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TECHNICAL ASSESSMENT

FOR THE

CHHATTISGARH: ACCELERATED LEARNING FOR A KNOWLEDGE-ECONOMY OPERATION

P179249

Education Global Practice
South Asia Region

ABBREVIATIONS AND ACRONYMS

CHALK	Chhattisgarh: Accelerated Learning for a Knowledge-Economy
DIET	District Institute of Education and Training
DoPI	Department of Public Instruction
DRM	Disaster Risk Management
ECE	Early Childhood Education
EMIS	Education Management Information System
GER	Gross Enrolment Ratio
GoCG	Government of Chhattisgarh
GoI	Government of India
GRM	Grievance Redressal Mechanism
IPF	Investment Project Financing
NAS	National Achievement Survey
NEP	New Education Policy
OBC	Other Backward Classes
PDO	Program Development Objective
PforR	Program for Results
PMC	Project Management Consultant
PWD	Public Works Department
RA	Results Area
RES	Rural Engineering Services
RTE	Right to Education
SAC	SCERT Assessment Cell
SC	Scheduled Caste
SCERT	State Council of Education Research and Training
SIEMAT	State Institute of Education Management and Training
SIS	State Implementation Society
SLAS	State-Level Achievement Survey
SMC	School Management Committee
SRGBV	School Related Gender Based Violence
SS	Samagra Shiksha
ST	Scheduled Tribe
TA	Technical Assistance
TaRL	Teaching at the Right Level

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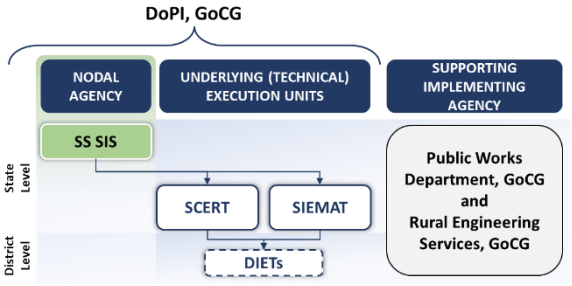
I. Background and Context

1. **Chhattisgarh is one of the faster-growing States in India. However, high poverty rates and vulnerabilities also affected by climate change are a concern.** The State has a population of over 30 million of which more than 40 percent live below the poverty line. The share of Scheduled Caste (SC) and Scheduled Tribes (ST) in the State population is 12.8 percent and 30.6 percent, respectively. The climate in the State varies between 20 to 46 degrees, with variances across districts. The State is vulnerable to droughts and floods due to erratic monsoons and heat waves that can force extensions of the annual school summer break and reduce the number of days for instruction.

2. **The federal setup in India treats education as a concurrent list subject, permitting policy formulation at both the Central and the State levels.** The central government provides broad guidelines and facilitates their implementation through a centrally sponsored scheme called *Samagra Shiksha (SS)*, which prioritizes expenditures that can help to enhance the quality of school education. SS allows for bottom-up decentralized planning where states have the space to prioritize contextually relevant expenditures aligned with the recommendations of the New Education Policy (NEP) 2020 of the GoI.



States are responsible for covering the cost of teacher salaries and regular school operating costs from their budget. **The Department of Public Instruction (DoPI), Government of Chhattisgarh (GoCG) is responsible for the overall planning and management of school education.** The State Implementation Society (SIS) for SS works under the aegis of the DoPI, GoCG to manage interventions. The State Council of Education Research and Training (SCERT) is the nodal educational institution that works with a network of District Institutes of Education and Training (DIETs) to manage teacher professional development, learning assessments, and remedial education. The State Institute of Education Management and Training (SIEMAT) is the nodal educational institution that provides in-service training support to school principals. The Public Works Department (PWD) and the Rural Engineering Service (RES), GoCG support the DoPI with any civil works. The SIS for SS, the SCERT, and SIEMAT have experience in implementing Bank-supported funded projects[1].

3. **Chhattisgarh has 56,303 schools of which 48,547 (86.2 percent) are government-managed, 431 (0.76 percent) are private government-aided, and the remaining 13.04 percent are private schools.** The State has a school enrolment of 6.03 million students, of which 4 million study in government-managed schools. More than 70 percent of them are SCs or STs. The Gross Enrolment Ratio (GER) steadily declines from elementary (95.5 percent for girls and 95.4 percent for boys), to secondary (89.4 percent for girls and 83.2 percent for boys), and senior secondary (59.1 percent for girls and 49.7 percent for boys) level of education, remaining consistently higher for girls. As a result, the Gender Parity Index is 1 for primary and upper primary schooling, and 1.08 and 1.17 respectively for secondary and senior secondary education, indicating the growing disparity from primary to senior secondary education[2].

4. **The prolonged school closure during the COVID-19 pandemic has adversely impacted student learning levels.** A comparison of the results reported by the National Achievement Survey (NAS) 2017 and 2021, shows that there has been a substantial increase in the percentage of students below grade level proficiency.

Table: Grade-wise comparison of the percentage of students below grade level proficiency in Language and Mathematics in 2017 and 2021 in Chhattisgarh

[1] Secondary Education Project (P118445) and India: Elementary Education III (P144447).
[2] *UDISE Plus 2021-22*

	Language		Mathematics	
	NAS 2017 (%)	NAS 2021 (%)	NAS 2017 (%)	NAS 2021 (%)
Grade 3	58.0	75.0	54.0	74.0
Grade 5	59.0	70.0	67.0	88.0
Grade 8	65.0	71.0	71.0	87.0
Grade 10	NA	91.0	NA	90.0

Note: NAS 2017 only covers students enrolled in government-managed schools. NAS 2021 estimates cover government and private sector-managed schools. State-level, school management disaggregated data for grade-level proficiency is not available for NAS 2021.

5. **The State has been witnessing a significant fall in school enrolment at the senior secondary level due to the lack of specialized streams.** Per the latest State records, 350,000+ students entering government-managed primary schooling are likely to reach the final year of secondary schooling with about 2 percent dropouts. However, only 225,000 students can transition to senior secondary schooling due to the non-availability of seats. Most senior secondary schools only provide an arts-oriented education due to the dearth of science and mathematics teachers and appropriate facilities such as labs and workshops. Less than 50 percent of senior secondary students in government-managed schools are enrolled in the science and commerce streams, while the corresponding statistic for private schools is 85 percent. Since 2020, the government has developed 279 schools offering science and commerce education to address this issue. These schools have attracted about three times more applications than the number of seats. Although crucial for ensuring continuous access to school education in sparsely populated areas with low enrolment[3], fragmented school operations have led to multi-grade teaching[4] and higher per-pupil expenditure. Where possible without impacting access to schooling for students, prioritizing the development of relatively large schools operating with a critical mass of teachers and students can promote economies of scale, improve expenditure efficiency, and decrease per pupil expenditure. In several cases, the ability to develop and operate such schools will be limited by the availability of sufficient infrastructure and facilities.

6. **The network of government-managed schools has 176,250 teachers, but the majority of teachers lack access to adequate in-service training and professional development support.** Approximately 82,000 (47 percent) teachers are teaching at the primary level (Grades 1 to 5), 47,500 (27 percent) at the upper primary level (Grades 6 to 8), and 46,750 (27 percent) at the secondary (Grades 9 and 10) and senior secondary (Grades 11 and 12) levels. Limited in-service training support is resulting in poor quality of teaching-learning interactions. Further, a lack of subject teachers in government-managed schools has resulted in Language teachers teaching Mathematics, English, and Sciences. Like all other States in India, GoCG is gradually hiring more teachers to tackle this challenge. However, such efforts get limited by the available fiscal space to hire new teachers despite the increasing availability of subject teachers in the market. In the interim, providing teachers with lesson plans as a reference or support material has been identified as a possible solution by the State. In addition, the State has begun creating a system that allows teachers to choose from a menu of training options (on subject areas and pedagogy), enabling them to benefit from specific support. However, the system needs additional technical support and manpower to deliver a wide range of modules. Similar challenges exist in in-service professional development support for school principals and head teachers, which impacts their ability to provide high-quality pedagogical support to teachers and efficiently manage the overall school operations.

