Learnings for Large–scale Transformation in School Education

Project SATH-Education

(Sustainable Action for Transforming Human Capital - Education)

Message from Vice Chairperson, NITI Aayog

India has traversed a long journey in its quest for ensuring near-universal access to primary school education. It has been our endeavor, under the leadership of hon'ble Prime Minister Shri Narendra Modi, to strive towards facilitating access to high-quality education for all. In this context, NITI Aayog's initiative, Sustainable Action for Transforming Human Capital in Education (Project SATH-Education) was conceptualized as a key initiative for transitioning to the next level of achieving quality education across grades.

In 2017, the Governments of Jharkhand, Madhya Pradesh and Odisha came together to collaborate with the Union Government, NITI Aayog and select knowledge partners (Boston Consulting Group and Piramal Foundation for Educational Leadership) for enhancing the quality of education services in their respective States. Project SATH-E has showcased an effective and scalable approach for catalyzing improvements in learning outcomes by leveraging data-driven micro-planning and strengthened governance mechanisms.

This report captures the lessons learnt from the SATH-E Project. It details the reform efforts undertaken as part of the initiative including academic (e.g., assessments, teacher and leadership curriculum) and systemic (e.g., addressing vacancies, optimizing the footprint of schools, building stakeholder capacity) solutions.

I congratulate NITI Aayog's Education Vertical for synthesizing the lessons learnt and suggested reforms based on the implementation experience of Project SATH-E. I am confident that if the interventions elucidated in the report are customized and adopted by other States, they could play a key role in helping transform India's education system and ensuring that we achieve the targets set out under Goal 4 of the Sustainable Development Goals in a timely manner.

Suman Bery
Vice Chairperson, NITI Aayog

Message from Member (Education), NITI Aayog

Education is one of the most critical enablers for any developing country. For India, it's all the more important to offer high-quality education to fully tap into our demographic dividend. Education can act as a catalyst to not only sustain but also to further boost India's growth.

NITI Aayog launched Project SATH-Education to demonstrate the possibilities and challenges in making bold moves to improve the quality of education. The States of Jharkhand, Madhya Pradesh and Odisha, which were onboarded through a rigorous selection process, have already commenced their transformation.

With the collective efforts of the Hon'ble Education Ministers, the Chief Secretaries, Principal Secretaries and the Education Departments of all the partner States, and of course our knowledge partners, Boston Consulting Group (BCG) and Piramal Foundation

for Educational Leadership (PFEL), we were able to identify the key challenges in every state's education systems. Accordingly, robust roadmaps were designed and multiple initiatives have been implemented, encompassing quality enhancements, governance and digital education.

Through this report, we would like to share some key practices from the partner States with a broader set of stakeholders in the hope that they guide and support other States in their educational metamorphosis. I am positive that through such cooperative initiatives, we will soon ensure universal access to quality education.

Dr. V. K. Paul
Member (Education), NITI Aayog

Foreword

Sarva Shiksha Abhiyan (SSA) was launched in 2001 to universalize school education in the country. The subsequent passing and implementation of the Right of Children to Free & Compulsory Education Act-2009 has made sure that India attains near-perfect universalisation of school education. However, as we were striving to pivot from access to quality education, the nation was hit by the COVID-19 pandemic which led to learning losses for millions of students.

The National Education Policy (NEP)-2020 aims to address the growing educational development imperatives of our country. The States/UTs now need to adapt and pivot their strategies aligning to NEP-2020 in order to achieve its targets in a time bound manner. This will ensure that each student in India gets quality education that enables them to be agents of change in our society. Project SATH-E is a landmark contribution of NITI Aayog in this direction.

Project SATH-Education has been implemented in the States of Jharkhand, Madhya Pradesh and Odisha. The Project enables a system-wide governance transformation in school education. The objective is to ensure that quality is not diluted even when we operate on a larger scale. Project SATH-E, since its inception in 2017, has been a true 'sathi' (meaning 'a friend' in Hindi) to the educational system with students and teachers at its centre.

The interventions of Project SATH-E are in synchronization with NEP-2020. The State Governments of Jharkhand, Madhya Pradesh and Odisha have been resiliently working on the NEP- 2020 implementation roadmaps as the SATH-E States are pioneering contextualised interventions for it, which will help in attaining grade-level learning competencies. Project SATH-E has ensured that our students not only return to schools but also learn at an incremental pace as per the recommendations of NEP-2020.

This report captures effective implementation strategies across the three SATH-E States to address the most pressing issues of the Government Schooling System. The report has been compiled in collaboration with partner States Jharkhand, Madhya Pradesh and Odisha and our knowledge partners - Boston Consulting Group and Piramal Foundation.

I sincerely hope that other States/UTs and broader stakeholders across India will use this report as a guidebook for designing educational transformative interventions and policies for NEP-2020 implementation. I am positive that through such cooperative initiatives, we will be able to achieve our goal in a time-bound manner and gradually transition towards becoming a nation with universal access to quality education.

B.V.R. Subrahmanyam
CEO, NITI Aayog

Message from the Secretary, School Education and Literacy, Jharkhand

Our goal is that every child in the state should have access to quality education. Our constitution has ensured 'Right to Education', but we believe it should be taken a step forward towards 'Right to Quality Education'. Under the able leadership and vision of our Hon'ble Chief Minister Shri Hemant Soren, we are now on a mission to transform the entire school education system of the state, and Project SATH-E has been an excellent partner for this transformation.

The efforts made on this program have significantly benefitted the state. For e.g., by following the approaches laid out in this document, Jharkhand has yielded success across multiple areas including consolidation of ~4,400 subscale schools to improve efficiency and access within the system; introduction of Gyan Setu, our flagship remedial program which was instituted with 90% schools implementing the program daily and resulting in improvements of student learning outcomes; as well as developing systems and

capabilities across assessments, teacher capability enhancement and an MIS (eVidyaVahini) which has been built to support the transformation journey. There have been several other interventions and approaches that we have implemented on this journey which are captured in the subsequent pages.

I am delighted that the efforts made by all the States participating in the SATH-E programs have been succinctly captured in a pragmatic and usable format. I am confident that these materials will be useful for other States who may be on a similar transformation journey. I am also thankful to NITI Aayog and the knowledge partners of Project SATH-E for their relentless support and dedication.

K. Ravi Kumar
Secretary, Dept. of School Education and Literacy
Govt . of Jharkhand

Message from the Commissioner-cum-Secretary, School and Mass Education, Odisha

The SATH-E programme has been in Odisha since its inception in 2017, with students and teachers at its center. Under this programme, NITI Aayog and knowledge partners Boston Consulting Group (BCG) and Piramal Foundation for Education Leadership (PFEL) supported the state in enabling a system-wide governance transformation in school education.

Many initiatives were initiated in a phased manner both under SATH-E 1.0 and SATH-E 2.0 to ensure quality of school education and make the education growth process socially inclusive, regionally balanced, and sustainable.

In 2018, Odisha launched District Scorecards as a tool to improve outcomes in the education sector. Scorecards give a holistic view of the district's performance in education, support the identification and prioritization of weak areas, drive timely actions, and enable effective tracking of progress.

Odisha School Monitoring App (OSMA) is a unique initiative take by the State of Odisha with the result of better monitoring and management of the Education system in the State under the SATH-E programme, which helped the State build up in-house capabilities to monitor and sustain the transformation.

Montly District Review Meetings and Block Review meetings were also conducted regularly to assess gaps and accelerate achievements.

I am happy to express my pleasure that Odisha is one of the three States chosen for implementation of the SATH-E project and that our initiatives are placed in this SATH intervention report. This report contains effective implementation procedures to address challenges in the government schooling system, which will definitely help different planners and policymakers design transformative educational interventions.

Ms. Aswathy S.
Commissioner-cum-Secretary, Dept. of School and Mass Education
Govt. of Odisha

Message from the Principal Secretary, School Education, Madhya Pradesh

Over several decades, significant progress has been made in improving access to education in India. Enhancing the quality of education provided in schools on a large scale is the next big goal. While multiple interventions have been made in the domain, the need of the hour is to take a systemic view to the challenge and provide solutions that work for large and diverse demographics.

Project SATH-E was implemented in three States in India - Madhya Pradesh, Jharkhand, and Odisha. The project is a landmark achievement in governance reform in school systems to enable quality education on a large scale. It focused on areas of intervention such as bridging learning gaps, innovations in assessments, streamlining data governance, and management processes amongst others.

For instance in Madhya Pradesh, the State focused on the "Teaching at the Right Level" approach under Dakshata Unnayan which encouraged teachers to conduct lessons appropriate for the actual learning levels of their students, rather than focusing on completing a standard curriculum as mandated by the grade and age. Over 67 lakh students were supported by 2 lakh trained teachers under the project. It resulted in a 20% - 30% improvement in learning outcomes in AY 2018-2019. Similarly, the "Ek Shala Ek Parisar" intervention resulted in improved teacher and school leader availability, better resourced schools, enhanced attendance, and reduced dropouts.

The state governments, alongside NITI Aayog, and partner organizations BCG and PFEL were able to assess the key challenges in big systems, create strategic solutions and implement them through multiple initiatives in order to produce a blueprint for large-scale educational reforms in India. This report captures the experiences and learnings of the same from Madhya Pradesh, Jharkhand, and Odisha. I am hopeful that this will provide meaningful insights to all those involved in educational reform in schools.

Smt Rashmi Arun Shami
Principal Secretary, Dept. of School Education
Govt. of Madhya Pradesh

Acknowledgements

Project SATH-Education was conceptualized to bring systemic changes in School Education and put our students on the path of sustained and successful learning. I am deeply grateful to the Chief Secretaries and Principal Secretaries (School Education) of our partner SATH-E States - Jharkhand, Madhya Pradesh and Odisha - for being proactively involved in designing the State Roadmaps and facilitating implementation and monitoring of the interventions.

I am grateful for the leadership, motivation and support from Shri Suman Bery, Vice Chairman, NITI Aayog, Dr. V.K. Paul, Member(Education), NITI Aayog and Shri B.V.R. Subrahmanyam, CEO, NITI Aayog, who provided their support and guidance.

I am also thankful for the foundational support and guidance of Dr. Rajiv Kumar, former Vice Chairman, NITI Aayog, Shri Amitabh Kant and Shri Parameswaran Iyer, former CEOs, NITI Aayog, and Dr. Prem Singh, former Adviser (Education), NITI Aayog who helped to synthesize and consolidate the learnings from Project SATH-E into this Report.

The Report encompasses contextual interventions from the SATH States and has the potential to support other States/UTs in tailoring initiatives to their context.

The interventions of Project SATH are in synchronization with the National Education Policy 2020 targets and the Report is a ready-reckoner for States/UTs to learn, implement and transform the School Education Systems of their respective State/ UT.

I sincerely appreciate the efforts of my team members of the Education Vertical, Shri Harshit Mishra, Deputy Adviser, and Ms. Pushpamitra Das, Young Professional, who have drafted and prepared the Report.

I would like to acknowledge the efforts of our knowledge partners, Boston Consulting Group and Piramal Foundation, for their role in the efficient execution of Project SATH. I am sure this Report will act as a catalyst for the other States/UTs in   transforming the School Education.

Rajib Kumar Sen
Sr. Adviser (Education), NITI Aayog

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ABBREVIATION	FULL FORM
ADEO	Assistant District Education Officer
ASER	Annual Status of Education Report
ATRs	Action Taken Reports
AY	Academic Year
BCG	Boston Consulting Group
BDO	Block Development Officer
BEO	Block Education Officer
BLO	Block Level Officer
BRP/CRP	Block Resource Person/Cluster Resource Person
CAC	Cluster Academic Coordinator
CBSE	Central Board of Secondary Education
CCE	Continuous and Comprehensive Evaluation
CEO-ZP	Chief Executive Officer - Zila Parishad
CRC	Cluster Resource Center
CRCC	Cluster Resource Center Coordinator
DBT	Direct Benefit Transfer
DCs	District Collectors
DEOs	District Educational Officers
DIET	District Institute of Education and Training
DISE	District Information System for Education
DLOs	District Level Officers
DMs	District Magistrates
DoIT	Department of Information Technology
DOSE&L	Department of School Education and Literacy
DPC	District Planning Committee
DRM/BRM	District Review Meeting/Block Review Meeting
DU	Dakshata Unnayan
ELTI	English Language Teaching Institute

ABBREVIATION	FULL FORM
EPES	Ek Parisar Ek Shala
eVV	eVidya Vahini
FAQs	Frequently Asked Questions
FLN	Foundational Literacy and Numeracy
GER	Gross Enrollment Ratio
GIS	Geographic Information System
GP	Gram Panchayat
HM	Head Master
HS	High School
HSS	Higher Secondary School
JBAV	Jharkhand Balika Awasiya Vidyalaya
JEPC	Jharkhand Education Project Council
KGBV	Kasturba Gandhi Balika Vidyalaya
LEP	Learning Enhancement Program
MDM	Mid-Day Meal
MGML	Multi-Grade Multi-Level
MIS	Management Information System
MLA	Member of Legislative Assembly
MoE	Ministry of Education
MP	Member of Parliament
MS	Middle School
NAS	National Achievement Survey
NCERT	National Council of Educational Research and Training
NEP	National Education Policy
NGO	Non-Governmental Organization
NIC	National Informatics Center
NIEPA	National Institute of Educational Planning and Administration
NITI	National Institution for Transforming India

ABBREVIATION	FULL FORM
OES	Odisha Educational Services
OSMA	Odisha School Monitoring App
PFEL	Piramal Foundation for Education Leadership
PGI	Performance Grading Index
PISA	Program for International Student Assessment
PMU	Project Management Unit
PS	Primary School
PTMs	Parent Teacher Meetings
PTR	Pupil-Teacher Ratio
QCBS	Quality cum Cost-Based Selection
RFP	Request For Proposal
RMSA	Rashtriya Madhyamik Shiksha Abhiyan
RTE	Right To Education
SA1/2	Summative Assessment 1/2
SATH-Education	Sustainable Action for Transforming Human Capital – Education
SC/ST	Scheduled Caste/Scheduled Tribe
SCERT	State Council of Educational Research and Training
SDMIS	Student Database Management Information System
SEQI	School Education Quality Index
SIEMAT	State Institute of Educational Management and Training
SLSCC	State Level School Consolidation Committee
SMC	School Management Committee
SOPs	Standard Operating Procedures
SPD/PS	State Project Director/ Principal Secretary
SPMU	State Project Management Unit
SRC	State Resource Centre
SSA	Sarva Shiksha Abhiyan
TaRL	Teaching at the Right Level

ABBREVIATION	FULL FORM
TLMs	Teaching/Learning Materials
UDISE	Unified District Information System for Education
UNICEF	United Nations Children's Fund
VCs	Video Conferences
VFS	Virtual Field Support

EXHIBITS TABLE

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1. Executive Summary: Project SATH-E Approach, Interventions and Learnings

Genesis of Project SATH-Education

Project SATH-E (Sustainable Action for Transforming Human capital - Education) was started by NITI Aayog in 2017 with the objective of supporting three states to undertake a system wide transformation effort with a central focus towards improving the quality of education.

NITI Aayog followed a competitive process to identify states that would receive the assistance. Of the 16 states that responded to NITI Aayog's proposal, officials from 14 states made a presentation on the status of their education sector as well as their plans. Jharkhand, Odisha, and Madhya Pradesh were selected through a Challenge Method process. Boston Consulting Group (BCG) and Piramal Foundation for Education Leadership (PFEL) were on-boarded as knowledge of Project Management Unit partners. Their teams were stationed in the states to provide technical advice, and support implementation of the project. Between 2017 and 2022, Project SATH-E impacted more than 2 crore students in over 2 Lakh schools in these 3 states.

Project Phases

The first phase of the project was from September 2017 till March 2020 in which a detailed roadmap was created for each state. The diagnostic included over 250 school visits and consultations with all stakeholders, following which interventions were launched in April 2018. All states launched programs to bridge Foundational Literacy and Numeracy (FLN) gaps along with structural and governance improvement initiatives.

When the COVID-19 pandemic hit in March 2020, the states temporarily shifted all efforts towards enabling digital and remote learning, several of which continued even after schools re-opened.

At the request of all states to continue the effort, Phase 2 of Project SATH-E formally began in October 2020. The roadmaps for this phase were conceptualized keeping three factors in mind:

1. Incorporating learnings from Project SATH-E Phase 1 and institutionalizing those efforts

2. Continuing digital learning efforts given the repeated school opening/ closing scenario as well as the need to bridge severe learning losses post pandemic

3. Ensuring the priorities articulated as part of the then released National Education Policy (NEP), 2020 were addressed

Project Governance

Project SATH-E has a carefully designed governance model which could serve as a lighthouse example for center-state engagements to deliver on outcomes. A three level governance structure was defined as follows:

- A National Steering Group (NSG) that met every 6 months spearheaded by CEO, Niti Aayog and with representation from Chief Secretaries/ Principal Secretaries of the three states and their leadership teams.

- A Central Project Management Unit (CPMU) which met every quarter, wherein project progress and strategic planning was undertaken with Principal Secretaries of the three states.

- A State Project Management Unit (SPMU) which met bi-weekly within the states, chaired by the state Principal Secretaries/ State Project Directors (SPD) along with their on-ground execution teams to plan and execute the project.

Both the NSG and the CPMU forums were not only effective forums for strategic planning and stock taking but more importantly, they were highly effective in enabling cross-learning across states and to some extent also creating healthy competition.

Project Approach and Initiatives

Five key principles guided the design and implementation of the transformation roadmap for each state:

1. **A holistic roadmap covering structural, academic, and governance & accountability reforms** — System-level change cannot be sequential; multiple initiatives targeting fundamental issues that lead to learning gaps need to be worked upon simultaneously. At the same time, it is critical to prioritize efforts given limited absorption and execution capacity, both at the state level and in schools. Project SATH-E's phase-wise roadmaps identified core 10-12 initiatives that each state would focus on for maximum results.

2. **Iterative design based on implementation effectiveness** — Though the program designs were based on field insights, consultations with experts, benchmarking etc., several learnings and challenges emerged during implementation at scale. A thoughtful balance was kept between allowing sufficient time for the field to comprehend and implement an initiative, while ensuring agility with changes necessary to enhance implementation effectiveness.

3. **Institutionalizing data-based decision making** – A key goal of Project SATH-E was to create a system-wide shift in orientation from inputs towards outcomes. This was driven through a consistent focus to gather and analyze data on inputs, outputs, and outcomes, while ensuring the data was not onerous to collect and establishing checks and balances for reliability. Data relevance was ensured through ongoing usage for governance and change management of every initiative.

4. **Bringing expertise to the state through strategic partnerships** – The design approach in Project SATH-E was to bring the appropriate expertise on a topic to the state. This resulted in several meaningful partnerships across states. For instance, Bodh Shiksha Samiti was a partner for designing remedial workbooks, Center for Science of Student Learning (CSSL) was onboarded to conduct third party assessments for Certification, Education Initiatives was brought onboard to strengthen the Assessment Cell, etc. Some of these were pro-bono support models while others were service procurements through Request for Proposal (RfP) processes suitably run by the states.

5. **Building state ownership and capacity for sustainability** – Project SATH-E, since its inception, was positioned as a state-owned, state-led initiative with support available from knowledge partners and any other organizations/ experts that the state may wish to onboard. The roadmaps were owned by the state-leadership teams and each initiative had an assigned department 'initiative-owner' who would present to the state leadership in SPMU meetings. The department teams were intentionally at the front and center of all execution to the extent possible, even at the cost of pace and immediate outcomes.

In terms of the actual interventions, each state's roadmaps had initiatives in 3 categories of reforms: Structural Reforms, Academic Reforms and Governance & Accountability Reforms. The artefact below illustrates select initiatives undertaken within these categories across the states.

1 **Structural Reforms:**	School consolidation for optimal enrollment Teacher cadre restructuring for efficient recruitment	Teacher rationalization to reduce vacancies Time-on-task policies for focused academic activities
2 **Academic Reforms:**	Remedial learning programs for elementary grades Foundational literacy and numeracy mission post NEP Assessment reforms, including spot assessments	Establishment of 3rd party school certification mechanisms Teacher professional development efforts
3 **Governance and Accountability Reforms:**	Strengthening education department organization structure Strengthening SCERT	Improving state Management Information Systems (MIS) systems Institutionalizing data-based governance and monitoring structures at state, district, and block levels

Exhibit 01: Examples of interventions undertaken in SATH states

In addition to the above set of planned efforts, the period of COVID-19 induced school closures saw all three states pivot their efforts towards remote learning. A digital learning program was launched targeting 1.4 crore students and 50 lakhs teachers across class I-XII. As part of the effort, digital content was curated in vernacular and sent over WhatsApp groups daily, with the viewership monitored rigorously. 43 lakh parents were added on WhatsApp groups with a structured state-to-parent cascade within 8 weeks of schools closures, and over 13 lakhs views were registered on digital content within this period. Approximately 5-10 lakhs regular TV content viewers were also estimated. WhatsApp or survey based quizzes were held to track student learning outcomes. While very critical at that time, these efforts were hugely limited by the available digital penetration, issues with data packs, lack of devices especially with girl students, etc.

Project Impact

Impact of Project SATH-E was tracked at an initiative level on an ongoing basis. In addition, macro performance of the states in various external measures such as the NAS scores, PGI scores, performance of aspirational districts of the states, etc. were also tracked.

Performance in Performance Grading Index (PGI)

At an overall level, a consistent improvement is seen in PGI performance of all three states. Between 2017 to 2021:

- Jharkhand has moved up 4 levels- from Grade V in 2017-18 to Grade I in 2020-21.

- Odisha moved up two levels- from Grade III to Grade I+.

- Madhya Pradesh moved up one level- from Grade III to Grade II.

Performance on learning outcomes

Performance of the states was analyzed in National Achievement Survey (NAS) as well as in the recently conducted NIPUN Bharat Foundational Learning study. While reading the subsequent results, it is prudent to recognize that the design and administration methodologies of the different assessments is variable. The data seems somewhat inconclusive, as states have done well in one measure but not so well in the other.

As measured by the NAS, the learning outcomes trajectory for all the three states remained flat between 2017 to 2021. While the absolute scores remained flat, the relative ranks of the SATH-E states saw an improvement. For example, Madhya Pradesh moved up 18 places (from rank 22 in NAS 2017 to rank 4 in NAS 2021 for grade 3 Maths) and Odisha moved up 14 places (from rank 21 in NAS 2017 to rank 7 in NAS 2021 for grade 3 Maths). However, Jharkhand saw a drop in its NAS rank by 6 places (from rank 13 in NAS 2017 to rank 19 in NAS 2021 for grade 3 Maths). It is important to note that all states incurred significant learning losses during the pandemic which contributes to this trend.

For Jharkhand, it is important to note that the state was one of the top performers in the NIPUN Bharat Foundational Learning study conducted in 2022. With 68% students meeting or exceeding the global minimum proficiency in numeracy (versus a 52% national average) and 66% students meeting or exceeding the global minimum proficiency in language (versus a 54% national average).

Overall, the measures of learning outcomes require further investigation and strengthening across the country.

Intervention level impact

Impact of all interventions conducted was rigorously tracked in each state. This allowed corrective measures to be taken from time to time. Select examples of intervention level impact for all three states are captured below:
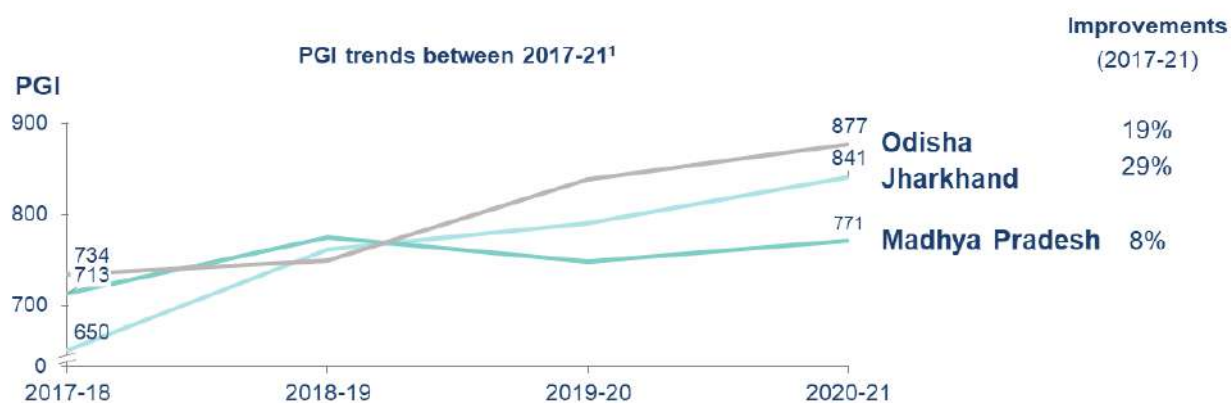
Exhibit 02: Impact (PGI): Scores for all three states have shown improvement between 2017-21

Impact of select interventions across the three states

Intervention	Jharkhand	Madhya Pradesh	Odisha
1 **School Consolidation**	• ~4380 schools merged • Estimated savings of Rs. 400 crores through reduced teacher and infrastructure needs; 20%-50% increase in subject-wise teacher availability (IIM Ranchi study) • IIM Ranchi study on overall impact of mergers found to be largely positive	• 35 thousand schools merged into 16 thousand same-campus schools • 55% merged schools had a HM/ principal (vs. 20% earlier) • Only 21% merged schools teach >2 grades in a class vs. 35% state-wide • School monitoring load decreased by 4 schools per cluster officer, on average • 600+ middle schools upgraded to secondary schools in access-less areas	• ~2000 small-scale and same-campus schools merged • Transparent state policy on school merger norms approved to guide subsequent merger phases
2 **Remedial Learning Interventions** (Learning Enhancement Program (LEP), FLN mission)	• Gyan Setu: Daily remediation for students in grades I-VIII launched • 12% improvement in basic FLN competencies Year on Year (AY 2018-19 & 2019-20); paused subsequently due to COVID-19	• Dakshata Unnayan: Daily remediation for students in grades I-VIII launched • 15-30% children found to move across learning level groups Year on Year (AY 2018-19 & 2019-20); paused subsequently due to COVID-19	• Two remedial programs – Ujjwal, Uthhan launched • SCERT assessment shows 10-15% improvement in average student achievement • In addition, launched specific FLN mission for grades 1-3; 60,000 teachers exclusively designated and trained for FLN initiative
3 **Assessments: Learning data tracking and usage**	• Gyan Setu: Daily remediation for students in grades 1-8 launched • 12% improvement in basic FLN competencies Year on Year (AY 2018-19 & 2019-20); paused subsequently due to COVID-19 • Spot Testing launched: High quality data generated for ~2 Lakh students on FLN competencies each month and used for decision-making (e.g., expedite book distribution, improve Gyan Setu compliance) • Certification: Unique school certification scheme launched with 3rd party assessors	• Secondary Assessment Cell formed and capacity built (post onboarding specialist assessment firm); gradual shift towards more competency based assessments	• School certification scheme ("Garima Awards") launched; ~8,700 schools certified Bronze and 2,800 certified Silver in Round 1
4 **Teacher Recruitment and Rationalization**	• Two new primary teacher cadres created; grade-pays calibrated • ~21 thousand new posts created for Intermediate and ~29 thousand new posts created for graduate trained teachers • Recruitment process initiated: Roster clearances sought for all positions, recruitment for 50% posts in first round	• ~8 thousand teachers rationalized via a transparent online teacher rationalization process • 13 thousand+ teachers recruited	• Online teacher transfer & online teacher recruitment policies approved; online transfer portal launched • 10 thousand elementary teachers recruited (<1% vacancy left); 2500 (of ~5000 required) secondary recruitment was in process

Intervention	Jharkhand	Madhya Pradesh	Odisha
5 **Teacher Capacity Building**	• Training of >1 lakh teachers on remedial learning approach • Shaikshik Samvaad: A peer to peer learning platform initiated for teachers with >95% teachers finding it useful to improve teaching-learning • Teacher Needs Assessment piloted	• Training of 2 lakh+ teachers on remedial learning approach • Training of English teachers on English language and its pedagogy prioritized; 3rd party expert organization services sought (currently ongoing) • Shaikshik Samvaad – Peer to peer teachers' learning platform strengthened	• Training of 1 Lakh teachers on remedial learning approach for grades 1-8 • Training of 60 thousand+ teachers specifically on FLN mission for grades 1-3
6 **Management Information Systems (MIS) and Academic Monitoring systems**	• eVidyaVahini (or eVV) conceptualized and launched covering ~16 modules including web portals for generating learning reports, scheme monitoring, civil works etc.	• Shaala Darpan school monitoring app launched • >95% school visits compliance and use of data to track real-time progress of initiatives	• Odisha School Monitoring App (OSMA) developed along with District/ Block level scorecards and dashboards to allow data driven outcome tracking and improvement at all levels
7 **Governance and Accountability**	• DPMU/ BPMU (District / Block Project Management Units) constituted and monthly review cadence established with data-driven decision-making leveraging dashboards from eVV	• DPMU/ BPMU (District / Block Project Management Units) constituted and monthly review cadence established with data-driven decision making	• Regular Collector-led review meetings instituted: 90% of District Review Meetings (DRMs) chaired by the District Collector • 99.5% schools monitored every month • Top 5 national rank in PGI Governance section with these measures (2018-19)
8 **Organization strengthening**	• Restructured Jharkhand Council for Education Research and Training (JCERT): internal restructuring done by creating 45 academic posts (from previous 11) aligned to MoE recommendations • Recruitment initiated in JEPC (SmSA implementation office): ~90% recruitment for 96 sanctioned posts at state office complete	• Organization restructuring proposal in place (across block/ district/ Head Quarter level organization) • Still in discussions in state for final approvals and execution	• Restructured HQ and district level organization for better outcomes - ~70% vacancies filled in 3 months • Better field collaboration via restructured District Education Officer (DEO) and District Program Coordinator (DPC) • Improved accountability e.g., addition of Additional District Education Officer (ADEO) role allowed for functional separation of
9 **Leader Schools**	• 4,400 schools to be made leader schools by 2026 offering grades 1-12 along with high-quality infrastructure and resources; to be operationalized in 3 phases – 80 in phase 1,324 in phase 2 and ~4 thousand in phase 3	• CMRISE schools conceptualized: ~9000 exemplar leader schools to be developed over 10 yrs. • Early signs of outcomes with first set of 350 schools still under development: • 4% Year on Year enrollment increase in CMRISE schools in 2023 vs. other schools. • 30% increase in enrollment in inaugural CMRISE school. • CM Rise 10th grade students achieved a 67% average passing rate; 5% above the state average	• 100 CoEs conceptualized; detailed benchmarking of current infrastructure, staffing etc. completed and action initiated; effort subsumed into state's wider high school transformation effort that is currently ongoing

Exhibit 03: Madhya Pradesh, Jharkhand, Odisha interventions and impact

Overall Learnings and Reflections

The journey of Project SATH-E offered a great opportunity to reflect on the issues that are holding the education system back for the longer term and must be addressed for any large scale transformation to take place.

A view on the top 6 issues that need to be critically addressed and a potential path forward is as follows:

Top 6 Levers for large scale education transformation

1 **Address the issue of sub-scale, inadequately resourced schools head-on with strong political support**	**2** **Solve for large-scale teacher vacancies** (e.g. via Cadre restructuring, rationalisation & recruitment processes)	**3** **Fundamentally re-think teacher education and trainings to improve teacher quality and pedagogy** (pre-service and in-service)
4 **Enforce accountability towards learning outcomes via competency-based assessment reforms and linking outcomes to incentives**	**5** **Focus on Early Childhood Education (ECE) and contextualized Mother Tongue-based Multilingual Education (MLE)**	**6** **Strengthen the governance structures in education departments and hence their ability to self-improve** (e.g. MIS systems, SCERT/DIET strengthening, school leader empowerment, etc.)

Exhibit 04: Top 6 levers for large scale education transformation

1. Address the issue of sub-scale, inadequately resourced schools head-on with strong political support

India continues to have 5 times the number of schools than China for the same enrolment and more than 50% of primary schools across many states have an enrolment of less than 60. The cost of such sub-scale schools in the form of extensive multi-grade teaching, lack of a student and parent community that can demand account-ability, poor infrastructure, the same 1-2 teachers also handling all administrative responsibilities in the absence of headmasters/ principals, etc. is very high. Thoughtfully executed school mergers is one path forward. This has been executed across SATH-E states with favorable results.

There is often a perceived risk around impact of mergers on access. However, third party studies in SATH-E have also demonstrated that when executed rigorously the benefits of mergers are largely positive and can lead to improved learning outcomes.

Alongside undertaking mergers, states should also look to develop a set of large schools (at least 10-20% spread across the state) as integrated K-12 schools, and provide transport so that all students can equitably access them. This has been recommended in the NEP too with the call to setup large school complexes. Details for how school consolidation efforts were undertaken in all three Project SATH-E states and their learnings, along with efforts to develop leader schools have been documented in this report.

2. Solve for teacher vacancies

India has a shortage of more than a million teachers and several states have anywhere between 30-50% teacher vacancies. In addition, available teachers are not distributed equitably with more teachers available than required in urban areas and disproportionately higher vacancies in rural areas. Education systems of states cannot practically transform and deliver much higher outcomes with such high teacher vacancies.

However, this problem is also not easy to address as it has a large financial burden which states do not have the fiscal capacity to bear. In addition, the complexity of recruitment processes as well as legal challenges often come in the way of even the planned recruitment efforts. Teacher salaries paid to government school teachers in many states are often twice as much as salaries paid to the best of teachers teaching in private schools. There's a need to consider teacher cadre restructuring and introduce additional cadres to de-bottleneck recruitment at a larger scale. Further teacher rationalization needs to be taken up to ensure teachers are posted from surplus urban schools to rural schools with deficits – this may need structured policies around rural postings and necessary incentives.

3. Fundamentally re-think teacher education and trainings to improve teacher quality and pedagogy

India faces a significant challenge with approximately 2-5 lakh untrained teachers in primary and upper primary levels, failing to meet the Right to Education (RTE) requirements. Even those who are trained, receive outdated pre-service curricula (D.Ed/ B.Ed/ M.Ed) which are delivered in a theoretical and not classroom practice based manner. Further, the existing in-service professional development systems in states typically lack longer term goals and structure, are not contextualized to actual teacher needs basis surveys/ assessments, and are delivered poorly through cascade based models.

Overall, both pre-service and in-service teacher professional development need to undergo substantial reforms.

Pre-service education requires much stronger accreditation and recognition standards, along with increased duration, rigour and relevance of curricula. It also needs to be delivered a lot more practically.

In-service trainings need to have a longer-term 3-5 year plan given the large gaps in teacher capacity. Teacher needs assessments need to be conducted to define this plan, including trainings across content topics, pedagogy, mindsets etc. The role of technology to enhance the duration of these trainings without taking away from academic hours in school and to allow direct interaction with key experts as against cascaded models needs to be considered. Finally, the outcomes need to be rigorously tracked with classroom based follow-ups as well as peer learning based mechanisms to ensure they embed in day to day practice.

4. Enforce accountability towards learning outcomes via competency-based assessment reforms and linking outcomes to incentives.

The discourse on education in India has now shifted from access to quality. However, the ability to track outcomes with authentic, reliable data and to continuously leverage data for decision making is still missing. The focus in several reviews and conversations in states still remain on the inputs instead of outputs and outcomes.

Well designed and administered competency-based assessments would be a first step towards generating high quality data. In addition, a set of incentives need to be established that link to delivery of outcomes (be it a part of Samagra Shiksha (SmSA) funding linking to state-level outcomes at the highest level, down to a set of incentives for teachers linking to student outcomes). Involvement of third-party assessors on a sample basis should be considered to ensure assessments data authenticity.

5. **Focus on Early Childhood Education (ECE) and contextualized Mother Tongue-based Multilingual Education (MLE)**

    Majority students who enter the government schooling system at the age of 5/6 have no pre-school education today; hence have very low school readiness and are behind from the onset. The NEP places a strong emphasis on enhancement of early childhood education and integrating preschooling into the broader K-12 system. This must be taken up by states as a top priority.

    Implementing ECE effectively would also imply offering context-specific mother tongue-based multilingual education especially in tribal areas.

6. **Strengthen the governance structures in education departments and hence their ability to self-improve**

    States need to consider decentralization of powers to principals, district and block officers. This includes providing them greater financial powers and autonomy to take decisions in line with local needs with necessary checks and balances linked to outcomes. This needs to be supported and balanced with strong data and MIS systems that help build a culture of data based decision making from state headquarters down to school level. Lastly, key academic institutions such as SCERT and DIETs need to be strengthened - In many states, SCERTs/DIETs have high vacancies and as a result these bodies are lacking in their core functions.

