

### Harnessing New Tools and Technologies for Greening Teaching and Learning

The session aimed to explore how technology can support environmental education, reduce the carbon footprint of schools, and cultivate sustainability mindsets in students. Key objectives included showcasing new technologies that facilitate greener teaching methods and learning environments, exploring how digital tools and platforms can advance sustainability education, identifying challenges and opportunities for integrating green technologies into formal education systems, and encouraging collaboration and innovation in green teaching practices.



#### Speakers

- Ms Aishwarya Balasubramanian, Deputy Manager, HCL Foundation, Chennai, India
- Ms Gayatri Raghwa, Environmental Educator, Former UNEP Advisor, Delhi, India
- Mr Nageshwar Patidar, WASH Specialist, UNICEF Gujarat, Gandhinagar, Gujarat
- Ms Kay Marie Ochel, Research Scholar, Association of Hesse eV (ANU Hessen eV), Germany

#### Presentations and Key Messages

**Ms Aishwarya Balasubramanian (HCL Foundation)** emphasised collaboration with NGOs, educational institutions, and other stakeholders to maximize outreach and impact. She focused her talk on GenCAN, a thematic Climate Action leadership challenge, emphasizing the importance of environmental education, implementing green school initiatives, and simplifying efforts to reduce carbon emissions. She highlighted the four key challenges of GenCAN, starting with climate literacy, where children are educated about climate science. This is followed by measuring their carbon

footprint, developing actionable plans, and evaluating the reductions achieved after implementing these plans. She highlighted the need to prioritise rapid scaling, digitalisation, school leadership, and inclusion of regional languages. She mentioned that community-level impacts are achieved through innovative student-driven solutions such as segregation and composting systems. National recognition is awarded to high-performing schools, with a focus on continuous learning, sharing of experiences, and regional inclusivity.

**Ms Gayatri Raghwa (Environmental Educator)** highlighted the importance of field-testing theoretical initiatives to ensure practical applicability. She discussed leveraging technology for teacher training, data management, and interdisciplinary data collection, while striking a balance between technology and human engagement. Field trips and experiential learning remain integral. She outlined the challenges of technology adoption and stressed the need for harmonizing data-driven approaches with hands-on activities. She advocated for a mixed-method strategy combining data systems and personal engagement for sustainable success.

**Mr Nageshwar Patidar (UNICEF Gujarat)** presented a framework to make schools resilient by focusing on three pillars: empowering communities, reducing emissions, and ensuring protection. Technology is used for real-time monitoring, while schools are supported in becoming disaster-resilient. He discussed the "Saksham Shala" initiative, which collaborates with schools to develop action plans that address both financial and non-financial improvements, supported by the PM Shri initiative. A structured framework, with four themes, 12 components, and 100 indicators, is used for evaluation covering the Clean, Green, Safe and Sustainable system. He discussed the importance of student leadership and highlighted climate responsiveness and inclusion as key areas of concern. Around 64% of schools have completed the application-based benchmarking survey, identifying areas for improvement. The goal is to benefit 10 million children by creating climate change champions through a balance of development and environmental conservation. He emphasised creating a structural framework using technological tools to address multiple environmental and social concerns for the benefit of the country.

**Ms Kay Marie Ochel** focused on integrating sustainability into education through engaging platforms and activities using gamification as one of the tools. She discussed the online platform, which emphasised small but impactful steps, such as making sustainable food choices and minimising environmental impact. She mentioned that interactive experiences link activities to the SDGs, encouraging students to explore connections with goals like SDG 2 (Zero Hunger) and SDG 3 (Good Health and Well-being) through the website. She utilised innovative tools, such as hidden object illustrations and games, to promote sustainability awareness. There are also feedback mechanisms and ongoing engagement through digital platforms, which aim to sustain interest and participation. The approach fosters global awareness and inspires action toward sustainability through education and interactive discovery. She emphasised cultivating interest in sustainability education and lifestyle choices amongst the students through gamification as the medium.

### Key Recommendations from the Session

#### 1. Develop Scalable and Inclusive Climate Education Programmes

- Implement phased climate education programmes enabling schools to measure their carbon footprint, develop action plans, and assess reductions post-action.

- Prioritise rapid scaling, inclusion of regional languages, and digital tools to ensure accessibility and equity.
- Promote community-level impacts through student-driven projects such as waste segregation and composting systems.

