MOBIUS FOUNDATION

ICSE 2024

6TH INTERNATIONAL CONFERENCE *on* *Sustainability Education*

Theme: Greening Education for a Sustainable Future

CONFERENCE REPORT

September 19 - 20, 2024 | India Habitat Centre, New Delhi

6th International Conference on Sustainability Education (ICSE) 2024– Conference Report

Editor:
Dr. Ram Boojh, ICSE Convenor, Advisor, Mobius Foundation

Content Support, Compilation & Coordination:
Ms. Priyanka Sharma, Head, Projects & Partnerships, Mobius Foundation
Ms. Banajyotsna Baruah, Sr. Program Manager, Mobius Foundation
Dr. Bhagyashree Kesherwani, Program Associate, Mobius Foundation
Ms. Palakdeep Kaur, Project Associate, Mobius Foundation
with contributions from session chairs, rapporteurs and partners.

Content Creation:
Ms. Kanikka Kanojia

Media Support:
Ms. Niddhi Singh, Deputy Manager - PR, Mobius Foundation

Layout and Design:
Ms. Pahi Gangwar

International Conference on Sustainability Education (ICSE) 2024

ICSE Secretariat,
301, Antriksh Bhawan, 22 K.G. Marg, New Delhi - 110001, India
Website: www.icse-esd.org | www.mobiusf.org
Email: icse@mobiusf.org | info@mobiusf.org
Phone: 011-4985-4523 | 011-4943-3823

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PREFACE

Background

In the face of pressing global sustainability challenges such as climate change, biodiversity loss, and environmental degradation, there is an urgent need to transform our education systems to foster stewardship and commitment to saving the planet Earth from these crises. Education plays a pivotal role in shaping the mindset and behaviours of current and future generations, making it a crucial lever for building a sustainable future. Recognizing the transformative power of education, CoP 28, held at Dubai UAE in December 2023, placed "greening education" at the heart of its deliberations. This concept signifies a paradigm shift, calling for the holistic integration of sustainability principles into all aspects of learning. It's not just about teaching "about" the environment; it's about nurturing a generation that lives and breathes sustainability, equipped to build a more just and equitable future.

Why is greening education so crucial?
It's about empowering individuals with the knowledge, skills, and values to:

- **Understand the complexities of sustainability:**
  This includes the interconnectedness of environmental, social, and economic issues, allowing for informed decision-making.

- **Think critically and creatively:**
  Green education fosters problem-solving skills and encourages innovative approaches to address sustainability challenges.

- **Embrace social responsibility:**
  It instills a sense of stewardship towards the planet and its inhabitants, promoting inclusivity and justice in sustainability solutions.

- **Take action:**
  Green education equips individuals with the tools and confidence to participate in meaningful change, both within their communities and on a global scale.

The theme for 6th International Conference on Sustainability Education (ICSE) 2024, *"Greening Education for a Sustainable Future,"* acknowledges the imperative to reorient educational practices and systems towards environmental consciousness and long-term sustainability. It calls for integrating ecological awareness and fostering a generation of environmentally literate individuals equipped to address global challenges and contribute to the creation of a resilient and sustainable future for our planet.

Objectives

- To provide a platform for sharing best practices, initiatives and fostering a shared understanding for greening education and Education for Sustainable Development (ESD).
- To facilitate and bring together diverse expertise and experiences of sustainability education from across India; region & globally.
- To provide the unique opportunity of learning together; fostering collaborations, building partnership and supportive network of stakeholders to drive green education forward, at all levels.
- To develop a roadmap for the future through recommendations and actionable steps for scaling up greening of education.

Participants and format of the Conference - ICSE 2024

The 6th ICSE was organized on September 19 and 20, 2024, at the India Habitat Centre, New Delhi, India, by Mobius Foundation in partnership with key national and international environmental organizations.

The conference brought together around 500+ participants physically and was joined by thousands virtually from across the globe, representing a multi-disciplinary and diverse group of stakeholders, including policymakers, teachers and educators, young professionals, representatives of schools and education networks, youth, scientists and technical experts, as well as individuals from the private sector and civil society.

The event was graced by eminent speakers and distinguished dignitaries and featured special plenaries, thematic panels, master classes and workshops, sustainability thought leaders and educators' conclaves, apart from special sessions on 'Population Sustainability' and 'Youth for Earth.'

The specially curated 'Youth for Earth' campaign provided a unique opportunity for young sustainability leaders to showcase their contributions towards the environment and sustainability through innovative projects and ideas. The conference also provided opportunities for young researchers and scholars to present their work through posters and oral presentations. Ample opportunities for interactions, networking, developing linkages, and partnerships were offered throughout the conference.

Outcomes

- Transformative experience, deepening participants' understanding of education's pivotal role in addressing sustainability challenges.
- Present innovative solutions, best practices, and successful case studies in sustainability education.
- Platform for facilitated network for collaborations transcending boundaries, contributing to a global community of practice.

OPENING CEREMONY

INAUGURATION

The conference commenced with the Lighting of the Lamp, symbolizing the light of knowledge and sustainability.

A special 'ICSE Journey of 5 years: Lookback Video' captured key milestones of ICSE, showcasing the progress of sustainability education in India and globally.

Students from Gyan Anant Vidyalaya (GAV) school welcomed the attendees with some beautiful songs in English and Hindi, setting the tone for an inspiring day ahead. Their innocence and sweetness were a reminder of the importance of this event.

WELCOME & INTRODUCTION

Dr. Ram Boojh, Advisor, Mobius Foundation

A very warm welcome to the 6th International Conference on Sustainability Education (ICSE) 2024, centered around the theme "Greening Education for a Sustainable Future." As we gather here today, we recognize that education is not merely a tool for knowledge dissemination—it is a catalyst for transformation. With the world facing interconnected environmental crises, education holds the power to inspire, equip, and mobilize individuals and communities towards sustainable action.

Since its inception in 2019, ICSE has remained an unstoppable movement, steadfast in its commitment to embedding sustainability into learning at all levels. *This year, we are proud to introduce two significant additions: UNESCO's session on green chemistry, addressing plastic pollution, and a dedicated session on "Blue Education" to highlight the importance of oceans in sustainability discussions. These initiatives reflect our evolving approach to*

tackling environmental challenges through education.

ICSE 2024 provides a unique platform for educators, researchers, policymakers, and practitioners to exchange ideas, share best practices, and co-create solutions that integrate sustainability into curricula, pedagogy, and institutional frameworks. The presence of distinguished speakers, thought leaders, and passionate participants makes this conference a fertile ground for meaningful collaborations and transformative impact.

As we embark on this journey together, I encourage each one of you to actively participate, engage in insightful discussions, and leverage this opportunity to strengthen the role of education in shaping a resilient and sustainable future. Let us reaffirm our commitment to ensuring that education never stops—that it continues to drive positive change for generations to come.

Thank you for being part of ICSE 2024. I look forward to your valuable contributions and a fruitful conference ahead.

KEYNOTE ADDRESS

Prof. Shambhu Nath Singh, Vice Chancellor, Central University Tezpur, India

Prof. Shambhu Nath stressed that *"society must continuously learn and educate in order to stay on the sustainable path."* He cited historical examples, such as the use of DDT and lead in fuel, which were phased out as society learned about their harmful effects. Similarly, the 1970s and 1980s acid rain crisis and the discovery of the ozone hole in 1985 prompted corrective actions like the Montreal Protocol. These examples demonstrate how environmental awareness and learning can reverse harmful trends.

Deeming accelerated learning and education essential to mitigating environmental challenges and enhancing community resilience, Prof. Singh referred to the 2030 Agenda for Sustainable Development and SDG 4 and advocated for integrating environment-focused curricula in schools and higher education institutions. He also spoke about India's long-standing commitment to environmental protection, citing the 42nd Amendment to the Indian Constitution (1976), which added provisions for environmental conservation through Article 48 and Article 51A. Additionally, solar power adoption and water conservation initiatives in educational institutions are part of India's broader environmental efforts.

To promote sustainability in education, Prof. Singh proposed several strategies, including a multidisciplinary approach to environmental education, creating specialized centers to address sustainability issues, and promoting green campus initiatives to model sustainable living. He also referenced the National Education Policy 2020, which integrates sustainable development goals into educational curricula and emphasizes the importance of traditional knowledge and interdisciplinary learning to address contemporary challenges.

Mr. Kartikeya Sarabhai, Founder Director, CEE, India

Mr. Kartikeya Sarabhai spoke about the ongoing efforts in India's National Education Policy under Shri K. Kasturirangan to strengthen environmental education.

He traced how environmental concepts gradually became part of India's curriculum, starting from the Kothari Commission to the National Education Policy 2020.
Reflecting on the establishment of his institute, CEE, one of the few global centers dedicated to Environmental Education, he discussed its role in societal transformation. The Environmental Education textbook for 10th-grade students, set to launch by 2026, marks a significant step toward making sustainability education available to every child in India.

Mr. Sarabhai then outlined the five aspects of greening education:

1. *Environmental literacy:*
   Every citizen should understand key concepts like climate change and human impact and be able to use systems thinking to solve environmental issues.

2. *Sustainability values:*
   Drawing from India's ancient wisdom, he invoked "Vasudhaiva Kutumbkam" (the world is one family), stressing the importance of values that shape humanity's relationship with the planet.

3. *Sustainable lifestyles:*
   Practices like reducing waste, respecting food, and avoiding littering, ingrained in India's traditions, should become second nature for all.

4. *Sustainability actions and the handprint:*
   The handprint, as a positive counterpart to the carbon footprint, encourages individuals, especially children, to take actionable steps toward sustainability.

5. *Environmental skills and vocational education:*
   With the rise of AI and automation, vocational education aligned with greening is now a core element of the National Education Policy, preparing students for future roles in a sustainable economy.

SPECIAL ADDRESS

Mr. Praveen Garg, IAS (Retd.), President, Mobius Foundation

Mr. Praveen Garg, began with a compelling question: *"Does the current education system in India, particularly in developing nations, meet the standards of inclusivity and equity outlined in SDG 4?"* He noted that NEP 2020 reinforces this priority alongside Mission LIFE (Lifestyle for Environment), which promotes the intentional and thoughtful use of resources.

He pointed out that by 2047, India's median age will rise to 37 years, and life expectancy will increase to 84 years, indicating improvements in healthcare and living standards but also raising concerns about aging populations and resource scarcity. In the context of projected GDP growth from 3.4 trillion USD to 30 trillion USD by 2047, he hammered home the idea of green GDP, a model of economic growth that accounts for sustainability by tracking green per capita income and green consumption expenditure, signaling the portion of the economy aligned with environmentally responsible practices. Mr. Garg also

suggested Australia's model, which allows taxpayers to see how their taxes fund sectors like infrastructure and healthcare, could be implemented in India using AI to measure individual contributions to environmental sustainability.
Mr. Garg made a case for greening the school curriculum, acknowledging that while progress has been made, the shift needs to be more substantial. Sustainability education must go beyond theory and become a practice that students adopt daily. He also mentioned their 100 Schools Program in Uttar Pradesh and Madhya Pradesh. It targets the poorest students, especially girls, to instill green habits and improve education quality through partnerships. *"We have a common hope that we will be on a sustainable path, a greener place to live, and a shared future,"* said Mr. Garg optimistically.

