Enhancing Climate Resilience and Environmental Sustainability in Indian Schools: A Comprehensive Green School Framework Implementation approach

Bal Raksha Bharat

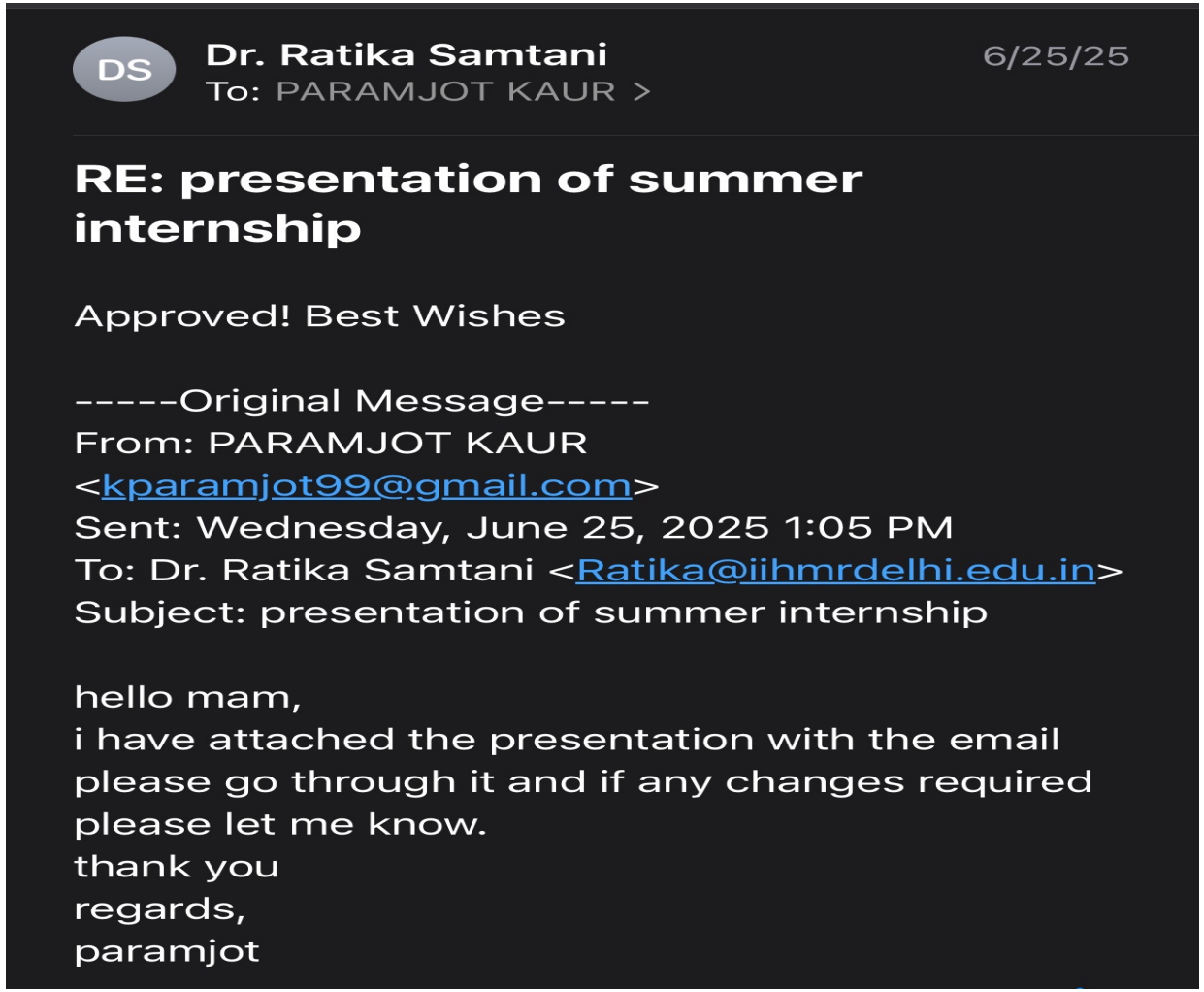
GREEN SCHOOL PROGRAM

Dr. Ratika Samtani

IIHMR Delhi

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SCREENSHOT OF APPROVAL



DS

Dr. Ratika Samtani 6/25/25
To: PARAMJOT KAUR >

RE: presentation of summer internship

Approved! Best Wishes

-----Original Message-----
From: PARAMJOT KAUR
<kparamjot99@gmail.com>
Sent: Wednesday, June 25, 2025 1:05 PM
To: Dr. Ratika Samtani <Ratika@iihmrdelhi.edu.in>
Subject: presentation of summer internship

hello mam,
i have attached the presentation with the email
please go through it and if any changes required
please let me know.
thank you
regards,
paramjot