7. **Teachers' inability to support students in acquiring foundational literacy and numeracy skills has led to below-grade-level student learning outcomes at higher levels of schooling.** To address this, the state has introduced a three-month school readiness program for all children entering Grade 1 and has started an initiative that requires primary school teachers to devote a few hours to providing Early Childhood Education (ECE) to children enrolled in the nearby *Anganwadi*[5] centers. It is also planning for a universal rollout of the Teaching at the Right Level (TaRL) approach in the primary grades.

[3] The average enrolment in schools offering primary and/or upper primary education is about 65 students: roughly 8 to 10 students per grade/class.
[4] The state's PTR for schools offering primary and/or upper primary education is 20. When compared with the average enrolment per grade/class, this translates into every teacher teaching and managing two grades/classes, simultaneously, on average.
[5] Early Childhood Care and Development centres managed by the Department of Women and Child Development, GoCG

Children speak more than 24 languages in the state, and teachers have limited in-service training and support materials to effectively manage multilingual classrooms. The state has identified a clear need to appropriately structure these multiple initiatives into a single multi-year, short-term, in-service training program.

8. **The lack of a standardized system to assess student learning through a diagnostic lens restricts the system's ability to identify the issue(s) and take necessary corrective actions.** The State has minimal learning assessment data as it does not have in place a system of periodic State Level Achievement Surveys (SLAS). The State does have a SAC that conducts periodic, centrally designed, and managed formative and summative assessments. However, it does not collect student or item-level data. Further, the quality of test items needs to be improved. The lack of data impacts its ability to plan in-service teacher training and support teachers in effectively facilitating remedial education programs for students. Periodic SLAS, and school-based formative and summative assessments can provide the required information. However, the SAC has limited capacity and experience in these areas. Further, there is a need to plan the GoCG's SLAS in a manner that does not overlap with the grades covered under the NAS and by doing so enables the state to gain a sense of learning levels across Grades 1 to 10. Further, the GoI is investing in the technical enhancement of the NAS through the engagement of a technical support agency to support its recently established Performance Assessment, Review, and Analysis of Knowledge for Holistic Development (PARAKH) center. There is a need to ensure that the SAC continues to learn from the technical enhancements made to the NAS and seeks to emulate and/or enhance the same for its SLAS.

II. Program Boundary

9. **The government program comprises the *Samagra Shiksha* (SS) funding for quality interventions and the State budget that is predominantly earmarked for teacher salaries and student entitlements.** SS funds interventions in areas such as foundational learning, teacher professional development, professional development support for teacher educators, remedial education support for students and other learning enhancement initiatives, learning assessments, technology-enabled interventions (including strengthening of digital infrastructure in teacher education institutions, and schools), school-based vocational education, and special initiatives for out-of-school children (especially residential schools for girls; SS does not currently support any investments in residential schools for boys). About 30 to 40 percent of the SS budget is earmarked for quality interventions. The state budget is mostly used to cover teacher salaries (including subsidies for government-aided private schools), school development and maintenance/operation, scholarships, and student entitlements (textbooks, uniforms, midday meals, and so on). However, about 84.8 percent of the cumulative/consolidated budget (SS and state budget) is used to pay salaries, and about 10 percent is for student entitlements. This limits the funds available for improving the quality of school education and for investments in strengthening the network of government schools to enhance access to senior secondary education.

10. Within the overarching government program, the GoCG envisions the proposed Operation to strengthen: (a) the capacity of the nodal educational institutions to improve in-service professional development support for teachers, (b) learning assessment systems and corresponding remedial education support for students, (c) development and improved management of model composite[6] schools offering science and commerce education at the senior secondary level, and (d) school management via capacity building support for principals, and School Management Committees (SMCs).

11. **The mapping of the Government program and the boundary for the PforR Program are summarized below.**

[6] Composite schools refer to institutions offering education from Grade 1 to 12. This is contrary to the existing setup where most schools only offer primary education (Grades 1 to 5), elementary education (Grade 1 to 8), secondary education (Grades 9 to 10), or secondary and senior secondary education (Grades 9 to 12).

	Government program	PforR Program	Reasons for non-alignment
Objective	To facilitate post-COVID education recovery by strengthening teaching-learning and supporting the State in implementing the vision of NEP 2020	To improve the quality of school education and enhance access to senior secondary education	The PDO provides greater outcome orientation and facilitates the measurability of results. It prioritizes results aimed at accelerating recovery from the learning losses caused by the COVID-19 pandemic.
Duration	July 2023 to December 2028		Not Applicable
Geographic coverage	All government-managed and government-aided schools	All government-managed schools	To ensure that CHALK benefits the underserved communities, the PforR Program will only support government-managed schools where the majority of students are SC, ST, and OBC, and also belong to low-income households
Results areas	**RA-1:** In-service teacher professional development | **RA-2:** Improved student diagnostic & assessment | **RA-3:** Universal access to elementary and improved access to secondary education (school construction, mid-day meal, student entitlements, and salaries) | **RA-4:** School leadership development | **RA-5:** pre-service professional development programs | **RA-6:** Improved access to vocational education	**RA-1:** Improved in-service professional development support for teachers| **RA-2:** Improved student diagnostic and assessment systems | **RA-3:** Decentralized School Development and Management for Efficient and Effective Operation | **RA-4:** School Leadership development	**RA-1** expands the purview of support to teachers to cover in-service training and provision of resource materials| **RA-3** would restrict focus on a limited number of schools, incentivizing system-level reforms to support the development and management of model composite schools with high enrolment, sufficient subject teachers, and adequate infrastructure and facilities | **RA-5** of the Government program is excluded given that Post-2024, pre-service training will be under the purview of the Department of Higher Education | **RA-6** of the Government program is excluded as the state has initiated a model wherein students can simultaneously pursue their school leaving certificate and a degree from an Industrial Training Institution. Support to the latter is covered under an existing Bank project - Skill Strengthening for Industrial Value Enhancement (P156867)
Financing	**US$ 9.765 billion**	**US$ 535.8 million**	

III. Program Expenditure Framework

12. **Program expenditure framework and financing:** CHALK will account for about 5.5 percent of the government program, and 43 percent of it will be financed via counterpart financing. Over the last three years, the government program has grown at a Compounded Annual Growth Rate of about 4.6 percent. This should help sustain the Operation's results. CHALK will enable the State to more than double its expenditure on quality-related aspects while using the government program to cover teacher salaries. The development of the model composite schools will foster greater expenditure efficiency through a reduction in the per pupil expenditure from US$445 to US$295 per annum resulting from economies of scale. This will help free up the State's annual incremental budget to sustain Program results. The table below summarizes the Program financing.

Source	Amount (US$ Million)	Percentage
Overall government program	9,764.5	
Of which, the state budget	9,441.8	97
Of which, *Samagra Shiksha*	322.7	3
CHALK Program	535.8	5.5
Counterpart funding (state budget and *Samagra Shiksha*)	258.3	48.2
International Bank for Reconstruction and Development	277.5	51.8
IPF Component supporting CHALK Program	21.75	
Other Costs (Front End Fee)	0.75	

13. **A preliminary expenditure framework highlighting the direct and implicit leverage for the CHALK**

Operation, and results area-wise mapping of expected expenditures are summarized below[7].

