Impact Assessment of
Rallis Ujjwal Bhavishya Yojana (RUBY) program

In Akola (Shivar) & Ratnagiri (Lote) Districts in Maharashtra

of

RALLIS INDIA LIMITED
A TATA Enterprise

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Executive Summary

The Rallis RUBY Impact Assessment Report highlights initiatives addressing critical educational and vocational challenges in rural Maharashtra. The region faces deficits in foundational learning, particularly in English, Science, and Math, exacerbated by the COVID-19 pandemic, which disrupted education.

The Rallis Ujjwala Bhavishya Yojana (RUBY) initiative tackled learning gaps in middle school education, focusing on student engagement and comprehension in English, Science, and Math. Key components included activity-based science learning, leveraging local languages in the English Literacy Program, and addressing math skills deficits through interactive tools like the First in Math app.Over three years (2021–2024), RUBY reached over **3,000 students**.

Impact Highlights

Educational Outcomes:

- Reading proficiency in the English Literacy Program improved from **22.4% to 59.1%**.
- Student participation in science exhibitions rose from **194 to 322** in three years.
- Math app usage increased by **48%** from 22-23 to 23-24, reflecting higher student engagement.

Recommendations

Despite significant achievements, challenges remain in assessment rigor and alignment with market demands. The report suggests enhancing evaluation tools and diversifying training programs to sustain long-term impact.

The RUBY programs have effectively improved educational outcomes, marking a vital step towards addressing socio-economic challenges in the intervention villages. Continuous evaluation and adaptation will ensure their sustained success.

1. Introduction

1.1 Background

The Status of Middle-Standard Education in India

The Annual Status of Education Report (ASER) 2022 provides a comprehensive overview of middle-standard education in India, highlighting a significant increase in universal enrollment, with 98.4% of children aged 6-14 enrolled in schools in 2022. However, it also reveals that many children lack foundational reading, writing, and arithmetic skills. This trend is particularly pronounced in Science, Maths, and English, with many students struggling to comprehend basic concepts.[1]

State Level: Maharashtra

Maharashtra, one of India's most developed states, has significantly improved education quality, with high enrollment rates compared to the national average. However, challenges persist, especially in rural areas and underprivileged communities. ASER 2022 highlights disparities between urban and rural areas, such as access to resources, the impact of COVID-19 on learning levels, and differences in Literacy and Numeracy.

District Level: Akola and Ratnagiri

- **Akola:** Akola district, located in the Vidarbha region of Maharashtra, faces several challenges in middle-standard education. ASER 2022 indicates that while enrollment rates are high, foundational learning remains a concern. Factors such as teacher quality, infrastructure, and socioeconomic disparities contribute to these challenges.
- **Ratnagiri:** Ratnagiri district on the Konkan coast also faces similar issues. Geographical isolation, language barriers, and a lack of quality educational resources hinder students' progress in Science, Maths, and English.

The National Education Policy (NEP) 2020 emphasizes experiential learning, critical thinking, and skill-based education to improve the quality of lower and middle-standard education.

[1] ASER 2022

However, implementing these reforms is challenging in rural areas due to infrastructure deficits, teacher shortages, and resistance to change in traditional teaching practices.

1.2 Project Introduction:

Improving the quality of middle-standard education and aligning it with employment opportunities are crucial for India's socio-economic development. Bridging the gaps in Science, Maths, and English literacy, especially in rural districts like Akola and Ratnagiri, requires a multi-pronged approach involving infrastructure investment, teacher training, and curriculum reforms. On the employment front, expanding skill development initiatives, reducing the digital divide, and promoting entrepreneurship are crucial to ensuring sustainable livelihoods for rural youth.

To comprehensively tackle the challenges of low educational attainment has worked with Basic Activity Center for Science and Solar Education (BASSE), LeapForWord, and First in Math, as part of their Corporate Social Responsibility (CSR) initiatives, by launching the below program:

1.2.1 Rallis Ujjwala Bhavishya Yojana (RUBY):

Under the RUBY initiative, Rallis India focused on improving the learning outcomes of students in the English, Science and Math subjects:

1. **Activity-Based Science Learning**: In partnership with the Basic Activity Centre for Science and Solar Education (BASSE), this program emphasized hands-on, experimental learning for students from Grades 6 to 8. Over three years (2021-24), the initiative improved comprehension of scientific concepts through interactive experiments and science exhibitions. 929 Students from 8 Schools gained confidence in scientific inquiry, fostering aspirations for careers in STEM fields.
2. **English Literacy Program (ELP)**: In collaboration with LeapForWord (LFW), the program addressed English language barriers in regional schools, ensuring professional education access. It introduced a pedagogy independent of English-speaking teachers, using local languages for instruction. The program was implemented across these eight schools, improving reading, comprehension, and sentence-structuring skills among 3186 Grades 4 to 7 students.
3. **Foundational Numeracy**: The Rallis India, in partnership with the First in Math (FIM) program (2022–2024), focused on improving foundational numeracy and math achievement in these schools, reaching 802 students of Grade 6 to 8. It aimed at addressing learning gaps caused by COVID-19 school closures and supports teachers and students with interactive, scalable, and motivational tools.

2. Research Methodology

Upon the successful completion of RUBY for the last three Financial Years from 2021-24, benefitting rural students, and Rallis India has entrusted NuSocia, an impact advisory firm to undertake the impact assessment study to understand the effectiveness of the program and to learn from the research findings to come up with better projects in the future.

2.1. Objectives of the study

2.1.1 To understand the impact of the project on beneficiaries
2.1.2 To assess the project implementation and its effectiveness
2.1.3 To provide recommendations for scale-up/replication

2.2. Research Framework

The study combined Qualitative and Quantitative research based on appreciative inquiry. It used the globally renowned OCED-DAC 'REECIS' (Relevance, Effectiveness, Efficiency, Impact, Coherence, and Sustainability) framework[2] to assess the program's impact on educational initiatives and a Lifecycle Framework for the skilling initiatives covering the integral aspects of Mobilization, Enrollment, Training, Gainful engagement, and Post gainful Engagement.