INTRODUCTION

- According to UNESCO, A “green school” is defined as a learning institution that takes a whole-of-institution approach to Education for Sustainable Development (ESD), in particular by addressing climate change through its teaching, facilities and operations, school governance and community partnerships.

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Climate Change Impact on Children in India

Characteristic	Education	Health	Socioeconomic Factors	Disasters
Impact	40 million children experience disruption	35% increase in child stunting projected	Deepens existing inequalities	Escalating frequency leads to insecurity
Response	National Education Policy integrates environmental education	N/A	Targeted, community-based solutions needed	Need for community-based solutions

PROBLEM STATEMENTS

Gaps in Indian Education System

Characteristic	Infrastructure	Curriculum	Community	Finance
Availability	57.2% schools have functional computers	Integration of climate resilience is inadequate	Limited community engagement and support	Climate finance investments are highly inadequate
Accessibility	53.9% schools have internet access	Teacher shortages and uneven resource allocation	Interventions boost school management committee activity	Requires INR 162.5 trillion by 2030
Facilities	52.3% schools equipped with ramps	High pupil-teacher ratios in some states	Increased teachers and improved facilities	Green finance covers only a third of requirement
Impact	Digital readiness is low	Limits students' preparedness for climate risks	Educational progress is constrained	242 million children's schooling disrupted

OBJECTIVE

- Primary objective: To propose an approach towards green school program implementation.

METHODOLOGY

- **Desk Review**

- The desk review involved systematically gathering and synthesizing existing data, reports, and policy documents relevant to climate resilience and environmental sustainability.
  - Key sources included:

- National and international policy documents (e.g., National Education Policy 2020, UNICEF and UNESCO reports).
- Government databases such as UDISE+ for infrastructural and educational statistics.
- Reports from organizations like the Indian Institute of Human Settlements and Climate Policy Initiative, which provided insights into financial gaps and climate finance flows in India.

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METHODOLOGY

- **Literature Review**
- The literature review encompassed a comprehensive analysis of research papers, academic articles, and educational resources from both national and international contexts.
- The review focused on:

- The evolution and principles of the green school concept, as defined by UNESCO and NCERT
- Empirical studies on the effectiveness of green school interventions, including infrastructure upgrades, curriculum integration, and community engagement.
- Theoretical frameworks and models for Education for Sustainable Development (ESD) and environmental literacy, drawing on systematic reviews and typologies from recent academic work.
- Case studies and evidence from pilot programs and randomized trials in INDIA.

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IMPLEMENTATION APPROACH

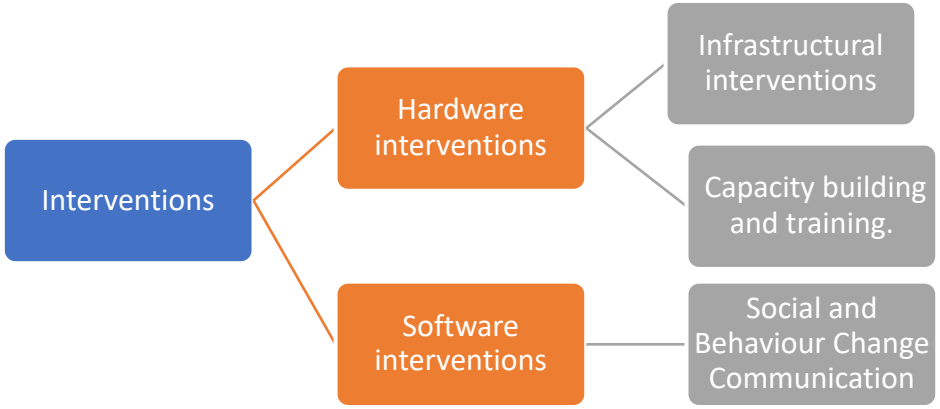
STRATEGIC APPROACH



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RESULTS

Key Interventions (based on baseline assessments):