All these efforts cannot be successful without **strong political will and involvement to take bold decisions and drive actions.** They also need to be coupled with last mile empowerment and motivation so that teachers and school principals feel inspired to drive the change.

Finally, it is important to 'Reimagine Education' within today's context and ask the bold and difficult questions. The NEP, 2020 provides ample guidance to the states to think in this direction, for example the need for much deeper integration of vocational skilling in school education to enable students to be productive citizens of the workforce; the need to reimagine secondary education to enable much greater student choice and contextually relevant teaching in grades 9-12th vs. the more rigid subject and stream structures of today, etc.

The rest of this document describes the Project SATH-E experience in detail through a set of interventions and the journey of their strategic design, implementation process and challenges encountered thereof, the impact and learnings. They provide opportunities for reflection and a broader template for action for other states, suitably contextualized to their needs and constraints.

2. Structural Interventions

2.1. Strengthening the School Delivery System - School Consolidation

In India, an average government school has just 50-60 students and 1-2 teachers, while its private counterpart has about 265 students and 9 teachers. There are nearly 400,000 government schools with less than 50 students and just one or two teachers.

We consider such schools 'sub-scale', i.e. they do not have the size, capacity, or resources to deliver high-quality teaching. There is also near unanimous agreement amongst stakeholders that it is not possible to deliver high-quality teaching in these schools. Among the many challenges are the following:

The challenges of sub-scale schools:

- **Lack of individual attention due to multi-grade and multi-level teaching.**

- **Limited time available for teaching due to administrative tasks handled by the same 1-2 teachers.**

- **Inadequate learning infrastructure.**

- **Limited monitoring and governance; small parent community that cannot demand accountability.**

This section covers the three different approaches taken by the SATH-E States for school consolidation.

- **Jharkhand's learnings** from mergers of 4,380 schools through a bottom-up analytics-led approach covering analysis at a Gram Panchayat (GP) level.

- **Madhya Pradesh's approach** for administrative consolidation of 35,000 schools in the same campus (i.e. within 150m of each other).

- **Odisha's top-down phased approach** through a bold long-term consolidation policy.

Jharkhand – Merger of ~4,400 Schools Resulting in Improved Academic Evironment

Context

In 2016-17, of the ~39,000 schools under the Department of Education in Jharkhand, ~18,000 schools had 60 or fewer students (as per UDISE 16-17 data). These schools had an average of 1-2 teachers per school. With a motive to correct this, Jharkhand pursued school mergers on a large scale during the academic years 2016-17 and 2017-18.

In 2016-17, a comprehensive consolidation exercise was undertaken in which nearly ~1,300 sub-scale schools were merged into nearby schools. Another exercise was undertaken in 2017-18, resulting in further consolidation of 4,380 schools.

The objective of the school reorganization exercise was to identify and merge sub-scale schools where alternative government schools were available for all the students affected by this reorganization, within the RTE norms of walking distance.

Several panchayats in Jharkhand had excess under-staffed schools that were eligible for consolidation. A comprehensive diagnostic was conducted to identify sub-scale schools in every Gram Panchayat. Geo-analytics was used to map them to alternative schools within the vicinity and a list of ~14,000 schools was then shared with the field co-ordinators/officials for physical verification to account for geographical barriers, infrastructure issues and other on-ground concerns.

Several Panchayats in Jharkhand had excess sub-scale schools

3.19 crore — Population of the state of Jharkhand

4175 — Panchayats in Jharkhand
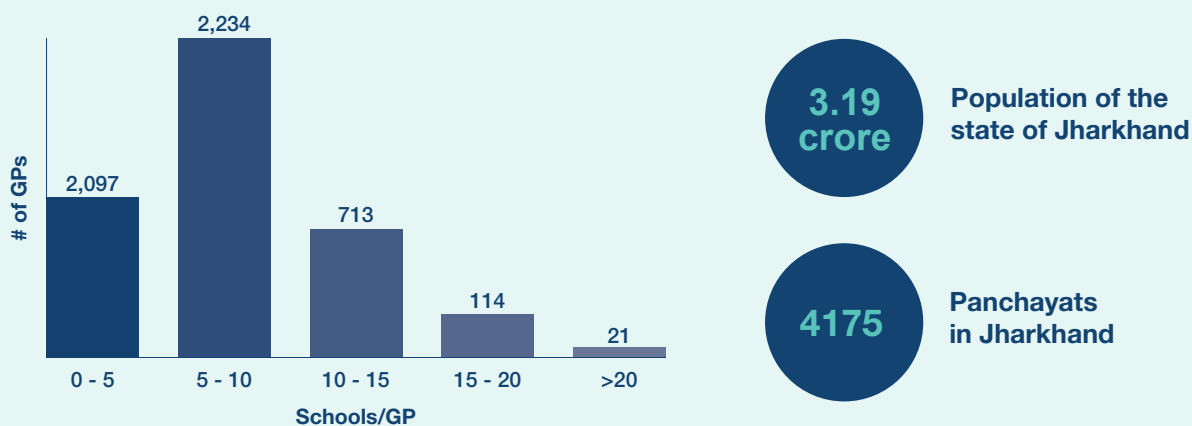
The Panchayat of Parasi (in Tamar block of Ranchi District) has 19 schools within 17.1 km of area, of which 17 have less than 60 enrolled students.

Nine of these were successfully merged into 4 schools (i.e. 5 additional schools were combined with 4 host schools) within RTE distance norms.

The newly merged schools have an average of 72 enrolled students each and are effectively optimizing their capacity and resources.

Exhibit 05: Sub-scale schools identified in every Gram Panchayat

Approach

1. Neutral cross-district 'action teams' were formed and oriented on reorganization and inspection formats.

2. Inspections were conducted by field officials and validated by the neutral cross-district action teams to ensure local vested interests are tackled and a rigorous fact-based inspection is executed. 6500+ proposals were found appropriate and compliant with RTE norms and the same were presented in appropriate fora for required approvals.

3. A two-tier committee was formulated at the Block and District Levels. The Block Level Committee was chaired by the Block Education Officer and elicited views from teachers, children, communities and respective MLAs. The District Level Committee was chaired by the District Collector to address concerns of teachers, MLAs and MPs of the District.

4. The committee conducted a final check for quorum and consensus in proceedings across key stakeholders and approved the final list (4,380 schools) of schools feasible for merger and reorganization.

5. Live tech-based dashboards, with real-time data fed in by the field coordinators, were used to finalize the schools, monitor the status of approvals, and eventually track the movement of students. These dashboards proved useful in driving state, district, and block-level reviews of the consolidation process.

1		Team allocations and Orientation *Feb '18*	Cross-district "Action Teams" allotted for inspections	2-day orientation workshops conducted on reorganization with all stakeholders
2		Team allocations and Monitoring *Feb – Mar '18*	Inspections conducted by local teams and action teams	Regular follow-ups with DCs/DSEs/DEOs
3		Block and District Consultations *Mar – May '18*	Proposals discussed in Block and District Level Committees headed by BDOs and DCs	Potential opposition and dealt with strategically by Secretary & DCs
4		Final Notifications issued *May' 18*	Final process check by Regional Directors e.g - checking for quorum and consesus in proceedings	

Exhibit 06: Four step mergers implementation process in Jharkhand

Dashboard - state view

Overall Summary	Number of schools suggested	14477	6443		
	% to be merged	44.46%	Projection		

District	Suggested	Inspected	To be Merged	% Inspected	% Conversion
Bokaro	831	831	332	100.00%	36.95%
Chatra	750	749	405	99.87%	54.07%
Deoghar	771	771	333	100.00%	43.19%
Dhanbad	xxx	xxx	355	100.00%	50.08%
Dumka	943	943	353	100.00%	37.43%
Garhwa	323	323	182	100.00%	56.35%
Giridih	1133	1133	471	100.00%	41.57%
Godda	691	691	283	100.00%	40.95%
Gumla	554	554	279	99.82%	50.45%
Hazaribagh	382	382	202	100.00%	52.88%
Jamtara	506	507	187	100.00%	36.88%
Khunti	436	436	202	100.00%	46.33%

Number of schools inspected	14462	Number of schools to be merged	6436		
% Inspected	99.90%	% Conversion	44.50%		

District	Suggested	Inspected	To be Merged	% Inspected	% Conversion
Kodarma	242	242	118	100.00%	48.76%
Latehar	349	345	182	98.85%	52.75%
Lohardaga	188	188	101	100.00%	53.72%
Pakur	391	391	101	100.00%	25.83%
Palamu	455	455	388	100.00%	45.36%
Ramgarh	288	288	157	100.00%	54.51%
Ranchi	1051	1051	391	100.00%	37.20%
Sahibganj	509	509	183	xxx	32.74%
Saraikela	480	480	389	100.00%	44.20%
Simdega	244	244	156	100.00%	xxx
West Singhbhum	580	580	xxx	100.00%	45.34%
East Singhbhum	xxx	xxx	xxx	100.00%	51.96%

	Category	Number of schools	Inspected	% Inspection	To be merged	% Realization	Projection
1	Schools with less than 20 students enrolled with another school within 1 km	1380	1380	100%	824	60%	824
2	Schools with 21 to 60 students enrolled with another school within 0.5 km	3586	3587	100%	1512	42%	1511
3	Schools with 21 to 40 students enrolled with another school within 0.5 - 1 km	4037	4038	100%	1747	43%	1746
4	Middle schools with less than 60 students and another middle school within 2 km	2770	2770	100%	801	29%	801
5	Schools within 100 meters	1487	1487	100%	341	23%	341
6	Other schools nominated by district	1237	1220	99%	1211	99%	1227
	Total	14477	14462	99.90%	6436	45%	6442

Exhibit 07: Real-time dashboards used to track and monitor consolidation process

Impact & Learnings

The school consolidation exercise for academic year 2017-18 was successfully implemented. Around 98% students shifted to host schools or other schools of their choice. School consolidation provided multiple benefits to the students such as:

The benefits of school consolidation:

- **Access to enhanced learning infrastructure such as classrooms, libraries, playgrounds, toilet and water facilities**

- **Improvement in access to subject teachers and enhancement of time spent in academic activities**

- **Improvement in delivery and quality of Mid-day Meals**

Moreover, the school consolidation effort was estimated to provide savings to the tune of Rs. 400 cores through reduced teacher and infrastructure requirement, which can be re-invested for providing quality education. As many as 200 schools in Ramgarh, Hazaribagh and Ranchi districts piloted bus transport to provide easier access to students to nearby host schools that had better facilities.

However, the school consolidation exercise in Jharkhand was not without learnings. A few key learnings are summarized below:

1. **Importance of ensuring buy-in from all stakeholders in the system:**
   Jharkhand conducted state-level workshops and weekly video conferences with all District and Block Officials to seek the buy-in of stakeholders at all levels.

2. **Need for a Decentralized process of opening/ upgrading/ consolidating/closing schools most efficiently:**
Decision of consolidation may be taken by the Prarambhik Shiksha Samiti at the District Collector's level without requiring cabinet approval.

3. **Need to address Legal challenges in a transparent manner:**
Clear and simple official orders with close compliance of RTE norms and a robust grievance redressal process critical.

4. **Robust field verification is critical to address on-ground challenges:**
Jharkhand ensured a slew of on-ground verification initiatives including a 2-level field verification process, comprising cross-district action teams, a 2-level approval process with participation from elected officials, and a State PMU team tracking the daily status and personally visiting difficult cases.

5. **Parents and students seek improved Infrastructure:**
The State was not as successful in improving the infrastructure of host schools. Other states should invest in improving basic infrastructure of host schools in advance, including toilets, classrooms, electricity, painting, etc. and also offer transport allowance.

In addition to the actual consolidation exercise, an external impact assessment was conducted to learn the successes, and understand the improvements required in the school consolidation exercise. IIM Ranchi was onboarded through a tender for this purpose.

A study across 189 sample schools was conducted. The sample had schools which were merged, and schools which were not part of mergers. The assessment used qualitative and quantitative surveys to collect data from various stakeholders involved in reorganization around the following key parameters:

1. **Academic environment:**
Impact of reorganization on the academic environment was assessed. The impact was measured on parameters such as pupil teacher ratio (PTR), number of teachers per grade per subject per school, time spent in a day by teachers on teaching, and time savings in administrative tasks by headmasters/ teachers.

2. **Access to infrastructure facilities:**
Impact of reorganization in the enhancement of infrastructure facilities was measured on parameters such as the availability of classrooms, playgrounds, toilets, drinking water, electricity, library, and computers etc.

3. **Governance mechanisms:**
This metric included parameters such as time spent on data collection, distribution of monetary and physical entitlements, and rolling out of government schemes.

4. **Overall satisfaction level of stakeholders:**
The study measured the satisfaction level of stakeholders on classroom interactions, quality of teaching, access to infrastructure facilities, and preference in coming to school.

The findings from this study are summarized below:

Deep-dive: IIMR Impact Assessment of School Re-organization

Intervention	Key Metric	Assessment	Remarks
Improved Academic Environment	PTR MGML Instructional Time Spent Administrative Time Spent Independent teacher per subject	🟨 🟩 🟩 🟩 🟩	Marginal improvements for Host Schools Significant reduction for Target Schools ~2 hrs/week increase for Teachers and HMs ~2 hrs/week reduction for Teachers of Target Schools 20-50% improvement compared to Target and Subscale schools
Access to Enhanced Infrastructure	Avail. of Classrooms Avail. of Water sources Avail. of Toilet Avail. of Electricity	🟩 🟩 🟨 🟥	Almost 2x improvement for Target School and Host Schools Almost 1.5-2x improvement for Target and Host Schools Marginal improvement for Boys and Girls Toilets Reduced availability compared to Subscale Schools
Governance Mechanism	Travel Time to School Time in Data Collection Time in Transferring Monetary and Physical Entitlements Time in rollout of govt. schemes Number of monitored schools	🟥 🟨 🟨 🟨 🟩	30-40% increase in travel time in certain districts Marginal improvements in time spent on governance More time available per school due to reduced schools
Overall Perception	Classroom Interaction Quality of Teaching Infrastructure Access Preference to attend School	🟩 🟩 🟥 🟩	> 85% satisfaction among parents, SMC, HMs, Students (on avg.) < 50% satisfaction across all stakeholders > 90% satisfaction among students (more friends, bigger playground)
Satisfaction	**Overall Satisfaction**	🟩	**> 75% satisfaction for students, parents, SMCs (max for students)** **~ 60% satisfaction for HMs, teachers**

Exhibit 08: External impact assessment of consolidation in Jharkhand

The external impact assessment study indicates improvement in:

1. Teaching learning process: Stakeholders agreed that there was improvement in teaching quality and classroom interaction among students. There was also improvement in time spent on teaching with reduction in time spent on administrative tasks by teachers.

2. Improvement in administrative processes: The BRPs/CRPs tended to visit and spend more time per school post mergers. There was a significant decrease in time spent on data collection in these schools. The school leaders also agreed that there was a significant reduction in time spent on implementation of student welfare schemes in schools.

3. Improvement in infrastructure and delivery of student entitlements: Improvement in quality of mid-day meals, delivery of cycles, computer labs, library, availability of drinking water, playgrounds and toilets was observed in the impact assessment.

Overall, the study suggests the need to improve communication about mergers among stakeholders, while noting that there had been significant improvements in quality of teaching learning in the schools post mergers.

Madhya Pradesh – Same Campus School Mergers Under "Ek Parisar Ek Shala" Leading to Reduced Student Dropout

Context

In 2018, Madhya Pradesh had ~1.2 lakh public schools under the School Education Department including primary, upper primary, secondary and higher secondary schools. Out of ~84,000 primary schools (classes 1-5), ~40,000 schools had a total enrolment of fewer than 40 students (RTE norms indicate 40 students as the minimum number of students to open a primary school).

39,266 schools out of 84,553 are sub scale

Split of primary schools by enrolment
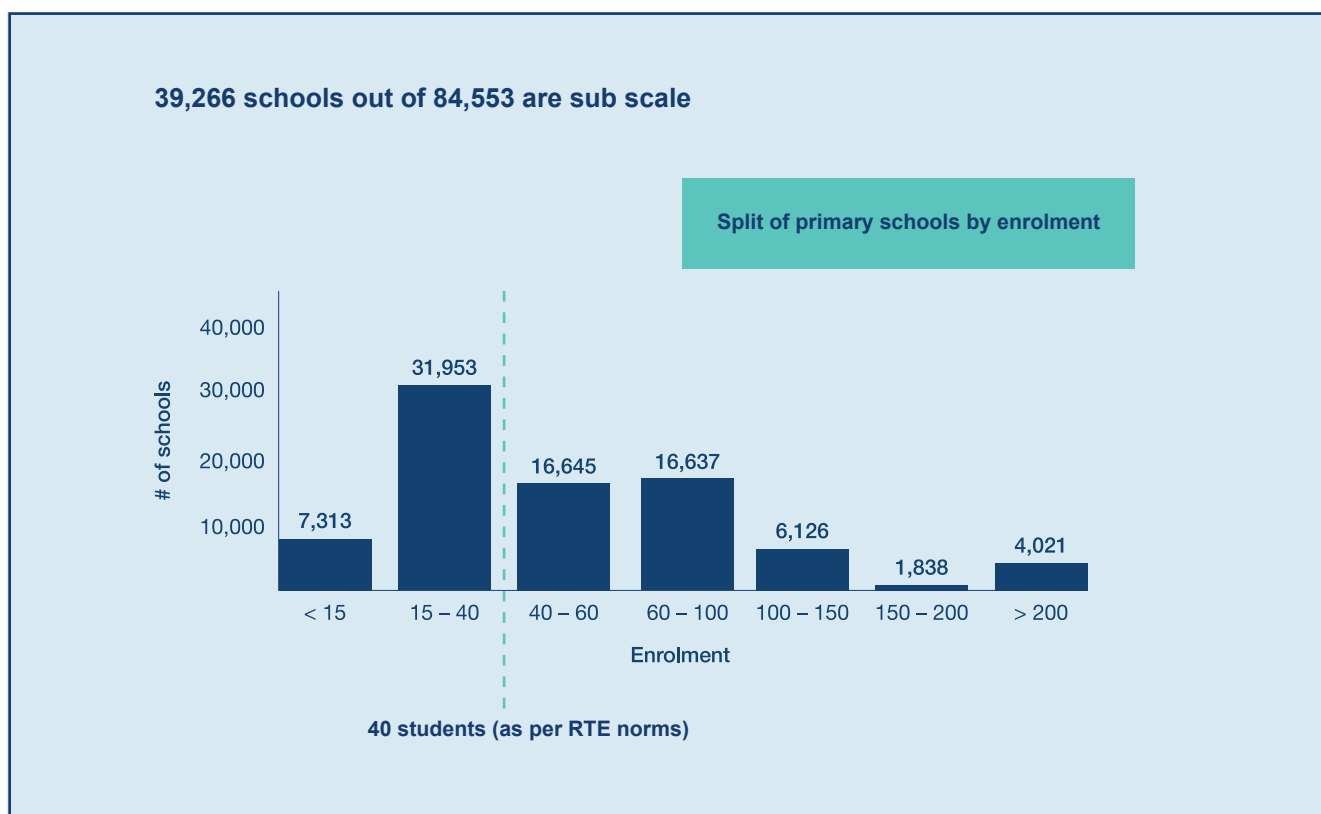
Exhibit 09: Enrollment status in primary schools

There were more than 20,000 single-teacher schools, and none of the schools had all the classes from I to XII. As students progressed through grades, they found fewer schools with senior grades, and with no integrated schools, they often had to change schools thrice before reaching Class XII (Primary to Middle to Secondary to Senior Secondary).

In this context, Madhya Pradesh planned to embark on a school consolidation journey, with an aim to improve academic quality through administrative and economic efficiencies that would be gained by creating large and vibrant schools, with adequate teachers and other resources.

Approach

Initial GIS analysis suggested that out of the total 1.2 lakh schools, approximately 53,000 schools were within the same campus i.e. within 150m of one or more neighboring schools; each being run as a separate school. Merging these schools represented a quick- win opportunity, as no physical movement of students and teachers was required. So, the state decided to undertake an administrative merger of these same campus schools in the first phase of school consolidation, titled "Ek Parisar Ek Shala" initiative.

Identifying schools

GIS-based geo-analytics was carried out to identify a list of schools that were to be consolidated in Madhya Pradesh. Basis the GIS data, the distance of each school with respect to all the other schools in the same block was calculated, and all schools which were within 150m of each other were identified as clusters. This list was then sent for field verification.

53,651 same campus schools to be integrated to 24,667 schools

PS: Primary School
MS: Middle School
S: Secondary School
HS: Higher Secondary School

Type of Integration	No. of schools involved
PS-MS-HSS	4,446
PS-MS-HS	8,505
PS-M S	35.486
MS-HSS	1,750
MS-H S	1,978
PS-HSS	786
PS-HS	700
Total	**53,651**

Exhibit 10: Geo analytics summary – distribution of 53,651 same campus schools across the state and by type of merger

Field verification of identified schools

A database-generated list is often far from accurate and needs field verification. Parameters including real enrolment, actual distance, terrain in-between schools, socio-economic and demographic constraints like language, need to be field-verified. To ensure rigor and transparency, this entire list was sent to the District Collectors for field verification. The Cluster-Level Officials verified the list and shared the verified list with the State-Level Officials, where the complete list was compiled. To ensure a correct verification process, the officials were oriented through a video conference. It is crucial at this stage to communicate the plan and the overall vision of the project with the field officers, so they have a context as to why they are doing a certain exercise and its expected benefits, and support its execution going forward.

The output after this step was a field-verified comprehensive list of schools within 150m of each other, which could viably be merged into a single school. The final list involved a merger of ~35,000 schools into ~16,000 schools. These new 16,000 schools included mergers across grades i.e. 1-8, 6-10, 6-12 etc.

Obtaining necessary approvals for mergers

Once a field-verified final list of proposed mergers was ready, cabinet approval was taken for its implementation. Post approval, the list was processed through formal committees at the district level comp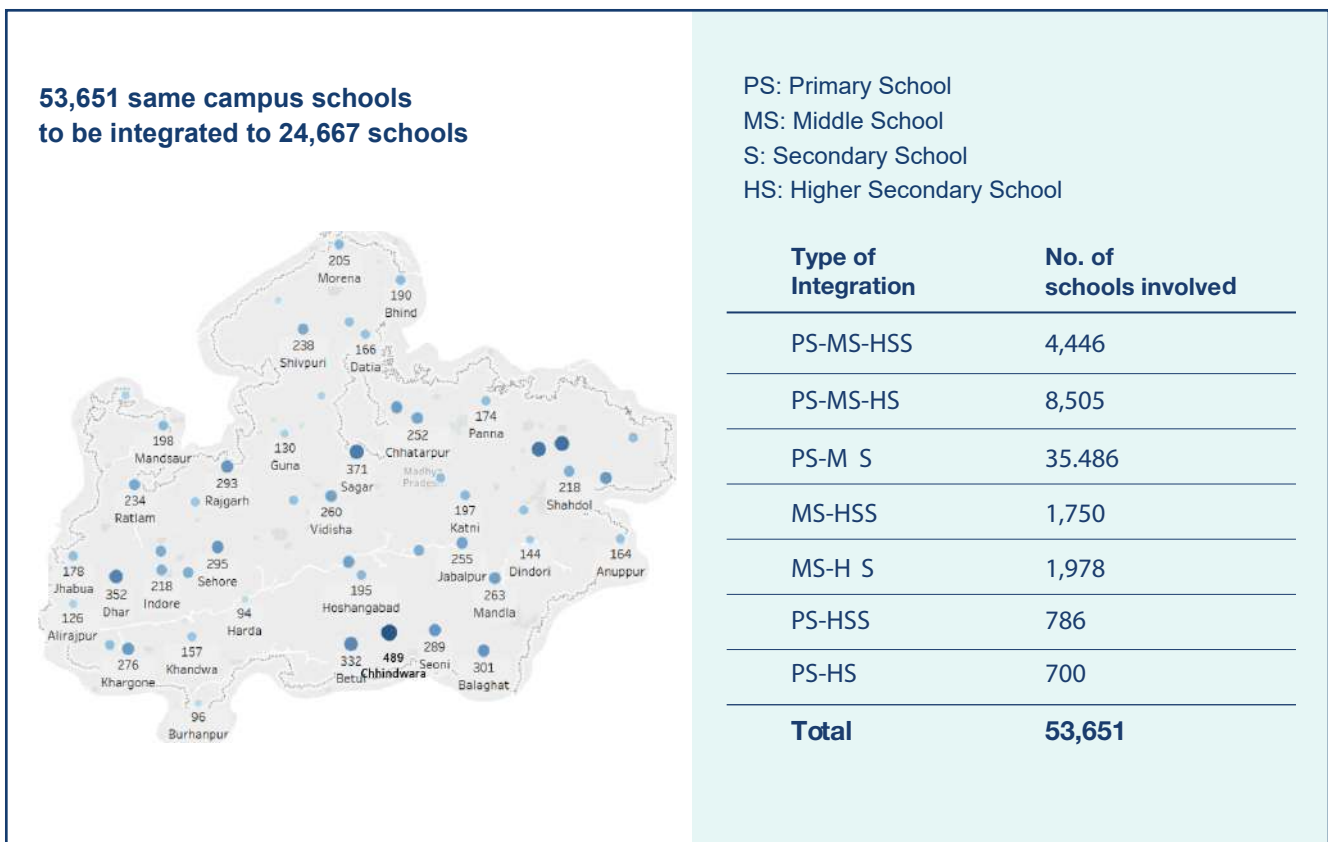rising the District Collector, CEO-ZP, Assistant Commissioner-Tribal Dept., District Education officer, District Project Coordinator and DIET Principal. It is imperative to track this process of approvals across districts. Once approved by the committee, the final process of mergers could be initiated.

Defining parameters and guidelines for integration:

Once the list was finalized and the field officials (both district and block) were oriented about the state's vision for the initiative, a detailed implementation plan for the smooth rollout of the initiative in the field was defined by the state. The plan laid out exactly what all an administrative merger would comprise of and how it would be executed. The exhibit below lays down some of the key aspects around which detailed guidelines were drafted for integrated schools.

MAJOR ASPECTS OF INTEGRATION GUIDELINES

The role and authority of school principal (or the highest school head position) for the integrated school
Responsible for performance grade 1 onwards; should make school development plan or all grades etc.

The role of other HMs in such schools
e.g., role of middle school HM if school principal is also present, and how the two work together (division of responsibilities)

Norms for resource sharing across schools
- Teaching staff
- Non-Teaching staff
- Infrastructure sharing as needed (classrooms, toilets, library, labs, tech infra etc.)

Plan for potential infrastructure upgradation in these schools

Guidelines around all academic and administrative aspects
(SMCs, assembly, MDM, timetables, attendance capture etc.)

Process for rigorous on-ground monitoring of implementation post official merger execution

Exhibit 11: Major aspects around which integration guidelines were drafted

Trainings Development of material:
To ensure smooth implementation of the mergers on-ground detailed and comprehensive training content was developed with examples. (see Exhibit 12).

Training plan:
Since the implementation would require action and monitoring from officials across all levels (teachers, principals/HMs, Cluster, Block etc.), a training plan was created, with the State-Level Officials covering all districts in-person. Subsequently, a regular training schedule was established. Madhya Pradesh effectively used the virtual classroom network which covers 90% of the blocks to reduce the number of cascade levels in trainings and directly explain the steps of implementation to school heads and teachers of the selected schools.

एकीकृत टाइम-टेबल बनाने का सही तरीका
(The correct process to build an integrated time table)

विद्यालय संसाधनों का एकीकृत उपयोग (1/2)
(Approach to using school infrastructure in an integrated manner)

Exhibit 12: Excerpts from training collaterals

Field Engagement and query/grievance redressal mechanisms

A robust, time-bound query and grievance redressal process, where all stakeholders could get clarifications or raise specific grievances that could be tracked, re-investigated and resolved at the District Level, was essential to maintain transparency and take corrective action in case of exceptions. In Madhya Pradesh, multiple channels were used for this purpose. For example:

• A fortnightly video conference was conducted with all districts where District Officials could clarify doubts and raise concerns/ grievances.

• Face-to-face sessions were conducted by Senior State Officials at the divisional level with the same objectives.

• Multiple WhatsApp groups were created with all school heads and Block/District Officials, where merger related queries were addressed, official letters were published, and success stories were shared.

• Monthly review meetings were facilitated in the field at the District Level (in the presence of all the District and Block Officials) and at the Block Level (in the presence of the Block and Cluster Level Officials).

• All school heads were provided one-on-one support, through a call center set up at the state level.

Exhibit 13: Snapshot of the different channels used for field engagement

Post-merger tracking

After being intimated about the implementation of Ek Parisar Ek Shala mergers, school tracking was done through the state's school monitoring app.

Questions to ascertain whether the school had truly integrated were added to the monitoring form e.g.:

- Whether an integrated timetable involving sharing of teacher resources across primary school, middle school, high school, higher secondary-school had been made or not?

- Whether a single school head had been identified and if the school head was now taking responsibility for all the schools within the campus or not?

- Whether the available infrastructure and resources e.g. staff room, library, toilets etc., were being shared effectively among the merged schools?

- Whether one common teacher attendance register had been created where teachers of all the merged sub-schools would mark their attendance?

- Whether the stock of all the different schools had been kept in a single room and maintained through a common stock register?

- Whether a new school board displaying the integrated classes in the merged school e.g., 1-8, 6-12 etc. had been put up?

- Whether all students initially registered in all constituent schools were now registered as part of the combined school code in a common scholar register?

Apart from monitoring done by state officials, regular field verification in sample schools by representatives of third-party organizations provided a check on monitoring the data and gave insights on the actual on-ground implementation.

	Metric	Field Insights (Challenges observed)
51.1%	**Integrated Infrastructure**	• Different financers (for stock register) • Infeasible due to distance/separate floors (staff rooms, toilets etc.)
50.6%	**Integrated School Head**	• Conflicts between HMs/ Principals/ In-charge • Misunderstanding on seniority • On-ground, EPES schools are not functioning as one yet
51.5%	**Time-Table/ Teacher sharing**	• Creation of time-table is a challenge – especially for secondary schools • Teachers from higher grades not teaching lower classes • Schools running in two shifts

Exhibit 14: Snapshot of an implementation tracker

Impact and Learnings

In Madhya Pradesh, post verification, a total of 35,113 schools were merged into 16,076 campuses, of which ~75% were elementary schools from grades 1 to 8. Exhibit 15 shares the details of the number of schools under different types of setup post the integration. Merging sub-scale schools yielded immediate academic and administrative benefits such as:

- **Improved teacher and headmaster availability, as well as better academic environment** Mergers optimize teaching resources and allow subject-wise, grade-wise teaching that is likely to result in improved learning compared to multi-grade multi-level (MGML) teaching scenarios. In Madhya Pradesh, teachers in only **21% of the merged Ek Parisar Ek Shala schools are, on an average, teaching more than 2 grades, as compared to 35% of the total schools in the State.** Moreover, post the mergers, **54.8% of the merged schools came under the supervision of a headmaster/ principal as compared to only 20.4% of schools earlier,** leading to efficient functioning.

- **Better resourced schools** Larger schools are more likely to have better infrastructure because of resource sharing e.g. an integrated staff room, school-head room and stock room, leading to more rooms being available for academic activities. Moreover, larger schools can afford support-staff like computer assistants, mid-day meal supervisors, clerks, helpers, etc. allowing teachers to dedicate more of their time to in-classroom teaching.

- **Improved governance** Fewer number of schools improve the rate of monitoring and inspections, which as per most studies, is correlated to improved school performance. Obviously, it also reduces the time spent by block and district officials on administrative processes. In Madhya Pradesh, Cluster Academic Coordinators (CACs) are responsible for monitoring the majority of elementary schools. The mergers reduced the number of schools to be monitored, on an average by 4 schools per CAC per month.

Ek Parisar Ek Shaala has helped create larger, integrated schools serving ~35%students

35113 schools   16076 campuses   ~26 lac students

Type of Setup	No. of campuses
1-5	313
1-8	11,894
6-8	37
1-10	1,378
1-12	784
6-10	744
6-12	572
9-12	17
Others	242

~75% schools are 1-8

Teacher sharing has led to reduced MGML teaching

Better physical infrastructure available for more schools due to sharing

More students: Larger peer group, stronger parent community

Smoother transition between grade 5 – 6 & 9 – 10

Better administration for the State

Exhibit 15: Snapshot of the post mergers benefits for Madhya Pradesh

In addition, the following key success factors emerged from the successful school consolidation exercise:

- **Multi-level stakeholder engagement**
  There are various stakeholders involved in the school consolidation process – teachers, students, parents, elected officials, media, field officers, etc. Each of these stakeholders needs to be constantly engaged and communicated with, to ensure that the process does not derail. A combination of interventions such as video conferences, field visits, press releases, field community engagement by officers and a grievance call center can ensure that all stakeholders are taken along in this process. Every state may come up with different mechanisms, but this process cannot be taken lightly.

- **Live data updates and close tracking**
  As with all field interventions, the progress and output of all steps of the process needs to be tracked live on a day-to-day basis, to ensure data validation, take real-time corrective action, and ensure overall monitoring and accountability.

In States where mergers have been successful, the senior department leadership personally reviewed the on-ground implementation twice or thrice a week. Live dashboards reflecting progress of each district, along with a state-wide summary, helped the State achieve a near 100% monitoring efficiency.

- **Setting up of a cross-functional mission mode team**
  School consolidation is a large and revolutionary step for any State. It needs careful strategizing, strong implementation rigor and large-scale stakeholder management. For this, a dedicated cross-functional team with senior leadership must be created to manage the entire process. The team should also have a set of junior persons who can run a call center for grievance redressal and visit the field for verifications and checks.

Challenges and mitigation strategies

- **Ineffective teacher and resource sharing across grades**
  Teachers sometimes experience challenges primarily due to ego clashes (especially senior grades' teachers when mandated to teach junior grades). To curb this, regular trainings through VCs were organized for school staff along with frequent reinforcements by School Education Department Leadership mandating teachers to adhere to the norms, recognition of exemplar practices, etc.

- **Lack of understanding on making a merged timetable**
  Initially, majority of schools did not have an integrated timetable. To rectify this, sample timetables for integrated schools were shared with School Heads along with detailed process followed in creating them – as a result, most schools have now created a single timetable.

- **Monitoring for integrated Ek Parisar Ek Shala schools**
  As of now, State's monitoring systems are setup separately for elementary and secondary grades. With integrated schools, work is needed on streamlining monitoring across parameters and grades.

Odisha – Bold Large-scale Consolidation Policy Following a Phased Approach

Context

Odisha's secondary school landscape mirrors that of the country. Government school sizes were almost a third of the size of private schools in terms of students and teachers - an average of ~3 teachers and ~125 students in government schools compared to an average of ~15 teachers and ~680 students in private schools. Additionally, in Odisha ~55% schools have enrolment less than 60, and approximately 29% schools have enrolment less than 30.

~55% of government schools in Odisha had <60 students (only ~19% of all students)

Category	Enrollment							Government schools only	
	< 5	< 10	< 30	30-60	<100	<120	<150	>150	Total
Primary only	148	761	13803	11754	4149	649	527	421	32203
Primary with Upper Primary	18	24	666	2297	3926	1725	2023	4922	15601
Upper Primary only	2	15	97	270	342	120	129	257	1232
Upper primary with Secondary	-	2	8	34	61	40	78	1207	1430
Primary with Upper Primary and Secondary	-	2	10	41	107	73	169	2238	264
Secondary only	-	2	26	61	189	131	194	560	1163
Primary with Upper Primary and Secondary and Higher Secondary	-	-	-	-	-	-	-	7	0
Upper Primary with Secondary and Higher Secondary	-	-	1	2	1	3	11	185	203
Total number of schools	**168**	**806**	**14611**	**14459**	**8775**	**2741**	**3131**	**9788**	**54479**
	0.3%	1.5%	26.8%	26.5%	16.1%	5.0%	5.7%	18.0%	7
Total number of students	**522**	**6923**	**312462**	**624802**	**684603**	**301332**	**421411**	**2720709**	**5072762**
	~0%	~0%	6%	12%	13%	6%	8%	54%	

Exhibit 16: School enrolment scenario in Odisha in 2018-19 (before the start of consolidation process under Project SATH-E)

Approach

School consolidation was being carried out in a phased approach in Odisha since 2017.