Fig 1: OECD-DAC REECIS Framework

2 Evaluation Criteria - OECD

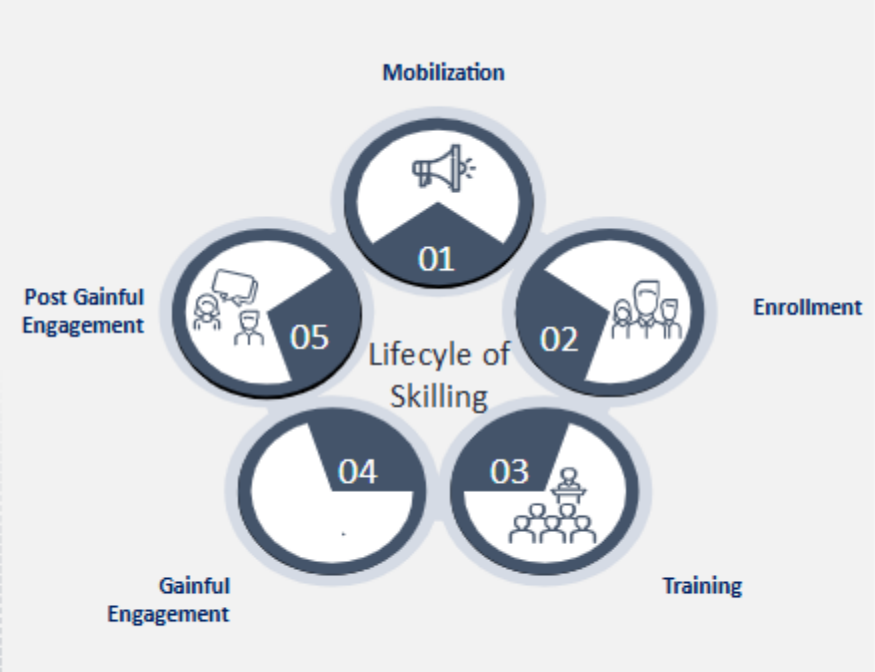

Fig 2: Lifecycle framework for skilling programs

2.3. Sampling

The projects have benefitted over 4915 students and the community teachers directly and indirectly benefitted the NGO's team members and other stakeholders involved with the project. To understand the project's impact and get an unbiased representation of the beneficiaries, the research team used Stratified sampling[3] quantitative inquiry and Purposive and Convenience sampling methods for the qualitative investigation to select the respondents for the primary research.

Education Sampling:

Stakeholders	Qualitative Research (Purposive Sampling)		
	Key Informant Interviews		Focus Group Discussion
Direct Beneficiaries (Education)			6 (3 each from Akola & Lote)
Trainers/Instructors	6 (2 each from Science,		

[3] **Stratified sampling** has been used to identify the survey & KII participants with different course type and year of training as strata.

(Education)	Maths & English)		
Community Teachers	4		
BASSE team	1		
LEAP FOR WoRD team	1		
Rallis India team	2		
Total	**14**		**6**

Table 1: Education Sampling

2.4. Data Collection

2.4.1 Desk research: Desk research was conducted with the help of annual project reports, assessment reports, and other documents provided by implementation partners and the donor, along with open resources available on the Internet.
2.4.2 Key Informant Interviews: In-depth interviews with the help of an interview guide consisting of open-ended questions were conducted with Beneficiaries, Trainers, Implementation Partners, and the Donor to understand the project's effectiveness.
2.4.3 Focus Group Discussions (FGDs): Beneficiaries were selected through convenience sampling and were formed as groups. They were asked open-ended questions to understand the project objectives and their impact on them.

A detailed set of questions asked for each group of respondents can be found in Annexure.

3. Findings

The study utilized distinct sets of questions to evaluate the effectiveness of each program individually, considering the differing objectives of RUBY. RUBY was focused on enhancing learning outcomes.

3.1 Rallis Ujjwala Bhavishya Yojana (RUBY)

To address the learning gaps in language, science, and math subjects of students in Akola and Lote (Ratnagiri) locations where Rallis has its factories, the project collaborated with three expert implementation partners to address issues with each subject through experiential learning. The project intervened in 8 Schools (5 in Akola and 3 in Lote) over the three years starting from 2021-22.

Sr. No	Implementation Partner	Subject and Classes	Students		
			2021-22	2022-23	2023-24
1	BASSE	Science	298	319	312
2	LFW	English	1162	1087	937
3	FIM	Math	NA	382	418
		Total	1460	1788	1667

Table 2: Number of students year on year across subjects

3.1.1 Project Implementation:

To understand the on-ground implementation and to see the project's impact, the study interacted with the beneficiary students, community teachers, and the representatives of the implementation partners.

Science Intervention Program - BASSE

The Science Intervention Program by BASSE was initiated to enhance students' understanding and interest in science through hands-on experimentation in the selected schools, addressing the need for more active participation in traditional science education in rural India.

A preliminary survey assessed the academic foundation of 25 selected students from grades 6 to 8. Based on the survey results, students were categorized, and a complementary curriculum was designed, diverging from the standard school curriculum.

The program spanned three years (2021-22 to 2023-24), focusing on activity-based learning. Each year building upon the previous year's learnings, the first year tried to spark curiosity, second year focused on enhancing observation skills, while the third year engaged in encouraging independent project execution. A total of ten experiments were conducted in each session, and each phase had 10 such sessions ranging 2 hours each in duration, and these sessions culminated in a science exhibition at the end of the year, where students demonstrated their experiments.

"Science education in the region was primarily theoretical, with limited emphasis on hands-on learning. Schools lacked laboratory facilities and resources for conducting even basic experiments. The intervention addressed these gaps by introducing accessible, practical experiments that made science tangible and relatable. Additionally, the lack of teacher training in experiential teaching further underscored the need for such a program." - Trainer & Founder, BASSE.

The topics included Simple Experiments, Measurement - I, Separation Methods, Force, Pressure, Heat, Light, Air & Water, Magnets, Measurement - II, Surface Tension, Acid & Base, Volume, Density, Microscope, and Life Process. The trainer and the founder of BASSE travel to a select school in a day and conduct on average three sessions of 2 hours each day in that school, and move to a nearby school to repeat the same.

"The program aligns well with the local curriculum by focusing on foundational science concepts already part of the syllabus, such as forces, molecular interactions, and basic physics principles. Adjustments were made to emphasize practical learning. These modifications ensured the program complemented existing lessons while making them more engaging and impactful." - Founder, BASSE.

The primary beneficiaries were students in grades 6 to 8 who were trained by the BASSE team on the above topics through offline demonstrations within the school, complementing the existing curriculum taught by the teachers.

English Literacy Program - LFW:

The Leap For Word English Literacy Program (ELP) was developed to address the significant gap in English proficiency among students in regional language government schools, which hindered their access to higher education opportunities. The program began with teacher training

sessions that focused on equipping educators with the necessary skills to teach English effectively without requiring them to be fluent in the language.

"The major challenge in Akola and Lote is the lack of English awareness among second to fifth-grade students. They primarily use vernacular languages like Marathi or Hindi and struggle with basic English reading, even in higher grades like fifth and sixth. We introduced software that helps students recognize words through phonetics to address this. We developed a curriculum using an error algorithm that connects vernacular languages with English learning, enabling students to learn English through their native language." - Leap For Word, Maharashtra state co-ordinator.

The ELP was structured into four levels: Elementary Reading, Advanced Reading, Elementary Comprehension, and Advanced Comprehension. The intervention included baseline, midline, and end-line assessments to track student progress. Monthly review meetings with teachers ensured continuous improvement, while competitive events like the Word Power Championship motivated student engagement.

The community teachers (Hired from the community to teach English to the students) were trained for 4-5 hours on each level by the LFW team at the start of the annual year. They were provided textbooks with an exact curriculum per the prescribed levels and used the software tools developed by LFW to teach students from grades 4-7. The classes were conducted 30-45 minutes per grade by the community teachers who attended the schools for a few hours as per the planning done along with the school administration.

It was observed that the English literacy program was not aligned with the school curriculum directly, unlike the science curriculum, and it focused on improving students reading and writing in English through the four levels, which would indirectly help improve the student's regular school curriculum.

Foundational Numeracy, and Math - FIM:

The Foundational Numeracy, and Math project was launched in response to the significant learning gaps in mathematics that emerged due to school closures during the COVID-19 pandemic. The project aimed to measure and address the individual loss in math skills among students without adding extra burdens on teachers.