Key interventions will be tailor-made for schools and institutions based on baseline assessment which will be done by the stakeholders, involving children in green and social auditing processes.
(Children as agent of change)

A. **Infrastructure Improvements**:
   a. Solar and hydro panels, rainwater harvesting, proper waste segregation.
   b. Energy-efficient lighting and climate-responsive design.
   c. Eco- Retrofitting of the school building and non-structural components to reduce the carbon footprint.
B. **Capacity Building**:
   a. Tailor-made training for teaching and non-teaching staff on green practices.
   b. Involvement of students in eco-clubs, green and social auditing.
C. **Child-Centric, Age-Appropriate Activities**:
   a. DIY and recycling for young children (0–6 years).
   b. Plantation drives, poster making, kitchen gardening (6–14 years).
   c. Civic awareness, green audits, and community outreach (14–18 years).
D. **Behavioural and Social Change Communication**:
   a. Sustained campaigns on sustainability and environment.
   b. Engaging students as change agents for community-wide impact.

After the interventions are made an endline assessment will be conducted to assess the overall performance, improvement and evaluation of the percentage of change brought by the green school program, which will further help in creating more improvements through feedback loop mechanism.

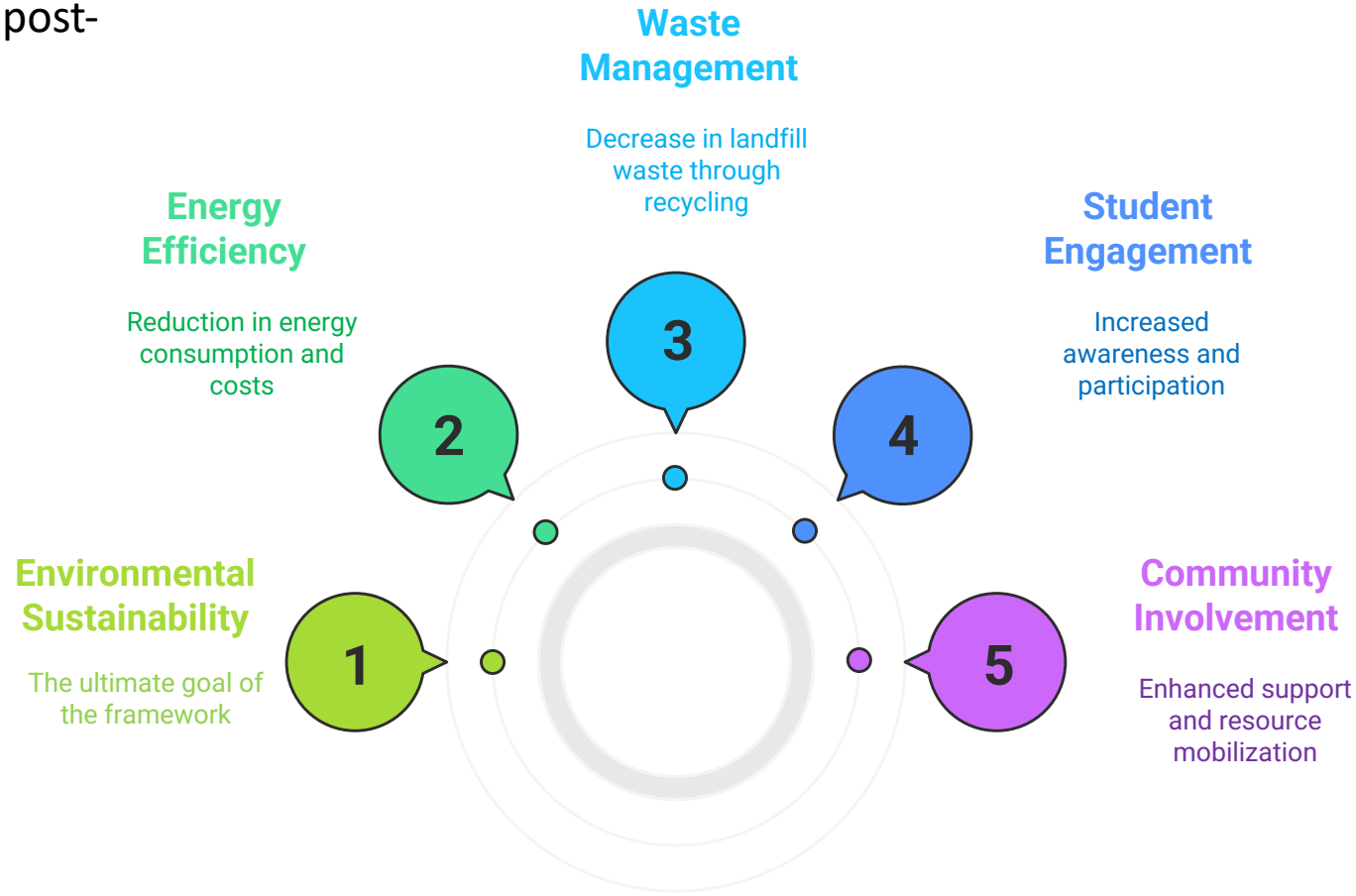
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RESULTS