SPECIAL MESSAGE

Dr. K. Kasturirangan, Chairman, India's NEP 2020 & NCF, Former Chairman, ISRO

Mr. Dilip Surkar, Executive Director of the Vikram A Sarabhai Community Science Centre (VASCSC), Ahmedabad, read the special message on greening education for a sustainable future from Dr. K. Kasturirangan, chairman of India's NEP 2020 & NCF and former chairman of ISRO.

Greening of Education: A Pathway for a Sustainable Future

Good morning to all present at the International Conference on Sustainability Education (ICSE) 2024. Firstly, I extend my heartiest congratulations to the Mobius Foundation for generating the much-needed dialogue on sustainability education by bringing it to the centre stage through the medium of ICSE since 2019.

In the face of unprecedented global environmental challenges such as climate change, it is imperative that our education systems evolve to equip future generations with the knowledge, skills, and values necessary to address these pressing issues. At the same time, empower them to become responsible stewards of the planet.

'Greening' the education is a crucial step towards a sustainable future. It encompasses a holistic approach that integrates sustainability principles across all levels of education, from early childhood to higher education. This approach aims to cultivate an environmentally conscious mindset, fostering a deep appreciation for the natural world and a commitment to sustainable living.

The National Education Policy (NEP) 2020, which I had the privilege to chair, provides a robust framework for integrating sustainability into the core of our educational ethos. By integrating environmental and sustainability education across schooling, we can ensure that students develop a comprehensive understanding of the ecological, social, and economic dimensions of sustainability.

"STEM education is pivotal in driving innovation and developing solutions to sustainability challenges. By fostering critical thinking, problem-solving, and technical skills, STEM education empowers students to make informed decisions and take responsible actions for the environment." Incorporating STEM can enable students to explore the scientific principles underlying environmental phenomena and develop technological solutions to

mitigate environmental impacts. For instance, students can engage in projects that involve designing energy-efficient systems, developing sustainable materials, or creating models for water conservation. These hands-on experiences not only enhance their understanding of scientific concepts but also inspire them to pursue careers in fields that contribute to sustainability.

The success of greening education hinges on the preparedness of educators. This necessitates comprehensive teacher training programs that focus on environmental literacy, pedagogical strategies for sustainability, and the use of innovative teaching tools. Let us seize this opportunity to create an education system that not only imparts knowledge but also instils a deep sense of environmental responsibility. As we move forward, it is imperative that we continue to prioritize and invest in green education to ensure a brighter, more sustainable future for all.

With this note, I wish all the very best to the organizers and participants for continuing this endeavour for creating awareness, dialogue and action for a sustainable future that we all owe to our children!

ADDRESS BY GUEST OF HONOUR

Dr. Tim Curtis, Director and Representative, UNESCO New Delhi South Asia Regional Office

Mr. Curtis appreciated UNESCO's ongoing partnership with ICSE since its inception. Acknowledging the wealth of ideas shared earlier, he set the stage by addressing the triple planetary crisis—biodiversity loss, climate change, and pollution—explaining that these interconnected crises threaten not only ecosystems but also human societies, economies, and global peace, particularly exacerbating vulnerabilities and inequalities among the most marginalized populations.

Quoting UN Secretary-General António Guterres, Mr. Curtis described the current moment as a "battle for our lives" and reiterated UNESCO Director-General Audrey Azoulay's call to "make peace with nature." He linked this perspective to UNESCO's Man and the Biosphere (MAB) Programme, which has focused on the interplay between humans, communities, and their natural environment for over five decades. Mr. Curtis pointed out that no Sustainable Development Goal (SDG) is currently on track to meet the 2030 target and urged global leaders, set to convene at the Summit of the Future in New York, to adopt a Pact for the Future to accelerate progress. He noted that the country's population size, rapid economic growth, and global influence mean that India's success in advancing the SDGs will have global repercussions, and the Greening Education Partnership, launched at the United Nations Transforming Education Summit in September 2022, will go a long way in bringing about this change.

He elaborated on the partnership's four pillars, which align education systems with sustainability goals—Greening Schools, Greening Curricula, Greening Teachers and Greening Communities.

Mr. Curtis lauded India's pioneering efforts in environmental education, citing the 2023 State of Education Report on Climate Change Education, released in collaboration with UNESCO and the Mobius Foundation.

This report provided 10 actionable recommendations to strengthen climate education across India. To further this progress, UNESCO introduced two key resources:

- Greening Curriculum Guidance: A framework for countries to integrate environmental education into their curricula.
- Green School Quality Standards: The first global guidelines for creating environmentally sustainable schools, adaptable to local contexts.

Mr. Curtis mentioned the Climate Leadership Program, a six-month training initiative launched with the Climate Act Initiative. This program equips young people across India with the knowledge and skills to lead climate action and drive the transition to a green economy. *He also stressed upon STEM education to foster innovation, support social enterprises, and provide hands-on learning opportunities for youth and women.*

CHAIRMAN'S ADDRESS

Mr. Pradip Burman, Chairman, Mobius Foundation

Mr. Pradeep Burman underscored the critical importance of making sustainability education the foundation of all aspects of learning and elaborated on the following impactful initiatives spearheaded by the Mobius Foundation such as Gyan Kanya Shakti Project:100 School Project focuses on empowering young girls in rural areas of Uttar Pradesh and Madhya Pradesh through digital education. *Mr. Burman also announced an exciting collaboration with Warner Brothers Discovery Channel for a 10-episode series that addresses critical environmental challenges.*

This series will be telecast in SAARC countries and later dubbed into various Indian languages. It will focus on ecological issues such as climate change, biodiversity loss, ocean acidification, and land use changes. One episode will highlight population growth and its role in resource overexploitation, raising awareness about this critical challenge.

He also, highlighting the Population Stabilization Program called Project Aakar, being implemented in partnership with the Population Foundation of India and Janani, operates across eight districts of Uttar Pradesh. Through this program, the Mobius Foundation has reached approximately 3.5 crore people, providing awareness and contraceptive measures. He emphasized that this initiative helps promote family planning and reproductive health choices and empowers communities to achieve population stabilization in the region.

Mr. Burman described the foundation's efforts to empower young graduates in eco-sensitive regions of Nagaland through the Mobius Young Climate Leaders and Himalayan Development program. These initiatives target the unique challenges of eco-sensitive regions and promote sustainable practices. In a similar vein, the Young Professional Program prepares the youth to take the lead in advancing sustainability.

Mr. Burman mentioned the Pani Pahar Initiative, a water curriculum and research program designed by Cambridge University. After a successful pilot in Nagaland, this initiative is set to expand to other northeastern states this year, addressing water resource challenges and sustainability education in the region.

CHIEF GUEST'S MESSAGE

Hon'ble Shri Dharmendra Pradhan, Minister of Education, Government of India.

Dr. Ram Boojh conveyed the message from Hon'ble Shri Dharmendra Pradhan, Minister of Education, Government of India.

धर्मेन्द्र प्रधान
ଧର୍ମେନ୍ଦ୍ର ପ୍ରଧାନ
Dharmendra Pradhan

सत्यमेव जयते

आज़ादी का अमृत महोत्सव

शिक्षा मंत्री
भारत सरकार
Minister of Education
Government of India

MESSAGE

I am happy to know that **Mobius Foundation, New Delhi** is going to organise the 6th International Conference on Sustainability Education (ICSE) in partnership with UNESCO, UNEP, Centre for Environment Education (CEE), The Energy and Resources Institute (TERI), Foundation for Environmental Education (FEE), Population Foundation of India (PFI), and other reputed national and international organisations on the theme 'Greening Education for a Sustainable Future' on 19th September, 2024 in New Delhi.

This Conference presents an ideal platform for the academicians, researchers and students to exchange ideas and experience on varied facets of the theme for a nuanced understanding on the rapidly evolving global concerns on climate change and the ways to address the concerns by way of educating the students to nurture a sustainable future. I am sure, the policy makers will immensely benefit from the deliberations and the outcome of the International Conference and contribute towards engendering environmental awareness through education and sensitizing its multiple stakeholders to help build a sustainable future.

I wish the 6th International Conference on Sustainability Education (ICSE) all success.

(Dharmendra Pradhan)

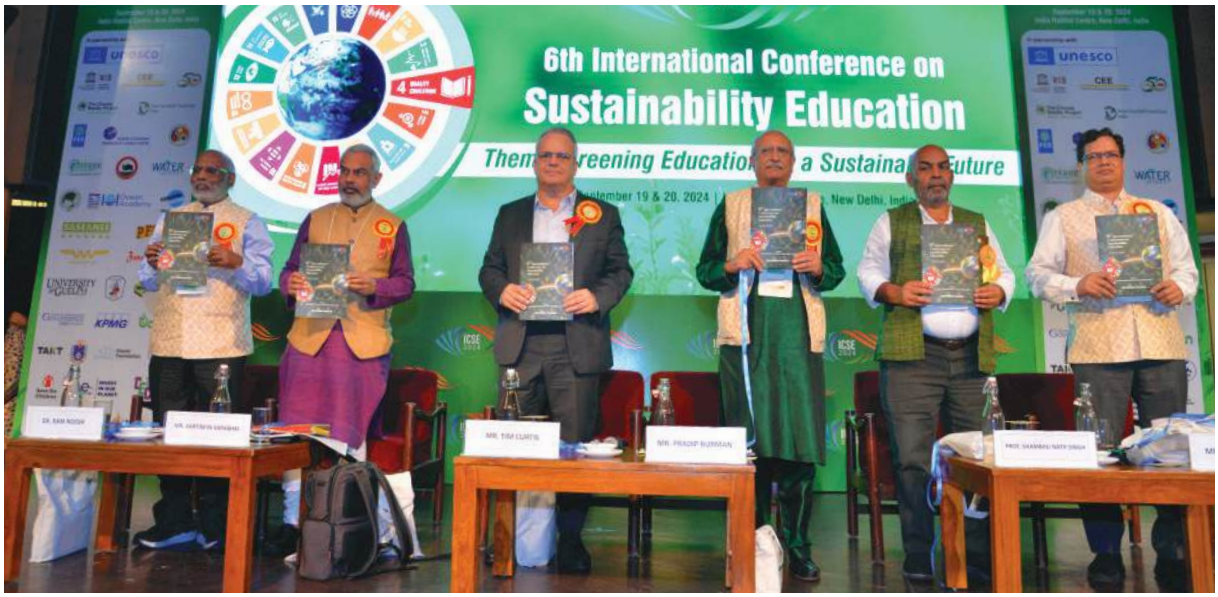
Hon'ble Shri Jayant Chaudhry, Minister of State for Education and Skilling, Government of India

Namaskar friends,
I extend my congratulations to Mobius Foundation for organising this very important conference on greening education for a sustainable future. As you know, it is India's youth power which will be at the cusp of change as a global society. India has already taken leadership on the critical issues of climate change, mitigation and adaptation, renewable energy, and building a greener course for a path towards 2047. I think the foundation for that is building those practices, building that awareness, that knowledge base and integrating it into our education system.