School consolidation exercise divided into 3 phases

Completed in 2018

Phase 1
Merging same campus schools / schools within 100 meters

- Policy issued in May 2018
- 2000 schools merged

Status in 2020

Phase 2
Large scale merger for schools with enrolment <20 and, 20-40 with <1km

- Policy issued in March 2020
- 15,000 schools identified for consolidation
- ~7000 school in final stages of consolidation

Current Progress

Phase 3
Merger of S&ME and SSD Schools

- Merger plan prepared by districts
- Guidelines to be issued

Exhibit 17: Phases of school consolidation, Odisha

In March 2020, the Government of Odisha approved a bold large-scale merger policy and set an ambitious vision for the State – which laid out distance and enrolment norms for consolidation for eight different school scenarios. For 2020-21, the State opted to pursue consolidation of schools in Phase 2.

School Category	Enrollment criteria		Distance of nearby Elementary/ Secondary School
	Non-Scheduled Area	Scheduled Area	
Any Primary/Upper Primary/ Secondary School	Any Enrollment	Any Enrollment	100 meters
Primary School	Less than 40	Less than 25	1 km
Upper Primary School (VI-VIII)	Less than 50	Less than 40	2 km
Upper Primary School (I-VIII)	Less than 60	Less than 45	1 km
Secondary School (VI-X)	Less than 50	Less than 45	2 km
Secondary School (I-X)	Less than 80	Less than 45	2 km
Secondary School (IX-X)	Less than 60	Less than 40	3 km

The actual process of implementation in Odisha was similar to the processes described for Jharkhand and Madya Pradesh previously including use of GIS data to identify prospective schools for mergers, on ground verifications & host school mapping, detailed guidelines & learning workshops and grievance management system.

Exhibit 18: Workshops with District Level Officials & Block Level Officials for discussing verification SOPs

Impact and Learnings

- **Odisha has a government approved consolidation policy** with norms clearly identified, unlike most other states. The current government school count stands at ~45k and the vision is to get 40,000 schools.

- Similar to learnings in Jharkhand and Madhya Pradesh, well defined processes and guidelines and pre-emptive identification and review of red flag cases was very critical.

Reflecting on the three case studies, one can see that the approach taken by each of the three states has been very different

- **Jharkhand** focused on a bottom-up analytics-based approach, covering all Gram Panchayats from the outset. As the first SATH-E State to undertake school consolidation, it managed to set the tempo and template for other states.

- **Madhya Pradesh** pursued mergers of same-campus schools. These were effective quick wins, as they were relatively easier

mergers primarily of an administrative nature (For example: Teachers had to only move from one building to another in the same campus). They were also significant in number with respect to the state's starting context – nearly 35,000 schools were merged into 16,000 campuses to reduce the school footprint by 17,000 schools.

- **Odisha** focused on a policy-led phased approach, prioritizing getting a top-down buy-in across the State. This, coupled with the momentum generated through quick win consolidation of nearly 2,000 low enrollment and same-campus schools helped the State proceed towards pushing for distance-based mergers directly.

While the approaches may have been different, some of the learnings with respect to ensuring multi-level stakeholder buy-in and communication, implementation rigor, close monitoring and tracking, effective grievance redressal processes are common critical success factors across States which can be seen across the three case studies.

2.2. Creating Model Leader Schools

Context

The SATH-E states are all quite large, with each state having 40,000 - 100,000+ schools. A key discussion in all states was that while efforts are made to improve outcomes across all schools, an effort should also be made to develop a subset of schools as exemplar leader schools with a set of disproportionate investments made towards those schools. At least ~10% of the total number of schools in a state should be developed as exemplar leader schools, and it is important to select these schools in a manner that they're equitably distributed geographically across the state. Both these aspects are important to ensure that at least one high-quality leader school is accessible by all students in vicinity through provision of transport.

Such Leader schools can bring in new momentum to the public education system by demonstrating the art of the possible and drawing-in students from other sub-scale public as well as private schools. These schools will provide a comprehensive learning environment to their students through state-of-the-art infrastructure, competent teaching staff, high-impact academic initiatives, and a welcoming environment for all students, parents and school staff.

These lighthouse schools will also serve as school complexes in line with the recommendations of National Education Policy 2020 and act as resource centers providing the feeder schools of that panchayat with inspiration, mentoring, and shared resources to improve the education quality in other government schools.

Approach

As part of the SATH-E program, in Madhya Pradesh, the School Education Department conceptualized 'CM RISE Schools' – a set of 9,200 government schools (~3 schools per cluster of the state) developed as world-class schools that offer high-quality education.

These will be resource-rich K-12/K-10 schools that would provide outcome-oriented holistic education to all students, especially to those belonging to economically and socially weaker sections and from remote/rural areas of the state.

Other states in India have also embarked on this journey:

- The Rajasthan Government initiated an Adarsh Vidyalaya Scheme in 2015 to upgrade one school each across 9894 gram panchayats over three phases. Under the scheme, the state undertook the development of large integrated schools with qualified teachers and infrastructural facilities like computer labs, libraries, playgrounds for students, boundary walls, sufficient classrooms, and separate toilets for boys and girls. This initiative resulted in increased enrolment and improvement in learning levels across Rajasthan.

- Delhi Government has identified 54 schools as 'model schools' for transformation and it plans to develop all ~1000 schools as model schools over time. The focus has been on improving infrastructure, training of teachers, extra-curricular activities, and vocational education for these 54 schools.

- Similarly, in Odisha "Centre of Excellence" schools project was initiated with a vision to provide access to model government schools to students across all districts. These 100 schools would provide quality education in the State and act as model/lead schools for other schools in their districts. Gradually this initiative came under the umbrella of the state's 5T High School Transformation program where the ideology has been to upgrade all high schools in the state.

- Lastly, the Government of Jharkhand has launched the Leader Schools Initiative to a create leader school in every panchayat of the state to offer an easily accessible high-quality learning environment to every student of the state. The three-phased program identified 80 district-level (phase I), 325 block-level (phase II) and 4036 panchayat-level schools to be transformed into leader schools over the next 5 years.

Identification of a subset of schools

Before embarking on this journey, it is critical to identify and select the right subset of schools that are well spread across to ensure equitable access to students covering the maximum student population.

In Madhya Pradesh (MP), a preliminary shortlist of 15,405 schools was prepared. This shortlist was based on two parameters. Schools with high enrollment and those already having basic infrastructure in place were given preference. This approach aimed to ensure that the funds invested impact the highest number of students in the shortest possible timeframe, as illustrated below.

Basis the above two parameters, schools were scored out of total 20 marks and accordingly, five schools were identified for every Jan Shiksha Kendra (cluster) in the state to create the initial shortlist of 15k schools.

Further verification of the 15,000 schools was conducted in the field by Cluster Principals and Cluster Academic Coordinators based on the parameters mentioned. Comprehensive field verification of this list was undertaken by SED officials and a final list of 9,200 schools was finalized, post approvals from various administrative and political committees. A similar exercise has been undertaken by the Education Departments of other states as well.

Goal-setting for Leader Schools

The success of leader schools needs to be defined via ambitious, measurable goals, such as – increase in enrollment, increase in attendance, improved rank in upcoming NAS, PISA Readiness, improved board exam results, and increased proportion of students clearing NEET, JEE, CLAT, and NDA - while ensuring the school's overall consonance with NEP (specific achievement targets for each goal have been outlined by school education departments). In Jharkhand and MP, these schools' learning outcomes will also be evaluated through the state's Certification programs where schools will be externally assessed and rewarded upon achieving the specified learning outcome criteria.

MP School education department identified and formally constituted 18 sub-committees to drive strategic planning and execution of critical workstreams to achieve the goals.

Selection stage 1: Of the ~1 Lac govt. schools in MP, initial list of ~15k potential CM RISE schools finalized basis infra and enrolment

Enrolment	Score
< 100	0
100-200	3
200-300	5
300-500	8
500+	10

Infrastructure type	Score
Student Classroom Ratio	
< 30	3
30-40	2
40-50	1
> 50	0
Hand-washing unit	1
Playground	1
Electricity	1
Boys toilet	1
Girls toilet	1
Computer room	1
Drinking water	1

① Enrolment
(highest potential for impact with increased resources and facilities)

② Infrastructure
(Schools with minimum level of infrastructure are more scalable)

Schools with large enrolment and basic infra available were given initial preference

5 schools per JSK (Jan Shiksha Kendra) selected to ensure all schools are geographically well spread out in the state

9-9.5K CM RISE Schools of these ~15K Schools finalized basis physical field verification process

Source: U-DISE Data 2019-20

Exhibit 19: Criteria used to shortlist the first set of ~15k CM RISE Schools in MP

Learnings for Large–scale Transformation in School Education

Selection Stage 2: Of~15K schools, 9-9.5K CM RISE schools finalized basis blended scoring of the below parameters (validated via field visits)

1

Land Availability		Score
Urban	**Rural**	
>2 Acres	>5 Acres	40
>1.5 Acres	>4 Acres	36
>1 Acre	>3 Acres	32
>0.5 Acre	>2 Acres	28
-	>1 Acre	24
-	<1 Acre	-

3

Integration Level	Score
1-12	20
1-10	18
6-12	16
6-10	14
1-8	12
9-12	10
9-10	8
6-8	6
1-5	4

5

Population around the school	Score
>10,000	20
>7,000	18
>5,000	16
>3,000	14
<3,000	12

2

# of Classrooms (including labs, staffrooms etc.)	Score
>40	20
>30	18
>20	16
>10	14
>7	12
<7	-

4

Enrolment	Score
>1000	20
>700	18
>500	16
>300	14
<300	12

6

# of Habitations in proximity to the school	Score
>10	20
>7	15
>5	10
<5	5

Schools located in tribal blocks allowed allocation of additional CM RISE schools per Jan Shiksha Kendra vs. other areas to circumvent the challenge of relatively lesser access within tribal blocks.

Exhibit 20: Criteria used to shortlist the final set of 9.2k CM RISE Schools in MP

Details of actions undertaken in eight prioritized areas to begin with are further described below.

I. Infrastructure

Establishing state-of-the-art infrastructure was a key priority in MP. This was considered necessary to provide a high-quality learning environment and instill a sense of pride amongst staff and students within these schools. However, this is both an expensive and a slow process. Hence, the entire effort was looked at in two parts.

A set of basic but critical improvements could be initiated across a relatively large number of schools – including critical building repairs / exterior paint, providing functional boys' and girls' toilets, building ample handwashing platforms, and drinking water facilities, providing a continuous supply of water & electricity, and good quality desks & backboards in classrooms etc. To ensure these basic amenities were in place in the shortest possible time, the considered path was devolution of power to SMCs and Principals to incur expenses on minor infrastructural upgradation for school repair & maintenance.

The main state level focus, in parallel, was to provision full-fledged facilities in a subset of ~350 Phase 1 CMRISE schools (with the objective do the same for all 9K schools over 10 years over 3 phases). Basis aspirational end-state student enrollment for these schools, 9 archetypes, denoted as "Models" were created for CM RISE schools. The smallest Model schools, designated as Model 1, were planned to have capacity of 1170 K-12 students, while largest Model 7 would have ~4000 K-12 students. All models would have different number of classrooms, increasing as per increase in enrollment. However, all models would have broadly similar facilities in terms of laboratories, libraries, STEAM education and extra-curricular activity rooms. Large scale sports facilities (e.g. gymnasium, multiple courts etc.) were planned in district/ block level schools. Various other critical infrastructure priorities were finalized e.g. boundary wall with concepts of BALA (building as learning aids), ample open and built spaces available for free movement with designated spaces for assembly, canteens, dining rooms, and appropriate furniture for staff and students, science and computer

Infrastructure Staff Management Teacher Availability Teacher Professional Development Digital Education

School Leadership (Selection & Capacity Building) Monitoring & Governance Academic Initiatives (21st-century skills, PISA Readiness, STEAM, FLN, Spoken English program and entrance exam preparation for secondary grades etc.) Pre-Primary Education Vocational Education

Transportation School Academic & Administrative Processes Community & Parental Engagement Setting Quality Benchmarks, Evaluation / Appraisal, & School Certification Communications, launch & documentation

Extra-curriculars Physical Education & Sports Science Education

Exhibit 21: Sub-committees for driving critical work streams

labs along with co-curricular infrastructure such as an arts & crafts room, music room with the required set of instruments, creative thinking areas, sports infrastructure etc. allowing an opportunity for children to develop their personality. Financial estimates were prepared for various models of schools.

Incorporating the above principles, School Education Department of Madhya Pradesh kickstarted renovation of existing buildings and construction of new, integrated buildings and campuses across the state in 2022. In Phase 1 of the project, construction was planned for 274 CM RISE schools across the state, for which budget of more than Rs 10,000 crores has been approved for ~269 schools till date. The work was ongoing as the SATH-E Project ended in 2022 and the first fully equipped new building of CM RISE Schools was inaugurated by Hon. Chief Minister in July 2023. Going ahead, in Phase 2 of the project, the complete set of ~9,200 schools shall be earmarked for archetyping and construction.

II. Adequate Staff provisioning

Two key areas were actioned to begin with – defining a staffing set-up for the CMRISE schools as well as a process for teacher/ school leader selection to initiate recruitment.

1. Staffing set-up

An integrated staffing set up was defined for CMRISE schools in line with PTRs recommended in RTE, 2009 and stage-wise academic setup recommended in NEP, 2020. The setup proposed identified 5 types of school staff:

1. Leadership staff (School leader, Vice Principal, Middle and Primary Headteacher)

2. Core-academic staff (Subject teachers from 6-12, primary and pre-primary teachers etc.)

3. Co-curricular staff (art teachers, music teachers, sports teachers etc.)

4. Administrative staff (librarians, accountants, estate managers etc.)

5. Support Staff (cleaners, gardeners, security staff etc.)

The role differentiation in this new staffing setup was to ensure that teachers are freed from administrative and general school-upkeep-related tasks, such that they can spend more time inside classrooms, in lesson planning, assessment development and engaging with students one-on-one.

The variations in staff set-up basis CMRISE school model type (1 to 9) was also articulated

2. <u>Teacher selection process</u>

To ensure high-quality staff in schools, MP executed a merit-based selection strategy. Teaching staff were selected via a domain-specific written test. School leaders were selected on the basis of past performance and testing for motivation (through 1-to-1 interviews). A streamlined selection process alongside continuous training and handholding via the central team has created a cohort of highly motivated and competent teachers in CMRISE schools.

III. Transportation

To ensure equitable access and better attendance in schools, providing transportation was a key priority. The Government plans to provide bus service to students at no cost. To enhance safety and monitoring, it was also planned that all school buses will be equipped with functioning GPS systems and CCTV cameras, in accordance with recommendations from the State Transport Department. Additionally, for the safety and real-time tracking of students, the department has planned to select an agency to implement school monitoring software. Mobile applications for Android and iOS platforms will be made accessible to faculty and parents, facilitating real-time tracking of school buses, enhancing overall safety measures. Procurement processes to initiate some of these services are currently ongoing.

IV. Academic and Administrative processes

To meet the vision and mission of CM RISE schools, it was critical to define the expected academic and administrative processes that must be followed in the schools. To this effect, two handbooks were drafted with detailed SOPs for various areas of school functioning

– one handbook was drafted for school leaders (completed during the SATH-E project), and one for teachers (completed post closure of the SATH-E project). The handbooks detail processes such as how school leaders should conduct school and classroom walkthroughs, how to conduct effective staff meetings, how to reflect back on a school day post school hours, how to effectively engage with parents and SMCs etc.

A set of processes were also prioritized and incorporated in live trainings conducted with principals and school leaders. To ensure the processes are followed, a compliance tracking mechanism has also been set-up for select processes (e.g. school leaders report conducting the classroom and school walkthroughs).

Additionally, OICs (officers-in-charge) responsible for respective Divisions undertake necessary follow ups and conduct school visits to monitor as well as motivate the schools to follow the articulated academic and administrative processes.

The Handbooks for both school leaders and teachers can be found on the following links:
School Leader Handbook
Teacher Handbook

V. Teacher and School Leader capacity building

School Leader capacity building efforts started during the SATH-E Project itself e.g. a 5 days induction training was organized for all principals at IIM Indore. In addition, exposure visits were undertaken for them with excellent schools both within and outside of Bhopal.

Teacher capacity building efforts were yet to begin in a significant manner when the Project SATH-E duration ended. Since then, the state has been conducting trainings for both teachers and principals periodically on various aspects e.g. growth mindset, pedagogical issues, academic and administrative processes to follow etc. In addition, Shikshak Sabha sessions have been initiated in all districts to connect 10,000+ CM Rise teachers to the vision, mission, and values of CM RISE. Intervention specific trainings are also being conducted for teachers e.g. on career counselling by UNICEF, 21st century skills etc.

VI. Integration of Pre-Primary Education

Integrating Pre-Primary education with 1-12 grades in the CMRISE schools was taken up as a priority. Work was initiated on various fronts including building new, activity based KG curriculum, staff recruitment / training, ECE-friendly class infrastructure with dedicated play corners/age-appropriate furniture, TLM kits etc. Efforts have continued to stabilize this very critical initiative that can have large scale impact on improving student learning outcomes. The state intends to provide a helper (on an honorarium basis) in each pre-primary classroom along with a full time teacher. In-service trainings is also a key focus since this is a new area, with due involvement of external ECE experts as required.

VII. 21st century skills

21st century skills offerings in India are in a relatively nascent stage and the term itself is loosely and inter-changeably used to refer to a wide range of skill sets (life skills, social emotional skills, new-age skills etc). Madhya Pradesh had several ongoing efforts in this area (e.g. Umang program, Value-based education, Bal Sabha etc.) although somewhat siloed and lacking a holistic view for what all should be covered in a life skills/ 21st century skills offering.

Extensive benchmarking of various relevant programs in this space, both in India and abroad, was taken up during the SATH-E project, and an overall framework was articulated for skills/ competencies that should be covered in a phased manner through grades 1-12. Some of these were competency-based skills (the 4 C's – critical thinking, communication, collaboration, and creativity), literacy skills (scientific, digital, financial literacy) as well as character qualities/ life skills (Adaptability, Leadership, Mental well-being & ability to express, Civic, moral & environmental awareness, Growth mindset, and Health & hygiene).

By the close of the SATH-E project, the State had formed a point of view on the overall framework and competencies to target and decided to dedicate ~70-90 hours annually per grade towards 21st century skills to ensure CMRISE schools offered a holistic education to students.

Since then, the state has progressed on the effort. A draft life skills curriculum has been prepared for grades 1-8 leveraging projects/ activity-based pedagogy. In addition, the state is also thinking through how to integrate the delivery of these skills through existing subjects/ ongoing programs along with their pedagogy (e.g. in the teaching of science, language etc.). Comprehensive teacher training initiatives are underway across all participating schools. Simultaneously, the development of assessment procedures and a monitoring framework is in progress to ensure that the program effectively enhances student outcomes.

VIII. Foundational Literacy and Numeracy (FLN)

Under the aegis of NIPUN BHARAT, Madhya Pradesh launched "Mission Ankur" in 2020, prioritizing FLN initiatives to bridge the learning gap. The mission focused on:

- Providing comprehensive in-person training for over 1.7 Lakh teachers (Grade 1-3) on FLN skills

- Developing innovative teaching learning materials based on structured pedagogy to enable teachers with detailed and competency focused 30 weeks' lesson plans,

- Designing an overall FLN assessment architecture including formative, summative and system level assessments aligned with NIPUN learning outcomes.

- Developing the capacity of Headmasters of primary school as Mentors of FLN grade teachers

This mission is ongoing across the state, including in CMRISE schools. However, materials have been suitably customized for CMRISE schools as they do not have any multi-grade teaching.

1. Impact and Learnings

The CMRISE project conceptualization and cabinet approval happened during Project SATH-E. In addition, by the end of the Project, various foundational elements were established e.g.

1. Civil Infrastructure:

- Sanction was received for funding & development of 146 CM RISE schools with a budget of over Rs 5600 crores by the end of 2022.

- Bhumi Pujan was conducted by Hon. CM for 69 CM RISE Schools.

2. Staffing:

- Approximately 6000 teachers from existing schools were posted to 274 CM RISE schools based on qualification tests.

- Additionally, approximately 1400 new teachers were hired for 274 CM RISE schools in 2022.

3. Training & Capacity Building (2022):

- Exposure visits were conducted to South Korea for key administrators.

- 274 School Leaders (SLs) were sent for leadership training to IIM Indore.

- Shikshak Sabha, involving 10k teachers and 900 SLs, was organized in each of the 52 districts to orient teachers with the mission and vision of CM RISE and improve engagement.

4. Soft Infrastructure Procurement:

- By the end of 2022, soft infrastructure procurement worth over Rs 14 crores was completed for 274 CM RISE schools. This included interactive panels, smart TVs, and primary classroom furniture.

Subsequently, within the first year of its launch, the CM RISE program has significantly improved access to quality education in the state across several key parameters:

- Enrollment increased by nearly 30% in the inaugural CM RISE school, while the overall year-on-year enrollment increase from 2022 to 2023 was 4% higher in CM RISE schools than in traditional schools.

- More than 8,000 CM RISE school teachers received training in the last year through in-person and digital training programs.

- The percentage of 10th-grade students with average passing grades at CM RISE schools is nearly 67%, which is 5 percentage points higher than the state average.

- Progress in Civil Infrastructure: Further approvals for Rs 4400 crores have been received for the remaining 123 CM RISE schools.

We recommend that states looking to initiate reforms via leader schools ensure that key enablers mentioned below are institutionalized within the delivery framework to achieve the best possible success in the earliest possible timeframe:

1. **Constituting the central team that will lead the effort with appropriate number of resources across critical functions** (infrastructure, procurement, finance, academic functions, tech / data systems, media and communications etc.)

2. **Setting up tech systems and governance/ review mechanisms** to define and track the right set of metrics for each workstream.

3. **Ongoing project management and coordination:** systems and tools for the state-level management of all the workstreams (from design to execution) and coordination with other critical funding sources and activities of the dept. e.g., STARS project, SmSA, PAB, etc.

4. **Procurement and financial planning:** processes to manage the procurement of materials and services and financial management of the program.

2.3. Building a High-Performance Organization

The Education Department is the largest employer in most state systems. For example, in Odisha, the Department of School and Mass Education employs nearly 2.5 lakh teachers, thousands of administrators in 16 Directorates, 30 District Offices and 314 Block Offices, with a budget of almost Rs. 15,000 Crores. Not only does this department manage the administration of about 60,000 schools and 3-4 lakh people but also, and arguably more importantly, the academic matters of about 58 lakh students.

Managing such a large organization and budget needs very strong management structures and clear processes. However, year on year, we see an increase in per-capita expenditure on education without a commensurate or significant increase in learning outcomes – in fact, outcomes are declining in many cases.

Vision: A Lean Organization with a Clear Purpose and a Performance Mindset

Context

Our vision for the Education Department of any State Government is for it to have a well-staffed organization that has oversight over all academic and administrative matters. This organization will have the right number of people, distributed across key functions in line with the strategic priorities and workload and a clear pyramid ensuring there are enough people to supervise as well as to execute. There will be a clear functional separation of academic and administrative responsibilities to ensure a consistent focus on academics.

The organization should have a performance - oriented culture with individuals having clear accountability for outcomes, quality and a focus on results. Traditional barriers and silos will be minimized, and strong cross-functional teams put in place, where required, with good communication at all levels. This will also ensure the needs of the system for monitoring and mentoring schools, implementing academic programs and managing establishment matters and grievances are addressed in a timely and effective manner. The State of Odisha has made significant in-roads towards achieving this vision, and the following case study details the journey undertaken.

In 2018, a comprehensive proposal for restructuring the Education Department in Odisha was put together and submitted for approvals. The objectives of this restructuring were stated as:

- Improve administrative efficiency, drive synergies and convergence by the merger of related directorates

- Separate administrative and academic functions to drive greater focus on quality education

- Ensure compliance with MoE guidelines

- Extend the department to include higher secondary and vocational education to enable seamlessness of schools and student learning pathways

- Create a forward-looking organization focused on the delivery of outcomes

Approach

This restructuring involved four key action areas:

1. **Combining 16 Directorates into 11 Directorates, with the overall objectives of reducing overlaps and increasing functional alignment.**

   a. **Merger of SSA and RMSA project offices:** While this was required given the merger of the central schemes into a single scheme of Samagra Shiksha, it also serves the purpose of more cohesive and coherent governance of integrated schools. Given the vision of ensuring every secondary school in the state has Grades 1 to 10, merging the project offices that manage the implementation of programs and schemes in the schools enabled the administration to ensure that there is consistency across the elementary and secondary branches.

   b. **Merger of SCERT, ELTI** (English Language Training Institute) **and SIEMAT** (State Institute for Educational Management and Training) and the **abolishment of the SRC** (State Resource Centre for Adult Education). All these institutions were responsible for pedagogy and training at various levels: SCERT responsible for the overall elementary curriculum, ELTI for all English language curriculum and training, SIEMAT for leadership training for administrative officers and SRC for Adult or Continuing Education. Merging them enabled the state to reduce the overlap in roles and responsibilities and enable better coordination for similar activities. The merged entity or SCERT was also restructured internally to incorporate the new posts and the new requirements (e.g. training of middle managers) and ensure the merger was not simply set up as the sum of the parts but took into account synergies.

   c. **Merger of the Higher Secondary and Vocational directorates into a single directorate** within the Department of School and Mass Education was done to ensure a singular approach to continuing education in secondary and higher secondary schools. This would enable better integration of vocational curriculum into secondary schools and a logical continuation of vocational education from K-10 schools into higher secondary institutions (whether schools or +2 colleges).

2. **Restructuring the field organization to seamlessly govern schools from Grades 1 to 10.**

   a. The entire field organization (district and block offices) was reorganized in line with the new central structure of OSEPA. The DEO and DPC offices, which were previously separate due to differences in the funding sources (state and center) and responsible for secondary and elementary education respectively, were merged to ensure a single administrative authority for all schools with a clear balance of staff across elementary and secondary levels. This especially benefits the administration of integrated 1-10 schools.

   b. The DEO would be the de-facto head of the district administration for school education and under him would be three ADEOs. The creation of an extra ADEO post enabled the separation of responsibilities into Establishment matters, Programs, Schemes and Academics/ Quality. The entire district and block office was then reorganized into these three branches to ensure complete functional separation and focus.

   c. The field organization manpower sanctions were then varied based on the number of schools or size of the districts to **ensure that larger districts have more manpower and smaller districts have fewer people, in keeping with the difference in workload.**

3. **Restructuring key Directorates to better deliver against their mandate; for example, restructuring SCERT and DIETs to ensure they are better equipped to enable academic quality in schools.**

   a. Several directorates were internally restructured in order to rebalance team sizes and hierarchies in line with their expected workloads and outcomes.

b. Most notable was the proposed restructuring of SCERT, in line with the MoE guidelines, which strengthened the academic core of the department.

The SCERT restructuring proposal enabled the separation of academic and administrative responsibilities within the organization, created teams to manage all key academic responsibilities – from curriculum design to book preparation to assessments to teacher training – and ensured that people with specific academic skills could be on-boarded from within school education and higher education.

4. **Restructuring the Odisha Education Services (OES) cadre to align the expected skills, qualifications and authority across various parts of the organization to enable effective working, engagement and promotional avenues.**

a. The entire process took six months to design and the financial implications of the restructuring were presented to the Finance Department and other authorities. Most interventions were implemented, while a handful were awaiting approvals for implementation and/or further guidelines from the Ministry of Education on account of recommendations in the National Education Policy 2020 (at the time of closure of Project SATH-E).

Impact & Learnings

The impact of these change has begun to reflect in the ways of working of the Education Department -

1. **Increased efficiency**
   - Merger of SSA & RMSA brought in a stronger focus on developing and driving integrated strategies for elementary and secondary sections within the School & Mass Education Department. Accountability with a single project office reduced time spent on approvals, coordination and alignments between offices and helped the state focus more on the actual delivery and impact of initiatives.

   - The single authority also helped drive the strategies of the Directorates of Elementary and Secondary in a more cohesive manner. In 2020, the two Directorates together conducted an extensive analysis of HM, teaching staff and non-teaching staff in-position and requirements for 100 Center of Excellence Schools. Over a period of 3 months, the state managed to ensure 70% of vacancies identified were filled in a priority manner through rationalization, and subsequent vacancy filling of the long-tail is ongoing.

2. **Greater field collaboration**
   Restructuring of the field offices of the DEO and DPC ensured that the benefits accrued to the state administration also accrued in the field. DEOs and DPCs now work together on the state's education priorities and have been able to unlock many synergies through this. Given the state's emphasis on decentralized administration, the district level officers have been able to coordinate and execute large programs more effectively at scale. Notably, the state's digital education program "Shiksha Sanjog" launched in May 2020 was conceptualized and implemented by each of the district offices independently with support from the state.

3. **Increased accountability**
   - The creation of an extra ADEO post enabled the separation of responsibilities into Establishment matters, Programs, Schemes and Academics and this helped the district administration to provide dedicated leadership for academic initiatives like LEP, Garima School Certification, Spot Assessments, etc.

A few **critical success factors** need to be put in place in order to ensure the exercise is feasible and impactful.

1. **Political alignment from the outset is critical.**

   It is critical to ensure strong support from the political leadership in order to successfully restructure the education organization. Alignment from the outset is critical – both on the vision as well as the extent and phasing of the changes.

2. **Structures need to be set up for the longer-term**

   Organizational changes cannot be done every day. These are expensive, slow to implement and require a significant amount of effort and thought. Therefore, it is critical to ensure that the changes are bold and visionary and meet the long-term needs of the education system.

3. **Guidelines and legislations need to be thoughtfully adhered to**

   There are several guidelines around what the education department should look like and several orders and notifications that need to be adhered to. It is critical to be able to identify which ones are set in stone and where there is autonomy for states to deviate to better suit their requirements. Additionally, there needs to be a strong legal lens in order to ensure that the changes are in line with the various rules around cadre structures, etc. to avoid litigation and other issues once the process is underway.

4. **Open and transparent communication through the change is essential**

   There needs to be a clear and transparent process for arriving at the changes, consulting stakeholders along the way. Changes need to be clearly communicated, repeatedly if required, and there needs to be a firm system in place to implement them. A strong grievance redressal system is essential in order to ensure two-way communication throughout the process.

5. **Capacity building and supporting the transition is critical for success**

   In addition to communication, there also needs to be enablement and a period of handholding to ensure smooth and seamless transitions so that the long-term benefits are not overshadowed by initial teething troubles.

2.4. Optimizing Teacher Allocation

Context

Adequate and fully staffed schools are the bulwark of a strong education system. A healthy Pupil Teacher Ratio (PTR) is essential for effective teaching learning in schools. As states strive for achieving RTE mandated PTR norms, there are challenges at the secondary and senior secondary level. A glance at secondary teacher sanctions across states indicates the challenges with recruitment of teachers.

There are acute shortages of teachers, especially at the secondary and higher secondary levels. For states like Jharkhand and Odisha – the higher secondary PTR[1] was as high as 57[2]. For primary and upper primary schools, the shortage of subject specific teachers is usually mitigated by combining multiple grades and/ or making a teacher of an allied discipline teach the class (E.g., Physics teacher teaching mathematics). However, in higher grades, the expertise required is high, rendering workarounds ineffective. This is one of the reasons due to which Students drop out in high numbers at the secondary and higher secondary grades, leading to a sharp dip in NER[3] and ANER[4] at these levels.

Jharkhand has fewer number of working teachers among comparable states

S: Secondary teachers
HS: Higher secondary teachers

	# S/HS Teachers Sanctioned	# S/HS Teachers Working	# S/HS Students Enrolled	Sanctions/100k Students	Teachers/ 100k Students	% Sanctioned posts filled
JHARKHAND	33,006	13,674	724,476	4,556	1,887	41%
BIHAR	70,578	45,169	3,657,601	1,930	1,235	64%
CHHATTISGARH	47,944	43,877	1,148,036	4,176	3,822	92%
ODISHA	40,420	25,284	737,155	5,483	3,430	63%
MADHYA PRADESH	69,000	54,822	1,844,705	3,740	2,972	79%
WEST BENGAL	162,852	153,436	4,389,665	3,710	3,495	94%
RAJASTHAN	130,412	106,863	2,335,319	5,584	4,576	82%
PUNJAB	48,545	48,062	750,689	6,467	6,402	99%
TAMILNADU	96,443	94,239	1,392,683	6,925	6,767	98%

Source: Jharkhand - JSAC data | Odisha, MP, Rajasthan   - SATH Teams | Other states - UDISE + 2019 -20 report; PAB minutes on vacancies

High #Teachers   Low #Teachers

18

Exhibit 22: Number of sanctioned and working teachers per 100k students across states

[1]PTR or Pupil Teacher Ratio is defined as the number of students per teacher in an educational institute
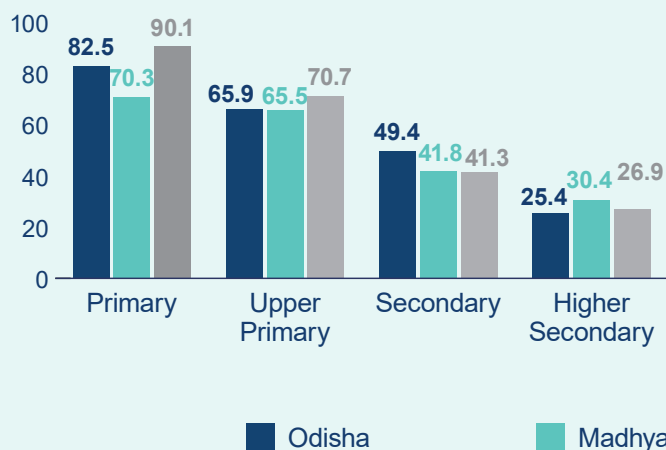[2]Source: UDISE 2021-22 Report
[3]NER (Net Enrollment Ratio) for a grade is the % of students of the official age group enrolled in that grade
[4]ANER (Adjusted Net Enrollment Ratio) for a grade is the % of students of the official age group enrolled in any grade.

Net Enrolment Rate (NER) by Gender and Level of School Education, 2021-22

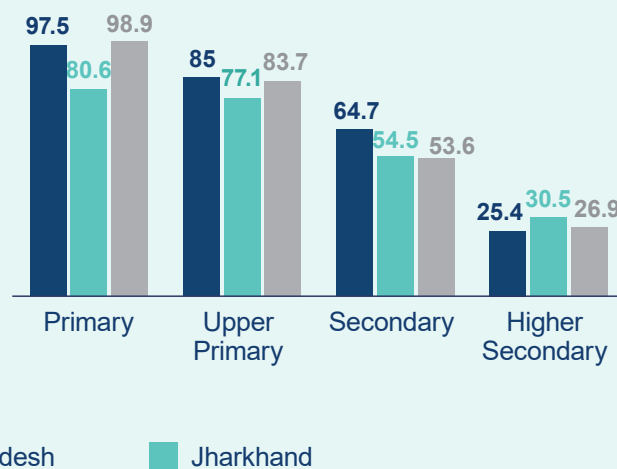**Adjusted Net Enrolment Rate (ANER) by Gender and Level of School Education, 2021-22**

NER by Gender and Level:
- Primary: Odisha 82.5, Madhya Pradesh 70.3, Jharkhand 90.1
- Upper Primary: Odisha 65.9, Madhya Pradesh 65.5, Jharkhand 70.7
- Secondary: Odisha 49.4, Madhya Pradesh 41.8, Jharkhand 41.3
- Higher Secondary: Odisha 25.4, Madhya Pradesh 30.4, Jharkhand 26.9

ANER by Gender and Level:
- Primary: Odisha 97.5, Madhya Pradesh 80.6, Jharkhand 98.9
- Upper Primary: Odisha 85, Madhya Pradesh 77.1, Jharkhand 83.7
- Secondary: Odisha 64.7, Madhya Pradesh 54.5, Jharkhand 53.6
- Higher Secondary: Odisha 25.4, Madhya Pradesh 30.5, Jharkhand 26.9

Legend: ■ Odisha ■ Madhya Pradesh ■ Jharkhand

Exhibit 23: Falling NER and ANER in secondary and higher secondary grades across SATH-E states
Source: https://www.education.gov.in/sites/upload_files/mhrd/files/statistics-new/udise_21_22.pdf;
https://dashboard.udiseplus.gov.in/#/reportDashboard/sReport

A long-term solution to this issue is hiring teachers for these subjects and levels. Across SATH-E states recruitment & rationalization efforts were undertaken. However, overall the complexities and challenges around hiring teachers, the supply and demand of teachers across various subjects, and the logistics of hiring in huge numbers make many state government education systems understaffed. In such understaffed systems, it is important to optimize the deployment of teachers to ensure access to teaching staff.

Approach

The school education system of Jharkhand was understaffed with PTR[5] of 57 at the senior secondary level and 35 at Secondary level (National PTR is 27 at Senior Secondary Level and 18 at Secondary level) . As a result, the secondary and higher secondary NER[5] were below 45%.