#	Broad Classification	Major Budget Heads	Five-Year Expenditure Projection (US$ Million)					
			Y1	Y2	Y3	Y4	Y5	Total
1	Education Quality Enhancements	Support for Foundational Literacy and Numeracy	3.0	3.1	3.2	3.3	3.5	16.1
		Funds for Quality (Remedial Education/LEP, Innovation, and so on)	7.0	7.2	7.4	7.6	7.9	37.1
		Teacher Educators Professional Development	1.3	1.4	1.4	1.4	1.4	6.9
		In-service Teacher Training and Head Teacher Training	1.2	1.2	1.2	1.2	1.2	6.1
		TEI Infrastructure and Maintenance	13.0	13.6	14.2	14.8	15.5	71.1
		Support for Inclusive Education	0.6	0.6	0.6	0.7	0.7	3.2
2	Examinations And Assessments	Education Boards/Councils	1.2	1.2	1.3	1.4	1.4	6.5
		Assessment at the National and State Level	3.0	3.1	3.2	3.3	3.5	16.1
3	Grants And Aid to Private-Aided Schools	Grants and Aid to Private-Aided Schools	40.1	42.0	43.9	45.9	48.0	219.8
4	School Infrastructure Upgradation and Repair	School Infrastructure and Strengthening of Existing Schools	110.6	71.4	63.5	45.6	43.5	334.7
5	School Leadership and Management Strengthening	Academic support through BRCs and CRCs	2.5	2.6	2.7	2.8	2.9	13.3
		Community Mobilization	0.7	0.7	0.7	0.8	0.8	3.6
		ICT And Digital Initiatives (including EMIS)	2.5	2.6	2.7	2.9	3.0	13.7
		Project Management, Monitoring, and Evaluation	2.6	2.7	2.8	2.9	3.0	14.0
6	School Maintenance and Operation Cost	School Maintenance and Operation Cost	18.4	19.2	20.1	21.0	22.0	100.7
7	Student Entitlements	Mid-day Meal	74.8	78.2	81.7	85.4	89.3	409.4
8		Scholarships, Transport Allowance, and Entitlements	79.8	83.4	87.2	91.2	95.3	437.0
9	Teacher And Teacher Educator Salary	Teacher, Teacher Educator, and BRC and CRC Salaries	1,463.2	1,529.8	1,599.4	1,672.2	1,748.3	8,012.9
10	Vocational Education	Vocational Education	1.5	1.6	1.6	1.7	1.8	8.2
11	Others	Others	6.2	6.5	6.8	7.1	7.4	34.1
Total Government Program			**1,833.2**	**1,872.1**	**1,945.8**	**2,013.1**	**2,100.3**	**9,764.5**
Total CHALK Program			**147.9**	**110.2**	**103.7**	**87.2**	**86.8**	**535.9**
IBRD Share			**100.8**	**60.9**	**52.1**	**33.3**	**30.4**	**277.5**

Source: *Average State Education Budget for 2019-20 and 2021-22; and SS expenditure for 2019-20 and 2021-22. The year 2020-21 has been excluded due to operational and implicit expenditure getting impacted by the prolonged school closure due to COVID-19.*

IV. Result Areas (RA)

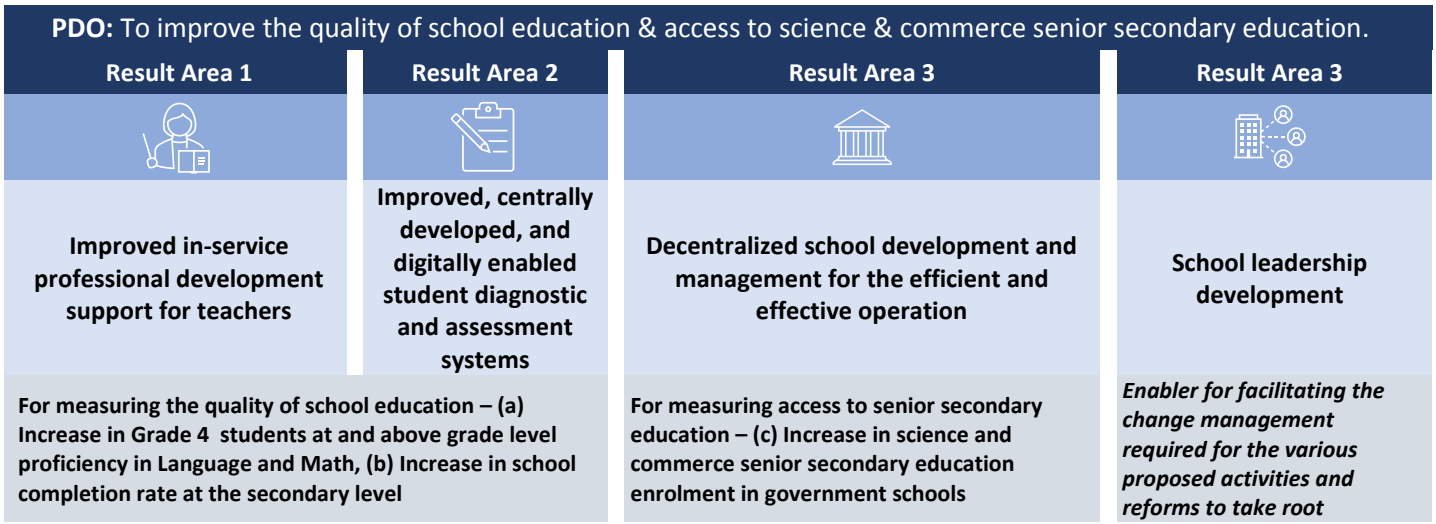
14. **Enhancing the quality of school education (student learning levels) in the state whilst expanding access to science and commerce education at the senior secondary level has been identified as the sector-specific twin goals by the GoCG.** In this regard, the DoPI, GoCG, through the SIS for SS and the SCERT has identified four key challenges that need to be addressed through adequate reforms: (a) insufficient in-service professional development support and academic resource materials for teachers; (b) limited use of learning assessment data or information to inform policy, teacher training, and most importantly, student-specific remedial support at a time when more than 75 percent of Grade 3 students are below grade level proficiency in language and mathematics; (c) limited access to science and commerce streams at the senior secondary level for students from marginalized communities, coal mining blocks, and economically weaker sections, all of whom mostly rely on government-managed schools for education; and (d) insufficient in-service professional development support for school principals and head teachers to manage the type of academic and operational reforms being envisioned under the CHALK Operation.

15. **An overarching challenge faced by the state's school education system is the existence of many schools (especially primary and/or upper primary) with relatively low enrolment and inadequate teachers or subject teachers.** These schools operate with a more than optimal pupil-teacher ratio. However, their low enrolment translates into

[7] The budget heads are based on the major heads of expenditure under the SS initiative. The list of major budget heads is well-defined and has remained consistent over years. This allows for the state budget to be clearly collated and presented together with the SS budget/expenditure. Apart from contributing toward 40 percent of the SS budget, the state budget only funds teacher salaries, school maintenance and operational costs, education boards/councils, and scholarships.

multigrade teaching and inadequate facilities since the investment in additional teachers can take multiple years due to budgetary constraints faced by all States in India. This impacts the number of days of effective learning for students and results in poor learning levels. Several of these schools are critical for ensuring continued access to school education for students living in sparsely populated, topographically complex areas. At the same time, there are clear examples of schools that can be upgraded to model composite setups that have adequate teachers and subject teachers and learning infrastructure. Preliminary estimates suggest that there are at least 750 to 1,000 schools that can be upgraded to such a status. These schools can cater to as many as 20 percent of the students enrolled in government schools and will employ as many as 7.5 percent of teachers. The resulting budgetary efficiency from these model composite schools can help free up funds for investment in some of the smaller, low-enrolment schools that are essential for ensuring universal access to elementary education in the state.

16. **The GoCG views CHALK as an Operation that can help realize its vision of transforming school education in the state and has set an ambitious yet achievable PDO where progress and success under the Operation will be measured through three PDO indicators.** A set of four results areas, each responding to one of the four key challenges identified by the state, led by a dedicated nodal educational institution, and supported by technical experts engaged through the IPF Technical Assistance Component under the CHALK Operation are expected to help the government in realizing its vision for CHALK.



A. RESULT AREA 1 (RA-1): IMPROVED IN-SERVICE PROFESSIONAL DEVELOPMENT SUPPORT FOR TEACHERS

17. **RA-1 focuses on improving the quality of teacher-student interactions by attempting to better utilize the minimum ten days of in-service training mandated for each teacher in the system. For primary grade teachers, given the impact of the prolonged school closures due to COVID, the existence of multiple low enrolment primary schools with one or two teachers, and the limited access to quality ECE, supporting a transition to TaRL in a multigrade-multilingual setup is a priority.** A short-term in-service course spread across three to four years would enable the system to systematically build teachers' capacity whilst periodically observing teaching practices through sample-based classroom observations (potentially using the TEACH classroom observation tool developed by the World Bank). A combination of subject matter expertise and pedagogical practices will be covered in the course. The said course will engage a combination of in-person, online, and peer-to-peer learning, coupled with classroom-based coaching. In this direction, the State could look to strengthen its existing network of professional learning communities where teachers use social media platforms to engage in discussion on academic and pedagogical topics/aspects under a peer-to-peer learning

model/setup. The DIKSHA platform of the GoI could be leveraged for rolling out any self-paced online training modules. During the COVID-19 pandemic, almost all teachers migrated to this platform for online in-service professional development, and this is an aspect that the State could continue to leverage. A multiplicity of channels that can facilitate a combination of online and offline, and self-paced and trainer/instructor-led modules would need to be leveraged if the state wishes to provide all primary school teachers with access to at least 15-20 days of in-service training in every academic year covered under the CHALK Operation.