The NEP 2020 is a very progressive policy. And it is not only a policy it lays down clear pathways and roadmaps towards the integration of awareness on the ecology on a greener pathway and providing that access to children at a foundational stage. A number of our government schools are already organising a multitude of activities that are engaging with our young boys and girls with their minds, with their thought processes, and putting them in an environment where they are thinking about themselves, their future, and the state of the planet in the future. They have formed eco clubs. They're debating about green energy, about hydrogen machines, about all of these new technologies and concepts that are going to help us on our part.

I think as Leonardo Da Vinci said that nature is a mother of knowledge. And so mother nature which sustains us which creates us, will also inspire us.
Let us create an environment together, maybe the next generation, the future generation, is a stakeholder. And they actively steer towards a greener economy, a greener India.
Thank you

In the final segment of the ceremony, the Souvenir of the 6th International Conference on Sustainability Education was released. Mr. Pradeep Burman presented a memento to Mr. Tim Curtis, Mr. Praveen Garg to Prof. Shambhunath Singh, and Dr. Ram Boojh to Sh. Sarabhai. Further, Dr. Ram Boojh also presented mementos to Mr. Pradeep Burman and Mr. Praveen Garg, while Mr. Pradeep Burman honored Dr. Ram Boojh with a memento.



SETTING THE AGENDA: GREENING EDUCATION FOR A SUSTAINABLE FUTURE

PLENARY 1

Background

Education is a powerful tool that empowers learners of all ages to tackle global challenges like climate change, biodiversity loss, resource depletion, and inequality. It shapes the mindsets and behaviours that drive positive environmental impact. By instilling sustainable practices and fostering a sense of environmental responsibility, education paves the way for a greener, more sustainable future. Environmental education is dynamic and continuously evolving to adapt to modern changes. It equips individuals and communities with an understanding of the interplay between biological, physical, social, economic, and cultural factors. This education broadens perspectives, highlighting the interdependence between natural and constructed environments and the link between current actions and future consequences. “Greening” education embeds sustainability into all aspects of learning, instilling the knowledge, skills, values, and attitudes necessary for responsible stewardship of the planet. It fosters critical thinking and problem-solving, encouraging informed decisions and actions for sustainable living.

Objectives

- Showcase Innovative Practices
- Discuss Policy Integration
- Promote Stakeholder Engagement
- Technological Integration

This session was conducted in two parts. While Part I was Vice Chancellor Round Table, the second part was about Educators Round Table.

PART I: VICE CHANCELLOR ROUND TABLE

The session was chaired & moderated by **Dr. Somak Raychaudhury, Vice Chancellor, Ashoka University** who described the session’s objective as pivotal to greening education

for a sustainable future and actualizing the UN SDG 2030 goals. The country's large youth population presents an opportunity to shape a generation prepared to address global challenges through an educational approach that combines research, experiential learning, and community engagement. He stressed the value of blending indigenous knowledge systems with global best practices to create contextually relevant solutions. Practical skills and environmental literacy are essential components of sustainability education.
Following are the summarized statements of other eminent panelists/speakers.

Prof. Shambhu Nath, Vice Chancellor, Tezpur University who discussed the role of higher education institutions in inspiring and empowering students to become advocates for sustainability. The NCERT has introduced environmental education at the school level and the University Grants Commission's (UGC) has proposed incorporating environmental education across disciplines. He detailed his university's efforts to integrate environmental awareness into diverse fields of study. Framing sustainability as a shared global obligation, Prof. Singh urged academic institutions to lead by example.

Prof. Nidhi Nagabhatla, Sr. Fellow and Program Lead, United Nations University, Brussels Campus, she began by providing an overview of the United Nations University (UNU), explaining its three main functions: conducting advanced research to generate actionable knowledge, facilitating engagement between science and society, and delivering evidence-based inputs to support policymaking. She emphasized that the SDG 4 influences all other goals, and is important in developing mindsets and practices supporting sustainable lifestyles and production systems. Achieving this requires comprehensive educational programs designed to reach a wide range of stakeholders.

Prof. Nagabhatla also elaborated on UNU's collaborative efforts with member states, agencies, and academic institutions worldwide. These alliances boost cross-regional knowledge exchange and encourage innovative solutions. There's also a need to move beyond rigid disciplinary structures in education. She advocated for multidisciplinary and transdisciplinary models integrating diverse perspectives and societal feedback. Such approaches ensure solutions are practical, inclusive, and aligned with broader societal needs. Finally, she recommended integrating emerging technologies, like artificial intelligence, into educational programs to prepare students for a rapidly changing job market and enhance their ability to contribute meaningfully to their respective fields.

Prof. P.K. Biswas, Vice Chancellor, Jagran Lake City University, Bhopal, underlined the need to promote a "greening mindset" as a cornerstone for advancing environmental literacy and sustainability values. At Jagran Lake City University, Prof. Biswas has initiated efforts to integrate environmental awareness into various fields of study. For instance, the media school offers courses in environmental journalism, management students engage with ideas such as green marketing and sustainable HR practices, while doctoral research aligns with diversity, inclusivity, and equity principles. Community participation is a noteworthy aspect of the university's ethos.

He also referred to the university's collaboration with the UN's Principles for Responsible Management Education, which focuses on incorporating sustainable values and social responsibility into educational programs. Through courses such as disaster management, CSR audits, and social entrepreneurship, students gain exposure to real-world sustainability applications. Prof. Biswas explained the role of outreach initiatives, including legal aid clinics and environmental awareness campaigns, in connecting academic learning with community impact. This way, universities can prepare future leaders equipped to tackle pressing environmental issues effectively and compassionately.

Prof. Prithvi Yadav, President and Vice Chancellor, Sir Padam Singh University, Udaipur, began by discussing the challenges universities face in adapting to contemporary demands in education. He shared insights from his tenure at leading institutions like IIMs, IITs, Narsee Monjee, and Symbiosis, including his involvement in establishing India's first skill university. He addressed the need to align educational systems with growing societal and industry requirements, and pointed out the disconnect between the competencies required in the workplace and those imparted through academic programs.

Referencing reports by organizations such as the World Economic Forum and Coursera, he observed that while technological skills—like artificial intelligence, digital tools, and creative thinking—are prominently discussed, the need for environmentally oriented skills remains largely overlooked despite grave environmental challenges before us.

Prof. Yadav discussed his institution's innovative framework, inspired by German applied sciences universities, wherein 30% of learning is classroom-based, while 70% focuses on experiential methods like internships and projects. He proposed this model as a template for broader adoption under NEP 2020.

Prof. Yadav also called for the inclusion of green skills into academic programs across disciplines. He argued that sustainability should not be treated as a niche subject but integrated into existing courses to ensure its relevance in all fields of study. He also emphasized the value of creating adaptable frameworks to address the dynamic demands of industries and communities.

Concluding Discussion

The Q&A segment of the plenary session began with **Dr. Somak Raychaudhury** inviting the audience to share their questions and engage with the panel.

Dr. Kumudhini Ravindra remarked the importance of maintaining core skills as the basis for sustainable innovation and growth.

The discussion moved forward as **Ms. Nidhi Nagabhatla** shared that AI offers vast opportunities but also brings significant concerns. The European Union is on the way to legislate AI's role in education, ensuring that AI should complement rather than replace traditional educational structures. This approach is essential to preserving foundational knowledge systems.

Adding to the discussion, **Dr. Raychaudhary** stressed the importance of interdisciplinarity combined with academic rigor, emphasizing that it does not mean diluting subjects but




rather connecting them meaningfully.

Dr. **Punit Kumar,** a research scholar at the University of Delhi, mentioned the dominance of modern knowledge systems in Indian universities. Citing the work of Dr. Rajendra Singh, who has revived traditional water bodies in Rajasthan using indigenous methods, Dr. Punit suggested meaningful engagement with indigenous knowledge systems.

In response, **Prof. P.K. Biswas** called for a radical overhaul of research methodologies in Indian academia and training educators to embrace new methodologies and incorporate critical topics such as water management and sanitation into their curricula. Building on this point, Prof. Shambhu Nath highlighted the National Education Policy (NEP) 2020 efforts to preserve traditional knowledge systems. Many universities are now establishing Indian Knowledge System (IKS) centers to focus on embedding environmental consciousness into modern education.

Dr. Yadav added that corporations must prioritize environmental concerns and green skills in their hiring practices, which would compel universities to adjust their curricula accordingly. Prof. Shambhu Nath agreed, stating that educational institutions must take the lead in creating a workforce equipped to tackle sustainability issues, rather than waiting for corporate directives.

Mr. Harsh Gupta, former Vice-Chancellor and Secretary to the Government of India, called for assessing the impact of educational initiatives because without measurable outcomes, planning and implementation risk becoming cyclical and ineffective.

Concluding the session, Dr. Nidhi echoed Mr. Gupta's sentiments, stating that while frameworks such as the UN Declaration on Indigenous Rights are already in place, the real challenge lies in mobilizing collective action to turn these policies into meaningful outcomes.

Outcomes

- **Recognition of Tailored Sustainability Methods in Education**
  The session explored practical ways to incorporate sustainability into education systems, with examples such as interdisciplinary programs and local ecological projects that effectively adapt to regional and institutional contexts.

- **Universities Identified as Anchors of Environmental Responsibility**
  Discussions underscored the role of universities in advancing environmental literacy through innovative curricula and initiatives, including tribal heritage documentation and resource management programs.

- Collaborative Models for Stakeholder Engagement Presented
  Participants analyzed case studies of successful partnerships among governments, industries, and communities, demonstrating how collective initiatives amplify the reach and impact of environmental education.

- Technological Integration for Broader Accessibility Explored
  The potential of AI and digital platforms was examined, focusing on how they enhance environmental education by bridging accessibility gaps and creating interactive learning experiences.

- Policy and Institutional Coherence with Sustainability Goals Deliberated
  Insights were shared on embedding sustainability into educational frameworks, referencing the NEP 2020 and global agreements such as the UN SDGs, emphasizing the need for well-structured policies.

- Case Studies Showcased as Pathways for Implementation
  Global and local examples, including partnerships with Imo State University and efforts to preserve tribal knowledge in India, were discussed as models for sustainability education.

- Emerging Trends in Sustainability Education Discussed
  Participants explored future directions such as experiential learning, incorporating indigenous practices into mainstream curricula, and aligning education with green economy skills.

Recommendations

- Embed Sustainability Within and Across All Disciplines
  Ensure each field—from science to the arts—includes environmental perspectives in its core teaching and collaborates across departments, ensuring learners gain a broad, interconnected approach to climate, biodiversity, and resource challenges.

- Preserve Foundational Skills for Sustainable Practices
  Maintain core subjects as pillars of higher education, enabling students to develop critical analytical skills required for ecological research, climate modeling, and the ethical application of AI.

- Foster Experiential and Community-Based Learning
  Encourage practical engagement through activities like local clean-ups, resource conservation projects, and participatory field studies to bridge theoretical knowledge with real-world applications.

- Integrate Indigenous Knowledge Systems
  Combine traditional ecological practices, such as water conservation and community forestry, with modern educational frameworks to develop comprehensive and culturally inclusive sustainability solutions.