### 2. Field-Tested Practical Solutions

- Ensure theoretical initiatives are field-tested to validate their practical applicability and effectiveness.
- Leverage technology for teacher training, data management, and interdisciplinary data collection while maintaining the balance with hands-on engagement.
- Integrate experiential learning through field trips to enhance ecological and human connectivity in programmes.

### 3. Resilient School Frameworks

- Develop resilient schools using a structured framework focusing on community empowerment, emission reduction, and disaster preparedness.
- Support schools in creating action plans for financial and non-financial improvements under initiatives like "Saksham Shala".
- Regularly evaluate schools using comprehensive benchmarking surveys and indicators to identify gaps and ensure continuous improvement.

### 4. Interactive and Sustainable Education Approaches

- Integrate sustainability into education through engaging and interactive platforms, such as games, illustrations, and feedback-driven digital tools.
- Promote small, impactful actions such as sustainable food choices and minimizing environmental impact linked to SDGs like SDG2 (Zero Hunger) and SDG3 (Good Health and Well-Being).
- Foster global awareness and sustainability action through ongoing engagement and innovative learning experiences.

### 5. Recognition and Continuous Learning

- Establish recognition mechanisms for high-performing schools to motivate continuous learning and experience sharing.
- Encourage regional inclusivity and community participation to enhance the reach and depth of educational initiatives.

### 6. Collaboration and Stakeholder Engagement

- Strengthen partnerships with NGOs, educational institutions, and other stakeholders to expand outreach and impact in environmental education.
- Encourage multi-stakeholder involvement for designing and implementing thematic leadership programmes.

### Quotes with attribution

*"We want students and youth to take leadership roles in addressing climate challenges and reducing carbon footprints in schools."* – Ms Aishwarya Balasubramanian, Deputy Manager, HCL Foundation

*"Technology is a double-edged sword; while it provides valuable data, we must ensure students have hands-on field experiences."* – Ms Gayatri Raghwa, Environmental Educator

### Referred Case Studies

- Upper Primary School, Unnao (UP): Success in reducing the carbon footprint through GenCAN.
- Government High School, Dasgrain (Punjab): Participation in GenCAN and measurable climate action.
- Saksham Shala (UNICEF): Implementation of climate-resilient WASH programs and disaster risk assessments.

### Audience Engagement

Ms Gayatri and Ms Parul facilitated an open discussion, during which the audience, particularly teachers, expressed interest in implementing the presented models in their respective states. Dr Pratibha Singh from UNICEF, who was part of the audience, addressed questions related to the implementation of Sakham Shala as a model across various states.

One of the teachers raised a concern about the excessive use of technology by both teachers and students, pointing out that while it can be a boon, it also serves as a distraction. A wildlife photographer in the audience suggested that climate change education and action should be rooted in natural surroundings rather than relying heavily on technology.

In response, the panelists emphasised the importance of using technology as a tool to capture and analyse data, which can then inspire stakeholders to take on-ground action. They further explained that technology complements and enhances nature-based learning by supporting the process, rather than replacing it.

### Challenges or Issues Discussed

The following major concerns were expressed by the audience:

- *Digital Literacy Gap:* Many teachers, especially in rural areas, may lack the skills to effectively use digital tools and technologies for teaching.
- *Infrastructure Issues:* Limited availability of electricity and hardware (e.g., computers, tablets, projectors) in schools can prevent the adoption of technological solutions.
- *Training and Professional Development:* Insufficient training programmes for teachers to adapt to and effectively use new tools for green education is a major barrier.
- *Cultural and Contextual Relevance:* Many global tools are not tailored to the local cultural and environmental context, making them less relatable or effective for students.
- *Student Accessibility:* Students from underprivileged backgrounds may not have access to personal devices or reliable internet at home, leading to a digital divide.
- *Assessment Challenges:* Evaluating learning outcomes effectively when using new tools and technologies, especially for environmental education, may require new frameworks and methods.

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- *Focus on Holistic Learning:* Over-reliance on technology might risk overlooking experiential, outdoor, or hands-on learning, which is crucial for green education.
- *Data Privacy and Security:* Using digital tools often involves collecting and storing student data, raising concerns about privacy and security.
- *Overload of Tools:* Too many tools and platforms can overwhelm both teachers and students, reducing their effectiveness.