18. As a first step, a review of the GoCG's existing initiatives in the area of Early Childhood Education, school readiness, foundational learning, etc. will need to be analyzed for overlaps and collated into a single structured short-term in-service certificate course that (a) centers on the TaRL approach, and (b) aligns with the curriculum or grade level competencies suggested by the NCERT. It would be important to ensure that the support provided to the teacher enables her/him to focus on the child's holistic development. It should include all developmental domains: cognitive development and pre-numeracy skills, language development and emergent literacy, creative expression and aesthetic appreciation, socio-emotional development, and fine and gross motor skills. This exercise will need to result in a course structure, a clear set of annual training calendars, and a training rollout plan. The course will service over 100,000 teachers. Efforts would need to be made to keep the cascade model of training as light as possible and to have a set of master trainers from SCERT and DIETS work with up to 1,000 cluster-level resource persons to create a cadre of trainers who can in turn directly train the teachers whilst maintaining a batch size of no more than 20-25. Further, there would be a need to leverage a sample of classroom-based observations and SLAS results to understand the extent to which the particular year's training endeavors have resulted in the desired change at the classroom level teaching-learning interactions and appropriately adjust or enhance the subsequent year's training modules.

19. **For upper primary and secondary grade teachers, the priority would be to better utilize evidence on subject matter gaps and pedagogical aspects that need to be expediently addressed by the system through the provision of need-based in-service training.** Subject matter gaps can be determined through periodic SLAS and/or centrally designed, school-based formative and summative assessments. Pedagogical improvements can be arrived at through sample-based classroom observations of teaching practices (potentially using the TEACH classroom observation tool developed by the World Bank). In parallel, there will be a shift towards providing teachers with greater autonomy to customize and plan their annual training calendar and choose the modules that they feel best respond to their training needs. In addition, given that there are several cases where teachers are required to teach subjects that they may not have necessarily studied at a higher education (graduate or postgraduate) level, the provision of lesson plans and other similar academic resource materials could help improve the quality of teaching-learning interactions in the classrooms.

20. The GoCG recognizes that teachers are the most important school-based factor for student learning and that teachers can make decisive changes in the lives of the students they teach (Beteille and Evans, 2019; Hanushek and Rivkin, 2010; Chetty, Friedman, and Rockoff, 2014). This role is even more critical now, as teachers are at the heart of the response to recover learning losses from the COVID-19 pandemic-induced education crisis. For students to learn, teachers must receive training to deliver quality education that draws on flexible methods, digital technologies, and modernized curricula and approaches that prepare children for the modern world. Although the state has taken major steps to provide teachers with a menu of training options, the State is yet to fully operationalize a demand-driven, in-service professional development apparatus. Opportunities for classroom-observation-based coaching by senior faculty (at least in the model composite schools), and strengthening of the professional learning communities that facilitate peer-to-peer learning would be essential aspects that the state can focus on to complement its efforts to move towards a system of need-based in-service training.

21. The Operation would do well to focus on the provision of in-service teacher professional development programs that are adequately informed by SLASs; periodic, centrally designed, and analyzed formative and summative assessments; and periodic classroom observations (sample-based) of teaching practices. It will be important for the State to provide

teachers with individually targeted and repeated teacher training, with follow-up coaching (where possible), as this has been identified as among the most effective characteristics of effective teacher professional development programs. Moreover, initiatives that have a specific subject focus, incorporate lesson enactment in the training, and include initial face-to-face training tend to show higher student learning gains (Popova et al., 2019). To provide such training meaningfully, the project should extend the required technical and human resource support to the SCERT and its network of DIETs. As the system works towards gradually increasing the number of quality in-service training modules available for teachers, it would need to carefully plan out the annual training calendar to ensure adequate and timely access to training for teachers. It will also need to factor in the need for orientation and capacity-building support for State, district, block, and cluster-level resource persons as master trainers and/or trainers for the various modules planned for a specific academic year.

22. Further, under the new National Curriculum Framework (NCF), the GoCG is planning to revise the grade and subject-wise curriculum and should subsequently look to invest in the development and rollout of grade and subject-wise lesson plans linked to curated digital resources. Studies have shown that the use of lesson plans increases the rate of correct student responses within class time, increases student time on task, and improves student learning outcomes (Hummel, Venn, and Gunter, 2004). These structured lessons will support teachers in the process of curricula enactment – simplifying the task of providing instruction by focusing on *how* to teach rather than only *what* to teach.

 **Providing Need-based- and Blended-Teacher Professional Development**	 **Strengthening the Role of Professional Learning Communities**	 **Institutionalizing a Classroom Observation Tool**	 **Providing Teachers with Access to Grade and Subject-Wise Lesson Plans**
Teachers' self-reported training needs to be collated, triangulated with insights from learning assessments, and use to plan and deliver on an annual training calendar	Peer-to-peer learning is facilitated through the strengthening of social media platforms based professional learning communities and used to facilitate discussion on subject-specific and pedagogical topics	School principals and senior faculty from the model composite schools are to be oriented on a structured classroom observation tool and provision of the corresponding mentorship support to teachers in their school	Teachers are to be provided with grade and subject-wise lesson plans that prioritize bridge or remedial education and can be leveraged to manage classroom instruction

23. **Adequacy of implementation arrangements for the RA:** The Program will leverage the existing decentralized system available with the state for providing teachers with in-service capacity development support. The SCERT is the state-level nodal-educational institution that carries the mandate to plan, design, and roll out in-service teacher professional development initiatives and has a dedicated set of staff working in the area of foundational learning. Downstream, the SCERT is supported by DIETS, Block, and Cluster Resource Centre Coordinators. The state also has a practice of identifying and onboarding training/topic-specific academic resource persons from the pool of teachers and training them as master trainers to work along with DIET faculty, and Block, and Cluster Resource Center Coordinators to facilitate a cascade model of training. The state also leverages the national Learning Management System (LMS) to provide ICT-enabled training and regularly records more than 90 percent teacher participation rate in such online training. The SCERT also has a studio for the production of ICT-enabled content/materials, and will leverage the same for work under this RA. The state intends to utilize the IPF-TA component to onboard a technical support agency with expertise in the area of TaRL, and an agency with expertise in the area of teachers' in-service professional development. Together with these agencies, the SCERT has a robust system to deliver the results envisioned under the CHALK Operation.

24. **Adequacy of monitoring arrangement for the RA:** The current national Education Management Information System (EMIS) coupled with the data monitoring architecture at the backend of the national teacher LMS provides the

information required to monitor the basic data and information on the provision of in-service professional development support to teachers. In addition, the technical support agencies that the state plans to onboard to support its work under this RA, will also bring onboard Monitoring and Evaluation specialists who will work to (a) define a framework for monitoring the quality of training provided, (b) define the monitoring requirements and arrangements that the state will take up whilst developing its own EMIS. It is important to note that the state EMIS will be developed in a manner that allows it to link up to the national EMIS in terms of pulling or feeding data into the same. The state EMIS will per se help in deepening the monitoring and management arrangements available to the state with context-specific modules and supporting applications.

25. **Salient points on economy, efficiency, and effectiveness of the system available to deliver on the RA:** The state's efforts to collate its foundational learning, school readiness, and TaRL training initiatives into one umbrella, multi-year training will enhance the effectiveness of in-service professional development support provided to teachers. At the same time, it will bring greater efficiency to training-related expenditures as it will remove the overlaps in module development and training-related expenditures that the state would incur on the various topics/aspects that are observed to be common across these training. Similarly, the shift to the provision of need-based teacher training for Grades 6 to 10 teachers will help in ensuring greater efficiency as the state would now be able to prioritize the development of modules and provision of training that is (a) well-informed by data from learning assessments, and (b) respond to the teachers' specific needs. These trainings are expected to be effective due to the shift to a more bottom-up system of analyzing, collating, and responding to teachers' training requirements. The overall economy of the teacher training system will be maintained or enhanced using blended channels of teacher training, with judicious use of online channels of training provision. The resulting improvements in teachers' ability to plan and manage teaching-learning interactions are expected to result in improvements in learning levels. This in turn is expected to positively impact the income that students can expect to earn upon joining the workforce. Kindly refer to Section VIII for further details.