The project began with a collaboration between Rallis India and First In Math in 2022-23, focusing on empowering teachers with resources and training to support students of varying skill levels and socio-demographic backgrounds. An emphasis was placed on enjoyable training methods for teachers to enhance their skills on the job.

The implementation involved several key strategies:

- Hands-On Training: Teachers received experiential training at the initiation to utilize the First In Math app effectively to upskill themselves, and the FIM team supported teachers and the students with the technical issues and conducted refresher sessions when needed.

- Flexible Practice: Students can practice math skills anytime and on any device, at school or at home.

- Regular Monitoring: Monthly virtual meetings allowed for progress monitoring and adaptation of teaching methods based on student performance.

The foundational numeracy initiative engaged with students from grades 6-8 from the eight selected schools, where the students were registered to the FIM app. Upon registration, the students and teachers were trained to use the app and find topics aligned with the curriculum.

"Currently, we cater to students in grades 6-8. Grade 6 and 7 students start with elementary and then progress to intermediate and advanced levels. While our modules are aligned with the curriculum, they are not mapped word-for-word. Math concepts remain consistent across different boards, whether government, CBSE, or IGCSE. However, we tailor the difficulty level to match the needs of each school." - First in Math representative.

The program addressed speed, accuracy, mental math, and foundational numeracy. The key focus was mastering the basics—addition, subtraction, multiplication, and division of whole numbers, fractions, decimals, and integers.

"We provide ample practice opportunities through modules like Just the Facts. This module is a formative test where students solve 100 math problems in five minutes. It is designed to be stress-free; students are not penalized for mistakes but are encouraged to learn from them. For example, if a student initially solves 30 problems correctly out of 50, they are motivated to challenge themselves to do better in subsequent attempts. This fearless practice helps build their confidence and skills." - First in Math representative.

It was observed that the class teachers also played a significant role. The teachers used FIM to supplement classroom lessons, and once they completed a topic, they encouraged students to practice related modules on the platform, which helped reinforce learning.

Students were categorized as Scholars or Mathematicians based on the number of problems they solved, with their progress displayed on a school-level leaderboard. Additionally, both students and teachers had the opportunity to compete on the national leaderboard of FIM, gaining recognition for their overall performance and the total problems solved.

3.1.2 Impact:

Impact on Students

Increased Confidence and Skills:

Students have reported a notable increase in confidence when applying their newly acquired skills. One student mentioned, "*This program has helped us build a strong foundation in Science, Math, and English. It has boosted our confidence, improved our understanding, and made learning enjoyable.*" This sentiment echoed throughout the students interviewed, with many expressing joy in their academic progress, particularly in math and science.

"Earlier, these subjects felt like enemies to us, especially Math, Science, and English. However, through this program, our fear has disappeared, and we are now enjoying learning these subjects." - Student FGD, Blue Lotus Convent School.

Practical Applications of Learning:

Many students have begun to conduct independent science projects at home. One student explained centrifugal force to their younger sibling using a homemade spinning toy. Such initiatives indicate that the program inspired students to explore science independently and apply their learning in practical contexts.

"Earlier, these subjects felt like the toughest to handle. However, the way Yavalkar Sir teaches us has made all the difference. The methods are engaging and practical, involving projects that connect directly to real-life applications. For example, the solar cooker experiment helped us understand the concepts better and showed us how to apply them in everyday life. This approach has made learning more enjoyable and relevant to our academic needs." - Students FGD, Blue Lotus Convent School.

"The concepts and methods taught in the program are much easier to understand and integrate into our regular academic requirements. The language used is simple and clear, making learning more effective compared to how we were taught earlier. This has greatly impacted our understanding and application of the subjects." - Student FGD, Shivar ZPHS.

The practical learning approach imbibed across all three subject interventions was lauded for the engaging content and more straightforward language compared to the regular curriculum.

Improved Academic Performance:

Improving the learning outcomes of the students in the intervention schools across all three subjects was the objective of RUBY, and the improvements in learning have been observed as below:

a. **Science Intervention:** The study found that students could perform the experiments independently. At the end of the year, a science experiment exhibition was organized, showcasing the experiments conducted throughout the year. During the exhibition, students demonstrated their experiments, explained the process, and discussed their observations. This activity enhanced their confidence and increased their engagement with the subject in the classroom.

"We feel much more confident in using the skills we've learned, especially through exhibitions and practical activities. We now believe we can apply what we've learned effectively in real-life situations and class assignments, as we've gained both knowledge and experience." - Students FGD, ZPHS Shivar.

Sr. No.	**Year**	**No. of Exhibits Done**	**No. of students participated**
1	2021 - 22	86	194
2	2022 - 23	169	338
3	2023 - 24.	182	322

Table 3: Exhibitions conducted by students year on year

Over the years, it's observed that the students' interest in Science education and enrollment to Science studies have grown due to the improved interest generated through the science experiments.

"Almost half the students are interested in studying further in the science stream now'" - Community Teacher.

The BASSE team conducted pre and post tests across the 8 intervening schools every year to measure student's previous analytical skills related to the science subject, and their understanding of the same concepts after the intervention with a focus on identifying student's ability to observe, and apply their knowledge in the science topics. The below are the test results from the academic year of 23-24.

Component	**Pre-Test Average**	**Post-Test Average**
Previous Knowledge	45	77
Methodology	74	82
Application	77	88

Creativity	51	77
Interest	85	91
Scientific Relation	0	51
Observation	2	40
Measurement	20	57

Table 4: Results of Pre and Post Test conducted by BASSE

From the results of the pre and post surveys**,** it could be inferred that the student's scientific relation, and observation were non-existent before the intervention in FY 23-24 and that they have seen exponential growth by the end of the year.

However, the study's results are challenging to evaluate conclusively year-on-year due to limitations in the test design, and unavailability of comparable metric. For instance, each skill was assessed using only one question, with a total of 10 questions covering 10 different skills. Some questions, such as "Do you like Science?" were overly simplistic. Despite using the same set of pre- and post-test questions in FY 22-23 and FY 23-24, the performance in skills like scientific relation, observation, and measurement remained notably low in FY 23-24. This suggests either a limited impact of the project on students or insufficient rigor in the test design, as previously noted.

b. English Literacy Intervention: The English Literacy Program (ELP) implemented in schools across Akola and Lote had significantly improved students' reading and spelling abilities from the baseline to the end-line assessments. The data collected highlights the progress made in various aspects of English literacy, including reading simple and moderate words, spelling capabilities, and comprehension levels.

Overview of Baseline to End-line Findings

1. Reading Proficiency: The percentage of students able to read simple words increased from 22.4% to 59.1%, reading proficiency for moderate words rose from 3.9% to 46%, and reading moderate words with tails substantially improved from 8.5% to 48.5%.

2. Spelling Skills: Spelling proficiency for simple words improved from 0% at baseline to 34.1% at end-line, while moderate words showed minimal improvement, increasing from 0% to 2.5%, and moderate words with tails remained unchanged at 0%.