Government schools in the state had 11 PGT sanctions for higher secondary grades (i.e., grades 11 and 12) and 10 TGT sanctions for secondary grades (i.e., grades 9 and 10), agnostic to enrollments. Sanctioned teacher positions were not commensurate with PTR norms and subject based teacher allocation norms which led to sub-optimal utilization and distribution of teachers across the state. Following were the challenges arising due to the sanctioning approach:

1. **Low enrolment schools over-staffed & high enrolment schools under-staffed:** Standardized sanctioning norms across schools resulted in low enrollment schools (for e.g., 79 out of 510 schools up to grade XII had a total 9-12 enrollment of less than 100) having surplus teachers sanctioned while high enrollment schools (for e.g., 245 out of 510 schools up to grade XII had total 9-12 enrollment of greater than 500) faced an acute shortage.

[5]PGT Subjects: Hindi, English, Sanskrit, History, Geography, Economics, Math, Physics, Chemistry, Biology, Commerce
[6]TGT Subjects: Hindi, English, Sanskrit/Urdu, Math+Phy, Bio+Chem, History+Civics, Economics, Geography, Regional Lang, HS/PE/Music.

2. **Lack of teacher sharing between secondary and higher secondary grades leading to PGT under-utilization:** As separate sanctions had been defined for secondary and higher secondary grades, PGTs were severely under-utilized in schools with less than 4 sections across grades 9 - 12. For example: Assume a school has 1 section each of classes 9 and 10, and 1 section in classes 11 and 12 studying math. Assuming 5 periods/week for secondary and 6 periods/week for higher secondary, there would be a total of 22 math periods in a week. This could be taught by a single PGT teacher (maximum load: 36), however, existing norms would sanction 1 TGT and 1 PGT for this school resulting in their sub-optimal utilization.

3. **PGT Commerce teacher sanctioned in every Senior Secondary school irrespective of student demand/ enrollment:** 190 of 510 schools had reported students appearing for board examinations in commerce in the academic year 2019-20. However, given the standard sanctioning norms across schools, there were 300+ schools where commerce related teacher sanctions were present albeit unutilized.

4. **Lack of representation for electives that are desired by students:** Arts electives such as Political Science and Sociology had ~36,000 and ~24,000 students appear for board exams in 2019-20 . There was a dearth of specialist teachers for these subjects due to existing sanctioning norms.

These limitations warranted restructuring of PGT and TGT sanctions in High Schools and +2 schools. To mitigate these challenges, new set of teacher sanctioning norms were proposed premised on the following principles:

1. Enrollment-based teacher sanctioning

Schools were organized into 4 categories based on their enrolment in secondary and higher secondary grades. The categorization was done considering an average of 50 students per section.

Teacher sanctioning for each subject and category was determined based on the maximum number of periods a teacher could teach in a week. (E.g., for Jharkhand 34 periods are assumed to be the threshold)

2. Offering of streams on demand basis

At the time, all three streams – Arts, Science and Commerce, were offered across all schools irrespective of enrollment or interest. However, ~67% of students opted for the Arts stream as per board examinations enrollment. Hence, it was proposed to rationalize the streams across schools. Rationalization was based on three principles:

1. Minimum of 20 enrollments required to continue offering a stream in a school.

2. At least 1 stream is offered per school.

3. Every stream is available in each block.

	Higher secondary schools with Grades 9-12 Enrolment	**Secondary with 9-10 enrollment**
Category 1	0-199	0-99
Category 2	200-499	100-199
Category 3	500-999	200-499
Category 4	>1000	>500

3. Demand-based offering of electives within each stream

There were several high-demand subjects like computer science and political science with low sanctions. On the other hand, low-demand subjects had mandatory sanctions. To mitigate this, a demand-based offering of electives was proposed. Additional sanctions were introduced for high-demand subjects like political science and computer science. Further, larger schools were permitted sanctions for an extra elective.

4. Sharing of TGT teaching load by PGT teachers in schools with vacancies

Several schools had teacher vacancies where either TGT and/or PGTs were unavailable. Since teaching PGT subjects require post-graduate specialization, they could not be taught by TGTs. However, PGTs were qualified for teaching TGT subjects. Hence, in the case of TGT vacancies, the teaching load was proposed to be shared by PGT teachers, subject to a maximum of 34 periods per week.

Impact and Learnings

These recommendations on revision of Teacher Sanction norms for Secondary and Senior Secondary schools were made to the state before the closure of the SATH-E Project. For the sanctions based on the above

principles, a detailed sanctioning matrix was prepared. This matrix defines the number of teachers sanctioned for a subject, for a given category of school. Some illustrative sanctioning matrices are shown below for both secondary and higher secondary grades.

Implementing these norms has the potential of reducing the secondary teacher sanctions required in the state significantly. Moreover, it would lead to a significant improvement in teacher utilization across both TGT and PGT grades.

Teacher rationalization is a great lever towards enabling more effective teaching-learning at the school level by balancing resources across districts, blocks and schools.

Throughout the development of the optimization model for teacher sanctions there have been a few learnings and suggestions from stakeholders involved in process:

1. **Frequency of teacher sanction revision:** Currently, In Jharkhand the teacher sanctions norms are fixed as per the classification of schools. While the current model keeps the sanctions dynamic based on enrollment, there is a need to recognize the administrative challenges arising from frequent change of sanctions. To mitigate this the state can select the frequency at which the teacher sanctions are to be revised.

Illustrative Sanctionary Matrix:
TGT staffing norms in High schools

		Current sanctions	Proposed sanctions			
			Category 1: 0-199 (C9-C10)	Category 2: 200-399 (C9-10)	Category 3: 400-599 (C9-10)	Category 4: 600+ (C9-10)
Number of govt. schools		1848	1279	415	103	51
Teacher type	Subjects		I	II	III	IV
TGT	English	1	1	2	3	3
TGT	Hindi	1	1	2	3	3
TGT	Mathematics + Physics	1	1	2	3	4
TGT	Third Language	1	1	1	2	2
TGT	Social Science	4	1	2	3	4
TGT	Chemistry + Biology	1	1	2	3	4
TGT	Computer Science	0	1	1	1	1
TGT	Home Science/PE/Music	1	1	1	1	1
		10	8	13	19	22

Exhibit 24: Subject and category wise teacher sanctions for high schools

2. Access to course combinations and streams: While the model recommends the offering of stream/ course combinations based on student demand, implementation guardrails to ensure that all course combinations and streams are offered at block level are to be kept.

Subject	Category 1 (0-199)	Category 2 (200-399)	Category 3 (400-599)	Category 4 (600+)
English	71%	71%	71%	94%
Hindi	71%	71%	71%	94%
Mathematics + Physics	94%	94%	94%	94%
Third Language	47%	94%	71%	94%
Social Science	94%	94%	94%	94%
Chemistry + Biology	94%	94%	94%	94%
Computer Science	24%	47%	71%	94%
Home Science/PE/Music	12%	24%	35%	47%
Overall	65%	74%	74%	88%

1. School category is based on number of student admissions in the schools for classes 9-10
2. Average utilization has been calculated at 34 periods/ week

Exhibit 25: Subject wise utilization of teachers increases significantly post revised sanctions in high schools (grade 9-10)

Average utilization of teachers increases significantly post revised sanctions in higher secondary schools (grades 9-12)

Stream	Category 1 (0-249)	Category 2 (250-499)	Category 3 (500-749)	Category 4 (750+)
Arts	35%	65%	71%	82%
Science	47%	74%	76%	82%
Commerce	35%	65%	74%	79%
Arts + Science	41%	65%	79%	79%
Arts + Commerce	32%	65%	74%	79%
Science + Commerce	38%	65%	79%	79%
Arts + Science + Commerce	44%	71%	65%	79%
Arts	35%	65%	71%	82%
Science	47%	74%	76%	82%

School category is based on number of student admissions in the school for classes 9 - 12
Average utilization of all subjects in the type of school considered

35

Exhibit 26: The revised staffing norms can potentially increase both TGT and PGT teachers' utilization

3. Academic Interventions

3.1. Bridging the Learning Gap – At-Scale Remediation in Campaign Mode

Context

There is overwhelming evidence to show that India has a gaping divide between what a student knows and what a student is expected to know. International (PISA) and Indian surveys (NAS and ASER) repeatedly corroborate this fact with data. The common practice among teachers today is to tend to focus on curriculum completion. So, even if there are 20 out of 30 students in Grade 5 who are at competency levels of grades 2, 3 or 4, the teacher focuses on completing Grade 5 curriculum. However, this is a futile exercise. Anecdotal evidence suggests that children are unable to grasp at-grade syllabus until serious bridging is done. This necessitates the creation of an effective and scalable learning enhancement program that can help quickly bring those students who are behind, to grade or near grade-level competence.

Teaching at the Right Level (TaRL) encourages teachers to conduct lessons appropriate for the actual learning levels of their students, rather than focusing on completing a standard curriculum as mandated by the grade and age. This concept of TaRL has been further developed into concrete large-scale academic interventions and implemented in all 3 SATH-Education states over 2018-2020 through different programs.

- **Jharkhand** – Gyan Setu
- **Madhya Pradesh** – Dakshata Unnayan
- **Odisha** – Ujjwal & Utthan

This section will entail a deep dive into Madhya Pradesh's Dakshata Unnayan program, with best practices deployed and learnings from the same.

Remediation Programs

Customized remediation programs	*Jharkhand* **Gyan Setu**	*Madhya Pradesh* **Dakshata Unnayan**	*Odisha* **Ujjwal + Utthan**
Grouping by learning level	Grade1-2 students *Nirmaan*		Grade1-2 students *Level 1*
Primary Grades (1-5)	Grade 3-5 students • Grade 1-2 *level - Lakshya* • Grade 3-5 *level - Pragati*	Grade 3-5 students • Grade 1-2 *level - Ankur* • Grade 3-5 *level - Tarun*	Grade 3-5 students • Grade 1-2 level - *Level 1* • Grade 3-5 level - *Level 2*
Upper primary grades (6-8)	Grade 6-8 students • Grade 1-2 *level - Lakshya* • Grade 3-5 *level - Sugam* • Grade 6-8 *level - Subodh*	Grade 6-8 students • Grade 1-2 *level - Ankur* • Grade 3-5 *level - Tarun* • Grade 6-8 *level - Umang*	Grade 6-8 students • Grade 1-2 level • Grade 3-5 level • Grade 6-8 level
Secondary grades (9)	Grade 9 students • Grade 3-5 *level - Sugam* • Grade 6-8 *level - Subodh*	Grade 9 students • Grade 3-5 level • Grade 6-8 level (for Hindi, English and Math)	Grade 9 students • Grade 1-4 level - *FC* • Grade 5-8 level - *SLP*
Subjects covered	Grade1-2, 3-5 level: Hindi, English, Math Grade 6-8 level: English, Math, Science	Grade 3-8 level: Hindi, English, Math Grade 9 students: English, Hindi, Math, Science, Social Science	Grade 1-2 level: Odia, Math Grade 3-5 level: Odia, Math, English Grade 6-8 students: Odia, Math, English. Science

Ujjwal · *Utthan* · *Utkarsh* · *bridge course* (labels spanning Odisha and Madhya Pradesh columns)

Exhibit 27: Overview of remediation programs in SATH-Education States

Note: Remediation program for Grades 1-8.

Dakshata Unnayan (Learning Enhancement Program in Madhya Pradesh)

Several studies indicate that a significant proportion of primary school students in Madhya Pradesh are not at grade-level competence (51% of grade 3 students not at grade level - NAS 2017). According to the NAS, conducted by Ministry of Education in 2017 which tested 1,40,363 students across more than 8,566 schools in Madhya Pradesh, it was found that the state was below the national average in most of the categories. (Exhibit 21)

Research has proven that learning gaps continue to compound for students who lack foundational learning in their early years. In addition, in the absence of a strong pre-primary education system, it is also important to address critical pre-primary competencies in grade 1 to ensure appropriate school readiness for children.

Approach

To address both these issues, the state decided to launch a remediation program titled Dakshata Unnayan for grades 1-8. The program was designed keeping in mind the well proven Teaching at the Right Level (TaRL) methodology, where children are grouped by learning levels, in order to ensure targeted classroom instructions are provided to each group, and associated teaching-learning material is prepared keeping the grouping in mind.
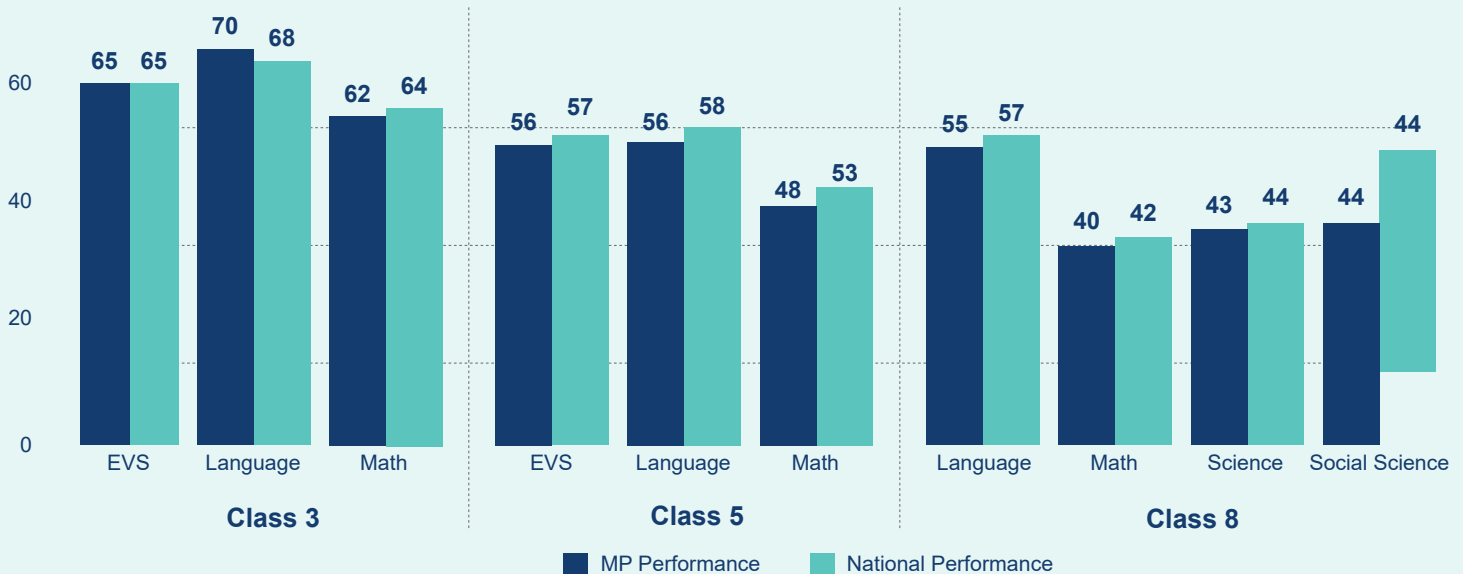
Exhibit 28: Performance of Madhya Pradesh in NAS 2017

Key design features of Dakshata Unnayan Program in Madhya Pradesh:

Multiple choices exist for designing various aspects of the remediation program. For designing the program in Madhya Pradesh, the state studied all these options in detail and made the following strategic choices based on applicability and suitability in the local context:

OPERATIONAL DESIGN

Option 1	**In-school:** Time is carved out for remediation from the existing school timetable.
Option 2	**Outside of school hours**: Additional time, outside of the regular school day, is identified for remediation (such as stay-back after school/holidays, etc.).

Madhya Pradesh decided to operationalize the program within school hours to ensure sustainability and scalability. This ensured adequate student and teacher attendance, allowed the program to get focus and priority at every level, starting from teachers and parents, up to the district and state administration (should not be seen as an 'additional' voluntary program).

PROGRAM DURATION

Option 1	One-time booster where the whole day is focused on remediation for a specific duration (1-1.5 months)
Option 2	Multi-year on-going program that continues through the entire academic year

In Madhya Pradesh, the program was implemented through an intensive remediation booster month at the beginning of the academic session, in which 2 hours per day were dedicated to Dakshata Unnayan. The initial booster period helped in building critical momentum in the initial months and allowed for a significant chunk of time to be spent on bridging gaps before proceeding to teach the regular syllabus. However, owing to the fact that attendance is often very low in the initial month post vacations, concentrating the whole program in the initial months risked resulting in a significant percentage of students missing out on the program – likely the ones who need it the most. Hence, the booster month was followed by 1-1.5 hours of targeted remediation per day throughout the rest of the year. This also allowed time for the program to settle in a large state like Madhya Pradesh, and left scope for ongoing course correction.

GROUPING CONSTRUCT

Option 1   Re-organize all classes into groups on the basis of their learning levels (i.e. student across all grades 1-5 for example are grouped as L1, L2...L5 basis learning level and not grade

Option 2   Pull-out behind-grade students during school hours and teach them separately

Option 3   Group students in two or three groups **within each class** based on learning levels. The teacher facilitates teaching for these groups using content created for multi-level teaching

Option 4   Create heterogeneous (mixed learning levels) groups of students and use peer-learning as a way to improve learning outcomes of behind grade students

In a typical classroom, students not only span over a range of different learning levels but are also at different grade-levels. If they are taught uniformly or made to read the same pages of a textbook irrespective of their ability, the learning of the student is compromised. The benefit of homogenous grouping is that students of one learning level are grouped together. However, a perceived risk is if the students will feel labeled into a category. In contrast, heterogenous grouping could facilitate peer learning, however, it is a far more complex model to implement. It requires highly skilled teachers to be executed well. Teaching at the Right Level (TaRL) model, which is a homogeneous grouping-based method has strong evidence of delivering outcomes, and hence was chosen as the preferred option.

In order to address the problem of students feeling labeled into a category, sensitization and communication trainings were conducted for the teachers to ensure that such a message is not conveyed to the students and that they feel valued. Additionally, names of the groups (i.e. Ankur, Tarun, and Umang) were chosen in a way that does not reflect any kind of segregation done among students. With this, the students of the highest learning level group were also asked to aid those in other groups during the remediation hour once their own practice worksheets/topics were completed, which facilitated peer learning in classrooms as well.

Additionally, the state chose the model of grouping students within classrooms rather than across classes. This was done to avoid mixing students of different age groups - even if there were children in grade 5 at grade 2 level, their ability to learn grade 2 content would be much faster and will need a different approach as compared to a child at grade 2. Also, the concerns around labeling of children were higher if they were made to move out of their regular classroom as opposed to grouping within a classroom. Hence this decision was taken.

The model had to be designed in a way that it could work in 2-teacher constructs, which is how most schools are in Madhya Pradesh – typically one teacher teaches grades 1 and 2 and one teacher teaches grades 3 to 5. Hence, all grade 1 and 2 students were suggested as one set for re-grouping and grades 3 to 5 as another set for re-grouping. When some schools had more than 2 teachers, then groups with different learning levels were managed by different teachers, within the given set of classrooms.

Under the program, students were grouped basis their learning level into 3 categories
- **Ankur (learning level of grades 1 and 2)**
- **Tarun (learning level of grades 3 to 5)**
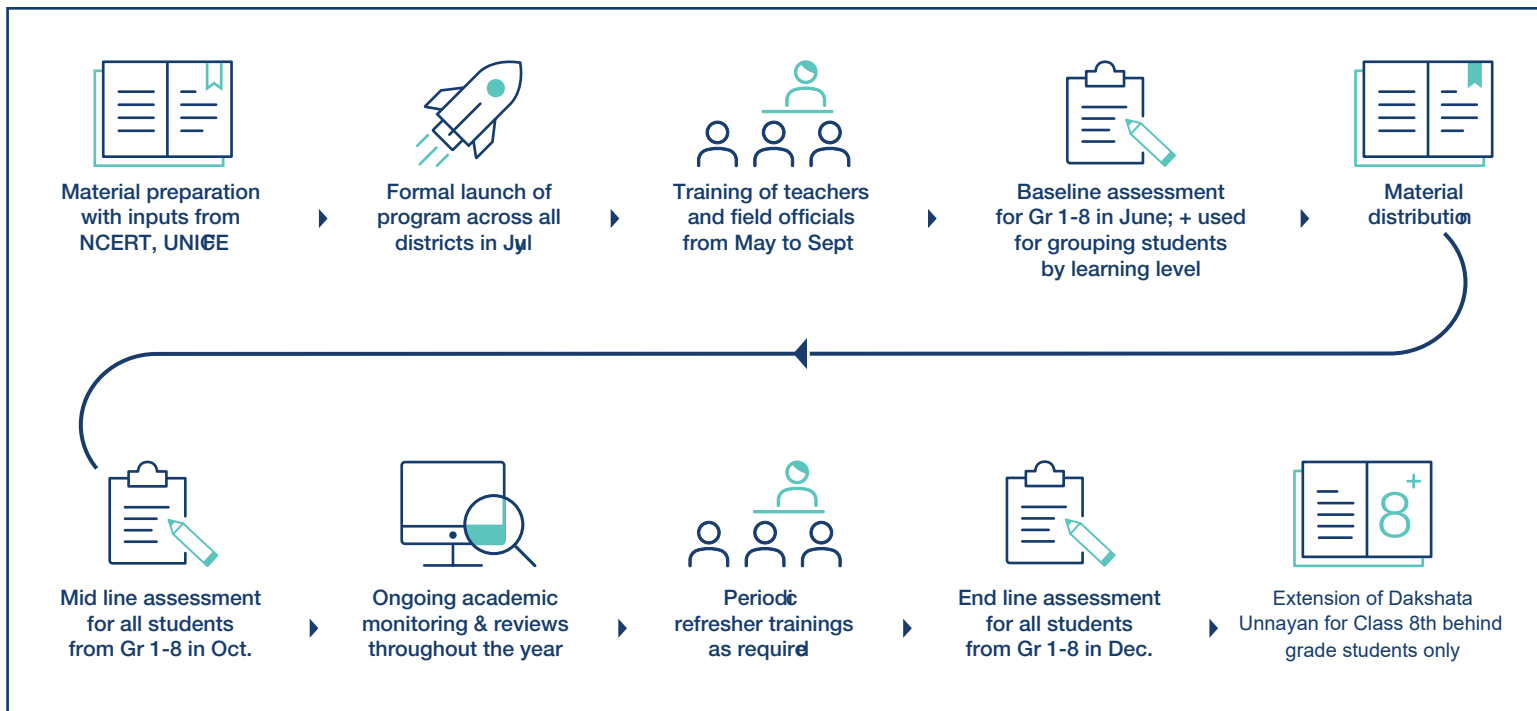- **Umang (learning level of grades 6 to 8)**

Material preparation with inputs from NCERT, UNICEF ▸ Formal launch of program across all districts in July ▸ Training of teachers and field officials from May to Sept ▸ Baseline assessment for Gr 1-8 in June; + used for grouping students by learning level ▸ Material distribution

Mid line assessment for all students from Gr 1-8 in Oct. ▸ Ongoing academic monitoring & reviews throughout the year ▸ Periodic refresher trainings as required ▸ End line assessment for all students from Gr 1-8 in Dec. ▸ Extension of Dakshata Unnayan for Class 8th behind grade students only

Exhibit 29: Brief summary of timeline of Dakshata Unnayan programme

Exhibit 30: Various activities conducted as part of Dakshata Unnayan implementation

This kind of re-grouping facilitated the teachers as they did not have to tackle huge variances in learning levels of students in the same class. Students also benefited because teachers were able to focus more on those students whose learning levels needed to be upgraded most, thus reducing the accumulated learning deficit.

Grouping Tool

Madhya Pradesh wanted to use a tool where the evaluation is filled by the teacher, through interaction and/or observation of the student. Thus, Madhya Pradesh decided to opt for a tool similar to what was developed by Pratham for ASER surveys, which was effective for grouping purposes.

(Assessment Sheet)

Exhibit 31: Grouping tool used for Dakshata Unnayan

DEVELOPMENT OF TLM FOR TEACHERS & STUDENTS

Option 1	The State designs, prints and provides specific content for the remedial program (lesson plans with activities for teachers, worksheets for each student)
Option 2	No prescribed content, thereby allowing teachers to create lesson plans by themselves for different groups of students

Remediation programs in several states function with dedicated remediation hours. However, many did not provide specific learning materials but only broad guidelines suggesting teachers should focus on behind-grade students during this time.

In Madhya Pradesh, it was considered essential that each learning group was given its set of dedicated learning material so that first, a common goalpost was defined, i.e. all basic competencies that the students at each level must attain at the end of the program, and secondly, to provide a set of practice worksheets for each of those competencies. A teacher handbook was also considered important to apprise teachers on various activities, through which these competencies could be delivered. To assist the teachers in Teaching at the Right Level (TaRL) as per the Dakshata Unnayan grouping, the state developed student workbooks focusing on literacy (Hindi) and numeracy for each learning group. The student workbooks were supplemented by teacher handbooks, which served as a guide for teachers to implement the program and ensure that the student workbooks were used in an appropriate manner.

Exhibit 32: Subtraction using Straw Bundles, District Umaria

Exhibit 33: Students using Dakshata Unnayan Remediation workbooks in the classroom

Capacity Building for all Stakeholders

The pedagogical interventions under Dakshata Unnayan were supported by a strong system of capacity building for teachers and field staff.

- **Intensive five-day trainings** were conducted for teachers at district and block levels, along with trainings for department officials including District Education Officer/District Project Coordinator, Block Academic Coordinator and Cluster Academic Coordinator at the beginning of the session.

- These were supplemented by **periodic refresher trainings** at the ground level for various stakeholders.

- **Pre-written modules and digital content** were leveraged across all these workshops to ensure minimum transmission loss in a cascade system.

The trainings were also refined in the second year of the program, based on inputs received from the teachers along with key challenges seen in implementation.
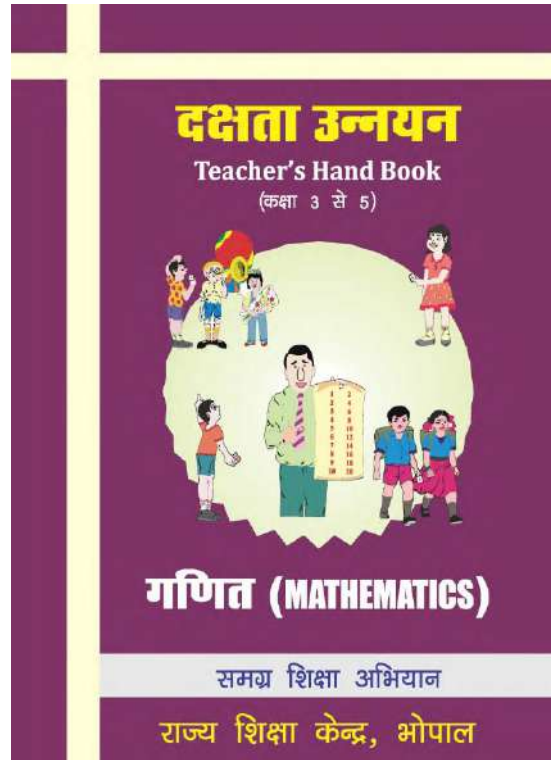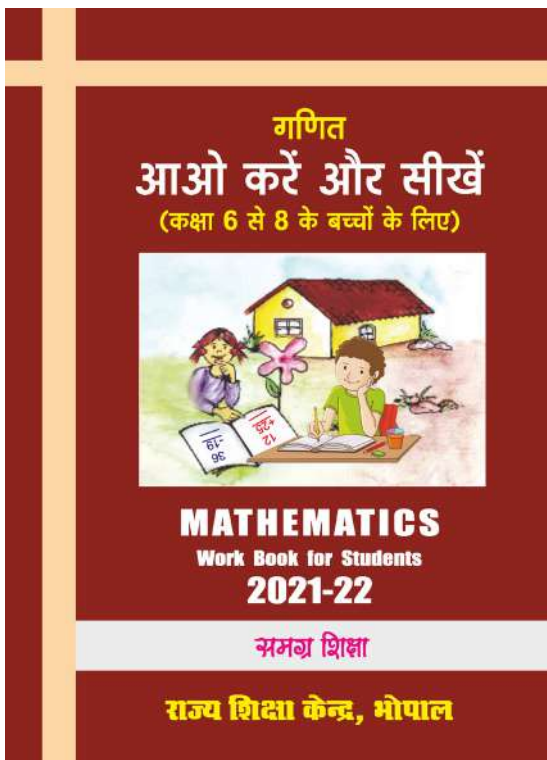
Exhibit 34: Student Workbook and Teacher Handbook for Grade 6-8 Math

Ongoing Monitoring & Support

The state also ensured regular monitoring of execution and tracking of learning outcomes through various methods:

- **Midline/Endline Assessments**
  The change in learning levels was monitored through a midline and an endline assessment conducted after every cycle.

- **Student Competency Trackers**
  Student competency trackers were used at the school level, which teachers had to fill for getting a status-check of their own classrooms, without having to report it to the state.

- **Shala Darpan**
  Additionally, the Shala Darpan school monitoring system was leveraged to ensure remediation program focused monitoring across all schools with a dedicated section on Dakshata Unnayan. 40% of schools were covered each month to ensure each school was visited at-least once every quarter.

- **Report Cards and Video Conferences**
  The state also shared monthly report cards with the district leadership to support in implementation, and performance of the districts was reviewed through weekly Video Conferences with the state leadership.

- **Parent-Teacher Meetings**
  To ensure downward accountability and engage parents, practice of holding regular PTMs was instituted in all schools.

- **Virtual Field Support Call Centre**
  This was supplemented by setting up of a Virtual Field Support (VFS) cell at the state level with both inbound and outbound calling to track execution, get feedback and handle grievances as well as questions.

Exhibit 35: Glimpses of Parent-Teacher Meetings organized across the state

Simplifying Mathematics - How a Teacher Improved Learning Levels in just a few months!

Mrs. Veena Tiwari, one of the teachers at Govt. Middle School, Block- Fatehgarh, District- Mandsaur has been running the state's flagship program - Dakshata Unnayan in Classes 6th – 8th.

Before Dakshata Unnayan started, students in Mrs. Veena's school had trouble understanding basic mathematical ideas and lacked an understanding of practical application of concepts.

With the help of Dakshata Unnayan student workbooks and teacher handbooks, Mrs. Veena could introduce an activity-based learning approach. Mrs. Veena used these activities to teach complex concepts to her students. She also maintained a separate scrapbook to record various activities performed by students in her class. Additionally, she prepared videos of students working on various activities which were also showcased as a part of workshops at the district level.

Owing to these efforts, additionally, 30% of students from class 6th-8th transitioned to the highest learning levels in a period of just 2-3 months.

Exhibit 36: Scrapbooks developed by Mrs. Veena Tiwari to assist in remediation teaching based on teacher handbook developed by the state were picked by other teachers

Bridging Learning Gap by Innovative in-class Interventions and Engaging Students

In Government Primary School Laitra, Datia District, the attendance of Ankur students used to be extremely low. Additionally, only one teacher was dedicated to grades 1 and 2. As a result, the students in this school were lagging behind their peers in terms of their learning levels. To counter this, Mr. N K Dubey, one of the teachers in the school made several interventions:

• Students of the Ankur Group (students who were 1 or 2 levels lower than the expected grade) were taught using the peer learning method. This was executed by assigning few students from the Tarun Group (students who had reached their grade level) as buddies to the Ankur Group. Students from Tarun Group were tasked with assisting students from the Ankur Group in understanding various concepts.

• A school level progress report was created to keep track of monthly student progress

• The classrooms were made to look attractive with various TLMs, posters etc. to create a visually appealing environment for the students

• One of the walls in the classroom was turned into a library by innovatively stringing a rope across the wall and hanging books on the rope.

Through Mr. Dubey's efforts, the attendance in the school increased from 40-45% to 80%. This also resulted in an improvement in the learning levels, and only 3 students out of 38 remained in the Ankur group. Additionally, due to the presence of an in-class library, the kids felt encouraged to just walk to the library wall, pick up a book and start reading.

Exhibit 37: In-class library in Primary School Laitra

Impact and Learnings

In 2018-19, over 67 lakh students across Grades 1 to 8 underwent the Dakshata Unnayan Program in nearly 1.1 lakh schools in the state. The state also trained over 2 lakh teachers in conducting remediation classes and associated pedagogical concepts.

To assist in program execution, a network of 6000+ mentors was leveraged, along with ~2600 District Institute of Education Training Staff, District Resource Groups and State Resource Groups. Additionally,

Parent-Teacher Meetings were organized in 99% of the schools and discussions on Dakshata Unnayan profiling, worksheets and results were held with 34 lakh guardians.

As per data self-reported by the schools, there was a significant improvement in learning outcomes across the districts during the academic year 2018-19:

32% students moved from Ankur to Tarun in Grades 3-5 (Maths)

25% students moved from Ankur to Tarun in Grades 3-5 (Hindi)

24% students moved from Ankur / Tarun to Umang in Grades 6-8 (Maths)

18% students moved from Ankur / Tarun to Umang in Grades 6-8 (Hindi)

The success of the Program continued in the academic year 2019-20 (Pre-COVID timeframe), by which time Dakshata Unnayan became a part of the everyday vocabulary of schools and gained acceptance among

the teachers, with most teachers reporting the program to be a useful tool for addressing learning gaps. In the academic year 2019-20, 15-30% of additional elementary students attained basic competencies:

28% students moved from Ankur to Tarun in Grades 3-5 (Maths)

22% students moved from Ankur to Tarun in Grades 3-5 (Hindi)

17% students moved from Ankur / Tarun to Umang in Grades 6-8 (Maths)

15% students moved from Ankur / Tarun to Umang in Grades 6-8 (Hindi)

Key Challenges and Mitigation Strategy

Despite successful implementation of the Program across nearly two full years, several challenges emerged from the field during implementation:

Delayed Material Distribution:
Distribution of workbooks and handbooks was delayed leading to loss of initial months. For subsequent years, timely printing and distribution was ensured, through early planning and regular reviews with the department.

Missing Academic Reviews:
'Academic' conversations were often missing in district review meetings; additionally, lack of involvement from DIET staff was also observed. Potential mitigation strategies were to strengthen DIET-CRCC linkages for academic governance and integration of results from "Wall of Fame" Learning Outcomes-based school certification program into regular district and state level discussions.

Inadequate Capacity of Cluster Academic Coordinators:
Cluster Academic Coordinator's understanding and ability to mentor schools was low, leading to inadequate support to schools. This required significant effort towards training & capacity building of Cluster Academic Coordinators.

Low Compliance towards collateral usage:
Low compliance with respect to student trackers, parents' signature on worksheets, teacher handbooks and checking of workbooks observed initially was addressed through multi-level stakeholder workshops, refresher trainings and school-level monitoring

Key Revisions in Year 2 basis feedback from the field

Modifications in content:
Changes were made in content based on inputs received from the field. For e.g.

- Snippets of teacher instructions were added to student workbook itself since teachers were not seeing the guidebook as much while continuing to push guidebook usage in parallel.

- More content was developed for certain competencies on which student performance was continuously poor while content was reduced for some competencies.

Change in scope:
Grades 1-2 were dropped from the program and the state launched a dedicated FLN mission for these grades in the academic year 2021-22.

Streamlining of trainings:
Trainings under the program were streamlined to focus on key challenges and issues being faced by the teachers in implementation:

- Hands-on activities were added as part of the training curriculum.

- More focus was laid on providing a integrated picture to teachers on various elements of remediation and classroom teaching process (assessments, tracker, grouping, handbook, workbook etc.).

- Training on "how to facilitate trainings' were organized for facilitators.

Development of app for efficient data entry:
An app was introduced to allow schools to enter their results of the baseline / endline assessments themselves as against having to give hardcopy results to a CRC to enter.

Revamping the Monitoring Process:
Monitoring process around Dakshata Unnayan execution was split into cycles to prevent overburdening of monitors in each visit; select key focus areas were identified and tracked in each quarterly cycle.

This process of review and revision of the Dakshata Unnayan Program is taken up every 1-2 years, ensuring that the focus on learning outcomes remains intact and learning is effective.

Further, while the impact assessment of the Program currently happens through self-reported data, the state began work on a robust third-party verification based certification system, such that FLN attainment of the schools post 2 years of rigorous Dakshata Unnayan implementation could be ascertained in a robust manner. The certification plan was delayed owing to the COVID-19 induced lockdown. School closures for long periods of time have led to significant learning loss. Considering this fact, the program has been suitably modified and continued, keeping in mind the baseline levels observed post reopening of schools.

The long-term goal of remediation, rightly so, is to eliminate itself – this calls for a gradual phasing out of the remediation program as more and more students reach learning levels appropriate for their grades. A key enabler of this, along with the school certification program, would be an effective foundational literacy and numeracy program, which is understandably a major focus area of the National Education Policy 2020 and an initiative all three SATH-E States worked towards.