- Enhance Educator Capabilities for Sustainability Teaching
  Offer structured development programs for educators to design participatory courses and incorporate interdisciplinary and community-oriented teaching methodologies.

- Strengthen Partnerships with Industry and Communities

Build collaborative frameworks with businesses, government agencies, and local organizations to align academic offerings with societal priorities, employment needs, and sustainable development goals.

- Develop Mechanisms for Impact Measurement
  Establish clear evaluation frameworks to assess the success of sustainability initiatives in higher education, using data and stakeholder feedback to drive continuous improvement.

- Align Education Policies with Global Sustainability Goals
  Work with national and international bodies to incorporate sustainability principles, such as the UN SDGs, into education policies, ensuring consistent and forward-looking frameworks.

PART II: EDUCATOR'S ROUND TABLE

The second segment of the plenary began with the 'Educator's Round Table', assembling a remarkable group of leaders who shared their perspectives on advancing sustainability in education. The moderator and speakers were then introduced, setting the tone for an engaging session.




Dr. Erach Bharucha, Director, Bharati Vidyapeeth Institute of Environment Education and Research, Pune, Chair and Moderator of the session, started the session with an overview of his interdisciplinary teaching journey. He brought to the fore concerns such as how the millions of teachers can be effectively trained and the interim steps are necessary to make sustainability education accessible and actionable for students. Dr. Bharucha also highlighted the challenge of moving beyond rote learning and textbooks to create a more hands-on and immersive learning experience. Referring to tools proposed in the National Education Policy (NEP) and National Curriculum Framework (NCF)—such as traditional knowledge systems, systems thinking, and mind mapping—he encouraged educators to adopt innovative teaching approaches that could inspire a deeper connection to sustainability.

Professor Rajeev Ahuja, Director, IIT Ropar, India, recollected his tenure that spans regions with starkly different environmental contexts—the biodiversity-rich Northeast and the agriculturally dominant Punjab—moulding his understanding of how education can address regional challenges effectively. He outlined the initiatives at IIT Ropar, where significant emphasis is placed on AgriTech and water management, aligning with the region's strengths and needs. He mentioned efforts like soil mapping through satellite

technology, enabling farmers to optimize pesticide use while preserving biodiversity. This initiative not only educates farmers but also incorporates cutting-edge science, such as AI-driven solutions, into practical applications like digital agriculture.

"We must move beyond words and focus on delivering results," he said.He noted that training engineers in green technologies is futile if industries continue using outdated, non-sustainable practices. Reflecting on the vision for Viksit Bharat by 2047, he observed, "This can only be achieved through sustainable solutions and cohesive efforts between academia, industry, and other institutions."

Dr. Madhabananda Kar, Director, AIIMS, Mangalagiri, Andhra Pradesh, Jodhpur, drew parallels between the healthcare system and education, advocating for approaches rooted in adaptability, inclusivity, and contextual relevance. He highlighted the importance of collaboration, explaining that complex challenges require diverse expertise—a principle that he believes applies equally to education. He opined that localized strategies are critical to sustainability and systems designed without taking into account the perspectives of stakeholders risk becoming detached from the realities of those they are meant to serve.

Educators must integrate modern technologies while preserving the strengths of established teaching methods. Inclusivity, according to Dr. Kar, is another essential component of sustainable education. He proposed that students' voices should play a central role in shaping teaching practices, fostering a dynamic exchange that benefits both learners and educators.

Professor Ashutosh Tiwari, Director Institute of Advanced Materials, Sweden, emphasized the need for inclusivity and collective responsibility of individuals worldwide to work toward sustainable goals. He expressed optimism that with concerted efforts, humanity could achieve a sustainable future by 2030, emphasizing the importance of collaboration, education, and practical action in realizing this shared objective.

Ms. Stefania Fontana, Project Manager, Fondazione Lombardia per l'Ambiente (FLA), Milan, highlighted the importance of cultural heritage and local context in shaping values and habits, stressing the need for tailored methods that respect these differences. She concluded by discussing their current project proposal under the Erasmus program, developed in partnership with global stakeholders like CEE India and WACK. This initiative aims to strengthen international networks for peer training among educators, encouraging culturally relevant sustainability education.

Mr. Alan Egbert, CEO, Australian Council of Education and Research (ACER), Dubai, observed that awareness alone does not guarantee behavioral change because of obstacles

such as persistent disciplinary bias, gaps in pedagogy, and the lack of sufficient teacher training. He described students as the base of the education pyramid, which is the broadest. Therefore, they must be empowered to understand sustainability and act likewise. Alan also called attention to the need for a reassessment of educational strategies. The PISA framework, which tracks environmental literacy across 90 countries, recorded a decline in student performance between 2006 and 2015. A key factor in this drop appears to be the fragmented approach to teaching sustainability, where it remains confined to subjects like geography or science rather than being woven into a broader, interconnected curriculum.

Mr. Egbert commended the National Education Policy (NEP) as a step toward enabling flexible, multidisciplinary approaches but stressed that meaningful change requires action beyond policies. Further, he advocated for community-driven, project-based learning, where students address real-world problems within their local environments. Egbert called for collective action from educators, policymakers, and communities to effectively nurture a generation capable of tackling sustainability and climate challenges.

Discussion

Dr. Yogesh Pisolkar, Symbiosis Centre for Management Studies initiated the dialogue by raising concerns about students' overwhelming preoccupation with securing placements and the challenge of introducing critical concepts like ESG and AI when students are predominantly concerned with job outcomes. Responding to these observations, **Dr. Rajiv Ahuja** explained how parents often prioritize institutions based on salary outcomes, which funnels students into service-oriented sectors like IT and computer science, leaving foundational sciences and manufacturing overlooked. Besides, limiting early exposure to essential knowledge restricts innovation. A strong foundation in school equips students for industry demands, while engagement in fields like material science may help cut import reliance in the long term.

Building on these points, **Dr. Alan Egbert** argued that educators must take the lead in preparing students for challenges such as sustainability, emphasizing the need to cultivate both knowledge and the confidence to act. **Dr. Bharucha** suggested that if students graduate with a strong grasp of sustainability principles, they can apply these values in any professional context, regardless of their specific job roles. **Dr. Kar** extended the discussion to include reforms that encourage independent thinking and a focus on innovation from the earliest stages of education.

Overall, this segment brought into sharp focus the complexities of reconciling educational goals with societal and professional expectations. The panel and audience collectively called for reforms across education, family dynamics, and industry practices to prepare students for a future that values competence alongside accountability.

Outcomes

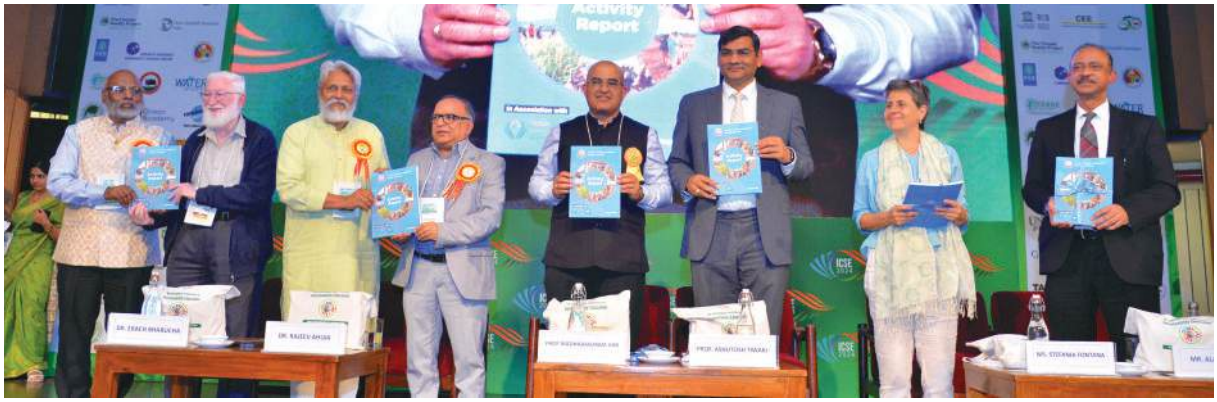
- **Actionable Pathways:** Strategies identified for embedding sustainability into interdisciplinary and experiential education.
- **Cross-Sector Partnerships:** Frameworks presented for collaboration between

academia, industry, and communities.

- **Policy Insights:** Emphasis on leveraging data to inform educational reforms and sustainability strategies.
- **Community Impact:** Empowered students and educators equipped to lead impactful projects in local communities.
- **Career Opportunities:** Encouragement for developing underrepresented fields like renewable energy and green technologies.

Recommendations

- **Holistic Sustainability:** Embed sustainability into education systems through interdisciplinary curricula and experiential learning for actionable understanding.
- **Localized Strategies:** Develop region-specific programs addressing biodiversity, climate resilience, and resource management.
- **Educator Training:** Offer professional development programs to foster critical thinking, creativity, and adaptability in sustainability teaching.
- **Academia-Industry Collaboration:** Facilitate partnerships between academia, industry, and policymakers to align curricula with sustainable practices and green technologies.
- **Technology Integration:** Incorporate AI, satellite imaging, and digital tools to enhance sustainability education and problem-solving.
- **Empowering Students:** Shift focus from theory to practice through participatory problem-solving and community-driven projects.
- **Inclusive Education:** Design systems that balance traditional and modern teaching while engaging diverse student perspectives.



Release of the book,

"PEOPLE'S WORLD COMMISSION ON DROUGHT AND FLOOD"

a collaborative effort, with Dr. Rajendra Singh playing a key role in its creation.

MOBILIZING GREEN CHEMISTRY TO BEAT PLASTIC POLLUTION:

With focus on Chemical Recycling of Plastic for Eco-Restoration specific to Biosphere Reserves

PLENARY 2

Background

Plastic pollution is a global crisis that transcends national borders and negatively impacts human and environmental health, food and water security, forests, biodiversity, oceans and mountains. There is an urgent need for action to find and implement solutions to better protect oceans, coasts and other ecosystems from further pollution, and to reduce and eliminate the current massive amounts of plastic waste. This will of course require better production and consumption patterns, but this alone will not be enough, given the current trend in global statistic and world population development. UNESCO's contribution in the UN system is to mobilize science and education to address the triple planetary crisis. This is why the UNESCO Plastic Initiative was launched in Vietnam, in 2019, with the specific objective of using UNESCO-designated sites, including the World Network of Biosphere Reserves (WNBR), as places to test, apply and develop good plastic-management practices. Since the launch of the UNESCO Plastic Initiative, in 2019 numerous activities have taken place, even though, significantly disrupted by the Covid-19 pandemic. Now is the time to bring together many different actors, mainly from academia and business, to set up demonstration centers that can then serve as models with a multiplier effect for large-scale replication.

Objectives

1. To formulate clear ideas towards practical science-based activities that lead to more entrepreneurship in the green economy and better environmental health of urban and natural ecosystems via the interaction of academia and business.
2. To devise management options in Biosphere Reserves to reduce plastic pollution.
3. To mobilize young professionals through the joint capacities of UNESCO Natural Science Divisions, particularly its STI capacity, to benefit the Biosphere Reserves as demonstration sites.
4. Start a dialogue about establishing coastal Biosphere Reserves in Bangladesh, India, and Thailand, focusing on 'Plastic Management'.