B. RESULT AREA 2 (RA-2): IMPROVED, CENTRALLY DEVELOPED, AND DIGITALLY ENABLED STUDENT DIAGNOSTIC AND ASSESSMENT SYSTEMS

26. **RA-2 focuses on improving student diagnostic and assessment systems by helping the system initiate a process of periodic SLAS and improving the design and utility of the centrally designed, school-based formative and summative assessments.** The priority is to help the state put in place the systems required to regularly collect, collate, analyze, and better utilize data required for better policy and programmatic responses. Better-designed school-based formative and summative assessments and the gradual technology enablement of the same can help reduce the turnaround time for completing the assessments, analyze its results, and provide system-generated, customized, class and student-level remedial resources. In a way, this would mark a shift to more personalized teaching-learning under a low-technology (and low-cost) footprint. Given the current landscape where four to five SCERT faculty are managing the Assessment Cell, improved staffing and a dedicated capacity-building program for the SAC will be a must.

27. Under CHALK, the GoCG will look to prioritize the strengthening of system-level assessments as an evidence source for policymaking and reform; and centralizing the process of developing, rolling out, and analyzing formative and summative assessments to identify and address student-specific remedial needs. These system-level assessments would need to be underpinned by a common set of competency-oriented academic standards. Where possible, a focus on using technology to enhance the design, delivery, analysis, and reporting of these assessments will help reduce their overall cost as well as the total turnaround time for completing the assessment(s)., and on using the data from these assessments to close learning gaps. These priorities are highly appropriate given current teaching practices, learning levels in the state, and the time and resources currently available to invest in building the entire teacher workforce capacity in the area of assessments.

28. The NEP 2020, recommends building a culture of continuous, formative, and adaptive assessments in schools to facilitate better student learning as well as improvement in teaching-learning processes[8]. NEP 2020, calls out the limitations of the traditional evaluation system focusing primarily on testing rote memorization skills and recommends that the system shifts to competency-based assessments that check for foundational skills, conceptual clarity, and higher-order skills such as analysis and critical thinking. From a systems creation perspective, it emphasizes two key implementation strategies. First the creation of underlying digital systems for continuous performance tracking of students on learning outcomes and the use of multidimensional report cards to monitor progress and implement data-driven remedial action. Second creating an institutional setup to continuously build the capacity of paper setters in areas of psychometrics, item development, and reliability studies, ensuring improvements in the quality of assessment tools.

29. Aligning with NEP 2020, The SCERT Assessment Cell (SAC), the nodal department for managing assessments in the State, has been making gradual forays in the area of assessment reforms. The SAC has been conducting regular baseline, mid-line & endline tests at the State level to continuously monitor student performance. However, the current assessment system is not yet fully competency aligned and the teachers broadly lack conceptual clarity on learning outcomes and/or competencies. Key stakeholders (education functionaries, school leaders, and teachers) misalign on linkages between teaching and assessments and exhibit limited capacity in preparing high-quality testing tools. The SCERT is in the early stages of implementing the use of 360-degree report cards for its formative and summative assessments, enabling more data-driven remediation. It currently lacks the necessary technological setup for the automation of data analysis and report generation, effectively adding considerable lag to preparing any student-specific remedial action. As a result, the ongoing remediation programs run by SCERT often do not adequately reflect insights from regular state-level studies, and hence are found to have limited effectiveness at the classroom level.

30. Under the CHALK Operation, The GOCG will focus on improving the quality of the SLAS and formative and summative assessments, and on making a sustained shift towards competency-based assessments. For this purpose, the program will focus on (i) Strengthening SLAS and creating a periodic flow of aggregated State-level insights, in line with nationally recognized learning benchmarks; (ii) Centralizing and digitizing the process of designing and delivering formative and summative classroom-based assessments; iii) Building the capacity of SAC and improving its technical expertise in conducting competency-based assessments both at State and at the classroom level.

31. At the State Level, the SAC will strengthen the technical and operational makeup of the periodic SLAS and implement the same for students in Grades 4, 6, and 9. The SLAS will have a clear orientation to assess students on clearly defined learning standards, embedded in these assessments, in line with the prevailing state curriculum and NCERT-defined learning competencies. The test design will follow principles of item response theory; parameters for item reliability, scaling, and standard setting; and sampling methodologies ensuring adequate representation across districts for gender, ST, SC, and OBC across each grade and subject covered under the SLAS. The assessment tools developed for SLAS will comprise items that assess students learning at-grade level proficiency, one level below grade level proficiency, and two levels below grade level proficiency. The SLAS results will provide data on the distribution of students across different proficient levels in a given grade, and on targeted areas of improvement, that will periodically inform education policy, teacher professional development initiatives, and student remediation programs.

32. The formative and summative assessments will be digitized and will follow a centralized roll-out to improve the quality and delivery of these assessments. To support this movement, the State shall build a centralized item bank at the SAC. These items will be competency aligned and will be embedded in a digitally enabled assessment platform, that the State shall build. The platform will allow SAC to centrally generate question papers and distribute them digitally to

[8] NEP 2020, Assessment Reforms (Background Paper for Teacher's Fest, NCERT) Implementation Strategies for NEP recommendations on Assessment and Examination Reforms

individual classrooms, ensuring the safety and secrecy of the test items. The platform will allow teachers to record and upload final student responses into the system via data-entry templates and generate automated response analysis, and associated class and student-specific remedial education plans. The centralized development of these assessments will ensure better quality control over underlying test items translating into reliable student learning insights. The digitized assessment platform will act as a 'just-in-time' system to generate test results from formative and summative assessments and provide direct-to-classroom remediation plans to the teachers.

33. The digitized assessment platform will be developed with a backend, state-wide assessment dashboard to analyze, monitor and report student performance data on key learning competencies at the state, district, block, school, classroom, and student levels. The dashboard could be used by State, block, and district-level officials along with school principals, and teachers to generate 360-degree student report cards comprising student progress on cognitive and non-cognitive learning indicators. Periodic monitoring of student learning gaps will provide reliable data for the development of remediation resource books and learning materials, ensuring continuous enhancement of classroom-based student remediation. They will also inform the development and evolution of the lesson plans that are envisioned to be developed under the Operation.

34. Over and above, the in-service training of teachers on key pedagogical and content-specific areas, the State would need to conduct dedicated sessions for state educators, government officials, school leadership, and teachers to get oriented on the shift to the proposed digitally enabled system for formative and summative assessments, and their results. The State would need to provide adequate training guidance to school leaders and teachers, on how to best utilize the remediation resources available to them developed as a result of these assessments.

35. To ensure the sustainability of these interventions, a key pillar of the project would be to strengthen the existing SCERT Assessment Cell and improve the institutional capacity. Here, technical experts would need to be engaged and will play an instrumental role in identifying current staff deployment gaps and the SAC's overall capacity-building requirements. The Operation will need to accordingly plan and roll out high-quality, intensive capacity-building programs for SAC and district-level staff. These programs should focus on improving SAC's expertise in assessment framework creation, item creation, item testing, item review, in-house statistical analysis, and dissemination of results, thus enabling the SAC to independently carry out high-quality assessment activities even after the completion of the CHALK Operation.

 **Build Capacity of the SCERT Assessment Cell to be Able to Work with Minimum External Technical Support**	 **Strengthen the State-Level Achievement Survey and Leverage it for Teacher Professional Development**	 **Operationalize a System of Centrally Designed, and Digitally Enabled Formative and Summative Assessments**	 **Leverage Formative and Summative Assessments to Provide Immediate Remedial Support to Students**
Assessment of SAC's current capacity to be completed and followed up with support to address staffing issues and capacity-building needs	Grade and subject-wise, competency-based learning standards are defined to serve as the basis for a technically strong SLAS the results of which can be used to inform teacher training needs and prepare lesson plans that adequately address the need for the provision of bridge education before teachers progress teaching at the grade level	Digitally enabled system of centrally designed formative and summative assessments set up to ensure the use of high-quality assessments for expeditiously gathering information on students learning levels across various learning standards	Student-specific, item-level responses to digitally enabled formative and summative assessments are used to generate student-level remedial plans/resources through a system of backend coding that maps each test item and its responses to the underlying remedial implications and associated resources.