Green School Framework Impact

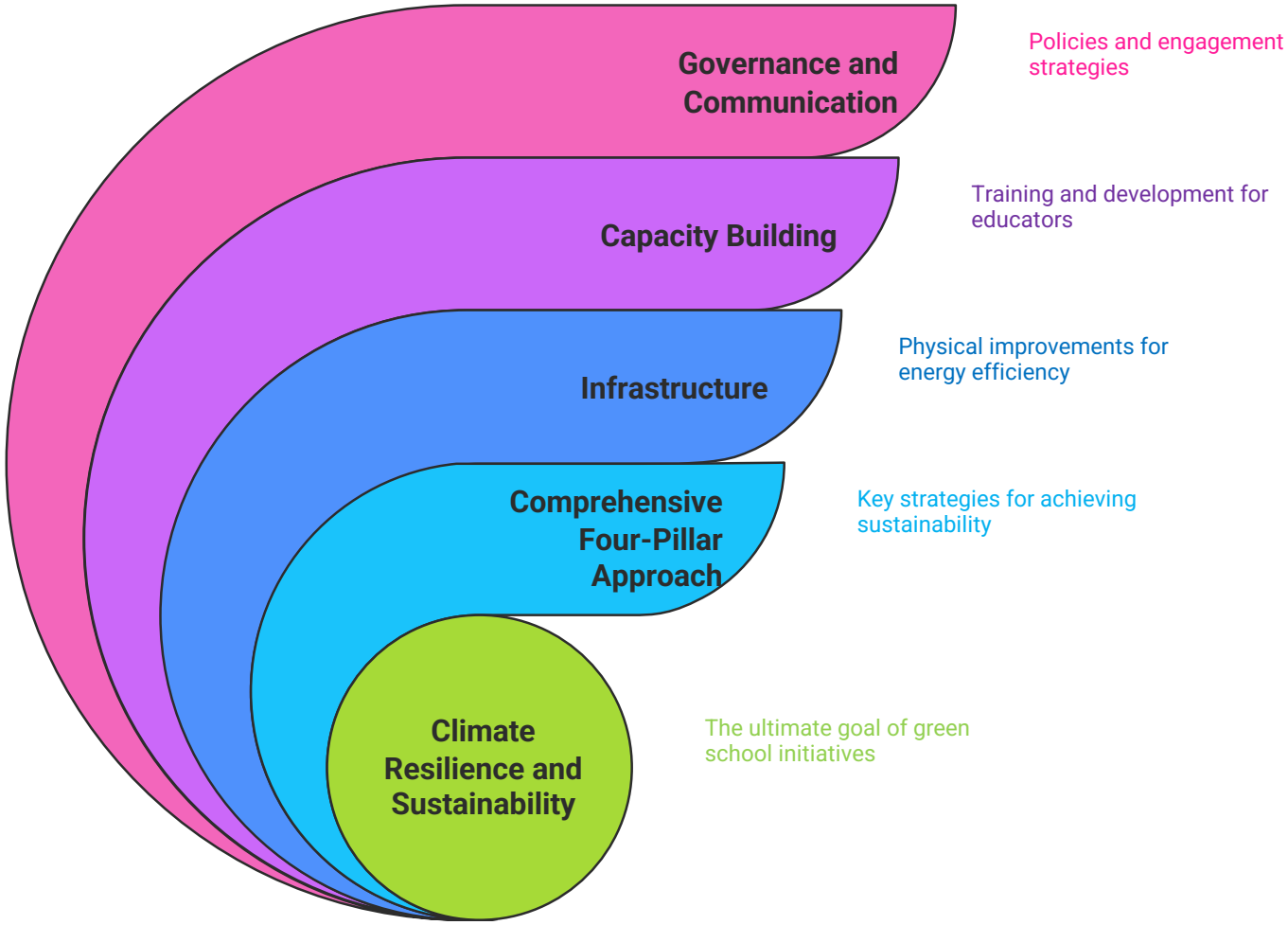
average 18% improvement in energy efficiency post-intervention.