The special session was conducted in two parts while Part I dealt with the issues related to Plastic Pollution and the role of Biosphere Reserves; the Part II was about solutions by bringing academia and industry together.

PART I: Addressing the Issue and the Role that UNESCO Coastal Biosphere Reserves can play

Dr. Benno Böer, Chief, Natural Sciences Unit, UNESCO New Delhi, chaired and moderated the session started the session by outlining the distressing issue of plastic pollution. The "plastic paradox," which refers to humanity's reliance on plastic despite its known harmful impacts, is at its peak. Aggravating the triple planetary crisis, plastic pollution has devastating effects on marine life, as evident from the whale and dolphin strandings

across the globe. In humans, the consequential dire health implications of plastic pollution include microplastics in the digestive systems of 90% of the global population and nano-plastics in the bloodstream of most individuals. He warned that plastic pollution has reached catastrophic levels and consumer behavior, producer practices, and population dynamics contribute to this growing crisis. Therefore, immediate and collective action is necessary to confront this pervasive problem.

Dr. Benno Böer also shared that the session aimed to foster collaboration between India and Thailand. This year's efforts in India will continue next year in Thailand, focusing on strengthening UNESCO Biosphere Reserves, particularly in the Sundarbans in India and the coastal Trat Province in Thailand, where the islands of Koh Kood are located. In the course of achieving plastic neutrality, these regions will be testing grounds for best practices in plastic waste management.

Prof. Thammarat Koottatep, Asian Institute of Technology, Bangkok, Thailand, speaking on the skill sets beyond technical expertise needed for young professionals in the chemical and plastic recycling industry, laid emphasis on cultivating entrepreneurial and interdisciplinary skills. While scientists and engineers effectively manage technical processes, systemic issues continue exacerbating the plastic pollution crisis, particularly in countries like India and Southeast Asia, where 10 top plastic-polluting nations are located.
That is why education systems should foster problem-solving abilities and encourage collaboration with large corporations, NGOs, and informal recyclers who play critical roles in waste management systems. Integrating informal collectors and recyclers into larger frameworks, he suggested, could amplify impact.

Mr. Christian Walter, TAKT Ltd., Bangkok, Thailand responded to Dr. Böer's question on the role of industrial companies in enabling chemical recycling by highlighting the industry's complexity. He made a convincing case for establishing transparent systems where companies clearly identify and manage the plastics they use. This also necessitates investment in research, development, and new machinery to support sustainable processes.

Similarly, informal waste pickers in regions like Southeast Asia play a role. These workers prioritize collecting materials with higher market value, leaving lower-value plastics, which are often still usable for recycling, uncollected. Companies can create systems that incentivize the collection and recycling of these overlooked materials.

Dr. Lipika Sharma, Quest4action (Switzerland & India) described plastic pollution as a developmental and health crisis affecting all life forms on Earth. With 99% of plastics derived from fossil fuels, there is a direct connection between plastic usage and the failure to meet climate goals, particularly the 1.5-degree Paris Agreement target. The dominance of single-use plastics, capturing 40% of the market, compounds the challenge. She highlighted the role of sustainability education as a foundational tool for addressing this crisis. Citing initiatives like UNESCO's "Green Academies," she illustrated how localized sustainability education can engage young minds and communities to adopt recycling, waste management, and energy solutions tailored to their contexts.

Expanding on legal mechanisms, Dr. Lipika Sharma shared that 175 countries agreed to negotiate a legally binding treaty on plastic pollution in 2022. Set for completion by 2024-25, it aims to enforce measures like extended producer responsibility to curb waste and promote sustainable practices. Besides, any transition to sustainability must be equitable, particularly for developing nations heavily reliant on plastic industries.

Audience Interaction

Mr. Mohan Ji Saxena of Agriliv Research Foundation stressed the need to distinguish fossil fuel-based plastics from biodegradable alternatives like cassava-derived polymers. While the technology exists, high costs hinder adoption. He urged government funding for R&D and called for a global commitment to scaling biodegradable plastics, similar to solar and biomass initiatives. Wider adoption could drive cost reductions, making sustainable alternatives viable against conventional plastics.

Next, **Mr. Saurabh Sengupta** from the Nobel Citizen Foundation asked Lipika Sharma to elaborate on her statement about "hampering the circular economy" and what specific interventions it referred to.

Dr. Sharma clarified that while plastics may appear inexpensive, a deeper analysis reveals their substantial hidden costs, which impact all life forms, from humans to aquatic ecosystems. A UNEP study shows that 40–50% of plastics are used in single-use packaging. Legal actions, like New York's lawsuit against PepsiCo and California's scrutiny of petrochemicals, show policy efforts to hold industries accountable for plastic pollution.

PART II: Solutions: Bringing Academia and Business Together

Dr. Neha Midha, National Programme Officer for Natural Sciences, UNESCO New Delhi Moderated the Part- II, and asked **Dr. Arvind Sahu, Executive Director, UNESCO Regional Centre for Biotechnology, Faridabad,** how innovations in green chemistry could help reduce plastic waste in products used daily by consumers.

Dr. Arvind Sahu presented data from the Central Pollution Control Board, which revealed a staggering sixfold increase in plastic waste in India over five years, from 6.6 lakh tons in 2017-18 to 41 lakh tons in 2020-21. Only 9% of this waste is recycled, 19% is incinerated, nearly 50% ends up in landfills, and 22% remains mismanaged. Projections for the next 40 years suggest minimal change in these figures unless substantial interventions are implemented. Turning to potential solutions, Dr. Sahu identified bioplastics as a promising alternative.

Certain bacteria, such as Ralstonia and Pseudomonas, naturally produce biopolyesters under stress conditions, which can be harnessed to create bioplastics. However, bioplastics are far more expensive to produce than conventional plastics due to limited research investment. There is a need to optimize bacterial biosynthetic pathways through genetic engineering to enhance production efficiency. High biomanufacturing costs, especially in fermentation and extraction, also pose a challenge. Lowering them demands technological innovation and larger-scale production. However, bioplastics alone cannot solve the plastic waste crisis. It is essential to close the loop in plastic production and disposal by developing efficient reuse, recycling, and biodegradation systems.

Dr. Vimal Katiyar, Dean, Research and Development, Indian Institute of Technology, Guwahati, India, aired his views in response to Ms. Neha Midha's question about the limitations of biodegradable plastics and how they can be addressed. He said that the production of biodegradable plastic is limited to small-scale operations, making materials like polylactic acid (PLA) costly. Expanding industrial-scale manufacturing requires policy incentives and investment in green chemistry to lower costs and improve availability. Another limitation is that biodegradable plastics cannot meet all product requirements. Packaging, which accounts for 40% of plastic use, often demands durability beyond the capabilities of many biodegradable alternatives. Research must focus on developing tailored materials for short-term applications, such as food packaging, where rapid decomposition is beneficial. Disposal is another major challenge. Biodegradable plastics require specific conditions to break down efficiently, converting 90% of their carbon content to carbon dioxide within 180 days. Without proper composting facilities, they persist in landfills, reducing their environmental benefits. Strengthening waste management infrastructure is crucial for their success. In addition, industry awareness and adoption must improve. Many stakeholders are familiar with biodegradable plastics but lack technical knowledge on their implementation. Education, research integration, and community-driven solutions, such as training rural entrepreneurs in bioplastic production, can accelerate adoption. A phased transition, focusing on short-term applications and systematic policy support, can enhance their viability and impact.

Prof. Janewit Wannapeera, Suranaree University of Technology, Nakhon Ratchasima, Thailand, answered the question about his efforts in developing a technology for managing community waste in Thailand. He shared that his research center initially specialized in biomass fuel production and later expanded to address plastic waste, which makes up 20% of Thailand's total waste. A key obstacle in community waste management is separating plastic from organic waste, which his team tackled by developing a sorting system based on the Mechanical and Biological Treatment (MBT) method. This combines mechanical screening with biological decomposition, significantly reducing the breakdown time of organic waste mixed with plastic from several months to just three weeks.

Once separated, the clean plastic waste undergoes additional mechanical processing to create refuse-derived fuel (RDF), which has been successfully tested in collaboration with TAKT company. The resulting high-quality oil serves as a chemical feedstock. The technology is now operational in 20 locations across Thailand, processing around 200 tons of waste daily, including approximately 14,000 tons of plastic. Though this accounts for only a fraction

of the country's total waste, it presents a scalable model.

Audience Interaction

Dr. Panna Chandra Nath from the Mobius Foundation asked why internationally recognized organizations have not established conventions and guidelines to promote a global zero-waste policy.

Prof. Katiyar argued that global conventions alone cannot drive meaningful progress toward a zero-waste policy. While international agreements provide a framework, they do not guarantee implementation or behavioral change. Achieving real progress requires transforming consumption habits and waste management practices.

Dr. Sahu also placed importance on individual and collective responsibility in moving toward a zero-waste lifestyle and encouraged attendees to promote biodegradable solutions, run awareness campaigns, and collaborate with others.
Next, an audience member questioned why policies on single-use plastic in India are not being properly implemented and what can be done to address the issue.

Dr. Lipika Sharma answered that while policies banning 19 single-use plastic items have been introduced, factors such as socio-economic disparities, rural-urban divides, and the livelihoods of ragpickers and small-scale industries relying on plastic waste create barriers to universal policy enforcement.

Dr. Katiyar added that although policies such as Extended Producer Responsibility (EPR) mandate 100% plastic recycling by 2025, the transition to full implementation takes time. He reassured that aspirations for stricter enforcement and reduced plastic pollution are expected to materialize soon.

Outcomes

- **Practical Waste Management Models Discussed**
  The session highlighted successful case studies, such as Thailand's Mechanical and Biological Treatment (MBT) system, which presents scalable models for other regions.

- **Advancements in Green Chemistry and Bioplastic Development**
  Discussions held on bioplastics as a viable alternative to conventional plastics.

- **Increased Focus on Sustainability Education**
  UNESCO initiatives like Green Academies were recognized as effective tools for embedding sustainability education at multiple levels, including schools, universities, and communities.

- **Recognition of Policy Gaps in Single-Use Plastic Implementation**
  Participants acknowledged the challenges in enforcing bans on single-use plastics.

Recommendations

- Establish National Plastic Action Plans
  Governments should emulate frameworks like those in Vietnam and Indonesia to create structured, science-driven roadmaps for addressing plastic waste through legislative and collaborative measures.

- Scale Up Bioplastics R&D
  Increase investment in research and development to optimize bioplastic production processes, reduce costs, and tailor applications for packaging and other high-use sectors.
- Improve Policy Enforcement Mechanisms
  Develop phased, region-specific strategies to enforce single-use plastic bans, incorporating socio-economic considerations to support marginalized groups and MSMEs reliant on plastics.

- Utilize UNESCO Biosphere Reserves as Innovation Hubs
  Deploy Biosphere Reserves as testing grounds for science-based plastic management practices, focusing on eco-restoration and sustainable waste reduction.