3.2. Foundational Literacy & Numeracy

Context

The National Education Policy 2020 raised the concern: "The ability to read and write, and perform basic operations with numbers, is a necessary foundation and an indispensable prerequisite for all future schooling and lifelong learning. However, various governmental, as well as non-governmental surveys, indicate that we are currently in a learning crisis: a large proportion of students currently in elementary school - estimated to be over 5 crores in number - have not attained foundational literacy and numeracy, i.e., the ability to read and comprehend basic text and the ability to carry out basic addition and subtraction with Indian numerals."

NEP also acknowledged the importance of FLN: The highest priority of the education system will be to achieve universal foundational literacy and numeracy in primary schools by 2025. The rest of this policy will become relevant for our students only if this most basic learning requirement (i.e., reading, writing, and arithmetic at the foundational level) is first achieved.

Keeping this guidance of NEP in mind, the SATH-E States initiated FLN missions. The approach and learnings of the state of Odisha are described in this section.

Approach

To drive the FLN program, Odisha took the following measures:

1. Setting up the core team

The first step was anchoring the program. The project was anchored by the School and Mass Education department and 2 departments were given primary responsibility for planning, designing and implementation:

a. **Odisha School Education Program Authority (OSEPA):** Responsibility for implementation and monitoring. Key responsibilities included:

- Identifying and appointing point (Nodal) FLN teachers in all primary schools

- Printing and distribution of FLN materials including workbooks, TLM kits etc.

- Monitoring of material distribution

- Executing and monitoring teacher training via virtual and physical modes

- Designing and implementing awareness campaigns

- Overall monitoring of Learning Progress

- Establishment of Monitoring framework and structures

b. State Council of Educational Research and Training (SCERT):

- Developing Odisha-specific FLN materials in partnership with content partners

- Identifying and appointing dedicated State Resource Group teams for classroom teaching design, material development, vetting, revision, and designing teacher training and support

- Designing key assessments and establishing an FLN assessment cell

- Developing content and question bank for the state

Once the key departments and roles were decided, the State entered into a partnership with Language and Learning Foundation and Akshara Foundation as content partners for Literacy and Numeracy respectively. Further, the SATH-E team was driving the program management of the entire initiative.

2. Creating FLN content

A key role for the content partners was not only to bring their expertise in curriculum, pedagogy, and content, but also to support the State team in building capacity for content creation. With any translation, it is important to not do a simple word-to-word translation, but also factor in the local context, literature, and grammar. Hence, SCERT along with the content partners set up capacity and teams to develop State's own contextual FLN content.

- SCERT identified and appointed 20 State Resource Group members each for Literacy and Numeracy to work along with the content partners. These members were subject experts and teachers from across the State

- The SRGs were trained by the content partners on the basics of FLN and even taken on learning visits to other States where the partners were already working

- Regular week-long content development workshops were held by SCERT in phases where the SRG members and SCERT worked collectively to develop FLN content. This included Student materials and Teaching Learning Material Kits for all schools

Literacy and Numeracy in-person workshop held at SCERT to fast-track material finalization process

OSEPA, SCERT, LLF and 20 SRG members took part in a two-day workshop to develop classroom materials for Literacy

Illustration of the nature of TLMs that were made for each grade is as follows:

TLM Material- Literacy : Grade 1

Resource	Status	Resource	Status
Story Cards*	33 SCs per school	Collected poems	1 per class
Big Books	10 BBs per school	Workbook	4
Poem Poster	10	Teacher Posters set	5 per school
Picture Poster	10	Teacher Handbook	1 per teacher
Reading Book	1 per class		
Grid Calendar	1 per class		
Akhyara- Maatra Set	1 per class		

Exhibit 38: High quality student and teacher learning material creation fast-tracked using in-person workshops

3. Dedicated Teacher selection and capacity building

- Basis the number of primary teachers in a school, 1 or 2 teachers were appointed as Point (Nodal) teachers for FLN in their schools. A notice was issued from the School and Mass education department to ensure that FLN teachers are not given any admin work but are dedicatedly allotted to the FLN program. A total of 59,399 dedicated FLN teachers were identified for close to 47,000 schools in the State

- Once the training structure and plan was ready, 240 SRG and 900+DRG members were identified for training. In the first phase, training on basics of FLN was completed for SRG, DRG, State and district officials and teachers over zoom, because of COVID. Face to face training was subsequently done via DIETs.

4. Multilevel and regular monitoring

- State formed a Dedicated State Steering committee, FLN SPMU (FLN State Project Management Unit), and 30 DPMUs (FLN District Project Management Unit) at the district level for strategic planning and monitoring. The State Steering Committee was headed by the Principal Secretary of the Education department and met once every 2 months. The FLN SPMU was co-chaired by Director-SCERT and SPD, OSEPA, and reviewed the progress monthly. The DPMUs were headed by the District Collectors who reviewed progress monthly.

- Existing tools like Odisha School Monitoring App and monthly District Review Meetings were leveraged to monitor implementation

- Sample program tracker via which reviews were conducted is illustrated below.

Rubric for assigning dedicated FLN teachers

# of Primary teachers in a school	Teachers assigned to FLN program, Class 1-2
2	1 teacher - teaching combined class
3	1 teacher - teaching combined class
4	1 teacher for grade 1, 1 teacher for grade 2
5	1 teacher for grade 1, 1 teacher for grade 2
6 and above	1 teacher for grade 1, 1 teacher for grade 2 1 additional teacher assigned for every additional section

Sample Progress Tracker

S.No	Sub-initiative	Owner	Update	Date	Status
1.	Material finalization	SCERT	• **Literacy** – Grade 1 materials verification in progress • Grade 2 material development in progress	Date to be finalized and shared by LLF	●
			• **Numeracy** – Grade 3 workbook design is complete. Sent to SCERT for final vetting	31st March	●
2.	Material Printing & Distribution	OSEPA	• **Literacy** – Printing Process has started for school kits	Date to be finalized and shared by LLF	●
			• **Numeracy** – Grade 3 workbook printing is complete • Distribution has also started	5th April	●
3.	SRG Training	SCERT, OSEPA	• **Literacy** – Early Language & Literacy training module in Odia is with SCERT for DTP • **Numeracy** – Online modules are ready for upload	15th April	●
4.	CRCC & Teacher Training	SCERT, OSEPA	• Translation and vetting of videos for Diksha module ongoing	May 2020	●
5.	Policy Note	OSEPA	• Letter has been sent to PS office for issuance of Govt Order	31st March	●
6.	Governance	OSEPA, SCERT	• FLN State PMU needs to formed	31st March	●
7.	Assessments & Monitoring	OSEPA, SCERT	• Action plan and timelines to be finalized for Assessments, Monitoring Design	TBD	●

● On-track   ● Complete   ● At risk

Exhibit 39: FLN progress update for March 2021

Impact and Learnings

- Classroom resources, workbooks, and TLMs prepared for each grade and distributed to students and schools (including 6 sets of student workbooks for literacy and numeracy, teacher handbooks, kits with 17+ manipulatives aligned to NCERT guidelines, 30+ materials as part of Literacy kits, etc.)

- ~60,000-point (Nodal) FLN teachers appointed and underwent training

- Student workbooks were sent to close to 13 lakh children across grades 1-3 during the pandemic and community classes were conducted by teachers

As other states think about designing and implementing their own FLN program, it will be critical to proactively address some of the below points:

- Coordination with multiple partners: It is important to ensure the design of a unified FLN program. This needs clarity on the roles and deliverables for all stakeholders including development partners and the department.

- Generating awareness at all levels: Awareness of the State Department, District officials, SMCs, HMs, teachers, and community members is very important to make the program a success.

3.3. Adopting Innovations in Assessments to Improve Instructional Design

For a long time, the dialogue in Indian education was focused on access, and most of the data quoted was related to enrolment numbers. However, as the system matures and slowly begins to focus on quality, student assessment – the measure of the quality of any system – is increasingly becoming an integral part of the dialogue.

That said, it is essential that assessments do not become a process that is undertaken for the sake of it. Rather, the data should be used to make relevant decisions, and help continuously move the system forward. This section covers two such examples from SATH-E states, the first being a competency-based school certification system in Odisha and the latter, tech-led spot-testing of students in Jharkhand.

Learning Outcome-based School Certifications in Odisha – Garima Awards

Context

The State managed to build significant momentum in 2017 & 2018 through two key initiatives – Learning Enhancement Program (LEP) that focused on remediation and Odisha School Monitoring Application (OSMA), an app-based school monitoring system which formed the basis of block and district level reviews. Building on this, to recognize and reward best performing schools in terms of Learning Outcomes and motivate the rest to improve performance, the state decided to launch the School Certification Program.

Approach

The Garima School Certification program was designed to motivate HMs and teachers to bring students to achieve grade level competencies.
The following were the key objectives of the program:
- To identify well performing schools basis academic performance
- To encourage schools to help students to accomplish grade level Learning Outcomes
- To generate healthy competition amongst schools in the block/district

- To recognize and reward these schools' HMs and Teachers
- To recognize and reward schools, clusters and blocks that are ensuring students are achieving appropriate learning outcomes

Key highlights of the approach & implementation are given below:

- **Metrics for certifying schools were based on Learning Outcomes**
  Schools were assessed only on learning outcomes to get certified & rewarded. There was a pre-certification exercise to check accurate reporting of a few important data points in the School Monitoring App.

- **Engagement of all Stakeholders**
  All elementary (primary + upper primary section of secondary) schools were eligible to get certified. When a certain percentage of schools get certified, the relevant cluster & block would also get certified.

- **3 levels of Certification**
  Certification was given at three levels- Bronze, Silver, and Gold, with increasing levels of difficulty. Three levels were kept to help the state:
  - Keep motivation up by making schools see quick successes
  - Break down the goal into clear benchmarks resulting in a clear pathway
  - Identify high performers early, and handhold them to achieve a higher level of certification

- **Unbiased assessment** – Certifications were provided basis a centrally prepared assessment for the nominated school. This assessment was conducted by **a team comprising of DIETs and its faculty of the same district**, as an unbiased assessor for the Bronze and Silver levels, and by **a third-party assessor** for Gold level certification.

- **Standard Operating Procedure followed for certification**
  There were 3 rounds of Certification planned in a year- August, November and February. The process and key dates for each Round were as defined below:

Category	Criteria for Cluster/Block
Bronze	>70% Schools in or above Bronze/Silver/Gold Category
Silver	>70% Schools in or above Silver/Gold Category >70% Schools in or
Gold	above Gold Category

SCHOOL LEVEL PARAMETERS

Category	Academic Parameters	Non-Academic Parameters	Criteria for Cluster/Block
bronze	• *80% Class II-III* at Grade-1 competencies • *80% Class IV-V* at Grade-2 competencies (Language, Math) • *80% Grade VI-VIII* at Grade 3 competencies (Language, Math, English)	*Successful pre-verification of all parameters*	>70% Schools in Bronze Category
silver	• *70% Class II-III* at Grade 2 competencies • *70% Class IV-V* at Grade 3 competencies (Language, Math) • *70% Grade VI-VIII* at Grade 5 competencies (Language, Math, English.)	>70% Avg. Teacher attendance (in last 30 working days)	>70% Schools in Silver Category
gold	• *70% of ALL students* at grade level competencies (Language, Math, English.)	>70% Avg. Student attendance (in last 30 working days)	>70% Schools in Gold Category

Exhibit 40: School level metrics to be tested

Phases in each cycle	Deadline	Example for August
Nomination	By 15th of the certification month	16th August
Pre-Verification	By 25th of the certification month	26th August
Assessment	By 7th of the next month	7th September
Announcement of Certification	By 10th of next month	10th September

- **Rewards & incentives** – In order to motivate officials, it was proposed that tangible rewards be linked to each level of Certification. While certificates & letters of appreciation were considered sufficient for Bronze certification, physical & monetary rewards were considered for Silver & Gold levels. The proposed list of awards were not finalized at the time of closure of Project SATH-E.

Level	School Level Rewards	Cluster and Block Level Rewards
Bronze	• Certificates & Felicitation at District level • Three stars outside school • Included on Block Hall of Fame	Certificates for CRCC and Block Office
Silver	• Certificates & Felicitation at SPD and/or PS level • Four stars outside school • Included on District Hall of Fame • School Grant Award additional INR 20,000	Certificates for CRCC and Block Office SPD grant of INR 50,000 to Block Office
Gold	• Certificates & Felicitation at Principal Secretary level • School Grant Award additional INR 50,000 • Five stars outside school • Included on District Hall of Fame • Media articles in local newspapers	Felicitation of CRCC & BEO by Principal Secretary SPD grant of INR 100,000 to Block Office

Exhibit 41: School Certification Levels and Rewards

A four step process for certification was defined:

1. **Self-Nomination**

   When a school feels that it has achieved the targets defined for a particular level of certification, it may choose to nominate itself for that level of certification by informing the same to their CRCC, who will fill out the nomination form. The application will automatically be forwarded to the next level. A school must nominate itself by the 15th day of the month of certification; nomination forms open 30 days before the deadline. Nominations received after that deadline will be considered in the next cycle. School HM and CRCC should ensure the following before self-nomination:

   - All nominations should first be for Bronze; application to Silver directly is not allowed. Similarly, application to Gold is not allowed before Silver has been achieved. On attainment of one level of certification, schools will have to wait for next cycle before they can apply for the next level of certification.

2. **BEO/Block team pre-verification**

   Schools nominating themselves will be pre-verified by a Block Team headed by the BEO. In this phase, CRCCs of an adjoining cluster will be used to verify the list of pre-verification parameters, BEO will have to coordinate the process such that no CRCC is pre-verifying their own school, and conduct sample checks to ensure quality. A checklist for this process will be provided such that there is no discrepancy. This will include:

   a. List of academic parameters as defined for each level of certification

   b. Teacher attendance register for the past 30 days to verify attendance criteria (>70%)

   c. Student attendance register for the past 30 days to verify attendance criteria (>70%)

   This verification must be completed by the 25th of the cycle month (example - 25th August for the August cycle.). If the school doesn't meet the criterion, then the application will be summarily rejected at this level. The DPC should coordinate the process in the district and ensure that the nominations are verified within the timeline. If a school has a grievance with the pre-verification conducted, they may submit an appeal to the DEO with a letter stating their reasons to believe otherwise. On appeal, the school will be re-verified by district level officials.

3. **Assessment by District team**

   Only schools passing the above pre-verification, will then be eligible for the assessment as per the level of certification applied for. The assessment will be conducted by a District Team consisting of DIET faculty & students, DEO (or his/her representative) and BEO of another block. This team will conduct the assessment from the question paper prepared by the DIETs, and DEOs/BEO will ensure smooth implementation. DIETs will prepare the question paper using the centrally prepared guideline/rubric for Bronze and central question bank for Silver.

   The test will be conducted for all present students. If the student attendance on the day of the test is <70% the test will not be conducted, and school's application is deferred to the next cycle. The test will be evaluated by DIETs and results of the test will be used to check if the academic certification criteria is met or not. All answer sheets should be collected, scored, and retained at the DEO/DPC level. Schools not meeting the certification won't be eligible to apply in the next cycle. This activity should be completed by the 7th of the following month (example- 7th September for August cycle).

4. **Approval /Rejection**

   After the assessment is completed, data will be analyzed and a list of certified schools will be announced before the 10th of the following month. This activity is completed by DIETs and the list is communicated to the DEO office. If approved, the school will get certified and avail the associated rewards. It may now apply for the next level of certification in the next cycle. If rejected, the school will not be able to nominate itself for the next cycle.

- **Completely online process**

  The entire application, pre-verification and result reporting were done through an online portal, developed by the Government with the help of NIC, Bhubaneshwar. The charter of roles for all entities involved were also clearly defined.

Impact & Learnings

1. **Accountability & Public Recognition**

   - One of the key aims of Garima School Certification was to shift accountability from tracking inputs to tracking learning outcomes – and it managed to push that change in mindset from the first year of certification itself in 2019.

   - The first cycle initiated a Jan Andolan on Learning Outcomes and created genuine excitement in the field. Multiple schools and blocks were seen doing mission-mode preparation for the tests. Many BEOs (e.g. Ambhabhona, Subdega, Barapalli) were helping all schools prepare which resulted in >75% of nominated schools getting certified.

   - It was a commendable job that nearly ~24,000 schools over a period of a few weeks were evaluated entirely by the state machinery, i.e. through the respective DIETs supported by CRCCs and BEOs. Another key ingredient to this successful implementation was ensuring sufficient role clarity and buy-in from all stakeholders in the field. Multiple meetings and training workshops were held, and detailed SOPs for each stakeholder helped drive concerted efforts across stakeholders at state, district and block levels.

   - Rewards and recognition played a key role in fueling the Jan Andolan. All Bronze schools were felicitated by the Collectors and DMs in the district and immense press coverage and public excitement followed, as captured in the exhibits.

Certified Schools felicitated by District Collectors and MPs/MLAs in all Districts

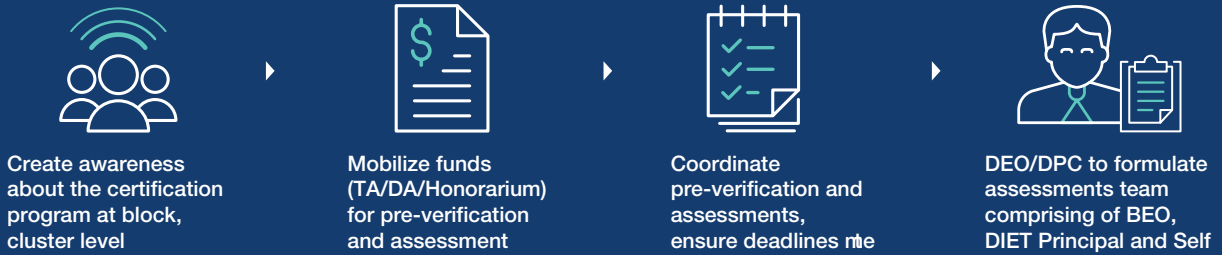*Exhibit 42: Rewarding positive efforts is a key ingredient to success*

2. **Field Ownership**

   A key design consideration during the conceptualization phase of Garima Awards was to identify who will be tasked with conducting the on-ground assessments at school-level. From experience, it was noted that deputing CRCCs or BEOs to conduct assessments 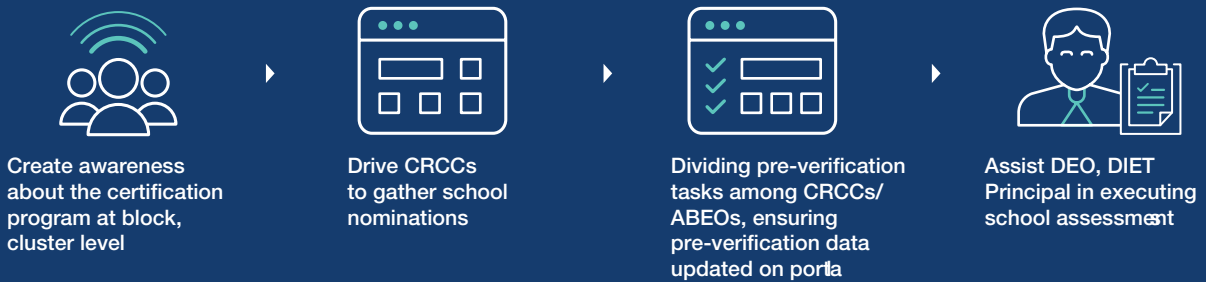of their own cluster/block could lead to bias in reporting as they have a vested interest in the success of their areas. Moreover, in Odisha a majority of DIETs were functional, and typically DIET faculty & students have low involvement in the administrative setup of the Education Department of the State, and thus a decision was taken to constitute district teams
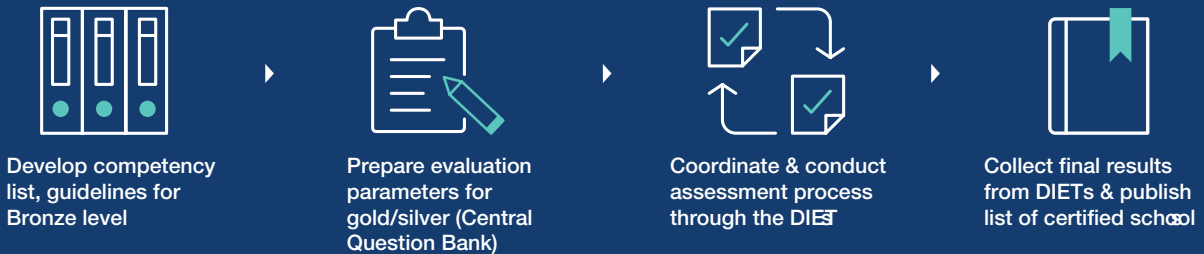
Clear Charter of roles defined

DEOs/DPCs to lead pre-verification and assessments, ensure strong implementation

Create awareness about the certification program at block, cluster level ▸ Mobilize funds (TA/DA/Honorarium) for pre-verification and assessment ▸ Coordinate pre-verification and assessments, ensure deadlines met ▸ DEO/DPC to formulate assessments team comprising of BEO, DIET Principal and Self

BEOs to drive nominations via CRCCs, lead on-ground execution of pre-verification

Create awareness about the certification program at block, cluster level ▸ Drive CRCCs to gather school nominations ▸ Dividing pre-verification tasks among CRCCs/ABEOs, ensuring pre-verification data updated on portal ▸ Assist DEO, DIET Principal in executing school assessment

SCERT leadership is essential throughout the process

Develop competency list, guidelines for Bronze level ▸ Prepare evaluation parameters for gold/silver (Central Question Bank) ▸ Coordinate & conduct assessment process through the DIET ▸ Collect final results from DIETs & publish list of certified school

DIETs to lead on-ground execution of the program

Formulate bronze paper, gold/silver paper (using central question bank) ▸ Conduct assessment and evaluation of question paper ▸ Verify if academic parameters for certification are met ▸ Recommend list of certified schools to DEO, SCERT, OSEPA

Exhibit 43: Charter of Roles for DLOs, BLOs, SCERT & DIETs

comprised of respective DIET faculty and students, along with a BEO of a block different to the block being evaluated. This ensured unbiased assessments and was evident from anecdotal reports from the field assessment teams.

3. **Resource Management**

Another challenge faced during the implementation was the limited capacity of state machinery (district officers and DIETs) to evaluate all 50,000 elementary schools in one single cycle – thus a decision was taken to evaluate a maximum of 15,000 schools in one cycle to ensure resources are both utilized effectively and at the same time are not over-stretched to impact certification quality

adversely. Thus, three separate cycles were proposed to be run over August, November and February in each academic year.

4. **Planned Independent Assessment**
   - The state was also planning to conduct Gold certification through an independent third-party assessor, which was paused due to COVID-19.

   - Going ahead, the state plans to refine the assessments for Bronze certifications, which test for foundational level competencies, on the lines of recommendations made by the NEP 2020. This was taken into consideration under the state's new FLN curriculum in the 2021-22 session.

6,248 schools to get Garima Bronze awards for achievement of Learning Outcomes

PBD BUREAU

BHUBANESHWAR, NOV 4

AS many as 6248 schools in state will get Garima Bronze awards for achievement of Learning Outcomes.

It may be mentioned that the School & Mass Education Department had launched a unique School Certification Program - Garima Awards - to identify and recognize schools on achievement of learning outcomes. The program is designed to be in three categories namely Bronze, Silver and Gold.

The first cycle for only the Bronze category began in August 2019. In this cycle, over 23,500 government schools self-nominated themselves. All the schools were first pre-verified by the block education office team and their detailed assessments of all students in the school were conducted by the DIETs in districts. In the August-September cycle of the awards post block verification, 18,353 schools were tested by DIETs and 6,248 schools across the State have been recognized as Bronze under Garima Awards.

The Bronze category is testing very basic learning outcomes of students in the school and Gold category will only be given to schools where students are able to achieve grade-appropriate learning outcomes. The department has also done sample checks of the answer sheets to verify results and ensure quality.

"An essential part of the program is to reward the schools that have been recognized as Bronze. Individual certificates for these schools duly signed from State officials will be handed over to the School representatives i.e.

Headmasters/Teacher/In-Charge by Collectors and District Magistrates in a ceremony during the district level Suravi-2019 program," said an official.

Under the program, special recognition was envisaged for blocks and clusters where more than 70% of the total S&ME schools in them get recognized under a certain category. In the August cycle, 2 blocks and 58 clusters have been recognized as Bronze. Subdega in Sundergarh and Bhandaripokhari in Bhadrak districts are the only two blocks in the State to have achieved Bronze

status, the official said.

All the District officers, DIETs principal, faculty and students, block officers, CRCCs and HMs/Teachers worked together as a team in making such a herculean task of processing over 23,500 applications possible. This will positively increase the motivation of teachers and students in schools to achieve better learning outcomes. The Bronze awardee schools will now be tested for a higher standard in Silver category in December, said Bhupendra S Poonia, State Project Director, OSEP.

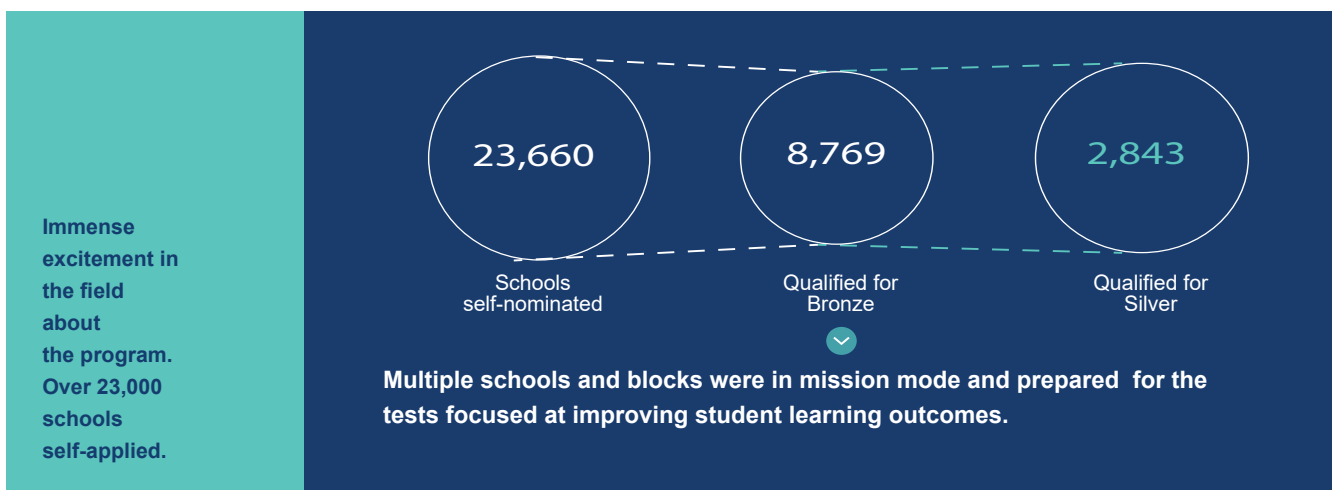*Exhibit 44: Garima School Certification coverage in the press*

Immense excitement in the field about the program. Over 23,000 schools self-applied.

23,660
Schools self-nominated

8,769
Qualified for Bronze

2,843
Qualified for Silver

Multiple schools and blocks were in mission mode and prepared for the tests focused at improving student learning outcomes.

Exhibit 45: 8,700 schools certified Bronze and 2,800 certified Silver in 2019

Spot Testing of Learning Outcomes in Jharkhand

Context

Like most states, Jharkhand used to conduct annual learning assessments (SA1/ SA2) as per the requirements of CCE. However, the quality of data generated by these assessments was poor and was rarely shared back with the field. There were several shortcomings:

1. **Incomplete data**
   Assessment data from some blocks and districts was often missing. It was discovered that the capacity of the blocks to do large scale data entry was severely limited due to the shortage of data entry operators & bottlenecks in data collection at school level.

2. **Poor quality of data**
   Most of the collected data was not analyzable, with basic logical errors such as characters in place of numbers and scores higher than maximum scores.

3. **Lack of disaggregated data**
   Most of the data available was only in the form of aggregate scores. There was no granular data on student performance on a competency-wise or student-wise level.

4. **Inflated data**
   Several schools showed results which were highly improbable (>90% scores) and inconsistent with ground reality. Teachers usually corrected their student's scores and marked them highly because they feared negative consequences. Overall, the data from SA2 did not tally with other external assessments such as NAS and ASER.

5. **Poor quality questions**
   Most of the questions used in the assessment were rote-learning textbook based questions which did not give insights into the competency level of students.

In order to address these challenges and build a learning assessment ecosystem that delivers high quality learning data for decision making, Jharkhand developed a unique model of Spot Testing where BRP/CRPs randomly assess students during school inspections and generate learning assessment data for over 2 lakh students every month.

Approach

Spot Testing system was set-up where BRP/CRPs would randomly assess 3 students during school inspections. The assessment would be undertaken for 3 subjects (English, Math, and Hindi). The implementation of spot testing had 5 essential elements:

1. **Standardized list of competencies:** The SCERT defined a standardized list of competencies with a focus on foundational competencies up to Class 5 level. Each student was evaluated for competencies up to their class level.

Mathematics	**Class 1**	• Counting till 99 • 1 digit addition/subtraction
	Class 2	• 2 digit addition/subtraction without carry over • 2 digit addition/subtraction with carry over
	Class 3	• 1 x 2 digit multiplication • 2 x 2 digit multiplication • 2 digit by 1 digit division • 2 x 2 digit multiplication
	Class 4	• 3 digit by 1 digit division • Recognition of fractions
	Class 5	• Addition/Subtraction of fractions

English Reading	**Class 1**	• Can identify, differentiate, & read alphabets • Can read simple words • Can read complex words
	Class 2	• Can read simple sentences • Can read complex sentences fluently
	Class 3	• Can read full paragraphs fluently with correct pronunciation and punctuation
	Class 4 - 5	• Can read, comprehend, and answer simple questions • Can read, comprehend, and answer complex questions

Exhibit 46: Standardized list of competencies developed for Classes 1 to 5

2. Simplified Standard Operating Procedure

In student assessments, the feedback loop for teachers needed to be quick to effectively implement remedial teaching practices. The process was defined such that BRPs/CRPs start the assessment of a student from the middle of the competency list and then move up or down (i.e. test higher/lower competencies) based on whether the student answers correctly or incorrectly. For instance, if a student is in Class 4, the BRC/CRP would start testing with the highest competency of Class 2.

Thereafter, if the student would keep answering correctly, the BRC/CRP would keep asking questions linked with higher competency till the student cannot answer the question. The same was attributed to be the highest learning level of the student. Similarly, if the student keeps answering incorrectly, the BRC/CRP would ask questions testing lower competency levels, till the student can answer a question. The same would be attributed to be the highest learning level of the student.

Process of Spot Testing

If a student is in Class X, choose the highest competency of Class X/2
[If X/2 is a fraction, we should round downwards]
For example: If a student is in Class 5, choose the highest competency of Class 2

If the student answers 2 out of 3 questions, the student is assumed to have grasped the competency

If the student does not answer 2 out of 3 questions, the student is assumed to not have grasped the competency

Keep checking for higher competency till the student cannot answer the question
This is the highest learning level of the student

Keep checking for lower competency till the student can answer the question
This is the highest learning level of the student

|	
Class 1	• Counting till 99
	• 1 digit addition/subtraction
Class 2	• 2 digit addition/subtraction without carry over
	• 2 digit addition/subtraction with carry over
Class 3	• 1x1 digit multiplication
	• 2×1 digit multiplication
	• 2 digit by 1 digit division
	• 2×2 digit multiplication
Class 4	• 3 digit by 1 digit division
	• Recognition of Fractions
Class 5	• Addition/Subtraction of fractions

Starting in the middle allows us to determine the highest learning level by asking the least number of questions

Class 1	• Counting till 99
	• 1 digit addition/subtraction
Class 2	• 2 digit addition/subtraction without carry over
	• 2 digit addition/subtraction with carry over
Class 3	• 1x1 digit multiplication
	• 2×1 digit multiplication
	• 2 digit by 1 digit division
	• 2×2 digit multiplication
Class 4	• 3 digit by 1 digit division
	• Recognition of Fractions
Class 5	• Addition/Subtraction of fractions

Exhibit 47: SOP for Spot Testing

3. **Easy-to-use Digital Interface** – A mobile application was designed with a highly simplified user interface. Under this interface, the learning levels of a student in each subject could be captured with just a single touch. Data recording & digitization was, therefore, not a chore.
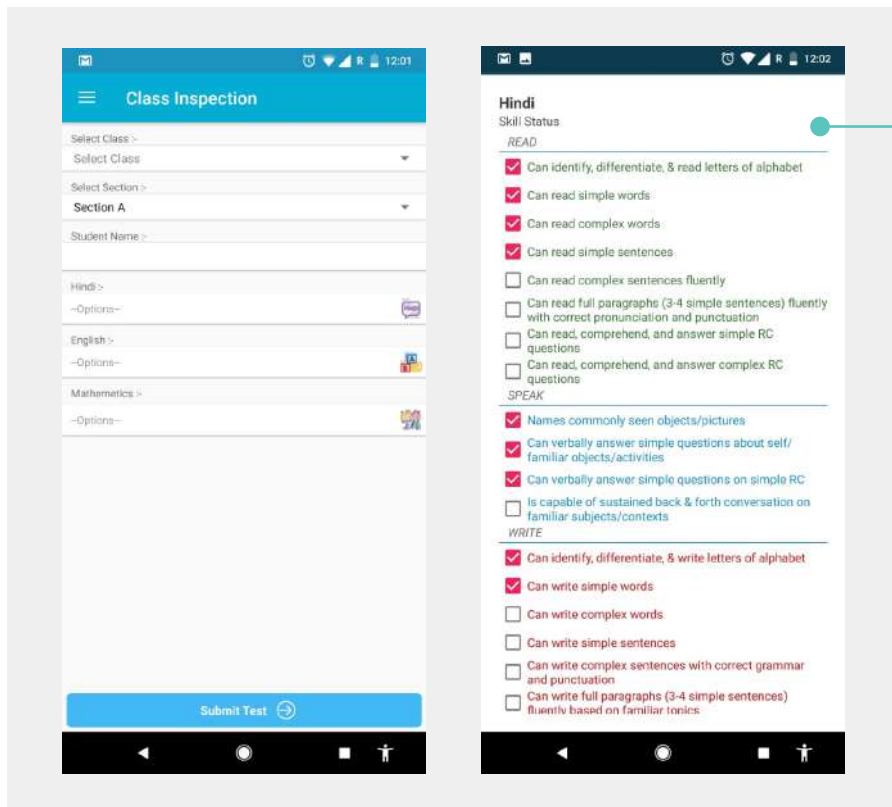
> By selecting the highest competency of the child, the lower competencies automatically get filled

Exhibit 48: Easy to use mobile app for data entry

4. **High Quality Training**

   Each BRP-CRP was given sustained and continuous support to execute spot testing inside classrooms

   a. Zero-cascade state level training – Each BRP/CRP was individually trained at state-level over a period of 1 month to ensure no dilution in training and perfect understanding of assessment tool and methodology

   b. FAQ Documents & Manuals – distributed in printed and electronic form

   c. Clear & Consistent Messaging – The most important element was the consistency in messaging from the state through letters/WhatsApp/workshops/CCC etc. that the assessments would not be used for any form of accountability either against teachers or BRP/CRPs. This sustained and consistent messaging created the necessary incentive for field officials to report this data accurately without fear or favor.

5. **Immediate Usage & Dissemination**
   Every month, the spot testing data was analyzed at a district level and competency level and shared with blocks and districts. This data was then made a mandatory part of the review process. Every month, officials could see trends in learning across subjects/ grades/competencies and act on it accordingly.

Impact & Learnings

There are different types of outcomes that have resulted from the implementation of Spot Testing in the state:

- **High quality, accurate, and consistent data**

  For the first time, the state had access to high quality learning data. It was cross-verified at the school level and proven to be an accurate reflection of learning outcomes in the state. The consistency of data was remarkably accurate, as can be seen from the image below where differences in data collected at 3 separate time-periods in October 2018 was found to be within a 1% range. This level of consistency is not possible to manipulate across 2L students and 3000 BRP/CRPs.

Most importantly, the data was not just accurate but also:

  a. **Frequent:** Unlike annual assessment data, this data was available at a high frequency (daily/weekly/ monthly). This allowed the state to even analyze month-on-month improvements including the impact of summer holidays or teacher strikes on learning, and detect poor implementation immediately.

  b. **Granular:** The data was available at a disaggregated subject level, grade level, and competency level allowing for a range of complex analytics.