Category	**Baseline (%)**	**End-line (%)**	**Improvement (%)**

Reading Simple Words	22.4	59.1	36.7
Reading Moderate Words	3.9	46	42.1
Reading Moderate Words with Tails	8.5	48.5	40
Spelling Simple Words	0	34.1	34.1
Spelling Moderate Words	0	2.5	2.5
Spelling Moderate Words with Tails	0	0	0

Table 5: Baseline to End-line results by Leap For Word

3. Grade-wise Performance: For Grade 4, average scores increased from 30% at baseline to 55% at end-line, while in Grade 5, scores rose from 34% to 58%, demonstrating effective intervention strategies; similarly, grade 6 saw an improvement of 10%, and Grade 7 say an improvement of 14% from baseline to end-line.

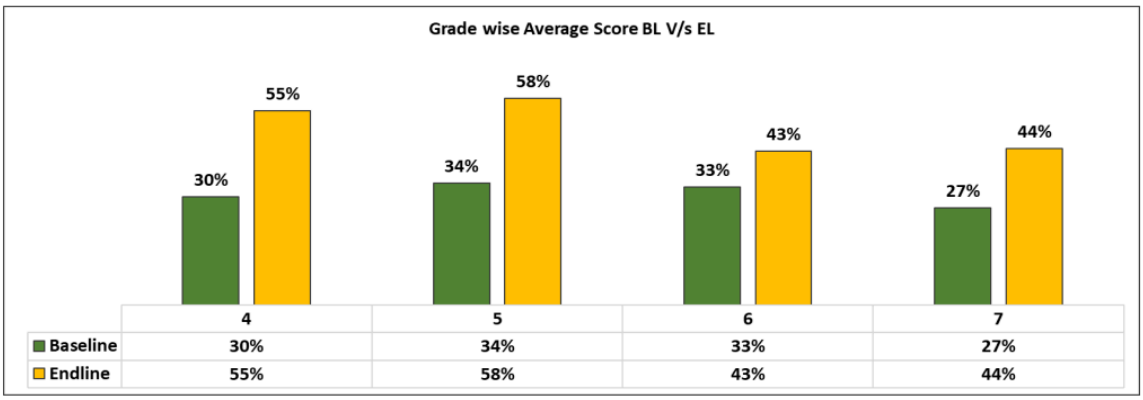

Chart 1: Grade-wise differences between Baseline and End-line studies for Language

In addition to the change in scores between the start of the project in 2021-22 to 23-24, the teachers and parents of the beneficiaries also identified visible changes in the student's reading abilities and participation in classroom discussions.

A teacher from Akola remarked, "*The improvements in our students' reading skills are evident; they are more confident and eager to participate in class discussions*."

A parent noted, "*I can see my child reading more at home; the program has sparked a love for learning English.*"

c. **Math Intervention:** The FIM app had about 382 students registered from the eight schools in 22-23 and 418 students registered from 6 schools in 23-24, of which 255 and 294 students accessed the app and used it to solve math problems.

22-23			23-24		
School Name	**Students**	**Math Problems Solved**	**School Name**	**Students**	**Math Problems Solved**
ZPPS School, Mathwadi	28	114,177	ZPPS School, Mathwadi	39	132,393
Sadguru Kadsiddheshwar Vidyalay, Gunade	89	394,203	Sadguru Kadsiddheshwar Vidyalay, Gunade	186	863,319
Z P School, Shivar, Akola	32	233,334	Z P School, Shivar, Akola	64	505,230
Blue Lotus Convent, Shivni, Akola	23	385,395	Blue Lotus Convent, Shivni, Akola	40	704,970
Z P School, Kumbhari, Akola	43	13,500	Z P School, Kumbhari, Akola	72	56,907
ZPPS School, Ghanekhunt, No.2	26	110,943	ZPPS School, Ghanekhunt, No.2	17	15,210
Z P School, Malkapur, Akola	23	12,678			
Z P School, Shivni, Akola	67	59,394			
ZPPS School, Lotemal	51	10,698			
	382	**1,334,322**		**418**	**2,278,029**

Table 6: School wise breakup of number of math problems solved year on year

In year 1, on average, the students solved 5233 questions/student, which went up to 7749 questions with a 48% increase in usage per student by 2023-24. This signifies the improved usage of the app and usage of free time by the students. However, the study couldn't verify if this improved the students' learning outcomes in the regular classrooms and curriculum.

Impact on Teachers - Enhanced Teaching Practices:

Teachers have benefitted from training and resources that have improved their confidence and effectiveness in engaging students. One teacher noted that "*keeping a strong connection with the community helps a lot*," suggesting that community involvement enhances educational practices. Moreover, regular feedback sessions and training have fostered an environment where teachers can share best practices and learn from each other.

"The program encouraged me to try new teaching techniques and experiment with hands-on activities. It also improved my ability to communicate effectively in English, which has inspired students to use the language more confidently." *- Teacher, Akola.*

The community teachers shared that the interventions helped improve their vocabulary and reading skills, while the digital resources made it easier for them to practice and teach newly learned concepts to students. Creating communication platforms, such as WhatsApp groups for teachers, further facilitated ongoing support and feedback sharing. This collaborative approach has been instrumental in addressing challenges and enhancing teaching methodologies.

Impact on Community - Community Engagement:

Regular parent-teacher meetings have allowed for community feedback, which is crucial for program improvement. Parents have expressed satisfaction with the changes they observe in their children's academic abilities, indicating strong community support for the initiatives.

"Now, because of this initiative parents are showing readiness to send their daughters to English medium school and allow them to continue their school. A girl from a very poor family, living in a tin house, was initially set to be enrolled in the Marathi medium. However, she excelled in English and insisted on being enrolled in the Semi-English medium, convincing her parents with her strong performance." - Community Teacher, Lote.

The educational activities across the three subjects, implemented by different partners, effectively enhanced students' curiosity for learning and reduced the fear associated with Math, Science, and English. However, the RUBY program faced several limitations. The lack of integration with the regular class curriculum required additional class time, adding to the students' workload. There was also an absence of comprehensive tests to evaluate learning improvements across the three initiatives. Reliance on a single trainer for science experiments, limited access to digital devices for math practice, and dependence on a community teacher for English instruction instead of promoting self-learning through learning labs further constrained the program's overall impact.

4. Analysis

The observations and findings through primary research of the RUBY has been analyzed on the OECD-DAC global framework REECIS as below:

4.1 Relevance:

The first criterion in the REECIS framework, Relevance, evaluates how well an intervention's goals and structure align with the needs, policies, and priorities of the beneficiaries, the global community, the country, and partner institutions. It also considers the intervention's adaptability to evolving circumstances to ensure its continued relevance.

In Akola and Lote, the educational landscape faces significant challenges, including inadequate infrastructure, limited access to quality education, and socio-economic barriers. Many schools lack essential facilities such as libraries and laboratories, restricting students' learning opportunities. The program addressed these gaps by providing quality learning resources for Math, Science, and English and deploying skilled educators for each subject. Students in local schools, particularly those struggling with these subjects, often opted out of STEM fields. To counter this trend, the program focused on improving learning outcomes in these critical areas.

By focusing on these dual objectives—enhancing STEM learning outcomes - the project aligned with local needs while also supporting national and international priorities. Specifically, the initiative contributed to the Sustainable Development Goals (SDGs):

- **Quality Education (SDG 4):** Enhancing access to quality education in English, Math, and Science for marginalized students.
- **Reduced Inequalities (SDG 10):** Bridging socio-economic gaps through targeted interventions.