- Incentivize Biodegradable Plastic Production
  Policymakers must incentivize industrial-scale production of biodegradable plastics to make them accessible and cost-competitive while first targeting short-term packaging applications.

- Leverage Community-Based Solutions
  To encourage sustainable practices at the grassroots level, promote localized initiatives such as reusable bag exchange programs, biodegradable toy production, and market-driven campaigns.

- Adopt Gradual Transition Strategies
  Avoid abrupt bans and instead implement phased approaches, backed by financial and technical support, to transition industries, consumers, and waste systems toward sustainable practices.

ADVANCING CIRCULAR ECONOMY EDUCATION FOR A RESOURCE-EFFICIENT FUTURE

PLENARY 3

Background

Circular economy principles are becoming increasingly recognized as essential for sustainable production and consumption. In addition to benefits on environmental protection, waste management and reduction in unsustainable production and raw material dependence, circular economy principles stimulate innovation and create jobs to drive sustainable economic growth. Education and innovation are crucial for unlocking the full potential of a circular economy and achieving a sustainable future. Policymakers face significant challenges in moving away from the traditional linear economy model of 'take, make, dispose,' which has driven industrial progress for centuries but resulted in unsustainable resource use Education can play a vital role in raising awareness, shaping attitudes, and promoting sustainable behaviour.

Objective

The objective of the session was to equip youth, educators, policymakers, and industry leaders with the knowledge and tools to implement circular economy principles, fostering sustainable practices, promoting resource-efficient development, and generating actionable recommendations.

Summary of the Presentations and Discussions

Mr. Rajan Mehta, Fellow, Harvard University and Author "Backstage Climate" who chaired and moderated the session, started off by introducing the Earth Overshoot Date, a metric published annually by the Global Footprint Network to track humanity's consumption of natural resources. This date marks when humans exhaust the resources the planet can replenish in a year. In 2023, the date fell on August 1st, meaning the consumption levels have exceeded Earth's capacity. The "take, make, use, and discard" linear economic model that dominates current systems is leading to rising waste and pollution.

Mr. Mehta also highlighted the value of business models promoting usage over ownership, such as those of Uber, Airbnb, and Patagonia (an outdoor apparel brand known for repair and resale initiatives). These models reduce resource demand while meeting consumer needs, making them examples of circularity in action. "The journey ahead is not without obstacles, but the responsibility—and the opportunity—lies with all of us. The time to act is now, he said.

Prof. Amar K. Mohanty, Professor & Distinguished Research Excellence Chair, University of Guelph, Canada discussed the necessity of incorporating education on sustainable polymeric materials into the framework of a circular economy to lower greenhouse gas

"NOTHING IS WASTE– WASTE IS A RESOURCE FOR A NEW INDUSTRY."

emissions, create jobs, and reinvent economic systems to meet sustainability objectives. Some examples of how waste can be converted into valuable products, as shared by Prof. Mohanty, include bio-carbon blended with plastic being used in automotive components, and grass and agricultural residues mixed with waste plastics being turned into consumer goods like pots and containers.

Progress toward a circular economy depends on scientific advancements and government policies, such as carbon taxes, to incentivize low-carbon innovations. He left the audience with a powerful message: "Nothing is waste—waste is a resource for a new industry."

Prof. Manjusri Mishra, Professor & Canada Research Chair (CRC) in Sustainable Biocomposites, University of Guelph, Canada, examined how innovative materials and circular economy principles can reduce reliance on fossil-based polymers, cut greenhouse gas emissions, and minimize waste. The discussion underscored the scale of plastic pollution, with global landfills holding nearly 9 billion tons of plastic, much of which arises from inefficient collection systems and the spread of microplastics. India leads in plastic waste generation, producing 9.3 million metric tons annually, of which 5.8 million metric tons are burned, releasing harmful emissions, while the remainder persists in the environment. Plastic-related emissions could reach 6.5 gigatons of CO_2-equivalent by 2050, consuming 10-13% of the global carbon budget.

The effect of agricultural residue burning further compounds environmental harm, contributing to severe air pollution. To mitigate these effects, she advocated for biorefining technologies that convert waste into valuable resources, enhancing sustainability while reducing waste. The Bioproducts Discovery and Development Centre (BDDC) at the University of Guelph was presented as a model for advancing bio-based materials and recycling technologies. The center's initiatives align with United Nations Sustainable Development Goals, particularly in climate action and responsible production, offering viable solutions for a sustainable future.

Dr. Santosh Kumar, Head, Department, Food Engineering and Technology, Central Institute of Technology (CIT), Kokrajhar, India, showcased edible packaging as a sustainable alternative to traditional plastics. Plastic pollution caused by synthetic and fossil-based plastics, especially in food packaging, necessitate finding ways to cut down on single-use plastics, mainly in primary food packaging.

The growing issue of plastic pollution affects the environment and human health. India alone produces 3.4 million tonnes of plastic waste each year, with less than 30% recycled, as the Marico Innovation Foundation reported in 2023. Plastics make up 37% of materials used in the packaging industry, second only to paper and board. Globally, packaging accounts for 40% of plastic consumption, followed by construction, electronics, and agriculture industries.

He cited a recent study from the Netherlands that detected microplastics and nanoplastics in human blood. These pollutants harm ecosystems and living organisms and are primarily caused by single-use plastics. According to the Earth Policy Institute, 2 million plastic bags are used every minute worldwide, most of which are not recycled.

Emerging alternatives to plastics include bioplastics, which are biodegradable, and edible films and coatings. These materials protect food from physical, microbial, and chemical damage while eliminating waste. While edible packaging cannot fully replace plastics, it offers a way to greatly reduce dependence on single-use plastics. Dr. Santosh listed various uses of edible films and coatings, including wrapping candies, portion packaging, coating fruits and vegetables, and edible cups for ice cream.

Professor Aparna Uma Raman, Visiting Faculty, IISc and RV University, Bengaluru, India, marked that while nature does not depend on humans, humanity's survival is deeply tied to it. Decisions are often made in isolation, overlooking the interconnectedness of natural and economic processes. For instance, producers and consumers rarely engage in meaningful dialogue, leading to disjointed systems with limited accountability. This fragmented method, a result of technocentrism, taking over ecocentrism, causes disconnection between energy, health, environmental, and socio-economic systems.

She cited the teachings of Arne Naess, often called the "Albert Einstein" of ecology, to advocate for a return to eco-centric principles, where balance and harmony with nature are valued. Overexploitation must be curbed as exceeding the optimal point inevitably leads to adverse outcomes. Overall, the broader challenge is connecting disparate elements such as governance, economics, biodiversity, and culture into a unified framework. Today, leadership often lacks the foresight and contextual understanding needed to address these complexities. The question of "who has the most to lose" must guide decision-making, ensuring that those directly impacted by environmental and economic policies have a voice in shaping them.

Dr. Anil Gupta, Ex-Director, Department of Environment, Govt of Delhi, referred to the Circularity Report 2023, which showed that the global circularity rate has fallen to 7.2% from 9.8% in 2018. This decline reflects the limited adoption of circular economy principles and points to the vast untapped potential for integrating sustainable practices into global systems. Elaborating on India's predominantly linear economic model, Dr. Gupta described the extract-produce-dispose approach as a major contributor to escalating waste levels. With India generating over 62 million tons of waste annually—70% of which is collected, yet half remains untreated and is dumped into landfills—he warned that this figure is projected to rise to 165 million tons by 2030. The situation in Delhi, characterized by towering landfill sites, exemplifies the challenges posed by the "take, make, use, and dispose" culture. In terms of economic benefit, a widescale penetration of the circular economy could generate ₹14 lakh crores (USD 218 billion) annually by 2030, expanding to ₹40 lakh crores (USD 624 billion) by 2050. Sectors like agriculture, transportation, and construction stand to gain significantly, as they could reduce costs while maintaining optimal utility.

Key policies supporting the circular economy in India, as outlined by Dr. Gupta include:

- National Resource Efficiency Policy (2019): Promotes sustainable consumption and production, aiming to minimize environmental impacts.
- Extended Producer Responsibility (EPR): Enforces manufacturers' accountability for post-consumer waste, covering waste streams such as e-waste, plastic, and used oil. It incentivizes the use of recycled materials and better product designs.
- Swachh Bharat Mission (2014): Focuses on waste segregation, recycling, and composting,

aiming to create a zero-waste India.

- Atal Innovation Mission (2016): Encourages innovation and entrepreneurship to develop sustainable business models.
- NITI Aayog Committees: Dedicated to addressing 11 specific waste streams, such as e-waste and automobile scrap.
- Financial measures like tax benefits, subsidies, and low-interest loans for recycling industries help oil the wheels of transition to a circular economy.

In his closing statement, **Dr. Anil Gupta** enumerated the responsibilities of consumers, businesses, and the government in building a sustainable circular economy.

Consumers: A mindset shift is needed from owning products to using them efficiently, encouraging sustainability and reducing waste.
Businesses: Their focus should move from selling products to providing them as services, maximizing resource utility and efficiency.
Government: Policies should focus on setting standards, improving infrastructure, and supporting industries to manage high costs and limited recycled material availability.

Audience Interaction

Q. How can institutions unify fragmented circular economy efforts into a cohesive framework, embed its principles into education, and shift from a reactive to a proactive approach to prevent long-term challenges?

A. **Ms. Aparna Uma Raman** described integrating circular economy principles into education and policymaking as a challenge because of complexities of India's federal structure, where responsibilities are divided between central and state authorities, often resulting in policies being adapted to limited contexts rather than implemented uniformly. Any effective solution combines centralized direction and grassroots innovation, as neither approach alone can achieve the desired results. Theoretical understanding and practical application should be on the same plane because theory without real-world implementation risks being purely academic.

To address these problems, Prof. Raman suggested *Collaboration Among Policymakers and Trainers, Breaking Down Silos, and Crafting a Balanced Framework.*

Outcomes

- **Enhanced Awareness and Understanding:** Participants understood more about circular economy principles, such as shifting from the linear "take, make, dispose" model to sustainable practices like reuse, repair, and remanufacturing.

- **Insightful Discussions and Data Sharing:** Speakers presented critical data, such

as the Earth Overshoot Date and global resource consumption trends. Examples like sustainable polymers, advanced recycling technologies, and edible packaging provided practical insights.

- **Collaborative Learning:** The session fostered knowledge-sharing and demonstrated how local and global efforts can complement each other.

- **Strengthened Stakeholder Engagement:** Discussions emphasized the need for collaboration among governments, businesses, and consumers, underscoring the shared responsibility of transitioning to a circular economy.

Recommendations

- **Incorporating Circular Economy into Education:** Educational institutions must include circular economy principles into curricula across disciplines by integrating theoretical knowledge with experiential learning and encouraging youth to adopt sustainable practices early on.

- **Training the Trainers:** Establish structured programs to equip policymakers, educators, and industry leaders with the tools and adaptive mindsets to disseminate knowledge on circular economy practices.