- **Use of data for decision making**

  With the availability of data, there were a range of decisions that were then planned to be taken based on it.

Jharkhand: Vast repository of accurate learning data covering 2L students available each month

Consistency data across competencies and grades over time with only incremental growth

Competencies	1	2	3	4	5	6	1	2	3	4	5	6
Recognises 2 digit numbers and sequences up to 99	67.2	87.6	93.9	96.8	98.3	98.6	66.9	86.7	94.7	97.8	98.4	98.9
Can add & subtract 1 digit numbers	14.6	90.0	80.6	91.1	94.2	96.2	16.7	90.4	83.0	92.6	94.8	97.6
Can add & subtract 2 digit numbers without carry over	0.0	17.2	53.0	74.4	82.9	90.0	0.0	17.0	56.6	78.3	84.7	90.7
Can add & subtract 2 digit numbers with carry over	0.0	4.9	29.6	56.1	68.4	80.3	0.0	4.2	31.7	58.6	70.4	80.9
Can multiply 1 digit numbers by 1 digit number	0.0	0.0	18.5	42.4	57.6	70.4	0.0	0.0	19.0	44.0	59.8	71.6
Can multiply 2 digit numbers by 1 digit numbers	0.0	0.0	9.7	30.5	47.4	60.8	0.0	0.0	9.8	31.8	49.8	62.5
Can multiply 2 digit numbers by 2 digit numbers	0.0	0.0	0.0	11.2	25.7	40.7	0.0	0.0	0.0	12.4	27.0	41.7
Can divide 2 digit numbers by 1 digit numbers	0.0	0.0	0.0	18.5	34.8	49.7	0.0	0.0	0.0	18.9	36.2	50.2
Can divide 3 digit numbers by 1 digit number	0.0	0.0	0.0	6.0	16.4	32.0	0.0	0.0	0.0	7.1	18.0	30.0
Can recognise fractions from images & vice-versa	0.0	0.0	0.0	1.0	3.4	12.8	0.0	0.0	0.0	1.1	3.9	11.0
Can add and subtract simple fractions	0.0	0.0	0.0	0.0	2.1	8.4	0.0	0.0	0.0	0.0	2.3	7.9
Grade	1	2	3	4	5	6	1	2	3	4	5	6
			1st – 10th October						**11th – 20th October**			

1. **Decimal point consistency in data collected across by 3000 BRP/CRPs over 30 days is impossible to manufacture.**

2. **Variation in data also consistent with on-ground realities & qualitative understanding. Trends hold true across all subjects - Math/English/Hindi.**

3. **Accuracy of Spot Testing driven by low conflict of interest in BRP/CRP cadre (which is separate from teacher cadre)**

Exhibit 49: Learning dashboards created using Spot Monitoring data

a. Impact Evaluation

Spot-testing learning data (because of its accuracy and granularity) began to be used to judge the impact of any intervention in the state (NGO interventions, state-academic programs etc.).

b. Decentralized academic decision making

This led to monthly discussions on trends in learning and decentralized decisions to improve learning in specific competencies/subjects through innovative training mechanisms, peer-learning etc.

c. Teacher Training

The state used the data to highlight specific competency gaps which have shown low growth over longer periods of time, and designed training modules to address them.

- **Changed narrative around learning outcomes**

  As a result of daily spot testing and its subsequent usage in regular decision making at all levels of the system, the narrative around learning outcomes in the state was found to change at:

a. School level

Teachers were aware that the focus of inspections had shifted from inputs to outcomes. Children will be tested on whether learning levels are improving on a regular basis.

b. Block/District level

All officials had open access to the learning data available at a granular level and engaged with their district's learning data every month. This led to a consistent and evolving conversation on assessments, outcomes, and improvement.

c. State level

Access to high quality learning data led to the evaluation of every initiative by state or non-state actors, primarily based on learning, thus bringing quality education and learning outcomes at the center of administration.

Examples of Data Driven Decision Making

Best and worst performing subjects in Lohardaga

Rank (out of 21)
Overall 15
Mathematics 7
English 13
Hindi 16

Best Subject:
Mathematics

Worst Subject:
Hindi

Best Competency	Worst Competency	Worst Transitioning Competency
Mathematics: Multiplication of 2 digit numbers	Hindi: Reading complex words	English: Writing simple words to sentences
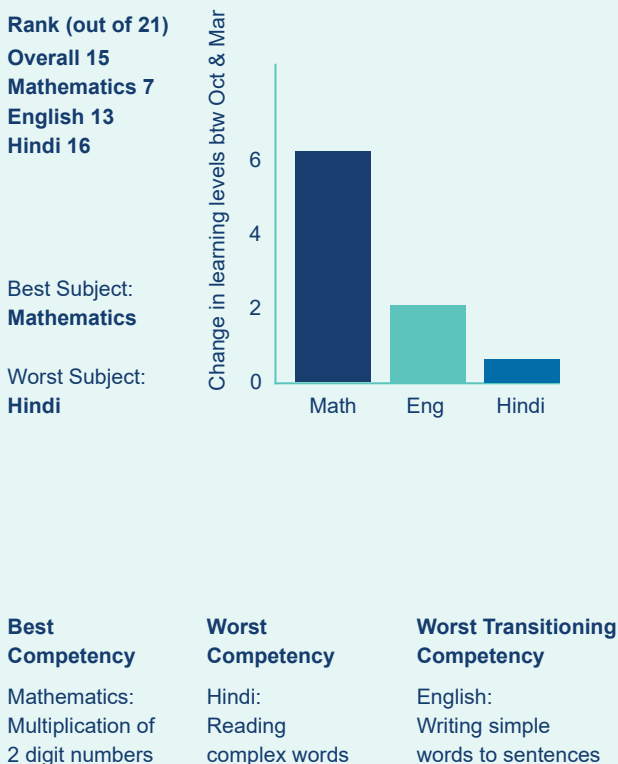
Improvement in 3/1 digit division (Sugam) is also significant

These are result of spot tests, determining the LO of 3digit division by 1 digit division in time frame of Feb 19 and Oct 19.

Out of the students tested %Students were able to solve the problem correctly

Large gap in division between Class 4,5 likely because students learn it towards the beginning of the year through curricular teaching

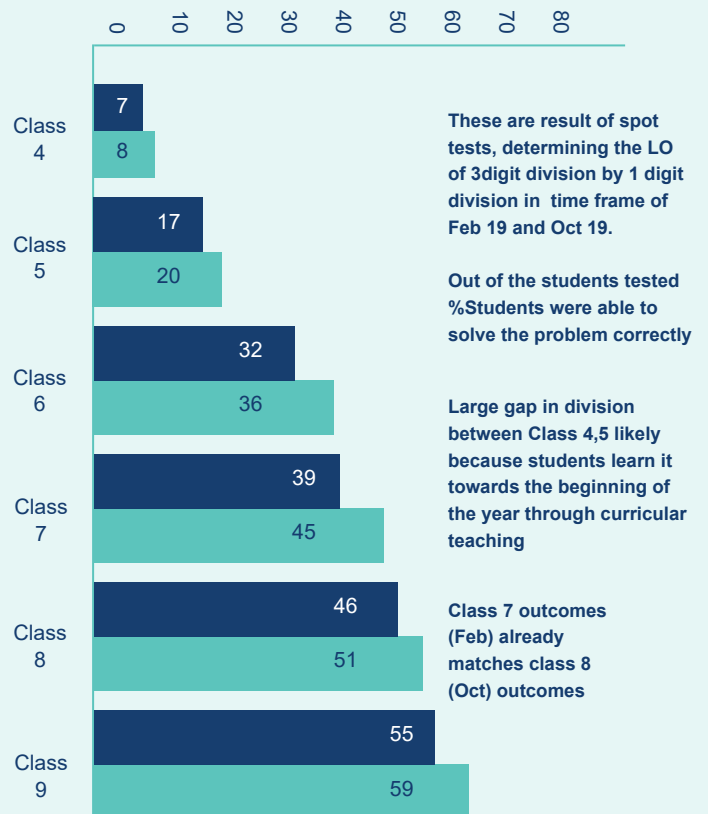Class 7 outcomes (Feb) already matches class 8 (Oct) outcomes

Exhibit 50: Examples of data-driven decision making

3.4. Teacher's Time on Academic Tasks

Context

Ensuring the availability of teachers in terms of their physical presence at school, and use of that time for academic purposes is critical for the provision of quality education. The Right to Education Act prescribes a minimum of 800 hours of instruction[1] and 200 working days for primary classes per academic year. For upper primary grades, the minimum requirement is 1,000 hours of instruction and 220 working days per academic year. According to a study report released by the World Bank in 2014[2], in an academic year of 220-225 days, on average, at least one-seventh (14 percent) of the school calendar days went unutilized for instruction. Some of the reasons stated were:

- Teachers undergoing training, attending meetings, or performing functions outside of the education department for, on average, 25-30 days of teachers' duty days.

- Teachers' personal and sick leave reduces the teacher time available to the school by at least an additional 12 days.

- Around 3-4 days of each school's prescribed school calendar was lost on account of local festivals, events of national importance, and campaigns.

- Non-academic activities such as compilation and provision of data, maintenance of records, and supervision of mid-day meal distribution accounted for 20-25 percent of the weekly working hours.

- On average for around one-fifth of the classroom time, teachers were not on any teaching-learning tasks; they were either in organizational tasks or on tasks completely unrelated to teaching and learning.

It has been observed that UDISE data of different states provides the number of instructional days, however, it does not reveal the various external factors that prevent these instructional days from being translated into productive teaching hours. The Exhibit below shows the effective teaching hours available in a year for a particular state.

Taking the example of Jharkhand, according to the UDISE data for the 2014-15 academic year, Jharkhand had 249 instruction days[3]. It was seen that while Jharkhand met RTE's standard requirement for the minimum number of instructional days, and consequently the instructional hours, there were various external factors due to which these instructional days did not translate into productive teacher–student classroom transactions. State-led field visits, MIS data, and interviews with on-ground stakeholders revealed that on a large majority of instructional days, academic time or teaching time was interrupted due to various external factors such as a non-standardized holiday calendar, time teachers spend on non-academic activities, etc. OECD[4] countries not only measure instructional days but also the number of hours/days effectively spent teaching and engaging students with academic content; States in India have no such data.

Approach

To understand the scale of the problem of inadequate/ineffective teacher time, observation and analysis were conducted to measure how a teacher's time is spent in the state. Three dimensions of teachers' time were considered. First, the number of school days prescribed by the calendar and the days the school functioned. Second, the amount of time that teachers were physically present in school and its distribution across various functions within the school; and third,

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[1]Instructional time deals with allocated and available time: allocated time means the prescribed number of days in the school calendar, while available time is that number of prescribed days when the school is open (and not closed due to local festivals, for example)

[2]Source: How much and what kind of teaching is there in elementary education in India? Evidence from three States: Report 67, World Bank, February 2014

[3](Updated 2016), Kanchan Srivastava, *Schools in northern states have more working days than rest of India*, DNA India, https://www.dnaindia.com/india/report-schools-in-northern-states-have-more-working-days-than-rest-of-india-2253609
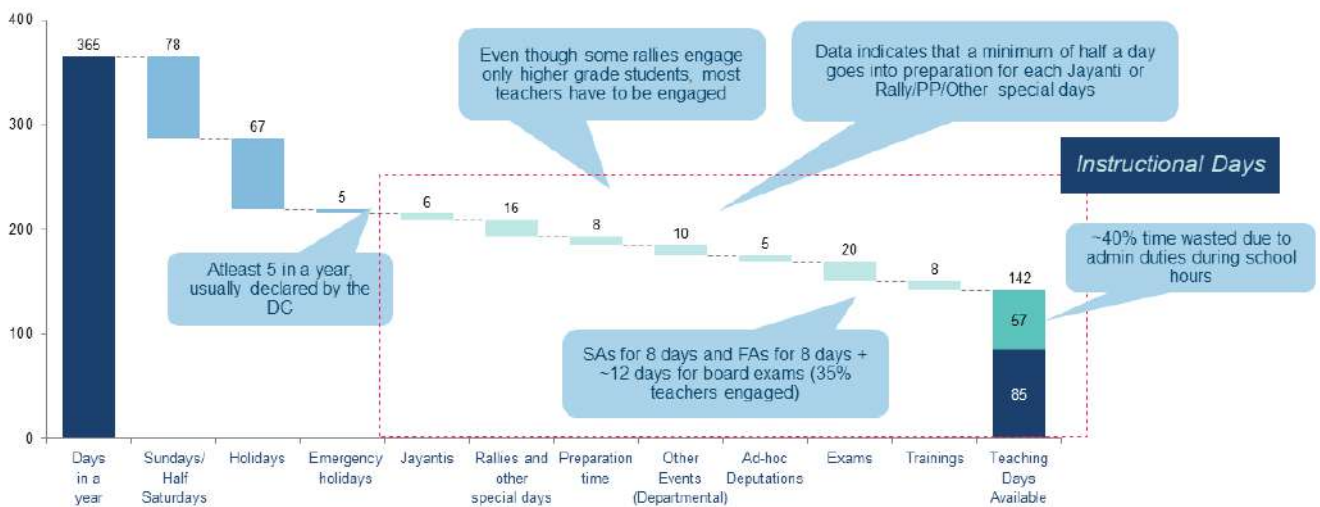
Exhibit 51: Effective teaching days available per year in a particular state

teachers' time in the classroom and the distribution of that time across various learning ('on task') and non-learning ('off task') activities. This was also benchmarked against various states and centrally functioning schools, which revealed that teaching days and available teaching hours in Jharkhand schools are only 80% of the NCF benchmark[5].

The proposed solution was to (i) create a common state-wide holiday calendar, (ii) regulate the conduct of celebratory/special days, (iii) eliminate inefficiencies during a regular school day, and (iv) establish governance systems to track ToT (Time on Task).

A Time on Task (ToT) document was drafted and released on November 2, 2021, with a detailed list of interventions and monitoring responsibilities. This policy document focuses on academic time spent in schools to ensure student learning is increased and prescribes clear guidelines to ensure that the adequate number of instructional days as well as an adequate number of teaching hours per instructional day is as per national and international standards for quality education. Principal Secretary, School Education, Jharkhand specified the minimum number of instructional hours for schools and working hours for teachers. As per the letter, working hours for teachers were set at 45 hours per week. Guidelines were prepared in line with RTE and Kendriya Vidyalaya norms and in consultation with representatives of Jharkhand's teacher unions and the Parivartan Dal.

The details of the interventions are as follows:

- **Standardized holiday calendar:** Significant variations in holidays were observed across various districts, each with its own unique holiday calendar based on local celebrations and events. This led to districts exceeding the maximum number of annual holidays (60 days). Seeing this, a standardized 55-day calendar was prepared with 5 days' flexibility handed to districts.

[4]Organisation for Economic Co-operation and Development
[5]2016-17 UDISE; National Curriculum Framework 2005; RTE Standards; global Standard NCEE;

- **Revised school timing & timetable:** Inadequate learning hours (5 hours as opposed to 6) and high student absenteeism were observed for the period of April-June owing to early school hours. Going forward, a standardized school timetable with defined activities was created and teacher working hours were increased from the current 6 hours a day to 7 hours 15 minutes a day. Moreover, every 2nd, 4th, and 5th Saturday was deemed as a full academic day which was not the case before.

- **Regulation of celebration of events/days:** It was observed that a lot of academic time was being invested in the celebration of special days such as Jayantis, celebrations conducted by other departments such as Cleanliness drives, and Rallies. To reduce their effects on academics, 90 minutes were now fixed as the maximum time allotted for celebrations whereas Rallies and Prabhat Pheris were prohibited during academic hours.

झारखण्ड सरकार
स्कूली शिक्षा एवं साक्षरता विभाग

अधिसूचना

संख्या–14 / म.2–04 / 2021 :- 8144 /   राँची, दिनांक 02.11.21

स्कूली शिक्षा एवं साक्षरता विभाग राज्य में सरकारी विद्यालयों में अध्ययनरत बच्चों के शिक्षण अधिगम में सुधार हेतु कृत संकल्पित है । इस हेतु राज्य सरकार द्वारा विभिन्न स्तरों पर कई योजनाओं का संचालन एवं हस्तक्षेप किए गए है । प्राथमिक स्तर के छात्रों के लिए ज्ञानसेतु, निदानात्मक शिक्षा कार्यक्रम, प्रारंभिक विद्यालयों में शिक्षकों का युक्तिकरण किया गया है, ताकि विद्यालय स्तर पर बच्चों की सीखने की क्षमता एवं शिक्षण अधिगम को बढ़ाया जा सके। निःशुल्क एवं अनिवार्य बाल शिक्षा अधिकार अधिनियम, 2009 के तहत बच्चों को विद्यालय में सीखने (Learning) हेतु अधिक समय उपलब्ध हो सके इसको ध्यान में रखते हुए निम्न प्रावधान निर्धारित किए गए हैं :–

1. प्राथमिक कक्षा (कक्षा 1 से 5) –   प्रतिवर्ष 800 शैक्षणिक घंटे एवं न्यूनतम 200 शिक्षण कार्य दिवस।

2. उच्च प्राथमिक कक्षा (कक्षा 6 से 8) – प्रतिवर्ष 1000 शैक्षणिक घंटे एवं न्यूनतम 220 शिक्षण कार्य दिवस

परन्तु U-DISE के आंकड़ों के अध्ययन से यह पाया गया है कि बहुत से बाह्य कारकों के कारण उपरोक्त न्यूनतम शिक्षण दिवस अथवा न्यूनतम शैक्षणिक घंटों का अनुपालन वास्तविक रूप में नहीं हो पा रहा है । राज्य स्तर से विद्यालयों के अनुश्रवण, शिक्षकों, अभिभावकों तथा अन्य संबंधित व्यक्तियों / Stakeholders से प्राप्त जानकारी के अनुसार यह पाया गया है कि निम्नांकित बाह्य कारणों से विद्यालयों का शिक्षण समय एवं कार्य दिवस बाधित होता है तथा शिक्षक विद्यालय समय में अन्य गैर शैक्षणिक गतिविधियों में संलग्न पाए जाते हैं :–

i. विद्यालय में अवकाश / छुट्टी :– वर्तमान में प्राथमिक एवं माध्यमिक निदेशालय के द्वारा प्रतिवर्ष 60 दिनों की अवकाश तालिका अनुमोदित की जाती है । परन्तु विभिन्न कारणों यथा – अत्यधिक गर्मी, अत्यधिक ठंड (शीत लहर), स्थानीय पर्वों में बच्चे विद्यालय में अनुपस्थित रहते हैं तथा घोषित 60 दिनों के अवकाश के बदले विद्यालय 10–15 दिन अधिक बंद रहते हैं जिसके परिणाम स्वरूप अवकाश की दिनों की संख्या बढ़कर 70–75 हो जाती है ।

Exhibit 52: Time on Task Notification Document

क्र.सं.	अवकाश	दिन		क्र.सं.	अवकाश	दिन
1	नव वर्ष	1		19	रथ यात्रा	1
2	सोहराय	1		20	ईद–उल–जुहा (बकरीद)	1
3	मकर संक्रान्ति	1		21	विश्व आदिवासी दिवस	1
4	सुभाष चन्द्र बोस जयंती	1		22	स्वतंत्रता दिवस	1
5	गणतंत्र दिवस	1		23	जन्माष्टमी	1
6	संत रविदास जयंती	1		24	गणेश चतुर्थी	1
7	महाशिवरात्रि	1		25	करमापूजा	1
8	अम्बेदकर जयन्ती	1		26	मुहर्रम	1
9	होली	2		27	गाँधी जयंती	1
10	सरहुल	1		28	दुर्गापूजा (अष्टमी, नवमी एवं विजया दशमी)	3
11	रामनवमी	1		29	मिलाद–उल–नबी (पैगम्बर मोहम्मद का जन्म दिवस)	1
12	महावीर जयंती	1		30	दीपावली	1
13	गुड–फ्राइडे	1		31	भैयादूज, गोवर्धन पूजा / चित्रगुप्त पूजा	1
14	मजदूर दिवस	1		32	छठ पूजा	2
15	बुद्ध पूर्णिमा	1		33	गुरू नानक जयंती	1
16	ग्रीष्मावकाश	17		34	भगवान बिरसा मुण्डा जयंती / राज्य स्थापना दिवस	1
17	हुल दिवस	1		35	क्रिसमस (25 दिसम्बर)	1
18	ईद–उल–फितर	1		36	स्थानीय पर्व एवं आकस्मिक स्थानीय आवश्यकतानुसार जिला स्तर से निर्धारित किए जाने वाले अवकाश	5
					कुल	60

Exhibit 53: List of 60 holiday days for all districts in Jharkhand

अवधि	पूर्व में विद्यालय का समय	संशोधित विद्यालय का समय
1 अप्रैल से 30 जून	पूर्वाह्न 6:30 – पूर्वाह्न 11:30	पूर्वाह्न 7:00 – अपराह्न 01:00 (सभी कक्षाओं के लिए)
1 जुलाई से 31 अक्टूबर	पूर्वाह्न 8:00 – अपराह्न 2:00	पूर्वाह्न 9:00 – अपराह्न 03:00 (सभी कक्षाओं के लिए)
1 नवम्बर से 31 मार्च	पूर्वाह्न 9:00 – अपराह्न 3:00	पूर्वाह्न 9:00 – अपराह्न 03:00 (सभी कक्षाओं के लिए)

अवधि	विद्यालय संचालन समय	छात्रों के विद्यालय आगमन का समय	शिक्षकों के विद्यालय आगमन का समय	प्रार्थना समय
1 अप्रैल से 30 जून	पूर्वाह्न 7:00 – अपराह्न 01:00	पूर्वाह्न 06:55	पूर्वाह्न 06:45	पूर्वाह्न 07:00
1 जुलाई से 31 मार्च	पूर्वाह्न 9:00 –अपराह्न 03:00	पूर्वाह्न 08:55	पूर्वाह्न 08:45	पूर्वाह्न 09:00

माह	शिक्षकों का कार्य समय
1 अप्रैल – 30 जून	पूर्वाह्न 7:00 से अपराह्न 2:00
1 जुलाई – 31 मार्च	पूर्वाह्न 9:00 से अपराह्न 4:00

गतिविधि	समय सारणी	
	1 अप्रैल से 30 जून	1 जुलाई से 31 मार्च
शिक्षक आगमन	6:45 पूर्वा0	8:45 पूर्वा0
विद्यार्थी आगमन	6:55 पूर्वा0	8:55 पूर्वा0
प्रातः सभा / सदन	7:00 पूर्वा0 – 7:15 पूर्वा0	9:00 पूर्वा0 – 9:15 पूर्वा0
शिक्षण अवधि	7:15 पूर्वा0 – 1:00 अप0	9:15 पूर्वा0 – 2:30 अप0
मध्याह्न भोजन	09:30 पूर्वा0 – 10:00 बजे पूर्वा0	02:30 अप0 – 3:00 अप0
शिक्षक प्रस्थान	02:00 अप0 तक	04:00 अप0 तक

Exhibit 54: Revised school and teacher timings, and time-table

[6]State MIS

- **Teachers to focus on academic activities:** To increase focus on academics, all teacher deputations (except election duty) now required the permission of the Secretariat, Department of School Education & Literacy, Jharkhand. Moreover, no teacher training programs were to be conducted during school hours.

- **Rigorous monitoring:** To ensure that in the time allotted for academics, students are 100% engaged in learning 100% of the time, some monitoring processes were put in place, such as: spot testing by CRPs, tracking attendance of teachers on eVidyaVahini (eVV)[6], creating a ToT cell at the state level to track holidays in all districts, no. of special events, etc.

Impact and Learning

Frequent data collection, analysis, and reviews were necessary to ensure the implementation of ToT policy elements. Given COVID-19 and ensuing school closures, the actual implementation and impact couldn't be rigorously tracked. However, the expected outcomes and impact due to the implementation of the policy note are as follows:

Goal	Major outcomes	Impact
Regulate conduct of celebratory/	Rallies may be restricted	16 academic days saved
	No celebrations/competitions organized by other departments without DoSE&L, Jharkhand permission	10 academic days saved
	No letter/notification from state and district to celebrate events/special days during academic hours (except for National Holidays)	6 academic days saved
special days Implementing a defined school timetable and ensuring academic	Revised school timetable being followed 2nd, 4th and 5th Saturdays observed as academic days (except for 2nd half of 1st and 3rd Saturdays in which teachers can undertake non-academic tasks)	10 academic days saved 12 academic days saved
Saturdays Eliminate/ reduce teacher deputations and non-academic work	No teacher deputation during academic hours without DoSE&L, Jharkhand permission (except for election duty)	5 academic days saved
	No block/district/state review meetings & trainings during school hours	10 academic days saved

As states adhere to RTE-mandated academic days, there arises a heightened necessity to track the time allocated to academic activities. In Jharkhand, DoSE&L, through JEPC, has been diligently gathering data on the time spent on academic activities through CRP/BRP questionnaires. By closely monitoring this data, states can proactively implement measures to reduce the time allocated to non-academic activities.

3.5. Developing Teacher Capacity

Context

Teachers have one of the most demanding vocations in the world. To achieve their potential, teachers need training, motivation, and regular mental and emotional rejuvenation. While many efforts have gone into building the capacity of teachers, there's potential to make teacher training a top-of-mind initiative across levels.

The number of 'untrained' teachers is ~2.75 lakh in Primary and ~40 thousand in Upper Primary schools. The pre-service training curriculum followed in the country is often outdated and does not equip teachers to handle the challenges of their roles innovatively. Given this scenario, in-service teacher education and professional development are some of the greatest challenges in ensuring that the RTE Act not only provides cursory access to education to all children but also ensures its quality.

Approach

Teacher training across SATH-E states, like any other state, was found to be fragmented and largely dependent on national missions, and delivered through a cascade model without appropriate need analysis and contextualization to local needs. Teacher capacity building needed improvement on several fronts such as identifying and understanding teachers' gaps and needs, conducting customized training programs, and using data and feedback to monitor progress.

Various efforts were made across the three states towards Teacher Professional Development.

1. Intervention specific trainings:

Trainings of all elementary grade teachers on the large scale 'remedial programs' launched across the three states were rigorously conducted. This included ensuring teachers understood the criticality of focusing on FLN competencies as against syllabus completion, understood the TaRL methodology and dedicated remedial materials etc. These trainings were also accompanied with various teacher training compliance and impact tracking measures, Master Trainer cadre re-selection and capacity building across states.

2. Holistic stepback of Teacher Professional Development (TPD) approach:

Given the very large gaps in Teacher's content and pedagogical capabilities, a need was felt across states to revisit the TPD process overall - Conduct TNA (Trainings Need Assessment) and basis that support the states to build out a blended Teacher development model along with peer learning circles & support materials (e.g. Teacher handbooks).

The details of efforts in Jharkhand to this end are described below:

1. **Training Needs Assessment (TNA):** TNA was designed and conducted to identify common strengths and weaknesses among teachers. Accordingly, the teacher enablement program was designed to bridge the most significant gaps.

2. **Teacher Professional development:** Basis the gaps identified in teacher's subject and pedagogical expertise, potential areas were identified where support from the state could help increase the efficiency and effectiveness of the teachers. This was done in the following two ways:

   a. On-going support through Shaikshik Samvaad (group discussions amongst teachers)

   b. Creation & dissemination of teacher handbooks

1. **Details of Teacher Needs Assessment (TNA)**

1.1 TNA for elementary teachers

The first ever TNA was conducted for elementary teachers in 2018 and was designed to evaluate teachers' pedagogical ability and subject/content knowledge. Moreover, teachers were also asked to fill out a survey to explain their training preferences.

Holistic question Design: Sample MCQ questions from 5 sections were prepared by a group of expert State Resource Group (SRG) members for the TNA.

Source: UDISE 2021-22

5 Sections part of the TNA for elementary teachers

Gyan Setu Training (Learning Enhancement Program)	General Ability	Advanced Subject	Pedagogical Ability	Self-Assessment
To assess whether the teacher has absorbed the training content that was delivered	To assess basic knowledge (primary level) in English, Hindi, Math, Logic, & GK	To assess upper-primary level subject-specific knowledge	To assess understanding and grasp of core pedagogical skills & classroom transactions	To understand the needs, requirements, and subjective opinions of teachers

Before teachers appeared for the TNA, they were trained on smartphones with a simple MCQ interface to ensure that they did not face any technological challenges. Teachers were asked to solve 45-50 multiple choice questions on their mobile phones after they were trained in the Block Resource Centre for the student-remediation program, Gyan-Setu. Consequently, around 89,000 elementary teachers attempted the TNA in Jharkhand.

A robust analysis was then conducted to further shape the teacher enablement and capacity-building program after adjusting for inflation in performance due to the use of unfair means.

The program helped improve the pedagogical practices of teachers. However certain challenges also existed (e.g., limited uniformity of tests across rounds, use of malpractices, etc.). In response to these challenges, the state with the support of UNICEF, onboarded the Centre for Science of Student Learning (CSSL) to design and conduct a scientifically valid and reliable TNA for all the elementary teachers in Jharkhand's government schools.

The design and implementation of this TNA addressing all the above-mentioned challenges was finalized during SATH-E but was yet to be executed.
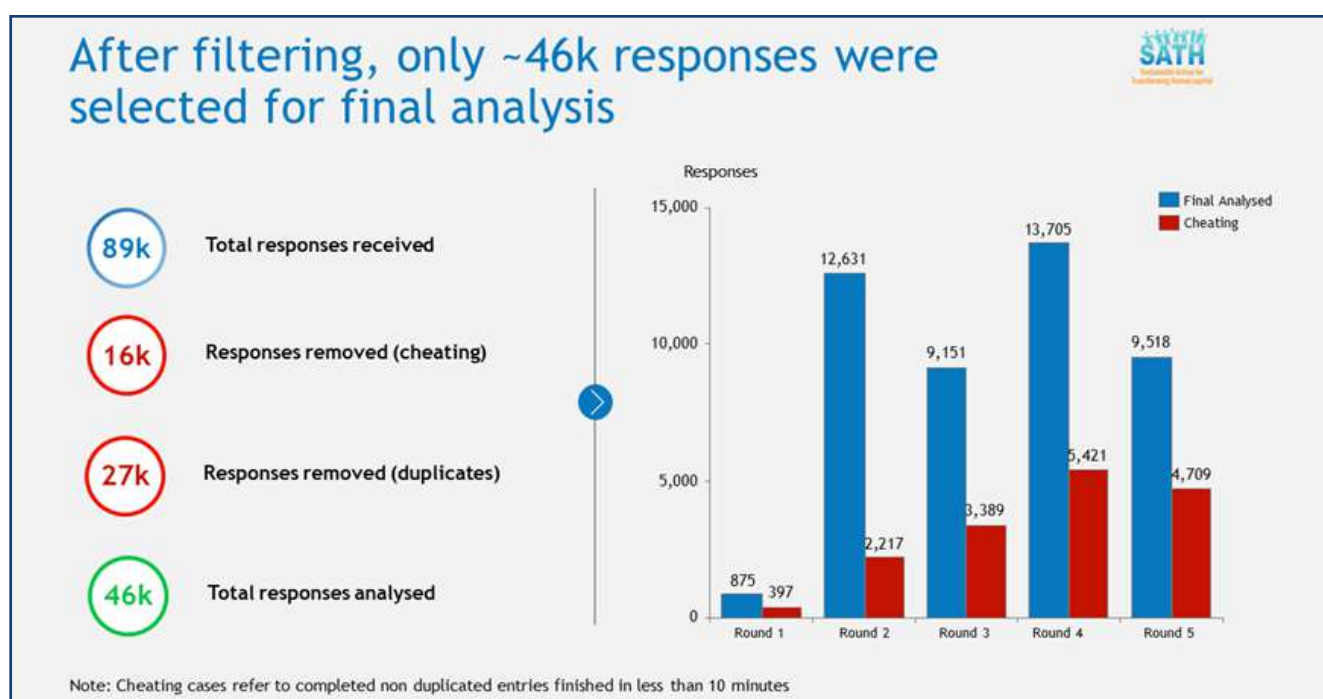
Exhibit 55: Responses received & filtered for use of any unfair means

1.2 TNA for secondary teachers

In December 2020, a pilot TNA was conducted for teachers in 80 Schools of Excellence which saw participation from ~90% of teachers. This was collectively planned and rolled out by JCERT and JEPC. Secondary teachers were assessed on two aspects – Pedagogical expertise and subject expertise. State Resource Groups (SRGs) were oriented and questions were designed centrally to conduct the TNA. The entire exercise was completed in 1 month. The details of the pilot were as follows:

- **Participation:** A total of 723 teachers participated in the secondary TNA with representation from all 24 districts of Jharkhand.
- **Testing Logistics:** The test was hosted on the Kobo toolbox platform.
- **Methodology:** Teachers were called to the district headquarters, and they attempted their respective subjects' TNA on their smartphones under the supervision of 4-5 district/block officials. 24 subject-specific test papers were prepared by a group of expert SRGs.

Outcomes/Findings: It was observed that secondary and higher secondary teachers scored an average of ~56% across general pedagogical and subject-specific questions. They performed better in subject areas compared to pedagogical areas, which, in turn, recognized the need to enhance classroom and teaching skills. The learnings from these assessments were incorporated in the State's future training efforts.

2. Details of efforts taken towards improving Teacher Professional Development (TPD).

During SATH-E, two efforts were picked up towards improving TPD. Firstly, the state decided to initiate decentralized teacher-teacher interactions named Shaikshik Samvaads to re-iterate the learnings from the TPD courses and provide ongoing support. Secondly, the state decided to develop teacher handbooks to enable teachers to have proper lesson plans. Both these interventions are described below.

2.1 Shaikshik Samvaad

Idea Generation & Synthesis: Around Oct 2019, the idea of teacher discussions/interactions originated as part of the SATH-E project while a few trainings were being designed for teacher capacity building. Through Shaikshik Samvaads, teachers came together in groups of 25-30 in each cluster and discussed/shared their ideas around the training courses uploaded on Math, Language, and pedagogy on the DIKSHA app. This practice consistently continued till the end of March 2020.

Synergy with NISHTHA training: The second round of Samvaads started around the month of Dec'21. These Samvaads were conducted along with NISHTHA training for both elementary as well as secondary teachers. A teacher was expected to complete a package of NISHTHA training and virtually participate in a Samvaad every 15 days. This gave time for teachers to reflect on what they had learned from the courses and share effective techniques to incorporate into daily classroom activities.

Orientation & training: To successfully implement the Samvaads, orientation was conducted in a cascaded manner which varied for elementary & secondary teachers. The orientation was focused on the why and how of Shaikshik Samvaad. Exhibit below shows training details for elementary as well as secondary teachers.

Similarly, for secondary teachers, JCERT trained DRGs who in turn conducted the Samvaads with the teachers.
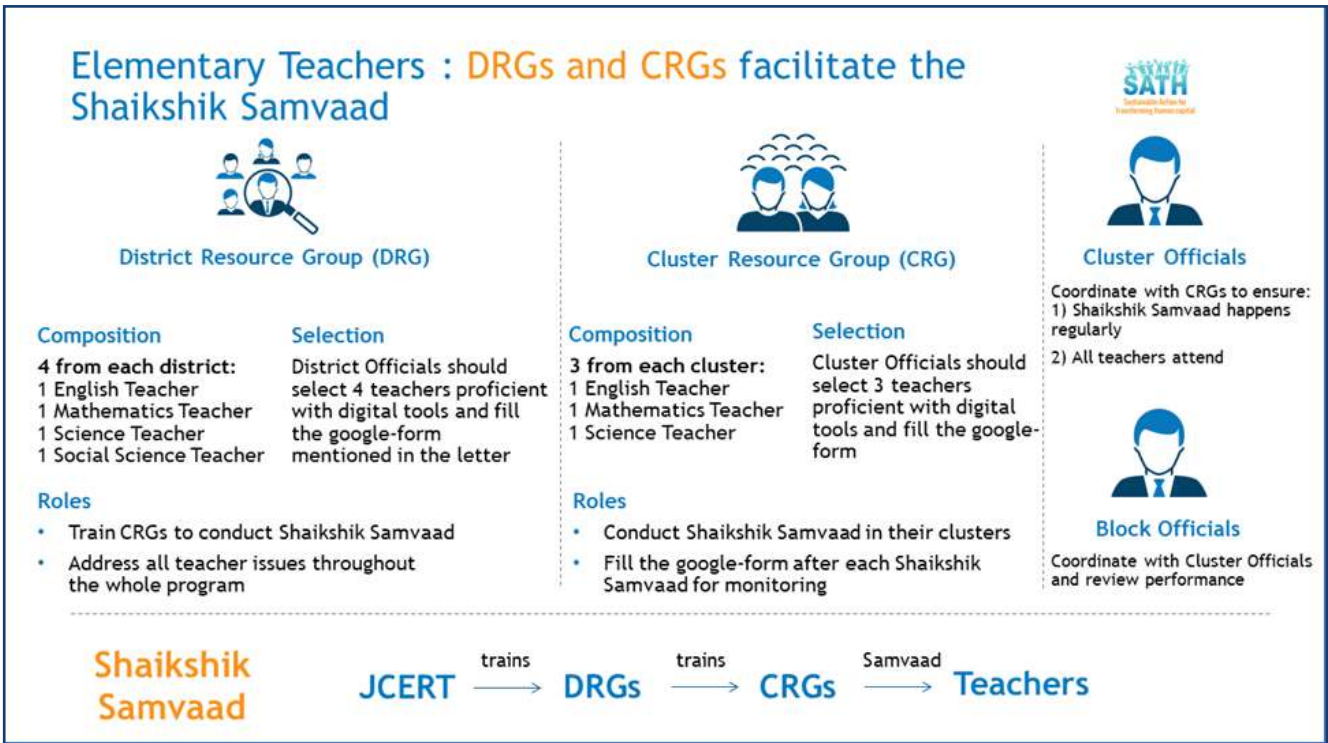
Exhibit 56: Example of training content for elementary and secondary process

2.2 Creation & dissemination of teacher handbooks

The initiative of teacher handbooks came out of the need for teachers to have proper lesson plans and clear objectives & outcomes for each of the concepts taught.

