditure Budget, Ministry of Education, Union Budget, 2018-19; PRS; from the site https://www.prsindia.org/parliamenttrack/budgets/demand-grants-2018-19-analysis-human-resource-development
[129] How have How have states utilized their budgets? CRY and CGBA (2016). Retrieved from https://www.cry.org/resources/pdf/Study%20Report%20by%20CBGA%20and%20CRY-1.PDF
[130] Accountability Initiative of India

cent each. The overall cuts on budget have an adverse impact on the effectiveness of teacher training[131].

The unit cost allocated towards teacher training in India viz., INR 200 – INR 300 per day including TA DA leaves minimal funds towards providing a quality training to the participants. The primary survey highlighted that majority of the stakeholders feel the current budgetary provision for teacher training to be insufficient.

There is a narrow focus of teacher education policies and schemes in India

The teacher education policies/ schemes such as CSSTE has a mandate to strengthen limited Teacher Education Institutes (TEIs) in India such as SCERTs, IASEs, CTEs, DIETs/ BITEs. The existing scheme of Centrally Sponsored Scheme on Teacher Education only covers 4 per cent of Teacher Education Institutes under the ambit of the scheme. The scheme clearly neglects a large component of pre-service teacher education at larger teacher education eco-system level. The institutional set up established under CSSTE scheme for teacher education is also not working effectively.

Evaluation of the Centrally Sponsored Scheme on Teacher Education in States/UT's by Tata Institute of Social Sciences (2017) noted that while the State Council of Educational Research and Training's (SCERT) were following the mandates, there was a lack of influence at the policy level and were unable to contribute to the decision-making processes. Across the other institutes such as Institute of Advanced Studies in Education (IASE), there was a lack of research focus. In the College of Teacher Education's and District Institute of Education and Training's the faculty were unaware of their roles. There was a lack of clarity on the mandates and the expectations to meet the mandates.

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[131] Kidwai, H., Burnette, D., Rao, S., Nath, S., Bajaj, M. & Bajpai, N. (2013). "In-Service Teacher Training for Public Primary Schools in Rural India: Findings from District Morigaon (Assam) and District Medak (Andhra Pradesh)." Columbia Global Centres | Mumbai Working Paper Series (no. 12). http://globalcenters.columbia.edu/mumbai/files/globalcenters_mumbai/ MDEP_WP12_Teacher%20Training%20Website.pdf

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