36. **Adequacy of implementation arrangements for the RA:** Chhattisgarh is one of the few states in India that has a State Assessment Cell (SAC) setup within its SCERT. However, the SAC has 3-5 staff, and this leaves it understaffed to take on the activities planned under the RA. Further, learning assessment is a highly technical area where most government systems have inadequate technical capacity. It is for this reason that the state intends to use the IPF-TA component to engage a technical support agency that specialized in this area and works with the SAC to deliver on the SLAS, diagnostic assessments, and remedial education resource materials development envisioned under the RA. The engagement of the technical support agency has been planned to involve a large component of capacity-building activities of the SAC staff, and the work of the agency will start with sketching out the organizational structure, associated human resource requirements, and role-specific terms of reference that the state intends to use to increase the staff strength of the SAC.

The state doesn't have an electronic system capable of recording, collating, and analyzing the results of large-scale learning assessments. Such systems are commonly available with the type of agency that will be selected for providing technical support to the SAC under the IPF-TA component. For the first year, the state plans to utilize a copy/image of this system on its own secured server for managing its assessment-related work. Subsequently, the system will be integrated into the EMIS that the state plans to develop under the Operation.

37. **Adequacy of monitoring arrangement for the RA:** The state's participation in national-level assessment surveys and the system it uses for conducting state-wide school-leaving examinations has resulted in a decentralized setup that is very capable of managing and monitoring large-scale student learning assessments and/or centrally designed school-based diagnostic assessments. It can also reach out to the national-level nodal agencies managing national learning assessments to help review the work being done by the technical support agency that it onboards.

38. **Salient points on economy, efficiency, and effectiveness of the system available to deliver on the RA:** For the SLAS, the state intends to cover Grades that are not covered under the NAS of the GoI. This will help ensure efficiency in the implementation of large-scale assessments. The state's decision to simultaneously develop its SAC to ensure the sustainability of work done under this RA, and eventually reduce its dependence on external technical support has long-term implications on the cost that the system would incur on assessments. Further, (a) given the limited capacity that teachers have in the area of designing, analyzing, and acting upon the results of school-based assessments, and (b) the multiple areas under which teachers need capacity-building support that needs to be prioritized over their training in this area, the state's decision to centralize the design, delivery, and analysis of school-based diagnostic assessments is a rather effective strategy. The state's plans to gradually move to a digitally-enabled model of conducting such periodic assessments will reduce the overall cost incurred in printing and logistics, and also reduce the turnaround time the system requires to analyze the data and provide the teachers with remedial education materials for their class/students. The latter is a point that can help enhance the efficiency and effectiveness of remedial education programs being implemented by the state. It can help in ensuring that a student receives timely support to arrest or correct learning gaps/deficiencies. The state's plans to leverage learning assessment data to inform its teacher training programs and for developing lesson plans that teachers can leverage to plan teaching-learning interactions further enhance the utility it can derive from investments under this RA.

39. The investments under this RA can help significantly elevate the quality of remedial education support made available to academically weaker students in the state. In doing so, this RA is expected to positively impact students' learning levels and school completion rates, and through this positively impact the income that students can expect to earn upon joining the workforce. Kindly refer to Section VIII for further details.

C. RESULT AREA 3 (RA-3): DECENTRALIZED SCHOOL DEVELOPMENT AND MANAGEMENT FOR THE EFFICIENT AND EFFECTIVE OPERATION

40. **RA-3 focuses on maturing a system of decentralized school development and management for improving the efficiency and effectiveness of school-level operations. Aligned with the government's priority of enhancing access to senior secondary level science and commerce education, especially for SC, ST, OBC, and girls enrolled in government-managed schools, the Operation will provide them with the opportunity to benefit from improved facilities and subject teacher availability.** Setting up these schools as model composite setups offering education from Grades 1 to 12, with 700+ students, adequate teachers (including subject teachers), better school management through the merit-based appointment of school principals, and providing the school management greater operational autonomy can help in (i) reducing per pupil expenditure and improving overall operational efficiency, and (ii) improving the quality of teaching-learning interactions resulting from better availability of teachers and an enhanced learning environment. A shift in this direction could include: (i) taking up the softer (management and quality-centric) reforms in schools that already have adequate infrastructure and facilities, and (ii) taking up softer reforms and civil works for learning environment enhancement in areas where there is sufficient demand from the community. To optimize the use of funds whilst maximizing the number of model composite schools that it can set up under the Operation, the State has identified 400+ schools that already have the required infrastructure/facilities or where the State had already initiated civil works. The Operation will support the state in taking up the other quality reforms that would help these schools in transitioning to a model composite school status. Further, the Operation will support another 300+ schools in transitioning to the model composite school status by also responding to their infrastructure and facility upgradation needs.

Area of School Operation	Prevailing Landscape	Proposed Shift
Level of School Education Offered	Primary (Grades 1 to 5), Elementary (Grades 1 to 8), Secondary (9 to 10), or Senior Secondary (Grades 11 to 12)	Composite School (Grades 1 to 12 or Grades 6 to 12)
Average Enrolment	65 at primary and/or upper primary schools to 200 students at schools offering secondary and/or senior secondary education	600+ students if supporting Grades 1 to 12; and 400+ students if supporting Grades 6 to 12
School Principal	Seniority based promotion	Seniority and Merit-based selection
Teacher Availability	Each teacher managing 2-3 grades; English, Science, and Mathematics teachers are not available as required	At least one teacher per grade; Subject specialized teachers; Senior faculty available to mentor teachers
School Management	Directly under the purview of the DoPI	A semi-autonomous society with greater autonomy for school-level planning, budgeting, and management

41. The Operation will also support minor repairs across small schools that operate around the model composite schools. The nature of minor repairs will encompass the repair of toilets, drinking water facilities, classrooms, and boundary walls. Under the hub and spoke type operation model proposed under NEP 2020, these schools offering primary, upper primary, and/or secondary education are expected to operate as extensions of the model composite schools. Many students from these schools move to the model composite school to complete their secondary or senior secondary schooling. Teachers from these schools receive mentorship support from senior faculty at the model composite school.

42. Another priority under this result area will be to ensure that several of these model composite schools are planned for blocks affected by coal mining, where a high percentage of the community (especially low-income households) directly or indirectly rely on the sector for employment and livelihood. With India's commitment to gradually reducing its dependence on coal as a source of energy, providing the next generation(s) with the opportunity to pursue careers in other well-paying areas (a lot of which require science and commerce education at the senior secondary level) is a priority.

43. The GoCG has taken concrete steps to plan for the civil works associated with the set of model composite schools that would need such support under the Operation. The PWD is the government department with the strongest in-house capacity for undertaking site surveys, developing architectural plans and drawings, tendering contracts for civil works, monitoring civil works through its decentralized network of engineers, and undertaking structural safety audits. The GoCG

is entrusting the PWD with the responsibility of civil works at the model composite schools to be supported under the Operation. Building greater climate resilience into the building plans, and ensuring that they have a greener footprint and that they support an enhanced learning environment experience will be key considerations.

44. There is a need to ensure that the infrastructure and facilities developed under the Operation are adequately maintained and in this regard, it would be important for the GoCG to receive regular feedback on the condition of the assets developed. CHALK will support the development and rollout of a school performance evaluation tool that will consider parents' feedback whilst periodically assessing the functioning of the model composite schools. With each school being set up as a semi-autonomous society headed by the district-level administration, this will help facilitate expedient response to administrative and operational issues at the school. Environment and social aspects will be a focus area under the tool. School safety, School Related Gender Based Violence (SRGBV), the functionality of Grievance Redressal Mechanisms (GRM), maintenance of facilities, transparency in admissions processes, and availability of teachers, will all feature prominently in the tool. In line with its mandate, the SIEMAT will develop such a tool and corresponding modules for the capacity-building of School Management Committees (SMCs) using the same.