TNA established that there was a severe gap in teacher knowledge and pedagogical practices. Lesson plans could help to close both these gaps.

The format, layout, and principles were decided after analyzing the products of several leading large-scale teacher resource development organizations.

Key design features: The handbook were designed for grades 4 to 8 to ensure effective classroom teaching practices. They had 4 key features – an annual coverage plan, how to break down the chapter into sub-components, prerequisite knowledge needed before starting any chapter, and a well-defined, implementable lesson plan for all learning outcomes.

Digitization, publication and printing of Teacher Handbook was complete and distribution was ongoing, at the time of closure of Project SATH-E.

Exhibit 57: Key features of the handbook

Exhibit 58: Purpose of Teacher Handbook

Impact and Learnings

Shaikshik Samvaad gained a lot of positive responses from the field. The success of Shaikshik Samvaad was also partly recognized through a significant improvement in teachers' content knowledge, as evidenced by a 62% increase in Midline Survey results across the two assessments on TNA.

It was also observed that Samvaads acted as a platform to learn best practices from each other, re-visit the learnings from earlier trainings conducted by the state/Centre, and get a hands-on experience by learning while doing.

Positive field response from Shaikshik Samvaads

Average figures

96.8 % — Cluster Completion

86.9 % — Attendance in last Samvaad

Shaikshik Samvaad – 3, 4 & 5

Regular use of TLMs in Samvaads

Have been used regularly in Hazaribagh, Dhanbad, and Deoghar

Feedback from field

95%+

"शैक्षिक संवाद उपयोगी लगा और मेरी TPD की समझ बेहतर हुई"

Teacher Survey Form, N = ~50k

Shaikshik Samvaad partly responsible for improvement in Midline Survey results

Baseline Survey: 24 Sep — 35%

Midline Survey: 18 Jan — 55%

An improvement in score by ~62% across the two assessments

Exhibit 59: Impact of Shaikshik Samvaads

Overall, one key learning was that while TNA was conducted by an external agency, the states need to develop internal capacity to design and conduct TNA. This capacity can be further utilised to develop customized training programs for other use cases (for e.g., Teachers at Early, Mid and Later Career Stages).

It is also worth noting that the efforts to onboard external agencies for the development of comprehensive digital teacher training content, encompassing topical subjects, instructional techniques, and addressing common student misconceptions, encountered limited success across states.

This was primarily attributed to challenges in identifying external partners capable of delivering high-quality content and navigating procurement processes, particularly in the post-COVID time.
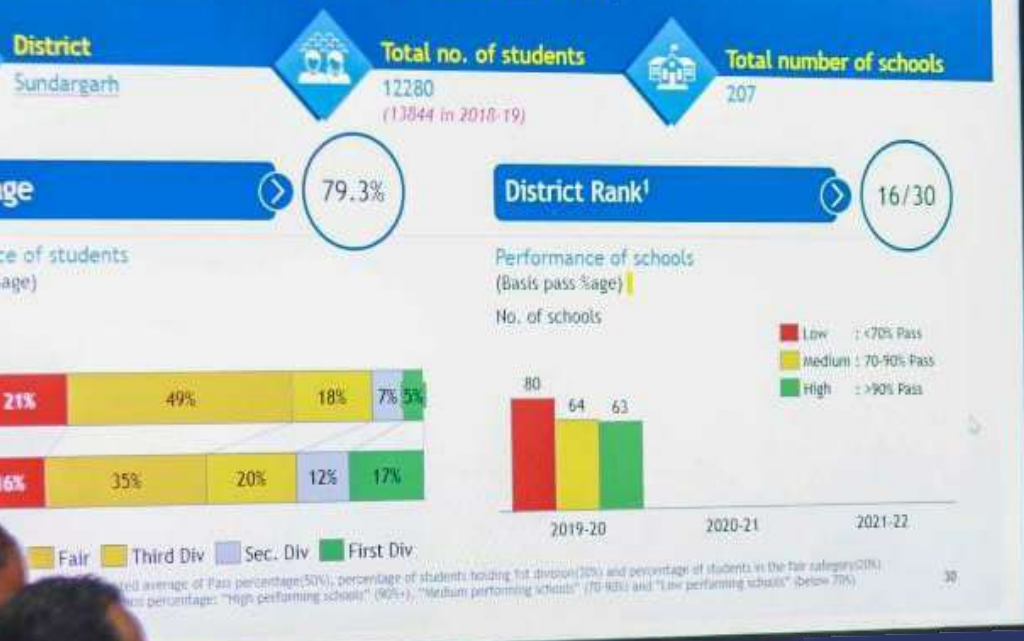
4. Governance and Accountability Interventions

4.1. Building a Strong MIS – Data-driven Decision Making in School and Administrative Offices

Context

Over 50,000 schools, with over 200,000 employees (teachers, officers) and touching the lives of over 5,000,000 students – this is the scale of a typical mid-sized state's education system in India, an operation that is much bigger than most large corporations. Considered cumulatively across states, the school education system would be one of the largest employers in India, larger than the Indian Railways.

Implementation of a best-in-class EMIS system requires careful consideration of starting points and constraints – Greenfield vs brownfield, vendor selection, contractual policies, point of access, data entry, to name a few.

The SATH-E States worked on the design, development, and rollout of an integrated MIS system during the Project duration. The case study below highlights Jharkhand's example. Jharkhand has been instrumental in developing a comprehensive integrated education MIS platform called e-Vidya Vahini which incorporates all the multiple aspects of information gathering, processing, validation in the Department and facilitates data backed decision making at state, district, block, and school level.

A best-in-class EMIS system should aim to deliver on three key objectives

VIEW OF 'STATE OF EDUCATION'
Real time view of key 'Outcomes' and 'Inputs'

Performance against outcomes
• Student learning levels
• Enrolment
• Drop outs

Status of key inputs
• School footprint
• Teacher vacancy

FOCUS ON PERFORMANCE
Governance and data driven decision making

Governance and accountability
• District/ block ranking
• School inspections

Data driven decision making
• Planning for large scale initiatives e.g.: staffing rationalization, school footprint optimization
• Budget allocation and planning
• Day to day activities

EMBEDDED EFFICIENCY
Seamless processes and communication

Simplify and enable process
• Schools: enrolment tracking, automated report cards
• District, block: service record mgmt., fund utilization
• State: Staffing, budgeting

Communication, feedback channel
• SMS/ WhatsApp / email
• Scheme information
• Grievance redressal

Exhibit 60: A best-in-class EMIS system should aim to deliver on three key objectives

The Jharkhand Public Education System comprises ~35 thousand schools, ~1.2 lakh teachers and ~46 lakh students under the ambit of the Department of Education. Each of these schools undertakes multiple activities in addition to providing education to students including, but not limited to provision of the mid-day meal, child entitlements such as textbooks, maintenance of school infrastructure, grievance redressal, ensuring compliance to RTE norms, etc. However, multiple challenges have historically hampered effective monitoring:

• A large number of schools makes it difficult to monitor with limited monitoring infrastructure.

• Increased time spent in data collection and analysis by teachers and field officers.

• No comprehensive real time centralized data for the Department to allow data backed decision making and ensure effective accountability at all levels of governance.

• Lack of a two-way communication platform available across multiple levels for grievance redressal.

Given this scale, it was imperative for the state to have a robust MIS system which provides integrated databases for accurate data reporting, minimal physical flow of information and automated processes running in the field, thereby increasing accuracy and efficiency.

Approach

In a first-of-its-kind effort, the Department of Education, Government of Jharkhand, launched an ambitious state-wide program called e-Vidya Vahini to build a fully digitized ecosystem for school education. e-Vidya Vahini was planned to serve as a single centralized dynamic platform for monitoring all key parameters to ensure effective delivery of quality education to all the schools and children in the state. e-Vidya Vahini currently maintains an accurate database on Jharkhand schools, teachers, and students. It has both a web portal and an Android mobile application designed with three distinct sections with different user groups:

1. School and teacher modules (teacher-facing): eVV has a host of mobile-based modules that enable digitization of processes that teachers undertake such as teacher attendance, student attendance, student progression, grievances, etc.

2. Monitoring modules (field-facing): eVV also has a monitoring module that captures key parameters related to Time on Task, student spot-testing, school certification, MDM reporting, school infrastructure, delivery of schemes, etc.

3. Dashboards (administration-facing): e-Vidya Vahini's web-based application has reporting and dashboarding features across all key modules. These provide state, district, block and cluster level aggregate information to officers on critical parameters readily available for identifying areas requiring immediate attention, crafting timely response and better coordination of initiatives.

Both the mobile and web applications have logins for various levels of users ranging from State Officials to teachers.

There are three parts in e-Vidya Vahini - each has a different planned user base

Monitoring Application
Resource Persons
~ 3000 BRP/CRP
~ 300 Field Officials

School Application
School Teachers
~1.2L Teachers
from ~35k schools

Dashboard & Portals
~ 325 District and Block Offices
~ 10 State Education
   Department Officials
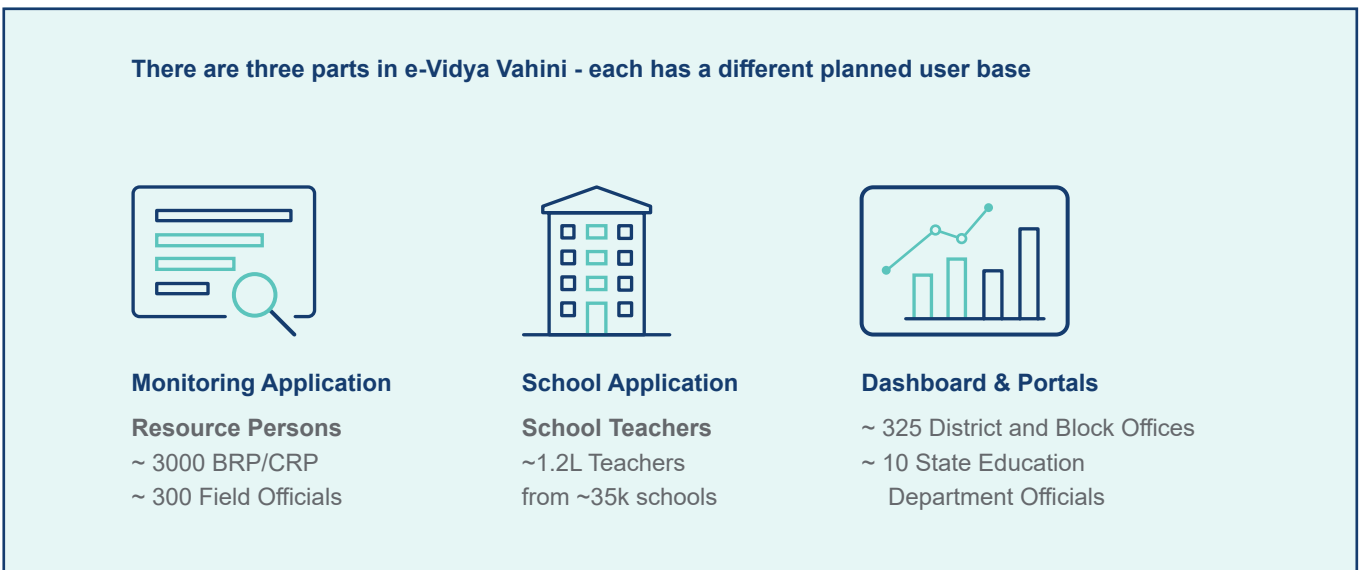
Exhibit 61: eVV has three distinct sections with different user groups

- **RFP and Vendor selection**

  In the endeavor to further improve upon eVidyaV-ahini 1.0 developed in early 2018, the Jharkhand Education Project Council issued a fresh RFP for the development of a revamped eVidyaVa-hini 2.0. A 70-30 QCBS evaluation criteria was adopted and CSM Technologies was onboarded for the development, implementation and 5-year maintenance of eVV. The timelines of onboarding are represented in the exhibit below.
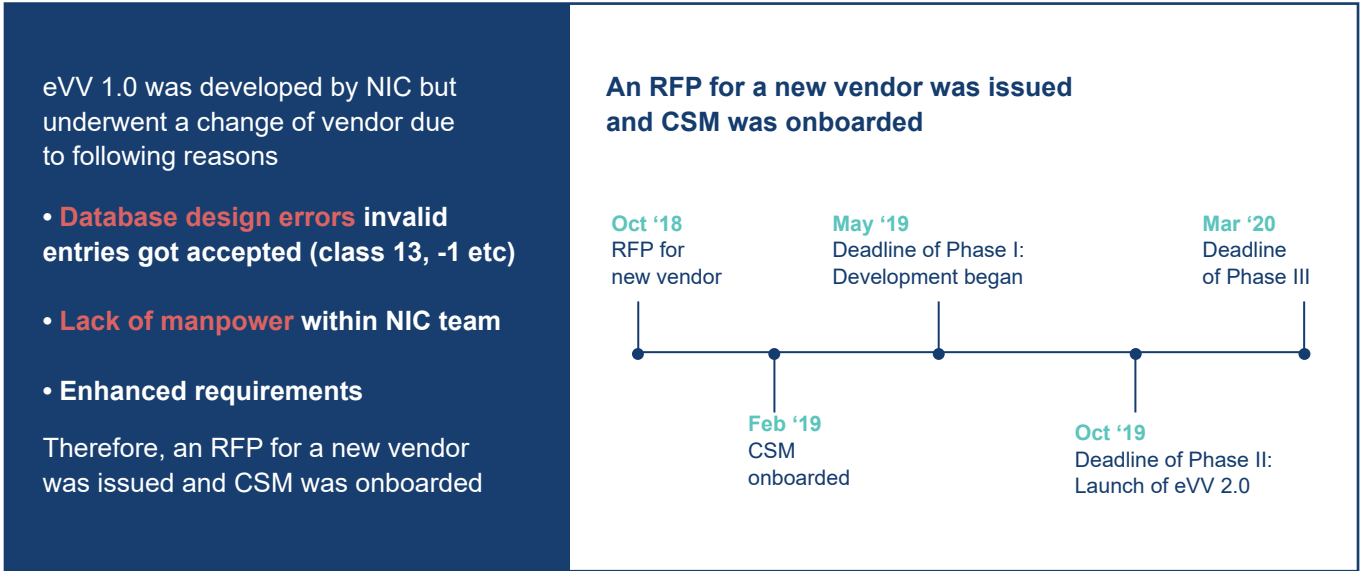

eVV 1.0 was developed by NIC but underwent a change of vendor due to following reasons

• **Database design errors** invalid entries got accepted (class 13, -1 etc)

• **Lack of manpower** within NIC team

• **Enhanced requirements**

Therefore, an RFP for a new vendor was issued and CSM was onboarded

An RFP for a new vendor was issued and CSM was onboarded

Oct '18
RFP for new vendor

Feb '19
CSM onboarded

May '19
Deadline of Phase I: Development began

Oct '19
Deadline of Phase II: Launch of eVV 2.0

Mar '20
Deadline of Phase III

Exhibit 62: eVV 2.0 timeline

The development of eVV was structured into 3 implementation phases and a maintenance phase as summarized below:

No.	Phase	Activity
1.	Implementation Phase I	SRS finalization & legacy data management
2.	Implementation Phase II	Development of Priority 1 modules
3.	Implementation Phase III	Development of Priority 2 modules
4.	Maintenance & Support	Maintenance & Support

Exhibit 63: eVV Execution phases

- **Module definitions**

  The key modules required as part of the MIS were prioritized and developed as part of implementation phases II and III. The below table lists the key modules and their features:

	Major Modules	Features
Phase 2	Teacher	• Teacher basic and detailed profile database built at 90%+ accuracy • Live biometric/manual attendance feature
	School	• School database built at ~100% accuracy with geo-tagging features
	SDMIS	• Student database built at ~100% accuracy with year-on-year progression
	User Management	• Access control features for officers at State/District/Block levels
	School Monitoring	• Mobile-based monitoring module for field officers
	Spot testing	• Mobile-based spot-testing module for field officers
	Certification	• Mobile-based school certification module
	Reports & dashboards	• Reports and dashboards available under each module
Phase 3	DigiSchool	• Mobile-based dissemination of quizzes and content during COVID-19
	Leave Management	• Mobile-based leave management module for teachers
	Scheme monitoring	• Scheme monitoring module with flexible target setting for administration
	MDM	• Mobile-based MDM monitoring module
	Grievances	• Mobile-based grievance redressal module with automated escalation matrix
	Infra/Civil works	• Civil works monitoring module with flexible target setting for administration matrix
	Learning material	• Learning material sharing portal for teachers

Exhibit 64: eVV modules and features

- **School monitoring and field activation**

  One of the biggest unlocks for the success of the MIS was the availability of mobile devices at the ground-level to enable field monitoring. As part of this initiative, the Government of Jharkhand distributed 44,000 tablets, spending a total of ~70 Cores on tablets and an additional 15 Cores on biometric devices, Mobile Device Management software and sim cards. In this unique initiative to strengthen data-based decision making and accountability at scale, all ~3000 BRPs/ CRPs, ~50 field officials and ~35,000 schools in Jharkhand received state-of-the-art tablets.

  These tablets were loaded with a mobile monitoring application for field officials (CRP/BRP/District officials). BRPs/CRPs began to use e-Vidya Vahini to collect live data on the status and performance of a school in real time. Each school in the state

was visited at least every 2 weeks and geo-tagging was used to ensure that monitoring visits were genuinely taking place. The monitoring tool collected and analyzed data ranging from DBT schemes, MDM, and infrastructure conditions, and learning levels of students.

- **Governance and Training**
  With the objective of tracking regional performance and driving eVV usage, Jharkhand also rolled out a comprehensive performance scorecard ranking districts and blocks on a monthly basis to create an atmosphere of constructive competition. The parameters were decided on the basis of phase of implementation of any initiative with the overall aim of driving districts and blocks towards action.

Result of State Government commitment, interdepartmental collaboration and investment

~ 3,000
Tablets provided
to BRP/CRP official

~ 41,000
Tablets and biometric devices
to be provided to school

~INR 85 cr
Investment in the project
by Department of School
Education and Literacy

e-Vidya Vahini

Department of School Education and Literacy (DOSE&L)

NIC. Jharkhand

DoIT & e-governance

Exhibit 65: eVV: a result of commitment, collaboration, and investment

Each District and Block was individually ranked on all the parameters as well. It helped Districts to identify the weakest parameters for themselves and take corrective action accordingly. In addition to District level ranking, each Block was also scored and ranked both within the district as well as among the ~260 blocks in Jharkhand.

These scorecards were widely shared with all the stakeholders by the State leadership, and month-on-month progress was tracked and reviewed for all the districts. This acted as an effective motivation for the district leadership to work towards a particular goal in a dedicated manner. This also acted as a platform for high performing districts to share best practices across different initiatives/ parameters and thus led to collective improvement in implementation on ground.

District Names	Gyan Setu (25)	Average BRP/CRP visits (25)	Teachers' biometric (25)	Student Portal (25)	Total Score (100)	Jan. (W1) Rank
Godda	17.9	14.4	25.0	19.2	76.4	01
Paschimi Singhbhum	22.7	19.2	21.3	9.9	73.0	02
Dhanbad	13.5	16.9	22.3	18.2	71.0	03
Purbi Singhbhum	15.1	18.2	18.8	18.9	70.9	04
Jamtara	16.6	25.0	15.8	12.1	69.5	05
Deoghar	19.6	16.9	17.2	14.2	68.0	06
Garhwa	20.0	24.4	13.8	9.6	67.7	07
Ramgarh	23.6	20.5	19.1	4.0	67.3	08
Khunti	13.6	16.6	16.7	19.7	66.6	09
Saraikela	14.8	20.4	17.9	12.2	65.3	10
Kodarma	18.3	16.7	15.7	13.1	63.8	11
Lohardaga	11.6	13.5	21.0	17.2	63.3	12
Bokaro	17.3	15.0	19.4	11.3	63.0	13
Ranchi	14.3	20.7	19.6	6.8	61.4	14
Latehar	18.9	8.9	12.8	19.9	60.6	15
Pakaur	19.2	11.2	19.8	9.5	59.6	16
Palamu	16.8	20.7	15.7	3.5	56.7	17
Giridih	15.7	20.1	15.2	5.4	56.4	18
Gumla	16.7	4.6	15.4	17.2	53.8	19
Dumka	13.6	14.3	17.1	7.6	52.6	20
Hazaribagh	17.9	8.3	19.8	4.4	50.5	21
Sahibganj	17.8	12.4	13.4	4.8	48.3	22
Simdega	17.6	14.4	2.3	11.4	45.7	23
Chatra	11.0	13.1	10.6	5.9	40.6	24

Exhibit 66: Sample district scorecard from Jharkhand

Impact & Learnings

eVV successfully streamlined several processes, served as a reliable database, and enabled real-time decision-making.

It is expected to have significant impact in both the short-term and long-term across various stakeholders:

1. 10%-20% time savings for teachers from data entry, record keeping and other administrative paper work leading to an increase in time spent in classrooms in teaching activities.

2. ~30%-40% time savings for BRP/CRPs through automated monitoring application and ready to use dashboards available at all levels of governance (state, districts, blocks).

3. Eco-friendly digital footprint by reducing usage of paper: 50+ paper-based reports submitted by teachers and field officials every year.

4. Access to long term data to assess impact of policy interventions and implement course correction if required.

In order to ensure robust governance of schools and effective service delivery, the Jharkhand Education Project Council (JEPC) aims to further improve e-Vidya Vahini in the next 2-3 years. Key improvements planned include but are not limited to:

a. Advanced customizable smart dashboarding and scorecard generation for effective administrative decision making at state, district, block, and school levels

Learnings for Large–scale Transformation in School Education

b. Advanced customizable survey-based field inspection and monitoring from field with automated reports

c. Advanced process digitization and automation – e.g. automation of annual UDISE data update

d. School administration/SMC-related features including PTM scheduling, budget management

e. Student-level academic performance monitoring

f. Scheme-specific tracking of initiatives such as 'Adarsh Vidyalaya Yojana' or 'Schools of Excellence' program, Residential Schools like KGBVs/JBAVs etc.

JEPC plans to onboard a new software vendor for the further development of eVV to improve usability, report/ dashboard mechanisms, leader school module & automated scorecards/interventions through an RFP process like the one followed earlier.

eVV streamlines several processes and serves an accurate data source allowing for real-time decision making

Basic and detailed profile data available for every teacher

Geo-fenced biometric attendance of teacher

Geo-fenced monitoring visit

Inbuilt MISes for tracking of key performance metrics

Online grievance redressal

1.2 lakh
Teachers in 35k schools
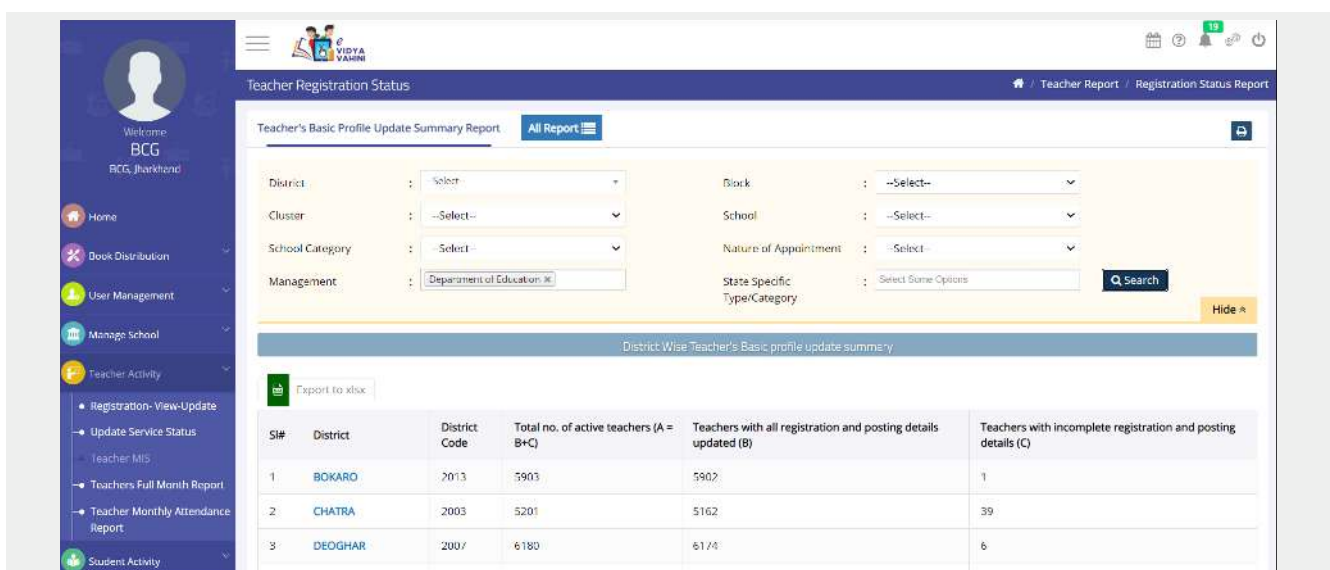
99.7%
Teachers have registered with their biometric data

70k
Monthly visits by 3k BRP/CRPs

>30
Readymade MISes available

>1000
Grievances uploaded online

Exhibit 67: eVV highlights

Exhibit 68: eVV desktop portal – Officer login
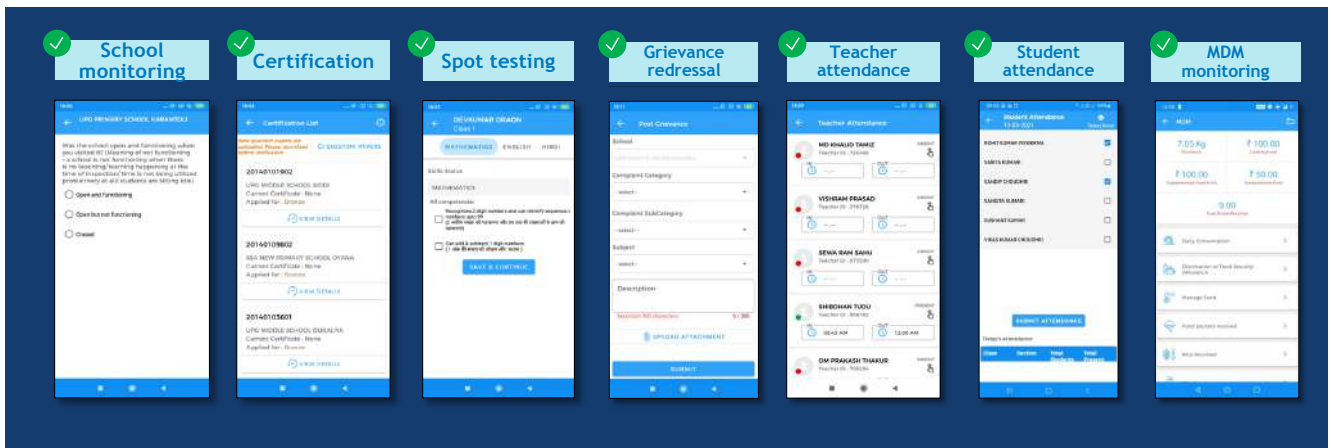
Exhibit 69: Mobile-based eVV modules

Exhibit 70: Usage of eVV in the field

4.2. Driving Accountability – Data-driven Governance at State, District & Block Levels

Context

Governance and accountability are critical to drive systemic outcomes at scale. Multiple outcome led models within the government are testimony to that. We believe that the problem today is not of individual leadership or competence but that of systemic failure at integrating accountability.

This is because of several reasons including:

- Lack of strategic vision and articulated goals

- Focus on inputs instead of outcomes

- Lack of performance-based incentives and disincentives

In the context of education, we need to create a system where teachers feel accountable for students' learning and well-being; middle management in blocks and districts feels accountable for ensuring well-run schools and an efficient organization; and the senior management at headquarters feels accountable for continuously improving the overall state of the education system, and continuously delivering a higher value proposition to the students while running a well-oiled education system.

At a micro-level, individuals in the organization must have a sense of their roles, responsibilities and how they align with the overall organizational goals. Every individual must understand that fulfilling their personal roles and responsibilities, with a high degree of fidelity, is expected of them, and that there are incentives and disincentives linked to this achievement.

This section highlights Odisha's progress towards creating accountability through data-driven governance developed on four pillars of - pervasiveness across the system, selection of right metrics, accurate measurement and linkage to real consequences.

Odisha School Monitoring App (OSMA), District Scorecards and Collector led-Governance

Approach

Three kinds of systems were set up in Odisha to strengthen overall governance and accountability, including:

1. Odisha School Monitoring App (OSMA)

2. District Scoreboards

3. District and Block Review Meetings using Dashboards (DRMs/BRMs)

Each of these are described in detail below:

1. **School Monitoring Application**
   The Odisha School Monitoring Application was launched in Odisha in 2019 by the Department of School & Mass Education to achieve five key objectives:

- Monitor schools based on a defined set of parameters in order to drive overall school improvement.

- Resolve issues identified during monitoring to ensure that critical factors that result in learning outcome improvements are addressed in a timely manner by the relevant stakeholders e.g. CRCCs, HMs/ Teachers, BEOs etc.

- Regular reviews at State, District and Block level to ensure that the above two objectives are being met and solved at scale for common issues across schools and districts.

- Conduct real-time assessments to gauge learning levels of students to track improvement in learning level outcomes.

- Provide real-time feedback to schools about their areas of improvement.

OSMA was a revamped version of the earlier School Monitoring App in place in Odisha since 2017. This version was a mobile and tablet-friendly application. Following were the key features of the app:

1. Redesigned home page with clear callouts on pending surveys, action items and escalations.

2. Each survey was geo-tagged and time-stamped across various sections like Academics, Infrastructure, School Operations, etc.

3. The Monitoring app contained 36 questions covering attendance, LEP, school operations, academics and infrastructure.

4. After each inspection, a school-level report card was generated. Action items were raised to concerned officers for issues identified during visits, guidelines for time bound redressal in place.

5. CRCCs monitored all schools in their clusters, District & Block Officers monitored 10-15 schools / month.

6. Monitoring dashboards were launched to provide real-time data for enabling actions in field & regular reviews.
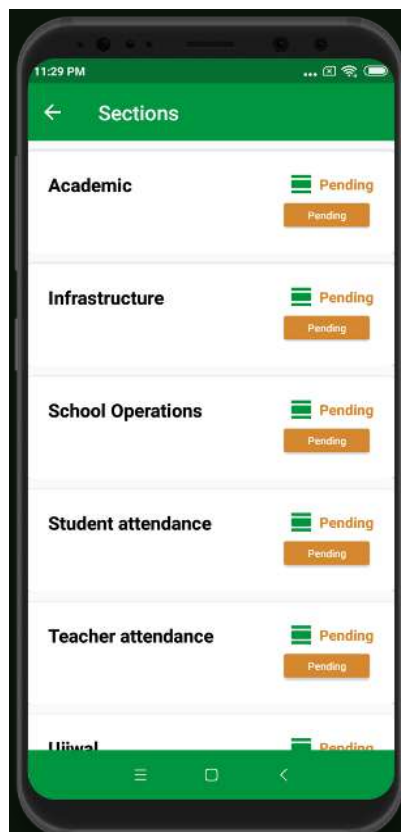
| Home page | Sections in SMA | Questions in each section |
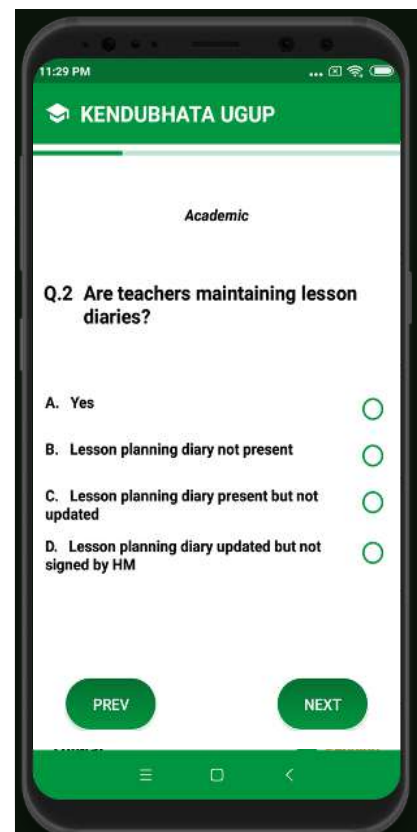
Exhibit 71: Overview of OSMA – Odisha School Monitoring App

The District and Block level officers, in addition to the Cluster Resource Center Coordinators (CRCCs) were allocated schools for monitoring every month. The officers visited the schools and recorded observations against a set of predetermined prompts. These monthly checks provided historical information on each school across parameters. This information was then aggregated at the district, block, and cluster level in order to run key initiatives for improvements.

Following were the allocation of duties amongst the officers.

Officer Category	Responsibilities	No. of visits
CRCC	• Conduct the survey • Discuss identified issues with HMs and Teachers, mentor, and support • Ensure timely resolution of all issues.	18 schools/ month
Block Officers	• Conduct the survey • Oversee CRCCs performance • Conduct regular discussions with HMs of schools that are performing poorly • Ensure timely resolution of issues	55 schools/ month
District Officers	• Conduct the survey for critical schools (as allocated) • Oversee block officer and CRCC performance • Ensure timely resolution of issues and manage escalations • Provide support across the district for typical issues faced in schools e.g. ensure Pedagogy Coordinator is working with schools on remediation implementation	100 schools/ month

Exhibit 72: Monitoring officer responsibilities and frequency of visits

Further, efforts were made to improve the quality of monitoring. This included setting up a Virtual Field Support (VFS) center at the state level to ensure regular calls and messages to field officers to improve monitoring compliance and quality.
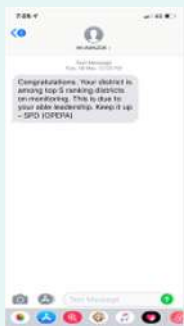
Central Virtual Field Support (VFS) Team of 20 highly trained individuals set up in Sep 2018

Team set up to nudge behavior & improve monitoring quality
Regular calls & messages to improve implementation quality

Regular SMS blasts & IVR calls to encourage good performers & laggard officers

Calls to discuss performance of officers - tools created to track incorrect action item closure & data reporting

Real time support to officers through district whatsapp groups, OPEPA helpline

Focus shifted over time to improving quality of visits and issue resolution

1 **Reduce misreporting & improve quality of data collected**
Rewarding good behavior and reprimanding officers misreporting

2 **Improve quality of action item resolution**
Weed-out inconsistent and falsely reported closures

3 **Ensure performance and review of monitoring visits**
Using district compliance reports and scorecards

Exhibit 73: VFS utilized to improve monitoring quality

2. District Scorecards

Leveraging data from the OSMA app, Odisha launched District Scorecards in 2018 as a tool to track and improve outcomes. Scorecards give a holistic view of the district's performance in education, support identification and prioritization of weak areas, drive timely actions and enable effective tracking of progress.

Extensive research was carried out to finalize metrics for district scorecards and rankings which utilized data from Aspirational District Metrics, PGI metrics, SEQI metrics and other metrics from extensive internal discussions.