Through these efforts, the program promoted lifelong learning and economic resilience. However, to enhance its impact, there is a need to refine the implementation methodology for educational initiatives to better align with evolving market demands, at least for those with relevant education to pursue advanced courses.

4.2 Effectiveness:

The second criterion of the framework analyzes the effectiveness of the intervention, the extent to which the intervention achieved its objectives, and the results.

The objective of the project was to improve student’s interest in the respective subjects and overcome the fear of learning through educational initiatives, while bringing women out of their

homes and creating economic opportunities for women and youth locally through the skilling center. Both of these have been achieved to an extent as the beneficiaries of both the projects expressed satisfaction, and recommended the projects to their peers.

The RUBY program achieved progress in improving students' interest and participation in STEM and English learning. For instance:

- Science: Increased engagement through hands-on experiments and exhibitions, with 437 individual exhibitions by students showing strong engagement.
- English: Enhanced literacy rates with significant improvement in reading proficiency from 22.4% to 59.1% for simple words, with a minimal improvement in spelling proficiency, and the biggest improvements at grade level seen in Grade 4 at 15% from 30 - 55%, while other grades also seen an improvement of 10 - 14% across grades.
- Math: A rise in app usage from 13.34 lakh problems solved in FY 22-23 to 22.7 lakh problems solved in FY 23-24 reflect an improved student engagement, and increased usage by the students.

However, testing methodologies lacked rigor and comparability between baseline and endline assessments, and also no tests were done to observe the students improvement in their regular course work due to these initiatives, limiting the ability to conclusively attribute improvements to the interventions.

Across this program, there has been a notable achievement in the objectives, leading to effectiveness of the program towards the intended beneficiaries.

4.3 Efficiency:

The third criterion of the framework analyzes the efficiency of the intervention, The extent to which the intervention delivers, or is likely to deliver, results in an economical and timely way.

The program demonstrated efficiency through its strategic implementation within budget constraints. Regular follow-ups during monthly meetings allow for real-time adjustments based on student performance and engagement levels. The focus on utilizing existing community resources—such as local schools and teacher networks—maximizes impact while minimizing costs.

Over three years, the RUBY program invested ₹69.31 lakh, reaching 4,915 students through its Science, Literacy, and Math interventions. This translated to a cost-effective average investment of ₹1,392 per beneficiary over the three-year period, resulting in improved interest in science learning and removal of fear on these subjects.

RUBY	FY	Funds utilized (Rs)	No. of Beneficiaries	Per Beneficiary Cost (Rs)
1	21-22	1445325	1460	990
2	22-23	2570276	1788	1438
3	23-24	2916104	1667	1749
	Total	**69,31,705**	**4,915**	**1,392**

Table 7 : Per beneficiary cost of RUBY

4.4 Impact:

The fourth criterion of the framework analyzes the Impact of the intervention, The extent to which the intervention has generated or is expected to generate significant positive or negative, intended or unintended, higher-level impacts.

The educational and livelihood initiatives in Akola and Lote made significant strides in addressing foundational gaps in learning and employability. Under the RUBY, over 3,000 students from 8 schools benefited from targeted interventions in Science, Math, and English. The English Literacy Program demonstrated measurable progress, with simple word reading proficiency improving from 22.4% to 59.1% and moderate word reading increasing from 3.9% to 46%. The math initiative achieved a 48% increase in app usage over two years, reflecting growing student engagement. Science interventions fostered curiosity through hands-on experiments, culminating in annual exhibitions, with participation rising from 194 in year 1 to to 322 students in year 3. These efforts contributed to boosting students' interest and confidence, particularly in STEM fields, aligning with national priorities like the NEP 2020.

In addition to improved learning outcomes, students demonstrated increased confidence in engaging with their subjects and applying their knowledge to practical, everyday situations. Teachers reported enhancements in their teaching practices, while increased parental involvement in students' education was also observed.

Despite these achievements, RUBY lacks rigor in assessment tools, such as simplistic and inconsistent baseline and endline tests, undermining the ability to measure true progress. While engagement increased, the absence of direct tracking of academic performance—particularly in Science and Math—makes it difficult to attribute improvements solely to the interventions. Similarly, the math initiative’s reliance on app usage metrics rather than curriculum-aligned outcomes limits its educational relevance.

To enhance the impact, the educational initiative should integrate robust assessment frameworks, align interventions more closely with school curricula, and explore digital tools for scalability.

4.5 Coherence:

Coherence, the fifth criterion of the framework, examines how well the intervention aligns with other local and national initiatives.

The program effectively complements national efforts like the NEP 2020, which prioritizes STEM education and logical thinking as critical components of workforce development. By incorporating innovative teaching methods consistent with these policies, the initiative ensures alignment with broader educational goals.

However, several gaps in coherence remain. In education, the absence of coordination between the three implementation partners led to unstandardized teaching practices. Furthermore, the educational initiatives were conducted in addition to the standard curriculum, increasing the burden on both students and teachers. Integrating these activities into the curriculum could have reduced this strain and created a more cohesive learning experience.

4.6 Sustainability:

The sixth and final criterion of the framework assessed the sustainability of the program's benefits over time.

Operational sustainability was evident through ongoing support for students and educators, bolstered by strong community and parental involvement. Parents expressed satisfaction with their children's progress and actively engaged in school initiatives. Regular teacher training and refresher courses ensured educators remained motivated and equipped, while the individual initiatives addressed gaps in English proficiency and scientific understanding, enhancing academic performance. Feedback mechanisms from students, teachers, and parents enabled timely program adjustments to meet evolving community needs.

However, challenges to sustainability were identified.Reliance on external agencies for teacher training and resource provision raises concerns about long-term resilience if partnerships or funding declined. Thus, raising the need to build the capacities of existing teachers over multiple interventions eating into the limited school time.

Overall, while the program demonstrated promising sustainability through strong community support, teacher capacity building, and curriculum relevance, addressing challenges such as resource dependence and maintaining innovation will be critical. Continuous engagement with beneficiaries and proactive adjustments are essential to preserving the program's long-term impact.

5. Recommendations

5.1 Education

From speaking to the various beneficiaries and after observing the project initiatives happening over the last three years, the study recommends the below suggestions to improve the educational project outcomes.

1. Infrastructure Improvement: The interventions schools lacked essential infrastructure such as, digital libraries and laboratories, hindering effective learning. Programs like *Pratham's* intervention through digital tools and remedial learning materials have helped bridge this gap. The *Government of India's Samagra Shiksha Abhiyan* emphasizes improving school infrastructure, including building libraries, science labs, and classrooms, to foster a supportive learning environment. For instance, in Tamil Nadu, establishing digital classrooms has enhanced access to quality education for rural students, dramatically improving learning outcomes (UNESCO, 2019). [4]

Also, the schools can be encouraged and helped for applying to Atal Tinkering Labs (ATLs), which is an initiative under the Atal Innovation Mission by the Government of India to foster a culture of innovation and creativity among school students. These labs are equipped with state-of-the-art tools and equipment such as 3D printers, robotics kits, IoT devices, and more, enabling students from Classes 6 to 12 to explore, learn, and develop innovative solutions to real-world challenges. Government schools, along with government-aided and private schools, can apply for setting up an ATL by responding to periodic calls for applications announced by the NITI Aayog. Schools that meet the eligibility criteria receive a grant-in-aid of up to ₹20 lakh over five years to establish and operate the lab.