30% reduction in landfill-bound waste



DISCUSSION

Enhancing Climate Resilience in Schools

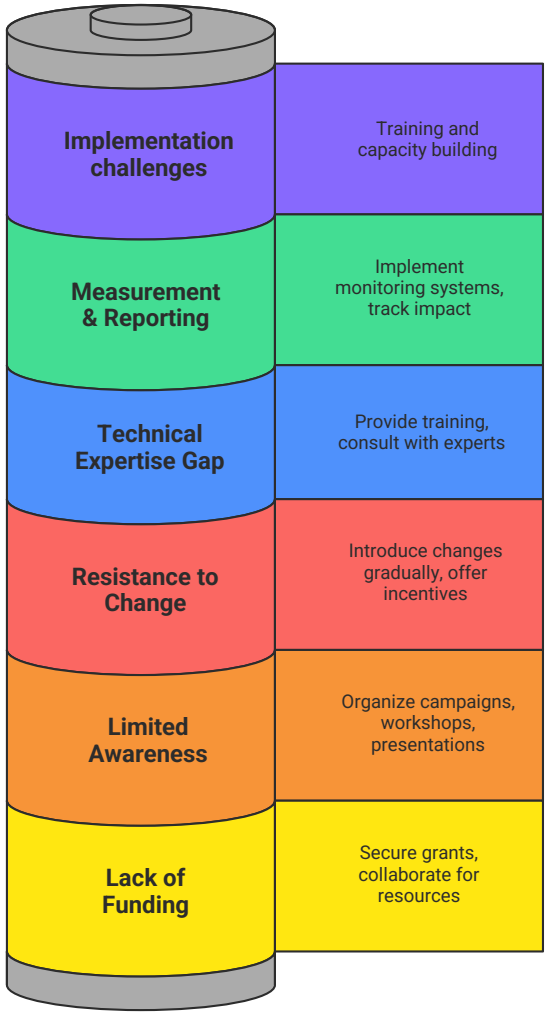


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CHALLENGES AND MITIGATION STRATEGY

Green initiative challenges range from simple to complex.

MITIGATION STRATEGY



LIMITATIONS

THEORITICAL APPROACH

CONCLUSION

- Programs like the Green School initiative hold tremendous promise. In India, they are not only contributing toward Sustainable Development Goals (SDGs) and Net-Zero targets, but also improving outcomes like enrolment and attendance, especially in underserved areas. These changes help nurture a more engaged, environmentally conscious, and forward-thinking generation–one that doesn't just understand sustainability, but lives it.
- As Mahatma Gandhi aptly said, "We have not inherited the Earth from our forefathers, but have borrowed it from our children." This idea captures the heart of green education—instilling a shared responsibility to protect the planet, not just for today, but for generations to come.

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Enhancing Climate Resilience and Environmental Sustainability in Indian Schools: A Comprehensive Green School Framework Implementation approach

-By Paramjot Kaur
IIHMR Delhi and Bal Raksha Bharat

INTRODUCTION

The Green School concept, dating back to the early 1990s and gaining recognition at the Rio Earth Summit of 1992, emphasizes the need for action in every area where human activities impact the environment. Subsequent events like the World Summit on Sustainable Development (WSSD) in Johannesburg in 2002 underscored the shift from 'educating about the environment' to 'educating for sustainability'. According to UNESCO, A "green school" is defined as a learning institution that takes a whole-of-institution approach to Education for Sustainable Development (ESD), in particular by addressing climate change through its teaching, facilities and operations, school governance and community partnerships. Green schools aim to promote knowledge and skills for the social, economic, cultural, and environmental aspects of sustainable development.