Scorecard: 6 categories, 24 metrics and 45 indicators

Academic Performance
(2 metrics, 6 indicators)

Access and Transition
(4 metrics, 8 indicators)

Equity
(4 metrics, 4 indicators)

Infrastructure
(6 metrics, 14 indicators)

Governance
(3 metrics* 3 indicators)

Other parameter
(5 metrics, 10 indicators)

Exhibit 74: Overview of District Scorecards

District scorecards had 6 categories comprising of 20+ metrics and 45+ indicators. The 6 categories were –

a. Access and Transition
b. Equity
c. Academic Performance
d. Governance
e. Infrastructure
f. Other indicators

The scorecard was further divided into two parts: annual scorecard and monthly scorecard, considering the frequency at which information for indicators was to be updated. While the monthly scorecard and ranking basis indicators were updated monthly and generated month on month, the annual scorecard was generated at the end of every academic year. Once the updated data for the annual scorecard was available, composite rankings comprising annual and monthly indicators were produced for the year end rankings. The scorecard was out of 500 points, with 285 points devoted to the monthly scorecard and 215 points to the annual scorecards.

The granularity of information available also differed for indicators. While some indicators had school level information available, few indicators were only applicable at the district level.

In 2019, these scorecards were moved onto a dedicated portal and dashboard with the following objectives -

a. Simplify and streamline the data collection and data entry process.

b. Automate the calculation and creation of scorecards and rankings.

c. Increase accountability by creating scorecards at the District, Block, Cluster and school level.

d. Provide granular information to make the scorecard actionable.

e. Track improvement of districts, categories and indicators month on month.

These scorecards were developed through NIC by the same vendor which had designed the revamped Odisha School Monitoring App. Hence, it was able to make use of seamless integrations from OSMA to capture data for populating the scorecards.
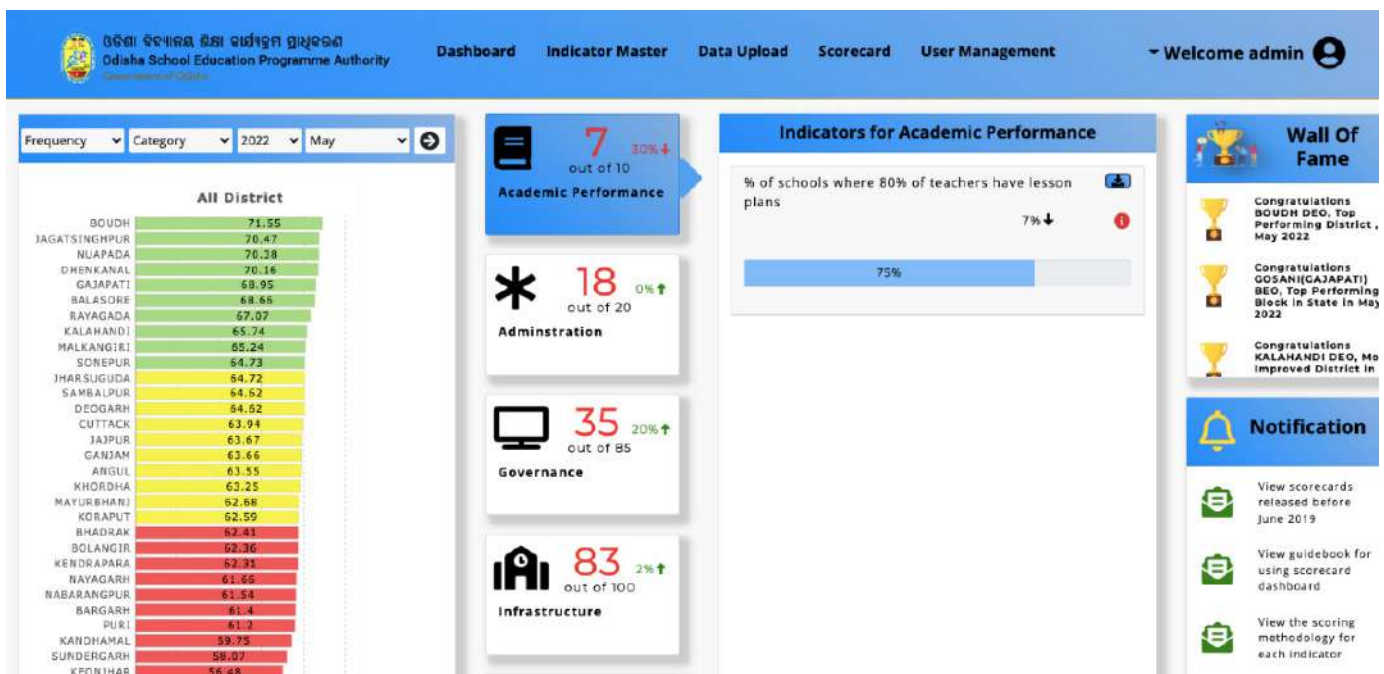

Exhibit 75: Snapshot of District Scorecard Dashboard

Exhibit 76: School Monitoring and Monitoring Dashboard Guidebooks
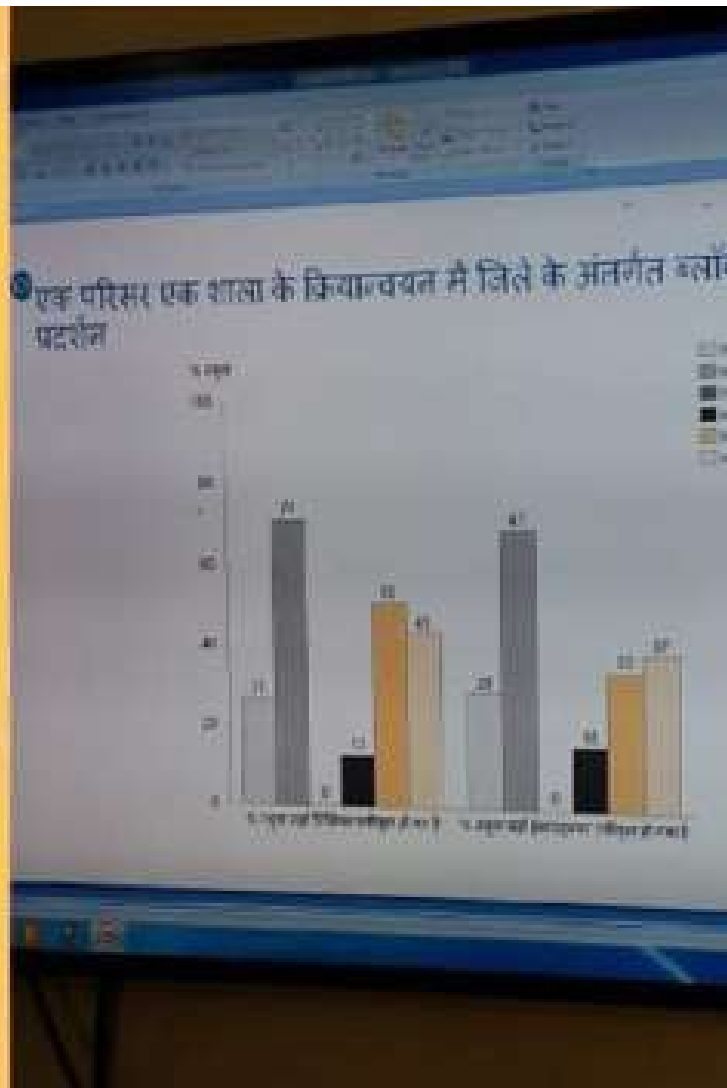
3. District and Block Review Meetings using Dashboards (DRMs/BRMs)

Monthly block and district review meetings to measure outcomes and drive compliance and governance were set up. Data dashboards were used to guide the meetings. These dashboards were populated with monthly reported data along with past trends. The data was aggregated at State, District, Block as well as School level to provide insights for decision making at all of these levels.

Sr. No	Dashboards used in DRMs/ BRMs	About Dashboard	Key Metrics
1	Overview dashboard	Shows performance of state/ Districts/ Blocks/ Clusters based on average school scores	• Avg. school scores • % surveys completed • % Actions completed • Surveys completed week-by-week
2	School coverage	Shows % of schools covered in state/ Districts/ Blocks/ Clusters by different category of officers	• Total schools, # of schools covered, # of schools uncovered • % schools covered by district, block & cluster officers out of the total schools in State/District/Block/Cluster • % of schools covered & uncovered
3	School performance	Shows performance of schools in State/ Districts/ Blocks/ Clusters across 6 sections based on school scores and actions resolved	• Avg. overall score • Avg. section score • Trend of overall score
4	Officer performance	Shows officer performance based on % surveys completed and % actions resolved	• % surveys completed & pending – total and by officer type • % Actions completed & pending– total and by officer type • Avg. survey time– total and by officer type • Surveys/ Actions – Top 5 & bottom 5 districts/blocks cluster • Surveys/ Actions- Top 5 & bottom 5 officers
5	Survey analysis	Shows performance of state/ Districts/ Blocks/ Clusters based on surveys conducted	• Total schools inspected • For every question % of schools responded

Exhibit 77: Review Meetings: Dashboards and Key Metrics

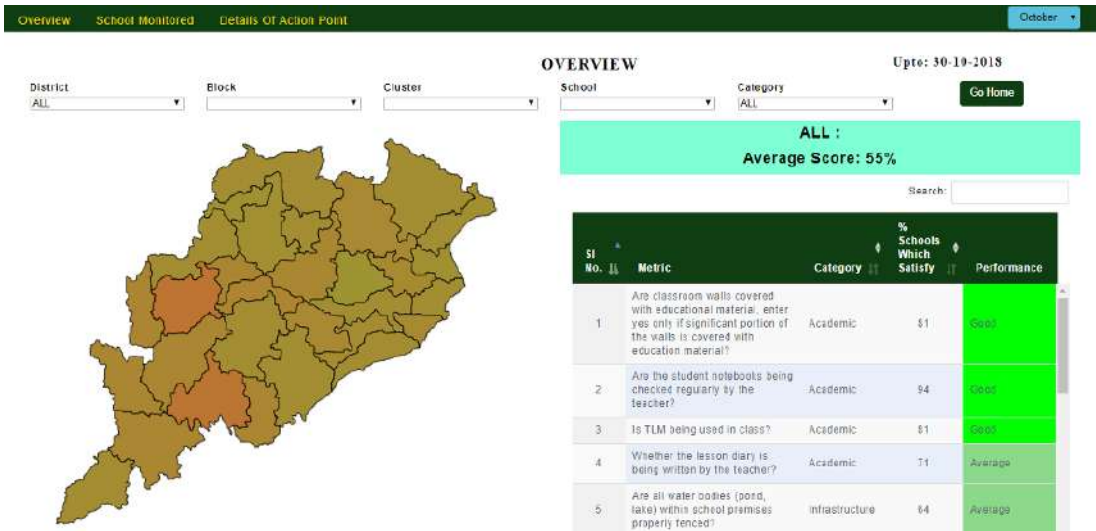*Exhibit 78: Overview Dashboard - Shows performance of state/districts/blocks/clusters based on average school scores and survey results*
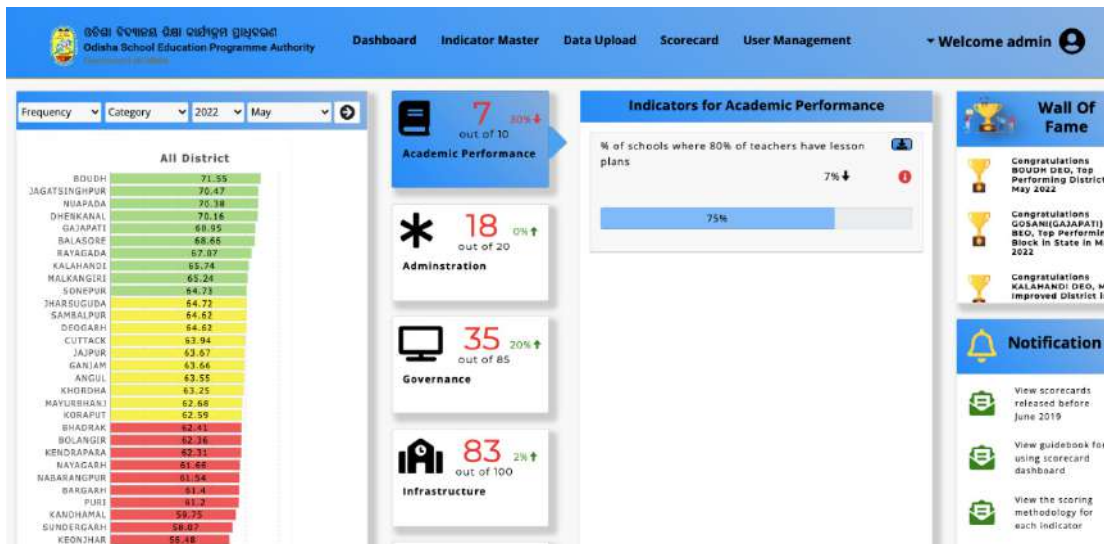

Exhibit 79: School Coverage Dashboard - Shows % of survey completed, schools covered at each level, officer compliance and % completion
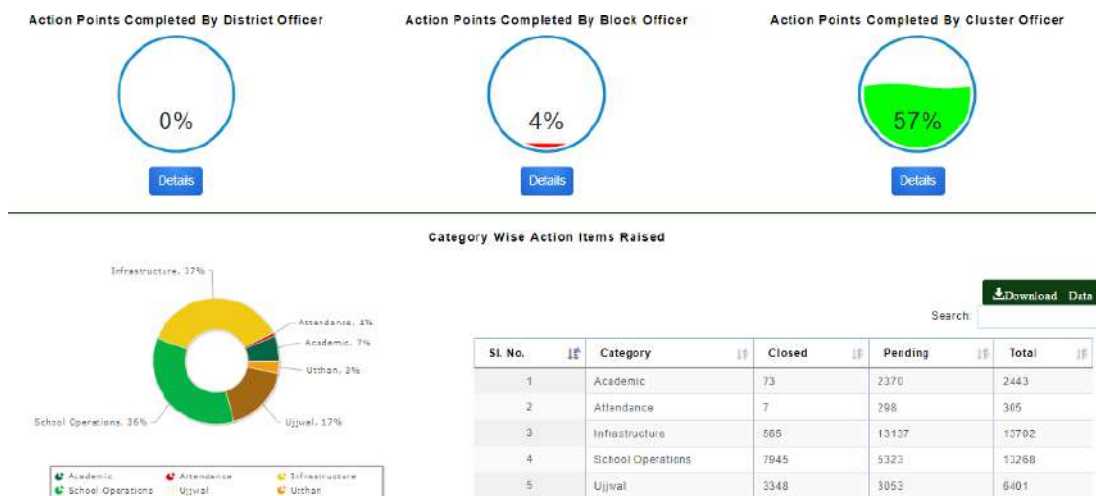

Exhibit 80: Action Items Dashboard - Shows total number of action items raised/closed/pending across the state with category-wise break up

Below table shows increments in a 3-month period in 2019:

Facility/feature	First Visit	Last visit	%increase
• % of schools where Ujjwal is conducted	91.4	98.2	6.8
• % of schools with SDP created and displayed	43	73.6	30.6
• % of schools with SSP created	68.4	87.3	18.9
• % of schools using TLM	83	87	4
• % of schools with clean drinking water	90	94	4

Impact and Learnings

1. **Regular Collector-led DRM/BRMs:**
   90% of DRMs were chaired by the District Collector, ensuring effective governance. Meeting presentations and minutes were uploaded on a web-link monitored by the Monitoring Cell at the state level, and ATRs (Action Taken Reports) were tracked regularly. In addition to this, monthly VCs were also taken by CS with all Collectors to focus on Learning Outcomes.

2. **Focused Improvement on Indicators through Scorecard Sprints:**
   Odisha School Monitoring App allowed for close governance of all the important parameters across categories. This enabled the State to identify laggard areas and run focused sprints to improve outcomes and resulted in an increase in reported metrics across all categories.

Districts leverage DRMs to drive focused efforts to improve district ranking

Nayagarh: Increase in reported drinking water availability
District Collector drove decision to improve drinking water availability in schools by mobilizing BEOs, BDs and CRCCs in DRMs

Dhenkanal: Rank 1 district for 6 months, no lagging indicators
DEO drove improvement in monitoring, electricity and water availability and MDM disbursal to improve district score

Khordha: Increase in reported electrification rate 52% to 84%
DEOs, PCs and BEOs mobilized HMs, CRCCs and Sarpanches to drive improvement in basic infrastructure, electricity and water availability

Exhibit 81: Success stories from DRMs

3. Improvement in PGI Scores:
Odisha achieved a benchmark score in the Governance section in the PGI rankings (2018-19) conducted by MoE" – a top 5 national rank. This is a testament to the large strides the State has taken in improving outcomes using digital tools for monitoring and governance.

4. District Review Meetings
These meetings established a structured, data-driven, and technology-enabled rhythm for monthly state-level reviews led by PS/SPD, resulting in expedited and improved reporting. The positive impact of this initiative is also evident in the elevated PGI scores.

5. Spot Assessment Feature:
The state can now effectively monitor overall learning progress and conduct essential baseline assessments, aligning with the original FLN plan.

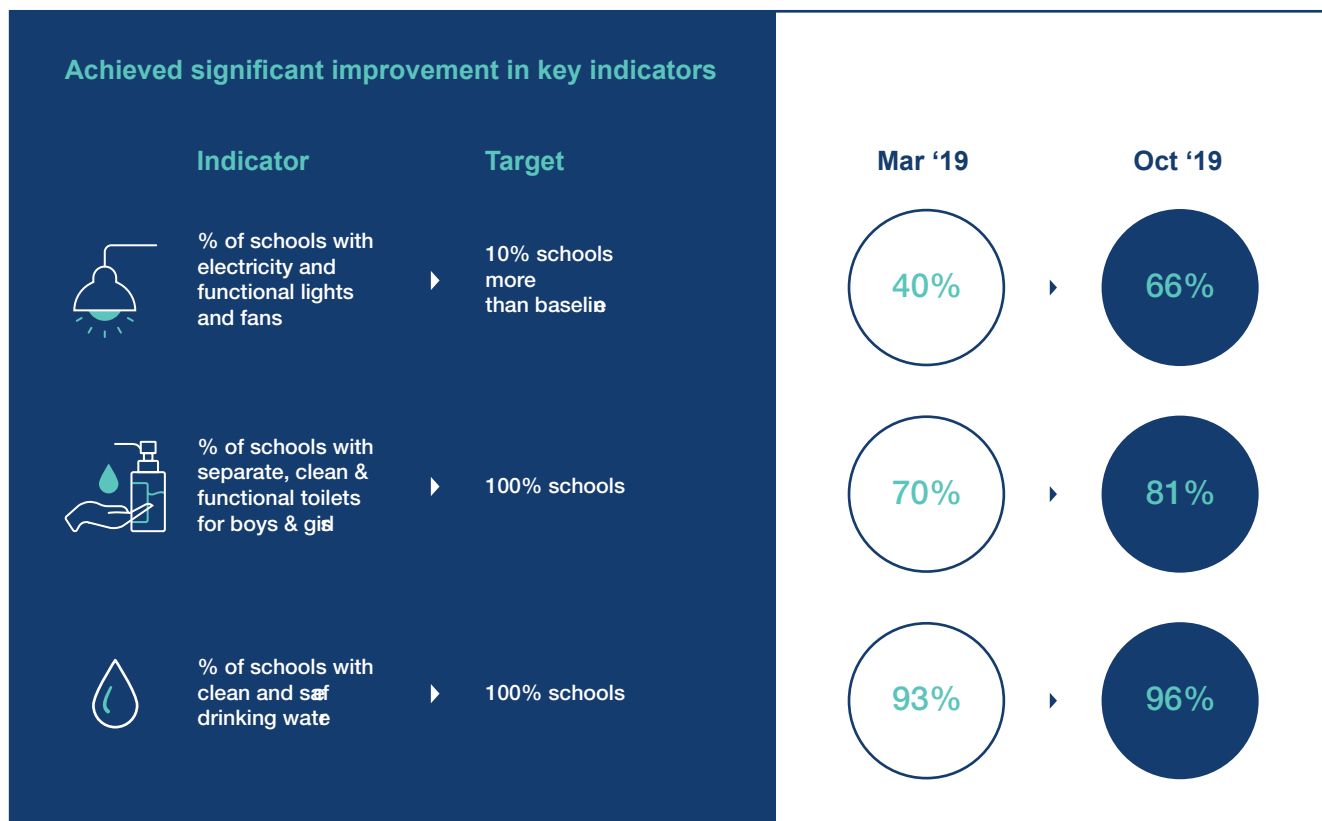|	Achieved significant improvement in key indicators				
	Indicator	**Target**		**Mar '19**	**Oct '19**
	% of schools with electricity and functional lights and fans	10% schools more than baseline	▶	40%	66%
	% of schools with separate, clean & functional toilets for boys & girls	100% schools	▶	70%	81%
	% of schools with clean and safe drinking water	100% schools	▶	93%	96%

Exhibit 82: Significant improvement achieved through Scorecard Sprints

4.3. Strengthening School Management Committees for Improved Service Delivery

Context

In India, the drop-out rate stands at 16% at the secondary level with transition rates from primary to upper primary at 93% and primary to secondary at 91%[7]. Dropout rates can be lowered through sustained investment in the community and school relationships[8].

Emphasizing the importance of the relationship between parents and schools, Section 21 of the Right to Free and Compulsory Education Act 2009 provides for parents' role in school governance. The School Management Committees (SMCs) formed under the act are mandated to have 75% representation of parents. As per UDISE 2016-17[9], 77% of all government and government-aided schools report having formed SMCs.

Approach

In Jharkhand, SMCs had been a neglected component. As per the survey conducted by the state in April 2021, over 71% of schools had not elected their SMCs post-completion of tenure. This had led to dissatisfaction among parents affecting their relationship with schools. Also, school governance was complicated by the existence of two management bodies in schools. SMCs mandated by RTE Act were responsible for grades 1 to 8, whereas School Development and Management Committees were managing funds from the Rashtriya Madhyamik Shiksha Abhiyaan (RMSA). The state decided in July 2021 to merge these two bodies as School Management Committees and conduct fresh elections.

The objective of the SMC-strengthening and parent engagement program was to achieve:

1. 100% enrolment in the school catchment area
2. Zero drop-outs post-summer/ autumn/ winter breaks
3. Maintain decent attendance levels with reopening of schools post COVID
4. Track all out-of-school-children in the school catchment area both at the school and community level

A five-step approach was taken to revitalize the SMCs

1. Reconstituting SMC in schools where SMCs have completed their tenure
2. Training SMCs, enabling them to conduct their duties
3. Supporting SMCs in conducting regular meetings
4. Helping SMCs raise and resolve their grievances in a time-bound manner
5. Developing a support system to enable SMC functioning

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[7]Source : UDISE data(https://dashboard.udiseplus.gov.in/#/home)
[8]Govinda, Rangachar & Bandyopadhyay, Madhumita. (2010). Social exclusion and school participation in India: Expanding access with equity. PROSPECTS. 40. 337-354. 10.1007/s11125-010-9160-8.
[9]Source: As per latest UDISE data available on SMCs (http://udise.in/Downloads/Publications/Documents/District_Report_Cards-2016-17-Vol-II.pdf)

The aim was that SMCs with regular meetings will enable schools to engage with parents apart from SMC members. Parent-Teacher Meeting (PTM) will serve as a starting point for this engagement. These meetings were to be held once a quarter. In addition to the Parent-Teacher Meetings, three events showcasing the learning and growth of children were planned. These events were:

1. Annual sports day

2. Learning showcase week

3. Annual day of school

A step-by-step approach was followed below:

1. **SMC reconstitution:** In July 2021, SMC elections were conducted in 28,836 schools. In schools where SMCs had not completed their tenure, elections were planned to be held as and when they complete their tenure. The state issued guidelines to conduct elections with monitoring responsibilities shared by block and district-level officials. The elected SMC members were issued identity cards, and their names with contact details were displayed at schools.

2. **SMC Training:** Training was conducted for all the reconstituted SMCs. These trainings were facilitated by CRP/BRPs at the school campus with e-content provided by State. The SMC members were trained on their roles and responsibilities (e.g., enrollment, attendance, learning goals of children, curriculum, and teaching-learning process), conducting SMC meetings, developing School Development Plans, and monitoring school expenditure & accounts.

Training & Handholding Plan

	Training	Support Sessions	Meetings	Home Visits	Quarterly Campaigns	Felicitation Events
	(2)	*(12)*	*(12)*	*As per need*	*(4)*	*(1)*
Details	2 Day SMC trainings from Modules developed by state	Monthly sessions exclusively for Parent Members	Facilitation of monthly meetings in school to ensure stakeholders are heard	Home visits towards motivating parents for deeper engagements	Design and implement 90 days sprints	Rewarding top performing SMCs
Content to be developed by	UNICEF	State SMC Cell				State/ District
To be facilitated by	CRP/BRP					
To be supported by	State SMC Cell/ DIET/ CRP/ BRP					

Exhibit 83: SMC Training & Handholding Plan

3. **SMC meetings:** The state mandated the 25th of every month as the SMC meeting day. A suggestive agenda as per the annual calendar was shared with all School Heads. CRPs and BRPs were tasked with helping SMCs in facilitating the meetings. 60% SMCs reported consistent SMC meetings every month. Every SMC was issued a letterhead to communicate with government officials. The SMC members were expected to conduct audits of Mid-Day meal quality, and expenditures done by schools. Once in two months, the SMC members were asked to be present during the Spot tests and discuss the results of Spot tests conducted on six students.

SMC | Key action items articulated for SMC meeting during different times of the year
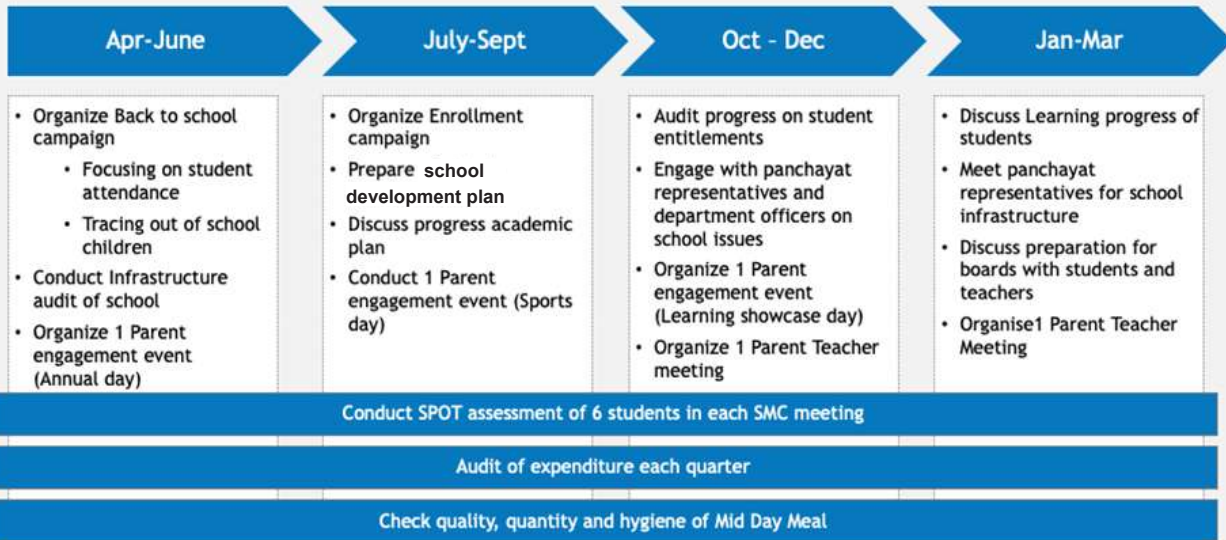
Apr-June	July-Sept	Oct – Dec	Jan-Mar

• Organize Back to school campaign
  • Focusing on student attendance
  • Tracing out of school children
• Conduct Infrastructure audit of school
• Organize 1 Parent engagement event (Annual day)
	• Organize Enrollment campaign
	• Prepare school development plan
	• Discuss progress academic plan
	• Conduct 1 Parent engagement event (Sports day)
		• Audit progress on student entitlements
		• Engage with panchayat representatives and department officers on school issues
		• Organize 1 Parent engagement event (Learning showcase day)
		• Organize 1 Parent Teacher meeting
			• Discuss Learning progress of students
			• Meet panchayat representatives for school infrastructure
			• Discuss preparation for boards with students and teachers
			• Organise1 Parent Teacher Meeting

Conduct SPOT assessment of 6 students in each SMC meeting

Audit of expenditure each quarter

Check quality, quantity and hygiene of Mid Day Meal

Exhibit 84: SMC meeting action items

4. **SMC Grievances:** A chatbot to ease the filing and tracking of grievances by parents was under development. Officers will be tagged to resolve grievances identified by the chatbot. These grievances were monitored via the eVidyaVahini (the State MIS system).

5. **Support Systems:** To monitor the progress of SMCs, the state developed an SMC module in eVidyaVahini. This module would track the formation of SMCs, the regularity of meetings and serves as a repository to store the minutes of SMC meetings. The state conducted training for the CRP/BRPs to support SMCs. Trainings were conducted for School Heads to sensitize them on the functioning of SMCs and methods to leverage SMCs in school governance.
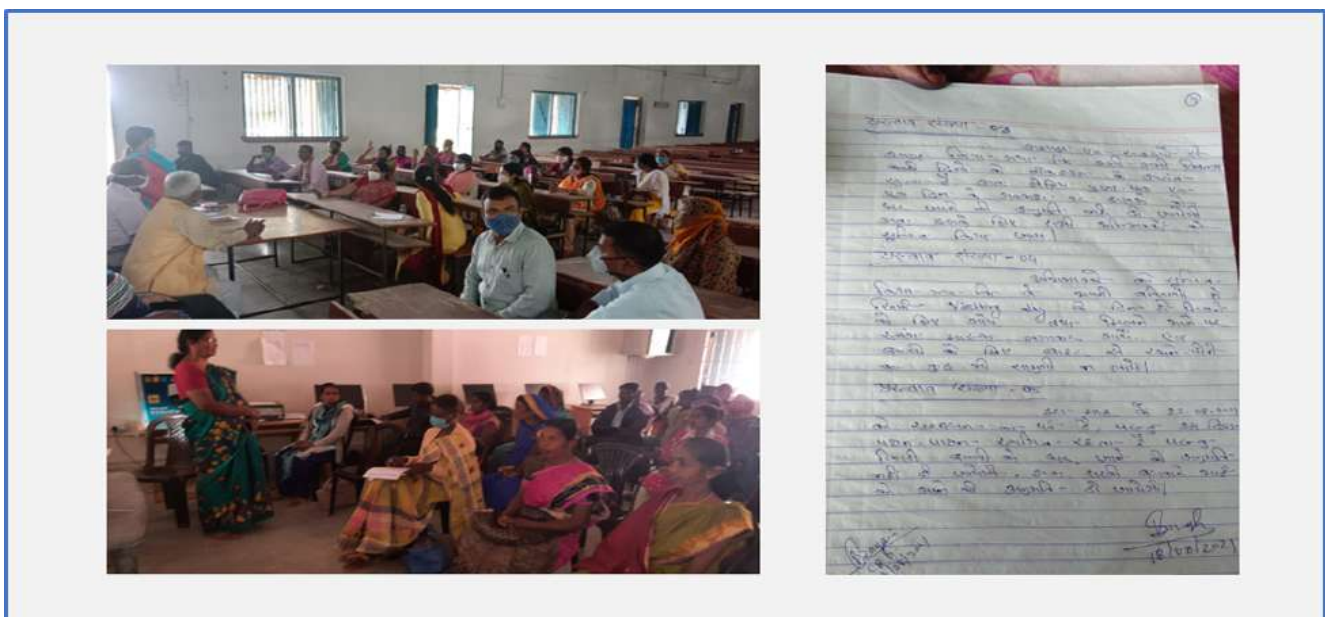

Exhibit 85: Sample SMC Meeting & Minutes

Leveraging active School management committees, in December 2021, the state conducted its first PTM post the start of the pandemic. The SMC members were tasked to spread the communication on PTMs through door-to-door visits. Invitations for the PTM were shared by School Heads and Teachers via WhatsApp. The district and Block officials invited parents through advertisements in newspapers. For the PTMs, a suggestive discussion agenda was shared by the state. Separately, a self-reflection form was filled out by every teacher and School Head sharing the concerns raised by parents.

The state planned to conduct Sports day, Annual Day, and Learning showcase week in the next financial year.
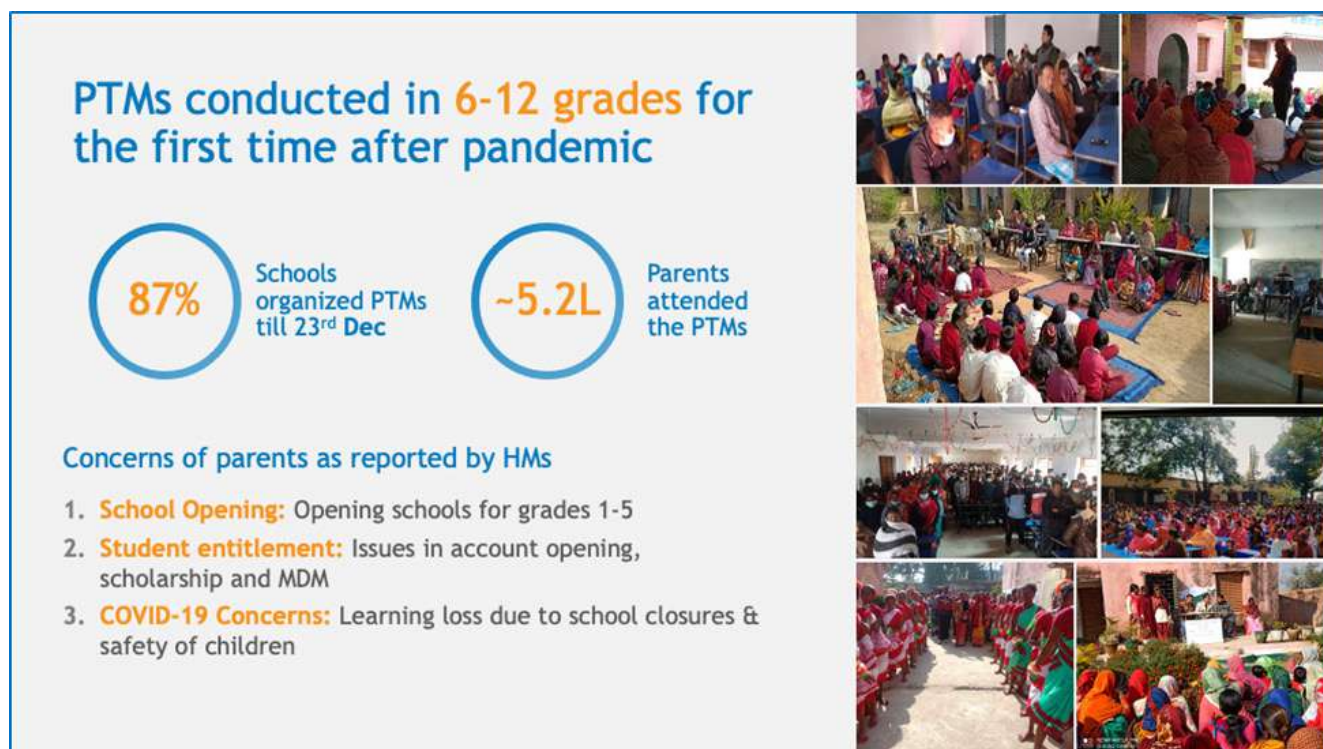

Exhibit 86: Snapshot of PTM Update

Impact and Learnings

With 100% of schools with functional SMCs and ~60% of SMCs reporting regular meetings, the endeavor to strengthen SMCs was effective. The supporting ecosystem of BRPs and CRPs delivered trainings to over 90% of SMCs. The SMCs began communicating with block and district-level officials raising grievances on infrastructure and student entitlement issues. ~5.5 lakh parents participated and 87% of schools reported conducting the PTM.

In the process of revitalizing SMCs and improving parent engagement, there were learnings. A few of the key learnings are summarized below:

1. **Confidence building through communication and handholding:** The state through continuous dissemination of the agenda, ensured that the SMC meetings had a consistent structure. Newly elected SMC members do not feel confident in discharging their duties. To instill confidence in SMC members, orientation training and constant handholding support were provided.

2. **Annual calendar with 7 touchpoints for parents:** To improve the parent-teacher relationship, it was important to maintain continuous engagement. Apart from PTMs, events such as sports day, learning showcases, and annual day celebrations allow parents to witness growth in their children. This develops parents' trust in teachers, thus improving parent and school relationships.

Learnings for Large–scale Transformation in School Education

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Jharkhand

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OCTOBER 2023