Expansion of the network of model composite schools offering science and commerce education at the senior secondary level	**Facilitating Periodic Performance Evaluation of Model Composite Schools Whilst Factoring Parents' Feedback**
Infrastructure and facility upgradation support and/or governance and management reforms to transition select schools to operate as model composite schools offering science and commerce education at the senior secondary level And Need-based minor repairs across smaller schools to ensure the functioning of facilities critical for ensuring safe operations	Facilitate the rollout of periodic, performance evaluations of model composite schools using a template that necessitates input/feedback from parents

45. **Adequacy of implementation arrangements for the RA:** The development of model composite schools as envisioned under the RA is well backed up by the policy directive and administrative orders of the GoCG. A dedicated set of officials from the DoSE, GoCG, SCERT, SIEMAT, and SIS-SS are managing the rollout of the initiative. The plan to first roll out the set of required quality reforms across schools that have adequate facilities, and subsequently examine the demand from students to plan additional schools that require infrastructure investments is a prudent approach. A system exists for the SIS-SS to clearly communicate school/site-specific requirements to the PWD. In turn, PWD has the decentralized capacity to prepare architectural drawings, carry out site surveys, coordinate with other relevant government departments, procure services of civil work contractors, and conduct building structural safety audits. As corroborated under the Integrated Fiduciary Systems Assessment, and the Environmental and Social Systems Assessments (ESSA) the PWD has the capacity to carry out the required works whilst adhering to high standards of service delivery in these areas, ensure disaster resilience of infrastructure/facility designs, ensure energy and water use efficiency of schools, etc. The RES on the other hand has the reach and decentralized presence to undertake minor repair works across schools around each model composite school. The segregation of responsibilities should help ensure the timely completion of quality work. None of the works envisioned under the Program require any land acquisition and this will further facilitate the timely completion of work envisioned under the RA.

46. **Adequacy of monitoring arrangement for the RA:** Both RES and PWD have district-level engineering cells and senior engineers who can regularly supervise work, check the quality of construction materials at the construction sites, and carry out structural safety audits upon completion of work. Further, to ensure that the facilities developed are well maintained, the state's decision to periodically seek the community/parents' feedback on this issue would help provide

the administration with the information for early action and necessary course correction. Further information on the systems and capacity and enhancements proposed to the process of planning and executing civil works under the CHALK Operation can be found in the ESSA for the Program.

47. **Salient points on economy, efficiency, and effectiveness of the system available to deliver on the RA:** The underlying focus of the RA is on helping the system upgrade the scale of operations of select schools (without leading to loss of access to schooling for any students). It seeks to support the development of model composite schools that have a critical mass of students through which the state can fully utilize the expenditure it makes on salaries of teachers engaged at these institutions. Apart from the resulting efficiency in operations, the model composite school setup brings into the picture a model where senior, subject specialist faculty are available to teach the upper primary and secondary grades, and mentor teachers teaching the primary grades. This has the potential to have a significant impact on the effectiveness of teaching-learning interactions in these schools. The provision of residential facilities for students and teachers in schools that are in topographically complex areas is deemed necessary to facilitate the enrolment and retention of students and attract teachers to relocate to these areas. It is important to note that some of these areas do not have any suitable housing for a teacher to rent or purchase. As a result, teachers are not ready to relocate to these areas for work. The GoCG's decision to plan the location of these schools based on the secondary school completion rates in various administrative blocks will further help in ensuring expenditure efficiency.

48. Further, given the shift towards manufacturing and services sectors led growth being experienced by the state means that an expansion of the number of science and commerce stream seats at the senior secondary level will positively impact the number of students graduating from these streams and the salaries they can expect to draw upon joining the workforce. Kindly refer to Section VIII for further details.

D. RESULT AREA 4 (RA-4): SCHOOL LEADERSHIP DEVELOPMENT

49. **RA-4 focuses on improving the quality of in-service professional development opportunities available for school leaders.** The current model of top-down provision of in-service professional development support will be replaced by a system where school principals will be able to assess themselves on a set of 12, predefined leadership skills or competencies through a psychometric self-assessment tool built around the World Management Survey instrument. Subsequently, they will be able to choose from training modules (online and offline) focused on helping school leaders improve their skills and competencies. Further, the school principals will be provided with access to structured training on School Related Gender Based Violence (SRGBV) and Disaster Risk Management (DRM) so that they can play a more active role in these areas and subsequently work with teachers and the community on these issues. Herein, convergence with state-level nodal institutions that work on these aspects will be key.

50. **Adequacy of implementation arrangements for the RA:** The Program will leverage the existing decentralized system available with the state for providing in-service capacity development support to school principals. The SIEMAT is the state-level nodal-educational institution that carries the mandate to plan, design, and roll out such support. Downstream, the SIEMAT is supported by staff at the DIETS, with these district-level institutions being centers where such training is provided. The state also leverages the national Learning Management System (LMS) to provide ICT-enabled training and regularly records cent percent participation rate in such online training. The state intends to utilize the IPF-TA component to onboard a technical support agency with expertise in the area of school leadership development, Together with this agency, the SIEMAT has a robust system to deliver the results envisioned under the CHALK Operation.

51. **Adequacy of monitoring arrangement for the RA:** The current national Education Management Information System (EMIS) coupled with the data monitoring architecture at the backend of the national LMS provides the information required to monitor the basic data and information on the provision of in-service professional development support to

school principals. In addition, the technical support agencies that the state plans to onboard to support its work under this RA, will also bring onboard Monitoring and Evaluation specialists who will work to (a) define a framework for monitoring the quality of training provided, (b) define the monitoring requirements and arrangements that the state will take up whilst developing its own EMIS.

52. **Salient points on economy, efficiency, and effectiveness of the system available to deliver on the RA:** The shift to the provision of in-service training that aligns with each school principal's individual professional development needs across a set of well-defined leadership competencies will help in ensuring greater efficiency as the state would now be able to prioritize the development of modules and provision of training that is (a) well-informed by data from psychometric assessments of school principals leadership skills/competencies, and (b) respond to each principal's specific learning and development needs. These training are expected to be effective due to the shift to a more bottom-up system of analyzing, collating, and responding to training requirements. The overall economy of the training system will be maintained or enhanced using blended channels of teacher training, with judicious use of online channels of training provision.

V. IPF Component

53. The IPF Technical Assistance Component will extend capacity-building support to nodal education institutions through the engagement of technical experts for (a) providing in-service capacity-building support to teachers, (b) developing resource materials for remedial education, and (c) managing student learning assessments. It will also support the hiring of a vendor to develop the State's Education Management Information System (EMIS), and the engagement of a Project Management Consultant (PMC) and an Independent Verification Agency (IVA) for the validation of results achieved under the Program.

54. The use of the IPF Technical Assistance Component to engage the support of technical support agencies is a significant departure from the status quo and can transform the state of school education service delivery. Like the landscape across most states in India, each year, 30 to 40+ technical support agencies could be providing pro bono support to nodal education institutions in the state. They usually raise their funds through corporate social responsibility contributions and enter memorandums of understanding with the state. However, such partnerships have serious constraints related to the depth, scalability, and sustainability of interventions. They remain largely underfunded to take up context-specific in-depth work and therefore many a time land up simply reusing materials developed for other states or contexts. Limitations related to funding also constrain their ability to work with the state on downstream and at scale roll out. Further, the funding made available to them is usually for a period of one or two years, which doesn't provide a long-term runway to plan, iterate, and revise interventions. Many a time, multiple agencies are working in the same space and this leads to inefficient utilization of the in-service teacher training calendars. Finally, and most importantly, as these institutions are not funded by the state, they can not necessarily be viewed as accountable to the nodal educational institutions. The lack of well-defined, formal contracts also results in (a) the government not having the intellectual property rights (independent or shared) to the academic resources and materials developed, or (b) receiving the necessary support in the areas of transfer of technical capacity. CHALK will mark a departure from this landscape. Nodal educational institutions will plan the terms of reference for the long-term engagement of relevant technical support agencies. There will be a focus on the transfer of capacity and/or joint development of materials and resources. The intellectual property rights for resources developed will rest with the state, and payments to selected technical agencies (consultants or vendors) will only be made on completion of key deliverables.

VI. Accelerating Recovery from Learning Losses Caused by the COVID-19 Pandemic

55. **The Operation also maintains a clear focus on accelerating the system's recovery from the learning losses**

caused by the prolonged school closures due to the COVID-19 pandemic. Activities under each result area of the Program align with the RAPID framework proposed by institutions such as the World Bank, UNICEF, UNESCO, etc.