- **Policy and Infrastructure Development:** Governments should create comprehensive frameworks to standardize the use of recycled materials, invest in advanced recycling and composting infrastructure, and further incentivize industries through tax benefits, subsidies, and low-interest loans.

- **Promoting Localized Solutions:** Encourage region-specific approaches by considering cultural, geographic, and economic factors, ensuring inclusive participation from all sectors of society.

- **Scaling Innovative Business Models:** Businesses should prioritize models emphasizing usage over ownership, such as subscription or leasing models, and develop products designed for repairability and durability.

- **Public Awareness Campaigns:** To drive behavioral change, launch large-scale educational campaigns to inform consumers about sustainable consumption, waste reduction, and product lifecycle thinking.

- **Support for Research and Innovation:** Foster advancements in sustainable materials and technologies, such as bioplastics, edible packaging, and waste valorization, to address specific challenges like plastic pollution and agricultural residue burning.

- **Strengthening Global and Regional Collaboration:**
  Build partnerships between governments, research institutions, and industries at local and global levels to share best practices, scale innovations, and align efforts with international sustainability goals.

NEW AND INNOVATIVE TECHNOLOGIES FOR SUSTAINABILITY EDUCATION

PLENARY 4

Background

The advent of digital technologies and Artificial Intelligence (AI) has transformed various sectors globally, including education. These technologies offer unparalleled opportunities to revolutionize sustainability education. With the emphasis on "Greening Education for a Sustainable Future," it is crucial to explore how digital technologies can be harnessed to create more equitable, efficient, and environmentally sustainable educational frameworks. Emerging technologies like AI, Virtual Reality (VR), and Augmented Reality (AR) have the potential to personalize learning experiences, making education more accessible and engaging. Digital tools can break down traditional educational barriers, offering tailored content and interactive learning platforms that cater to individual needs. This session at the 6th International Conference on Sustainability Education (ICSE) 2024 aims to delve into these aspects, exploring practical strategies for leveraging technology to foster lifelong learning, enhance educational access for women, and support sustainable practices in education.

Objectives

- Examine the Potential of AI and Digital Technologies: Analyze how AI and digital technologies can personalize learning experiences and help overcome traditional educational barriers, thereby enhancing access and quality of education including integration of sustainability education to digitally supported education.
- Integrate Practical Strategies: Identify practical strategies for integrating AI and digital technologies into sustainable education systems to foster lifelong learning and prepare youth for future workforce opportunities.
- Contribute to Greening Education: Explore how these technologies can promote eco-friendly practices, reduce the carbon footprint of educational activities, and encourage the adoption of sustainable development principles.

Dr. Kiran Karnik, Former President, NASSCOM, New Delhi, Chair of the session, focused on the importance of sustainability education in today's world and how modern tools and technologies can enhance its impact.

Dr. Nakul Parashar, Former Director, Vigyan Prasar, DST, Govt. of India, moderator of the session, shared the following theme for discussion: *The Utilization of emerging learning technologies to promote sustainability.*

Mr. Tim Connors, Executive Director, EdTech Advisory Group, Boston, USA, underlined that while AI presents immense opportunities to revolutionize learning, its adoption also brings challenges. Students are already using AI extensively to enhance productivity in their academic work, underscoring this technology's growing influence and strong likelihood of long-term presence.

Regarding the challenges educators face, Mr. Connors said that many teachers worry that AI might diminish their roles or even replace them entirely, while others are uncertain how to adjust their teaching strategies to incorporate this technology effectively. The need for professional development tailored to these concerns is evident, as overcoming such resistance is crucial for successfully adopting AI in classrooms.

Educators must rethink traditional assessment methods by combining written assignments with interactive approaches, such as oral presentations or project-based evaluations. Such strategies ensure genuine learning and encourage students to engage critically and creatively. Moreover, AI can alleviate administrative burdens on teachers by automating tasks like quiz creation, grading, and record-keeping, allowing them to focus more on student engagement and mentoring. With AI evolving fast, Connors urged swift policy action at state and district levels to help schools adapt.

Dr. Kumudhini Ravindra, CSO and Co-founder, Inytu Inc, Chief Mentor, Blue Lotus Inc, highlighted the realities of the modern world, ranging from droughts and floods to wars and the rapid evolution of technology. These events are no longer isolated incidents but interconnected patterns forming a new global norm. Moreover, the inevitable rise of cyber-physical systems demands our attention and adaptation, regardless of personal apprehensions.

Dr. Ravindra introduced the concept of the "FTP world," an evolution beyond the widely discussed "VUCAH" framework of volatility, uncertainty, complexity, ambiguity, and hyperconnectivity. She described FTP as:

FRAGILE: Systems are increasingly precarious and unstable.
TRANSIENT: A world in constant flux, marked by rapid shifts and temporary solutions.
PARADOXICAL: Outcomes often defy expectations, with solutions sometimes creating unforeseen complications.

She urged us to make conscious choices that foster sustainability for future generations because survival in an FTP world requires new strategies and a fundamental shift in mindset. The traditional concept of work has also largely lost its relevance. Dr. Ravindra outlined five essential competencies to promote sustainability: understanding interconnected systems, planning for future scenarios, aligning actions with societal priorities, developing effective strategies, and building collaborative relationships. She then discussed how automation and artificial intelligence are reshaping the skills required in the workforce. Data says that while physical and manual skills are expected to decline by 14% and basic cognitive abilities

by 15%, there is anticipated growth in areas such as advanced cognitive skills (8%), social and emotional abilities (24%), and technological expertise (55%). These shifts mark the growing significance of preparing learners for a future where technology takes center stage.

Talking about the impact of emerging technologies on education, Dr. Ravindra described how these tools have decentralized learning, replacing traditional classrooms with adaptable systems. These innovations empower learners to tailor their educational journeys, boost peer collaboration, and provide flexible and scalable solutions for accessing resources. All in all, creating sustainable education systems relies on small, repeated actions that build into a larger, efficient whole. Dr. Ravindra ended her presentation with a memorable message: "*How technology impacts our world depends entirely on the knowledge and responsible use of those who wield it.*"

Dr. Ibrahim Hafeezur Rehman, Director, School of Sustainability and CEO, NAMTECH, IIT Campus Gandhinagar, India, critically assessed sustainability across conceptual, infrastructural, delivery, and behavioral dimensions, especially within the broader context of Industry 4.0. He illustrated sustainability's connection to technology through historical innovations like Rajasthan's ancient water conservation techniques, showcasing how ingenuity has long supported sustainable practices. Modern advancements, such as artificial intelligence and digital systems, were positioned as essential to continuing this legacy by thoughtfully aligning innovation with sustainability.

Focusing on infrastructure, Dr. Rahman critiqued the tendency in industrial and educational spaces to prioritize visual appeal over ecological and functional value.

"PHYGITAL CAMPUSES" which blend traditional physical infrastructure with advanced digital tools to create collaborative spaces for academia, industry, and other stakeholders, was another concept shared by him. Academic programs, for example, one-year advanced courses tailored to industry demands, should be redesigned to establish campuses as centers of forward-thinking, sustainability-driven innovation.

Further, Dr. Rahman outlined the following core principles and actionable steps for sustainable campus design:

- Well-being and Biophilic Design: Prioritizing human well-being by integrating natural elements into campus environments.
- Circular Economy and Regenerative Design: Building systems that recycle and regenerate resources to minimize waste.
- Facilities for Holistic Development: Designing spaces that foster creativity, learning, and physical health.
- Use of Sustainable Building Materials: Reducing environmental impact by incorporating eco-friendly construction practices.
- Net Zero Goals: Targeting minimal carbon emissions to achieve net zero status.
- Biodiversity Integration: Incorporating natural ecosystems to enrich the campus environment.
- Low Maintenance Costs: Ensuring cost-effective and resource-efficient campus operations.

- Digitally Enabled Smart Campus: Leveraging digital technologies to create connected and intelligent infrastructures.

These principles ensure that campuses operate as living laboratories for sustainability, creating environments that encourage sustainable living and learning.

Ms. Neelima Vobugari, Co-founder, AiEnsured, Responsible AI, Bengaluru, India, showed optimism about the potential of artificial intelligence (AI) in addressing sustainability concerns. AI's ability to provide individualized learning experiences, known as the N = 1 approach, is a game-changer. For instance, Learning Management Systems (LMS) allow individuals in remote locations to access global educational resources without traveling.

She also considered virtual reality (VR) a powerful tool for education. VR immerses learners in simulated environments, offering interactive experiences that deepen understanding and retention. The capabilities of large language models (LLMs), such as ChatGPT, are boosting productivity and their responsible use saves time and improves efficiency. However, they may occasionally produce inaccurate information.

Responsible AI comprises building fair, unbiased models, ensuring secure and trustworthy systems, and addressing concerns around ethics, accountability, and transparency. The Government of India is actively developing a framework to ensure AI applications meet these standards.

Outcomes

- Broadened Understanding of Technology's Potential
  Participants gained insights into how AI, VR, AR, and digital tools enhance sustainability education by enabling personalized learning, improving accessibility, and fostering collaboration.

- Responsible AI Use Recommended
  The session highlighted the importance of ethical frameworks to ensure AI tools are fair, transparent, and secure for educational use.

- Integration of Traditional and Modern Approaches
  The discussions underscored how traditional knowledge systems can complement modern technologies in developing sustainable education models and are deeply rooted in cultural relevance.

- Focus on Workforce Readiness
  Emphasis on equipping students with future-oriented skills, such as technological expertise, emotional intelligence, and problem-solving, to meet the demands of Industry 4.0 and 5.0.

Recommendations

- Enhance Educator Training

Develop professional development programs to support educators in integrating digital tools and addressing concerns about AI adoption in classrooms.

- Embed Sustainability in Curricula
  Incorporate global citizenship, environmental consciousness, and eco-friendly practices into education systems to align with sustainability goals.

- Promote Lifelong Learning Platforms
  Encourage the growth of platforms like LMSs to facilitate skill-building, continuous learning, and adaptability to future workforce demands.

- Redesign Educational Infrastructure
  Advocate for sustainable campus designs, including biophilic elements, circular economy principles, and net-zero goals.

- Expand Accessibility and Inclusivity
  Leverage digital tools to close educational gaps, ensuring equitable access for marginalized groups, including women and rural populations.

- Develop Ecosystems for Practical Learning
  Create experiential learning environments, such as phygital campuses and sustainability labs, to provide students with hands-on education that aligns with sustainability goals.

- Monitor and Evaluate Impact
  Establish metrics to measure the effectiveness of integrating technology into sustainability education and its alignment with long-term goals.

Outreach Partners:

PEOPLE OF NATURE AWARDS

PLENARY 5

Background

The People of Nature Awards celebrate individuals and organizations committed to Climate Action and the Sustainable Development Goals (SDGs). In partnership with Mobius Foundation and ICSE, We Naturalists has played an instrumental role in amplifying efforts toward sustainability through education, awareness, and digital transformation.

Building on the success of previous collaborations, the awards aim to recognize and support changemakers—those who protect, conserve, and advocate for nature through their work in education, innovation, advocacy, and storytelling. By highlighting their contributions, the initiative seeks to inspire collective action and accelerate environmental solutions.