Thus, it will be beneficial to focus on establishing the required digital infrastructure and science labs for implementation of improved learning methods, where the teachers are equipped to utilize these labs as part of their curriculum, increasing engagement of students and reducing rote learning.

2. Teacher Capacity Building: Teachers often face challenges with unfavourable student-teacher ratios, insufficient training, and limited time for interactive teaching. Initiatives like the *Teacher Professional Development Programs* in Karnataka, supported by organizations like the *Akshara Foundation*, have introduced regular teacher training sessions focusing on activity-based and inclusive learning methods. These programs provide opportunities for peer learning and practical strategies to handle large classrooms effectively. *Teach for India* has also

[4] https://unesdoc.unesco.org/ark:/48223/pf0000260604

successfully demonstrated how continuous mentoring and exposure to innovative teaching techniques can empower educators.

Thus, a focus on building capacities of existing school teachers will take away the need to involve additional teachers, and the school teachers can integrate the regular and remedial teaching as part of their curriculum, instead of allotting special time.

3. Introduction of Language Labs: Language proficiency, especially in English, remains a barrier for the students in Akola and Lote transitioning from vernacular mediums. In Andhra Pradesh, *English Language Labs* have digital software to help rural students develop language skills through interactive and personalized learning methods. This approach will take away the need for additional community teachers, and the existing class teachers can facilitate the lab time as part of their regular course work.

4. Community and Parental Involvement: Limited parental involvement, often due to their lack of formal education, impacts student motivation. Initiatives like *Palenque LSNA's Parent Mentor Program*[5] in the U.S. empower parents to participate as classroom assistants and build their capacity to support children's education. Similarly, *Village Education Committees (VECs)* in India have played a key role in driving school accountability by involving parents and local leaders in decision-making and monitoring school activities. Programs such as *Pratham's community engagement workshops* help sensitize parents to the importance of education and equip them to support their children effectively.

The RUBY program could include a component to engage and sensitize parents and community leaders, fostering their involvement in organizing resources and promoting accountability. This would help improve attendance and positively influence students' overall progress.

5. Personalized Adaptive Learning: Once the infrastructure and teacher capacity-building programs are in place, leveraging proven ed-tech solutions can significantly enhance student learning outcomes across multiple subjects. Organizations like Educational Initiatives (EI) offer innovative tools such as the Mindspark[6] adaptive learning software, which has successfully improved educational outcomes, particularly in underserved communities.

Mindspark, a personalized, data-driven learning platform, has been implemented through CSR programs like P&G Shiksha across India. It reduces the need for multiple implementation partners and streamlines monitoring and evaluation processes for learning outcomes. For example, P&G Shiksha's Digital Remedial Learning Program[7], in partnership with EI, has

[5] https://thoughtexchange.com/blog/community-involvement-in-schools/
[6] Educational Initiatives: Mindspark Impact.

[7] HRNXT: P&G India's Digital Remedial Learning Program

impacted over 75,000 students across hundreds of schools, including 20,000 students from tribal communities. This program bridges foundational learning gaps through customized content tailored to individual student needs, resulting in improved retention and performance in subjects like mathematics and science. The scalability and replicability of this model make it an ideal solution for integrating technology-driven interventions within resource-limited educational systems.

By consolidating implementation efforts into singular, proven ed-tech partners, schools can optimize academic time, enhance teacher support, and accelerate student progress, particularly in regions facing systemic educational challenges. The technology also facilitates real-time data collection, enabling administrators and policymakers to track learning improvements effectively.

6. Closure

The impact assessment report for the Rallis India initiatives under the RUBY offers a thorough evaluation of the educational efforts aimed at enhancing learning outcomes of school students.

The RUBY initiative specifically targets educational gaps in English, Science, and Math for middle school students in rural Maharashtra, particularly in Akola and Lote, Ratnagiri. Key initiatives within this program include Activity-Based Science Learning, which engages students from Grades 6 to 8 through hands-on experiments in collaboration with the BASSE. Additionally, the English Literacy Program, developed in partnership with LFW, addresses language barriers by employing local language for instruction, thereby enhancing reading and comprehension skills among 3,186 students from Grades 4 to 7. Furthermore, the Foundational Numeracy initiative supported by FIM focuses on improving math skills among 802 students in Grades 6 to 8, effectively addressing learning gaps exacerbated by the COVID-19 pandemic.

Educational outcomes showed substantial improvements in student engagement and academic performance; for instance, reading proficiency in simple words increased from 22.4% to 59.1%, while participation in science exhibitions grew from 194 to 322 students over three years.This program also contributed to increased confidence among participants—students displayed greater enthusiasm for STEM subjects.

The educational programs maintained impressive completion rates and encouraged active participation in hands-on learning activities. Moreover, increased parental involvement in education and enhanced teaching practices were notable outcomes resulting from these initiatives.

Despite these successes, several areas for improvement were identified. The need for more rigorous assessment tools was highlighted; simplistic testing methods limited the ability to measure true progress effectively.

In conclusion, the RUBY initiative have made remarkable strides in improving educational outcomes and empowering teachers. While the achievements are commendable, implementing the recommended improvements will further enhance program effectiveness. Continuous evaluation and adaptation are crucial to ensuring that these initiatives remain responsive to evolving community needs and contribute meaningfully to the socio-economic development of rural Maharashtra.

Annexures

Annexure A : Primary Research tool for RUBY program

1. Beneficiaries KII

Sr. No	Questions for KII_Beneficiaries	Probe
1	Tell us about yourself - name, age, family background, educational qualifications	
2	Do you have access to any social entitlement documentation, such as a ration card, ID, or other government-provided benefits?	
3	How many earning members do you have in your family? How would you describe your family's primary sources of income?	
4	How has this program influenced students' academic progress or performance in Math, Science, and English?	
5	What educational challenges or gaps exist in the local region that this program addresses?	
6	Are the concepts and methods taught in the program easily integrated into your regular academic requirements?	
7	In what ways has the program helped students build skills that are relevant to their academic and personal development?	
8	To what extent has the program influenced your confidence or enjoyment in learning these subjects?	
9	How did any sessions or meeting help you understand what you would learn in this program?	
10	How has this program helped you in understanding and	

	conducting experiments?	
11	How easy was it for you to enroll in this program? Do you know any friends or classmates who enrolled but decided not to continue? If so, why do you think they left?	
12	How are the program's classes or activities conducted (in-person, online, group activities, etc.)? How long have you been participating in the program, and how do you feel about the program's schedule or timing?	
13	How well do you feel you perform in quizzes or English comprehension activities compared to before?	
14	How often do teachers or instructors check in with you about your progress in the program? Do you receive any feedback on what you're doing well or areas where you could improve?	
15	How have your teachers, school administrators, or parents supported you during the program?	
16	How confident are you in using the skills you've learned, such as through exhibitions or practical activities? How would you rate your own ability to apply what you've learned in real-life situations or class assignments?	
17	How do the lessons in this program fit with what you learn in regular school classes for science and English?	*program's approach to science and language learning is similar or different to your usual school lessons*
18	How does this program connect with other programs or activities you know about?	
19	In what ways do you feel your science knowledge and English skills have improved since joining the program?	*specific areas in science or English where you feel much stronger than before*
20	Has this program made you more interested in studying science or English after school? Are you considering a future job or college studies related to science or English because of the program?	
21	How confident do you feel explaining science/Maths concepts to others? Do you feel more comfortable speaking or writing in English after participating in this program?	
22	Have you started any science/Maths projects on your own since joining the program? Do you find yourself using English more often outside of	

	school (at home, with friends, etc.)?	
23	How do you think this program will impact your education or learning in the future?	
24	Do your teachers continue to support or guide you in program topics outside the program sessions?	
25	How supportive are your parents or community members about you continuing in this program?	
26	What changes would you like to see in the program to make it more effective for you?	*any challenges you face in the program*
27	What kind of support have you received from the program since completing the main training sessions?	