REACH every child and retain them in school	● The larger government program finances provisions of free textbooks, uniforms, cycles, child insurance, and scholarships to minimize student dropouts ● CHALK will support the development of the State's EMIS for facilitating student tracking and student lifecycle management. This will help the State with the early identification of school dropouts ● Strengthening the system of school-based formative and summative assessments and associated student-specific remedial support will help in reducing dropouts due to poor academic progress
ASSESS learning levels regularly	● CHALK will provide capacity-building support to the SAC to initiate a process of technically robust, periodic SLAS ● Communication of SLAS results and the emerging educational priorities among relevant stakeholders will be prioritized under CHALK ● ICT-enabled school-based formative and summative assessments to inform student-specific remedial support will be a core area of work under CHALK
PRIORITISE teaching the fundamental	● Teaching of fundamental competencies (literacy, numeracy, and socio-emotional skills) will be prioritized in the primary grades. This will be a focus for the transition to TaRL ● Introduction of 'play-based learning' in-classroom and increase parental engagement to improve student readiness in the foundational years will be a focus of support to primary school teachers
INCREASE Catch-up learning and progress beyond what was lost	● CHALK will support initiatives for 'teaching at the right level' and 'catch-up learning' via structured pedagogy, targeted instruction, remedial education support, use of small group tutoring, and self-guided learning for prioritized student ● Aligned with the revised NCF 2022 (that will reduce the overall curriculum), and results from the SLAS, the grade and subject-wise structured lesson plans for teachers will prioritize bridge education in the initial months of an academic year
DEVELOP Psychological health and well-being so every child is ready to learn	● The state has declared every Saturday as a bagless day. Under the larger government program, the state is investing in activities that can facilitate greater collaboration between students through hobby clubs, sports activities, student council meetings, etc.

VII. Alignment with India's NEP (2020)

56. **The activities and reforms envisioned under the CHALK Operation are being planned against a clear and stable policy backdrop. Underlying priorities and activities under each results area align with the priorities under the NEP 2020.** This alignment is also expected to translate into clear agreements for investments and expenditures to be prioritized under SS which will provide a part of the counterpart financing (especially for quality enhancement activities) for the CHALK Operation**.**

	NEP Recommendation	Alignment with CHALK
Foundational Learning (Covered Under Results Area 1)	The new pedagogical structure recommends moving to a 5 + 3 + 3 + 4 system where the first five years should be a cohesive foundational learning continuum comprising three years of preschool education (Ages 3 to 6) and two years of primary school education (Age 6 to 8), and the next three years should be considered a preparatory stage	CHALK will support the development and roll-out of a short-term, multi-year, in-service certificate course that will help primary school teacher support (a) Early Childhood Education at the co-located Anganwadis, (b) provide a school readiness program to children who join school without receiving any ECE, and (c)

		manage primary education under an approach of TARL that adjusts to an individual student's learning needs
Teachers' Continuous Professional Development (Covered Under Results Area 1)	"Each teacher will be expected to participate in at least 50 hours of CPD opportunities every year for their professional development, driven by their interests." The use of technology platforms such as DIKSHA for online training of teachers will be encouraged so that standardized training programs can be administered to large numbers of teachers within a short period.	The program will support the development of in-service training programs/modules which are need-based and rooted in the state context. These courses will be delivered on the needs diagnosed through SLAS, a sample survey of teachers' pedagogical practices, etc. Teachers will have the flexibility to design their learning trajectories. ICT-enabled platforms will be leveraged to create a blended learning ecosystem.
Assessment Reform (Covered Under Results Area 2)	A progress card to be shared with parents that will be a holistic, 360-degree, multidimensional report "AI-based software could be developed and used by students to help track their growth through their school years based on learning data and interactive questionnaires."	Based on periodic school-based assessments, the program will support the creation and sharing of holistic student report cards that provide competency-oriented data on a student's progress in a variety of cognitive and non-cognitive areas. The process of school-based assessments will be digitally enabled to facilitate faster data collection, analysis, and provision of student-specific remedial plans/resources for use by teachers.
Institutionalizing School Complexes (Covered Under Results Area 3)	"Establishment of a grouping structure called the school complex, consisting of one senior secondary school together with all other schools offering lower grades in its neighborhood including Anganwadis, in a radius of five to ten kilometers." Parents and other key local stakeholders will be more involved in the governance of schools/school complexes, including as members of the School Management Committees/School Complex Management Committees	CHALK will support the community-led development and management of 300 composite schools (K-12) with essential facilities and adequate subject teachers. These schools will be the hub in the hub and spoke setup advocated for school complex operation under the NEP 2020. Up to an additional 3,000 spoke schools will benefit. CHALK will support the development of a school social audit tool that the community would use to monitor and provide periodic feedback on school performance.
School Leadership and Governance (Covered Under Results Area 4)	"School Principals and school complex leaders to have modular leadership/management workshops and online development opportunities and platforms to continuously improve their leadership and management skills"	CHALK will invest in the training of decentralized education functionaries (BRCs, CRCs, and school leaders) and school leaders on better school management practices including fiduciary aspects, DRM, and SRGBV
Education Management Information System (EMIS) (Covered Under Results Area 4)	The fundamental principles that will guide the education system will be the extensive use of technology in educational planning and management	To structurally bring together and efficiently manage all the interventions undertaken by the State, CHALK will support the development of the state's EMIS. The Operation will support the development of a State EMIS for capturing, collating, analyzing, and reporting data to track and measure progress

VIII. Economic Analysis

57. **Economic Analysis:** A cost-benefit analysis yields an Economic Internal Rate of Return (EIRR) of 17 percent

and a Net Present Value of about US$3 billion using a discount rate of 6.8 percent[9]. The calculation of the economic benefits is based on the anticipated achievements against the PDO indicators. Through the course of the Operation, about 4 million students will benefit from improvement in the quality of education imparted in government-managed schools. Of these, 3.6 million are expected to complete their secondary schooling, and the rest to complete their elementary education.

- *Improved Foundational Learning Outcomes:* A one standard deviation improvement in learning levels is expected to lead to an 18 percentage-point increase in wage earnings for elementary and secondary school completers upon joining the workforce[10]. CHALK seeks to increase the percentage of students at and above grade level proficiency in Grade 4 language and mathematics by 4 percent. Achievement of proficiency in Grade 4 can be treated as a proxy for completion of primary schooling. An individual who has completed her/his primary schooling with improved learning levels is expected to earn an additional income of US$30.6 per annum. These gains would need to be adjusted for labor force participation (49.0 percent) and unemployment rates (7.5 percent) for the state[11].
- *Improved in-service professional development support for teachers:* The Operation seeks to improve teaching practices through access to need-based in-service teacher training, teaching at the right level, and remedial education linked to standardized school-based assessments. This is expected to improve student performance on learning outcomes and translates into an improved school competition rate by 5 percentage points. An additional 58,000 students are expected to complete grade 10 as a result CHALK related interventions. After adjusting for the workforce participation rate and unemployment rate, this is expected to result in a higher number of students being able to access the labor market with a higher educational qualification. These students are expected to earn an additional income of US$105[12] per annum.
- *Improved institutional capacity for school-level service delivery:* Increased availability of seats for the science and commerce streams at the senior secondary level, better teacher availability, and school leadership/management, along with improvement in the learning environment, and ongoing maintenance of the school-level facilities will help an additional 30,000 students per annum in completing their senior secondary schooling. After adjusting for labor force participation rates and unemployment rates, these students are also expected to earn a wage premium of at least US$105 per annum.

58. The economic costs considered while estimating the EIRR include the overall Program cost of US$558.3 million.

[9] Six-month treasury bill rate of the Reserve Bank of India
[10] Aslam, M., A. De, G. Kingdon, and R. Kumar (2010) "Economic Returns to Schooling and Skills – An analysis of India and Pakistan, Mimeo, RECOUP Project, Faculty of Education, University of Cambridge.
[11] Annual Report (PLFS), MOSPI 2021-22 age group: 15-29 years
[12] Source: Ministry of Statistics and Programme Implementation, National Sample Survey 68th Round; adjusted to 2021-22 using historical inflation rate data, and further adjusted for using per capita income data for Chhattisgarh and India from the Economic Survey (2021-22) of the GoI