A "Green School" is identified with those elements and practices that inculcate environmental sensitivity and promote environmental sustainability through various environment-friendly means that encourage judicious use of resources. It also caters to the physical, mental and emotional needs of a child by ensuring a school environment that is physically safe, emotionally secure and psychologically enabling. (NCERT)

METHODOLOGY

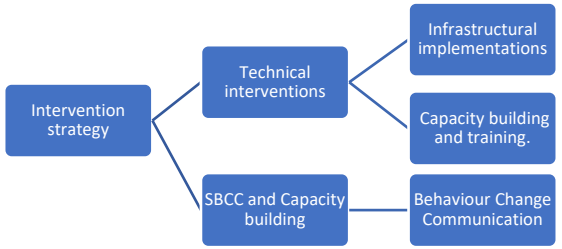


BASELINE ASSESSMENT Framework for Green School Implementation

A robust and comprehensive **baseline assessment** is essential for designing tailored interventions in schools to promote environmental sustainability, health, and resilience. The following frameworks and tools can be employed to assess the **current status** of schools across various critical domains: GREEN AUDITING.

Tool: *Green Schools Programme (GSP) Audit* by Centre for Science and Environment

INTERVENTION STRSTEGY



A. Infrastructure Improvements:
   a. Solar and hydro panels, rainwater harvesting, proper waste segregation.
   b. Energy-efficient lighting and climate-responsive design.
   c. Eco-Retrofitting of the school building and non-structural components to reduce the carbon footprint.
B. Capacity Building:
   a. Tailor-made training for teaching and non-teaching staff on green practices.
   b. Involvement of students in eco-clubs, green and social auditing.
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D. Behavioural and Social Change Communication:
   a. Sustained campaigns on sustainability and environment.
   b. Engaging students as change agents for community-wide impact.

ENDLINE ASSESSMENT

Base line tools should be used to measure the progress and re-assess the schools on the same aspects to ensure every aspect is well covered .

RESULTS

The implementation of the green school framework in selected Indian schools led to several measurable improvements:

- **Energy Efficiency:** Schools that adopted infrastructure upgrades, such as solar panels and energy-efficient lighting, saw a reduction in energy consumption and operational costs. Baseline green audits indicated an average 18% improvement in energy efficiency post-intervention.
- **Waste Management:** Introduction of waste segregation, composting, and recycling programs resulted in a 30% reduction in landfill-bound waste. Schools reported increased student participation in waste management activities, fostering a culture of environmental responsibility.
- **Student Engagement:** Curriculum integration and participatory activities significantly enhanced student awareness and engagement with sustainability concepts. Surveys showed a marked increase in students' knowledge and positive attitudes toward environmental stewardship.
- **Community Involvement:** Community engagement initiatives, such as awareness drives and parent workshops, improved local participation in school sustainability programs. This led to better support for green initiatives and increased resource mobilization1.
- **Identified Challenges:** Despite progress, persistent challenges remained, including infrastructural deficits in under-resourced schools, financial constraints for large-scale upgrades, and limited capacity among staff for sustained program delivery.

CONCLUSION

The study concludes that integrating green school principle—through infrastructure upgrades, curriculum innovation, and community engagement—significantly improves the environmental sustainability and climate resilience of Indian schools. .

RECOMMENDATIONS :

- Expanding PPP in green school infrastructure.
- Strengthening teacher training and capacity-building programs.
- Enhancing community partnerships .

By adopting a holistic, community-driven approach, Indian schools can become models of climate resilience and sustainability, equipping future generations with the skills and values.

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Thank You

Any Questions?

INTERNSHIP EXPERIENCES

What did you learn (skill/ topic)?

- I Learnt a lot about the green school program and its implementation, how to develop tools for assessment and how to develop questionnaire targeting different audiences.
- Had the chance to learn about the financial assessments and the skill of deep research.

Overall self comments on Internship

- Had a delightful experience and learnt a lot from my mentor, he gave me the opportunity to develop the paper and tools for assessment, encouraged me at every step and rectified my mistakes in a very humble manner.

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SUGGESTIONS GIVEN TO ORGANIZATION

- Amazing work-ethics and a very positive work environment to work with.

PICTORIAL JOURNEY