2. Community teachers KII

S.No	Questions	Probe
1	Name, Tell us about your educational background and your relevant work experience. How long have you been working as a community teacher, and what are your responsibilities in your current role?	
2	What changes you have observed in you and students after completing the program?	
3	In your opinion, why is this educational intervention needed in the current geographic area, and what unique challenges or benefits does it address?	
4	How well does this program align with the local curriculum, and what adjustments, if any, are needed to ensure compatibility?	
5	How relevant do you feel this program is to the students' needs, both academically and personally?	
6	How would you describe students' interest levels in science and English before the program, and how have you seen these change as a result of the program?	
7	How did you come to know about this program &how effective were they in encouraging teacher participation?	
8	What teaching methods and instructional aids you used for effectively delivering the core concepts of Math, English, and Science to students? How has the RUBY program influenced teachers' skills in experimentation and English comprehension, particularly in applying these skills in the classroom?	

9	What was the enrollment process for teachers in the program, and what factors have influenced the dropout rate, if any?	
10	What educational modes were used in the program, and how long did each intervention last?	
11	How has teachers' participation in the RUBY program impacted student engagement and performance, particularly in meeting BASSE's experimental milestones and performance in LFW quizzes?	
12	To what extent do you believe the RUBY program has achieved its objective of improving teachers' vocabulary and reading ability through digital media?	
13	How was the progress of teachers monitored throughout the program, and what indicators were used to track their development?	
14	What feedback mechanisms were in place to support teachers regularly, and how is the long-term impact of the RUBY program on teachers' vocabulary and reading skills measured?	
15	How has the RUBY program influenced teachers' confidence in applying their skills in vocabulary and reading comprehension, both in their teaching and in engaging with students?	
16	How does resource allocation and session duration impact student outcomes and the rate of progress? Have you observed any changes in class participation or attendance over time? If so, what factors do you think contributed to these changes?	
17	How does the program align with STEM and language policies or standards?	
18	How does the program collaborate with other science and language programs, and what benefits have resulted from these collaborations?	
19	How have you observed students' science and English competencies change over time as a result of the program?	
20	Have any students shown interest in pursuing further education in STEM or English? If so, what percentage do you estimate?	
21	How has the program impacted students' and your confidence in expressing scientific ideas and using English in and outside the classroom?	
22	Have you seen students initiate independent science projects or use English in settings outside school? Please share relevent example	
23	How do you think this intervention has influenced students' interest in and readiness for future educational opportunities?	
24	How do you engage with program team after the initial training ends?	
25	have you observed any support which you or program team have received from the community and parents for the program's ongoing activities, and how does it affect students' participation?	
26	What areas of the program could be improved to better meet the needs of students and the community?	
27	How feasible is it for school teachers to integrate the program's approaches and materials into their regular teaching practices?	

28	What types of support are available to you and students after they complete training, and how effective is it in helping them continue applying their skills?	
29	How has support from external agencies contributed to teacher capacity building in this intervention, and what impact has it had on program success?	

3. Trainer/ instructor KII

S.No	Questions	Probe
1	Name, Tell us about your educational background and your relevant work experience. How long have you been working at this training center, and what are your responsibilities in your current role?	
2	Can you provide a brief overview the beneficiaries socio-economic background?	
3	In your opinion, why is this educational intervention needed in the current geographic area, and what unique challenges or benefits does it address?	
4	What was the students' level of familiarity with the required core concepts before the intervention? Were there any specific core concepts they found particularly challenging?	
5	What skills or knowledge do you believe beneficiaries should gain from this intervention? Are you familiar with how the courses have been selected and finalized for the training program?	
6	What criteria do you use to select beneficiaries, and how do you ensure inclusivity?	
7	How would you describe students' interest levels in science and English before they joined the program?	
8	What strategies do you think are effective in motivating students to join the training programs?	
9	How do you assess students' skill development in experimentation and English comprehension?	
10	What steps are involved in the counseling and enrollment process for beneficiaries? What is the current dropout rate, and what factors contribute to beneficiaries dropping out?	
11	What modes of education are used in the program(online/offline), and how long do interventions typically last?	

12	How do students progress through BASSE's experimental milestones? How is the performance of students in LFW quizzes and English comprehension?	
13	What outcomes do you consider to assess if the project objectives are being met based on the outputs?	
14	What methods have you employed to monitor the progress of each student, and how often is their progress reviewed?	
15	What systems are in place to provide regular feedback to students, and how do you measure the long-term impact?	
16	How do you assess students' confidence in applying skills, including their exhibition and assessment scores, and their self-assessment on skills and knowledge application?	
17	How does resource allocation and session duration impact student outcomes and the rate of progress?	
18	What is the student-teacher ratio, and how does it impact the quality of learning and engagement? Have you observed any changes in class participation or attendance over time? If so, what factors do you think contributed to these changes?	
19	What is the completion rate for planned experiments and quizzes, and what factors influence this rate?	
20	What method do you follow for the project-level monitoring at different levels, and how often are these monitoring activities performed?	
21	How does the program align with STEM and language policies or standards?	
22	How does the program collaborate with other science and language programs, and what benefits have resulted from these collaborations?	
23	Do you think there is an increase in science,english or any other subject competency, If yes then, how have you observed changes in students' science and English competency over time?	
24	What percentage of students from your program go on to pursue further education in STEM or English-related fields?	
25	How has the program impacted students' confidence in expressing scientific ideas and using English?	
26	Have you seen students initiating independent science projects or using English in contexts outside school? Can you share examples?	
27	In your view, what impact has the intervention had on students' interest or preparedness for future educational opportunities?	
28	In what ways you enage with your students after the initial training period ends?	
29	How much support do you receive from the community and parents for ongoing program activities, and how does this support impact student participation?	

30	What areas of the program do you feel could be improved, and how would these changes enhance student outcomes?	
31	How feasible is it for school teachers to adapt the intervention practices in their regular teaching? What challenges, if any, do they face?	
32	What kind of support is available to beneficiaries after training, and how effective is it in helping them apply what they have learned?	
33	How have external agencies contributed to capacity building for teachers involved in the intervention, and what impact has this support had on the program's success?	

4. Rallis Team KII

S.No	Questions	Probe
1	Name: Designation: Can you tell us about yourself? For how long have you been associated with the Rallis India? What is your role in the program?	
2	What was the primary reason for implementing this educational intervention in the selected geography? How does this program align with the socio-economic needs and educational gaps of students in this area? Was a preliminary assessment conducted to evaluate students' interests in science and English before the program's start? What were the findings?	*relevance of the program's content in terms of addressing student needs*
3	Is the curriculum compatible with local education board? Were any modifications made to align it with local needs?	
4	Could you describe the process used to monitor students' progress through program milestones, such as experimental achievements and English comprehension quizzes?	
5	How supportive have teachers, administrators, and parents been toward the program? Have there been any challenges in gaining their support?	
6	What systems are in place for collecting regular feedback from students, teachers, and parents to track long-term impact?	
7	How confident are students in applying the skills they have acquired? Are there assessments or self-evaluations that reflect their growth in scientific thinking and English proficiency?	

8	How many internal and external staff members are involved, and how is their engagement managed? What was the selection process for the deployment of the staff members?	
9	How is budget utilization tracked, and what procedures are in place for budget management? Could you outline the project's monitoring and reporting procedures across its various phases (mobilisation, students training etc)?	
10	Are there any collaborations with other science or language programs to enhance the effectiveness of the intervention? If yes, how has this helped the program? If no, are there any plans of the collaborations?	
11	Have there been any observed changes in students' confidence to express scientific ideas and use English?	
12	What impact do you believe this intervention will have on students' future education?	
13	Based on your experience, what areas of the program could be improved to make it more effective?	
14	What are some good practices identified during the program, and are there any plans for future?	
15	What was the rationale behind selecting different implementation partners for each subject, and how did this choice impact the ease or difficulty of actual program implementation?	

5. LeapForward Team KII

Sr. No	Questions	Probes
	Name	
	Age	
	Caste	
	Education	
	Roles and Responsibilities	
1	What were the primary challenges identified in the project geography that highlighted the need for this intervention, particularly in English and science education?	

2	How was the enrollment process designed to ensure participation? Have any trends or insights emerged regarding dropout rates?	
3	How does the program align with the existing local curriculum? Have there been any challenges or necessary adjustments for smoother integration?	
4	Which program components have proven most beneficial in addressing specific student needs?	such as English comprehension, sentence structuring, or science experiments
5	What changes have you observed in students' interest levels in science and English before and after the program? How do students perceive these subjects now?	
6	What specific skills have students gained, particularly in experimentation and English comprehension? Are there examples of how these skills have been demonstrated?	
7	How many mobilization meetings were held to engage local stakeholders? What were some key takeaways from community and school responses?	
8	Could you describe the teaching methods, resources, and materials used in this program? How long did each phase of the intervention last, and what adjustments, if any, were made?	
9	How do students progress through program milestones, particularly in experimental learning and English comprehension? What strategies have been most effective in maintaining their engagement?	
10	What systems are in place to monitor the progress of beneficiaries, and how frequently is this tracked? What measures are used to assess milestone achievements?	
11	What types of support do teachers, administrators, and parents provide to assist students in the program? Are there examples of particularly effective forms of support?	
12	What mechanisms are in place for gathering regular feedback from students, teachers, and parents? How is the program's long-term impact tracked over time?	
13	Have you noticed an increase in students' confidence when applying their newly acquired skills? Can you provide examples of practical applications?	

14	How did the program's actual budget utilization compare to initial projections? Were resources and session times effectively allocated, and what impact did this have on outcomes?	
15	What has the student-teacher ratio been, and how has it affected teaching and learning outcomes?	
16	Were all planned experiments and quizzes completed by students? If any were left unfinished, what were the reasons?	
17	How does the program align with current STEM and language education policies or standards? Have there been any challenges in this regard?	
18	How has the program impacted students' competencies in science and English? Are there indicators of students pursuing further education or showing increased interest in STEM and English?	
19	Based on the program's outcomes and current observations, what areas for improvement have you identified? Are there suggestions from teachers, parents, or students that could guide future iterations?	

6. BSSE Team KII

Sr. No	Questions	Probe
1	What trends have emerged in the educational or career paths of past program participants? Are more students pursuing studies in STEM fields?	
2	What specific challenges or gaps in science education were identified in this region that made the intervention necessary?	
3	How does the Science Intervention Program align with the local curriculum? Were any adjustments made to better integrate it?	
4	Which aspects of the program have been most beneficial for addressing student needs, such as skills in experimentation, critical thinking, or subject comprehension?	
5	How did students' interest levels in science and English change before and after the program? Are there specific subjects or activities they are now more engaged with?	
6	How many mobilization meetings were conducted to raise awareness and involve the community? What was the community's response?	

7	What specific skills in experimentation or English comprehension have students gained through the program? Could you provide examples of observed skill growth?	
8	What was the initial enrollment process like, and have there been any notable trends in dropout rates? What reasons are given by students who leave the program?	
9	What teaching methods and materials are used in the Science Intervention Program? What was the duration of each intervention phase?	
10	How do students progress through key experimental milestones and comprehension activities? What indicators or assessments demonstrate engagement and performance?	
11	What systems are in place for tracking student progress throughout the program? How frequently is progress evaluated and by whom?	
12	What forms of support do teachers, administrators, and parents provide to aid student participation and progress in the program?	
13	How is feedback gathered from students, teachers, and parents? What methods are used to assess the long-term impact on students?	
14	Has there been an increase in student confidence when applying skills in science or English? How is this confidence measured or observed	*through exhibitions, self-assessments*
15	How did the program's actual budget and resource usage compare to initial projections? Were session durations and resources effective in achieving desired outcomes?	
16	Were all planned experiments and quizzes completed as intended? If not, what were the main reasons for any incomplete components?	

Annexure B: About NuSocia

NuSocia (registered as IN2X Sustainability Advisors Pvt Ltd) is an impact advisory and research organization, founded in 2017 by a group of industry experts with nearly two decades of experience across various sectors of the social impact spectrum. Its mission is to strengthen the impact ecosystem through research, advisory, and training support. The organization was incubated at NSRCEL, Indian Institute of Management (IIM) Bangalore. NuSocia collaborates with Corporations, Governments, Foundations, and Nonprofits, helping them maximize, manage, measure, and communicate their social

impact. Clients choose NuSocia for its deep expertise and its ability to connect at the grassroots level, allowing for practical, tailored solutions that meet their specific needs.

Through its unique process, commitment to excellence, and vast experience, NuSocia has become one of the trusted social impact consulting partners for clients, delivering and supporting projects nationwide and working with key industry names. Specializing in Program Management, NuSocia offers services across the entire program lifecycle, including strategy, needs-gap assessments, program design, implementation, monitoring and evaluation, impact assessments, program and process documentation, communication, and more.

With a global consulting team, localized partnerships, and a workforce that is 65% female, NuSocia is composed of CSR professionals, management consultants, social sector experts, data scientists, and social researchers, all united by a passion for creating meaningful, people-centered ideas.

The core team consists of members from diverse professional and educational backgrounds, such as Agriculture, Public Health, Environmental Conservation, Solid Waste Management, Watershed Management, Gender, and Social Entrepreneurship, among others. Collectively, the team possesses functional knowledge of over 10 Indian languages. Led by a woman founder and leader, NuSocia is committed to fostering an inclusive and diverse environment, with a strong focus on equality, empowerment, and mutual respect.