Aligned with ICSE 2024's theme, "Greening Education for a Sustainable Future," the awards emphasize engaging children and youth, empowering the next generation of environmental leaders. With three dedicated categories for young changemakers, the initiative acknowledges the role of youth in driving sustainability and fostering a culture of environmental responsibility.

Objectives

Recognize individuals, organizations, and innovative approaches mobilizing Climate Action and SDGs while empowering youth through education, advocacy, and entrepreneurship, and integrating sustainability into learning and digital solutions in line with ICSE's mission.

Summary of Presentations and Discussions

The first-ever in-person People of Nature Awards ceremony featured a video montage capturing the following perspectives of environmentalists and the members of the We Naturalists team.

▸ Zidaan Castellino, Environmental Activist
"When I say the word 'We Naturalists' to many environmentalists, they smile because We Naturalists has been doing so much work. Before joining We Naturalists, I had a very small vision. I didn't think much—like locally is okay, we don't have to think about the global perspective, and we cannot connect so many people at one point. But then I joined We Naturalists, started posting my work, connected with other environmentalists, and the change I saw was, I think, the best thing that has happened."

▸ Yusuf Kabir, Specialist: WASH Climate Environment & Focal Point - Emergency - Disaster Risk Reduction, UNICEF India
"In a country like India, you cannot do anything alone. So, we need like-minded organizations to be part of this journey. Sometimes 2 plus 2 becomes 5. It's a synergy.

I had been looking for an organization that speaks beyond engagement but also about skilling, mentorship, and bringing knowledge together under one platform. It was a win-win situation for both UNICEF and We Naturalists because our target group is youth."

"IN A COUNTRY LIKE INDIA, YOU CANNOT DO ANYTHING ALONE...BUT WITH THE RIGHT ORGANISATION, SOMETIMES 2+2 BECOMES 5"

▸ **Ruhi Jajal, Podcast Host, Dear Future Earth**
"We Naturalists also helped me give many environmental lectures to schools in India. They helped me by reaching out to the schools and providing me feedback for my content, and I would say, by now, the lectures have been the biggest success in my environmental career."

▸ **Mr. Amit Banka, Founder and CEO, We Naturalists**
"The journey of We Naturalists has been very exciting. I've always been in and around nature. I've loved water, loved roaming around jungles, and I also started loving photography—taking pictures of birds. The more I was introduced to people working in nature, the more I realized that bringing technology closer to nature can accomplish a lot. That was our key learning, and that's where we started building, We Naturalists.

▸ **Setu Doshi, Business Development, We Naturalists**
The People of Nature Awards celebrate the work done by climate specialists on a global scale. Winners receive the People of Nature trophy and a cash award of up to $1,000. The aim is to provide recognition and support for individuals working in this space."

▸ **Vani Chandra, Climate Program Manager, We Naturalists**
The intent of the Green Entrepreneurship program was to provide an ecosystem and support system for aspiring entrepreneurs so they could connect with mentors, meet like-minded people, and seek funding as they developed their projects."

Before the panel discussion began, Mr. Amit Banka, introduced **Mr. Vinod Dubey - Folk song dedicated to Mother Earth Expert Talks**—a philosopher, writer, composer, and singer—who seamlessly blends music with his craft at Mitti Studio, where he also practices pottery.

Following Mr. Dubey's performance, the session proceeded to the panel discussion.

Mr. Ashok Lavasa (IAS Retd.), Former Secretary, Finance and Environment, Forest and Climate Change, Govt. of India, Chair of the session, noted that anyone identifying as a naturalist must understand nature and actively preserve it. Referring to his notes from the 1970s, he remarked: "Human beings don't behave like animals, not because they are intelligent, but because they are not intelligent enough."

He then introduced his postulate: If the world were to be deconstructed and returned to its primordial state, two instincts would govern human behavior—self-preservation and acquisition. The drive to alleviate physical discomfort has historically fueled human advancement, but this trajectory has led to a stark reality—climate change. The environmental crisis humanity faces today is not an abstract consequence but a direct manifestation of

developmental choices.

Mr. Lavasa flagged that India's exploitation of natural minerals per acre surpasses global averages multiple times over, while the recycling rate for construction and demolition waste remains abysmally low, under 10%. He also proposed adding a *4th R—Refuse*—to the existing *3 Rs: Reduce, Reuse, and Recycle*. The ability to reject unnecessary consumption is fundamental to sustainable living responsibly."

Mr. Amit Banka, asked the experts a few questions, encouraging a deeper exploration of the topic.

Q. You've always been known for your radical ideas—I've read extensively about your work and perspectives. How do you view education in relation to sustainability, and what bold steps can truly make a difference?

Mr. Lavasa stated that sustainability should not be treated as a standalone subject in education but should be ingrained within everyday learning and habits. Children learn behaviors primarily from their home environment rather than formal instruction, making it essential for families to teach responsible consumption. True conservation is about regulations and fostering a deep-rooted sense of responsibility toward natural systems, he added.

Q. There's always a strong connection between education and employment, particularly in India. Do you think there are enough green jobs available?

Mrs. Novel Lavasa, Author of Echos of Faith: Tales of Explorations, Nature & Divinity, distinguished education from employment, stating that while jobs serve economic needs, education shapes individuals' lives. Childhood experiences—gardening, observing seasonal changes, and interacting with local ecosystems—foster a deep respect for nature. However, the question is whether such experiential learning still takes place today.

Dr. Shree Govind Shah, Former ADB Environmental Specialist, Bengaluru, in continuation, viewed environmental education as inseparable from daily life, influencing how individuals engage with society and nature. Comparing environmental education to planting a tree, he remarked that its benefits take time to manifest but last long. Knowledge gains true worth only when it takes the form of purposeful action, added Dr. Shah.

"CHILDHOOD EXPERIENCES– GARDENING, OBSERVING SEASONAL CHANGES...– FOSTER A DEEP RESPECT FOR NATURE"

THE PEOPLE OF NATURE AWARDS

The award ceremony began with Mr. Amit Banka presenting the trophies to the winners, honoring their exceptional contributions to environmental conservation.

Here's the list of award titles with their corresponding winners:

Photographer of the Year Award, Birds – Nitin (Pune)

Photographer of the Year Award, Fauna – Rory J. Lewis (UK)

Photographer of the Year Award, Flora – Dinkar Samore

Filmmaker of the Year Award – Mayuresh Hendre (Mumbai)

Nature Storyteller of the Year – Suyash Tilak

Climate Change Voice of the Year – Onyekachi Chukwu (Nigeria)

Environmental Educator of the Year – Shruti Jha

Conservationist of the Year, Flora – Robin Migosi (Kenya)

Conservationist of the Year, Fauna – Lyndon Howson (UK)

Conservationist of the Year – Marine – Reggie De Santis (Australia)

Conservation Project of the Year – Maqsood ur Rehman (Bangladesh, work with coastal belt and mangrove conservation, involving local women)

Green Childhood – Storyteller of the Year – Arthur Shahabeddin (UK)

Green Childhood – Climate Change Voice of the Year
Winner: Nihal Tamanna (USA),
Runner-up: Zidaan Castellino (Mumbai)

Green Childhood – Nature Positive Innovation of the Year – Mallayka Ianna (Kenya) and Emaan Danish (Pakistan)

INTEGRATING STEM, NEP 2020 AND STI POLICY FOR SUSTAINABILITY EDUCATION IN INDIA

TECHNICAL TRACK

Background

The session explores how STEM education, the National Education Policy (NEP) 2020, and the Science, Technology, and Innovation (STI) Policy intersect to shape sustainability-focused education. STEM education supports analytical thinking, adaptability, and evidence-based problem-solving and equips students to address environmental, technological, and societal challenges. Its scope extends beyond technical knowledge, encouraging logical reasoning and research-driven approaches that connect to sustainability efforts.

The National Education Policy (NEP) 2020, chaired by Dr. K. Kasturirangan, emphasizes inquiry-based, discussion-led, and experiential learning. The policy encourages conceptual clarity, creative problem-solving, and application-driven education, moving away from conventional assessment methods. With a focus on technology integration, skill-based learning, and interdisciplinary approaches, NEP 2020 aligns with international education standards and advances India's role in achieving the United Nations Sustainable Development Goals (SDGs) 2030.

Similarly, the Science, Technology, and Innovation (STI) Policy, still in its draft stage, presents a structured approach to research, knowledge sharing, and community-driven innovation. The proposed National STI Observatory is envisioned as a centralized hub for policy insights, research funding, and financial initiatives, offering open access to data-driven decision-making. The policy also emphasizes support for locally driven solutions, particularly within self-reliance initiatives such as Atma Nirbhar Bharat, while bringing together established knowledge systems alongside contemporary technological developments.

Objective

- Assess the integration of STEM education, NEP 2020, and the STI Policy to enhance sustainability-focused education and ensure effective implementation.
- Develop practical experiential and activity-based learning approaches that inculcate sustainability awareness from an early age.
- Discuss science and innovation-driven solutions to support grassroots participation, traditional knowledge systems, and self-reliance in sustainability efforts.

Summary of the Presentations and Discussions

The session was moderated by **Mr. Dilip Surkar, Executive Director, VASCSC.**

"ATTITUDE ABILITY APPROACH 3As THE PILLARS OF SUSTAINABILITY EDUCATION"

Dr. T. Ramasami, former Secretary, Department of Science & Technology, Govt. of India, while chairing the session, highlighted that policies are instruments of change rather than the cause of it. However, their effectiveness depends on a shift in attitudes rather than mere adherence to regulations. In this context, a narrow approach to sustainability education often reduces it to environmental concerns. Instead, integrated learning must take precedence, ensuring students are prepared to think holistically rather than as specialists in narrow domains.

He mentioned the three A's—Attitude, Ability, and Approach—as the pillars of sustainability education, reinforcing that fostering the right mindset from early education is more valuable than excessively focusing on standalone disciplines. While NEP 2020 and the STI Policy include promising elements, their success depends on implementation at the grassroots level. Earlier policies focused on social integration; a principle still relevant today. Without fostering inclusivity in education, national unity and sustainability efforts won't bear fruit. The STI Policy 2020, though still in its early stages, seeks to move toward a more interconnected and accountable innovation system. Overall, real progress in integrating sustainability comes not from a radical overhaul but through steady, thoughtful evolution, mirroring how nature adapts over time.

Dr. B.C. Sabat, Former Director, Mahatma Gandhi Institute for Combating Climate Change, Govt. of Delhi, reflected on his tenure in the Delhi government, where initiatives like Eco Clubs sought to integrate environmental education with STEM learning. While structured academic programs exist, translating knowledge into consistent, real-world action is challenging. Waste disposal, air pollution, water conservation, and other environmental issues continue to be thorns in the flesh, not due to a lack of understanding but because behavior does not align with education. Contrasting India's approach with other nations, he cited Japan's emphasis on early-stage environmental awareness. In Japan, sustainability concepts are introduced at the kindergarten level, whereas in India, environmental responsibility is often introduced at a stage when habits have already formed.

Dr. Nisha Mendiratta, Executive Director, Indo-US Science & Technology Forum, spoke about the central role of research and innovation in national progress. Developing nations are now aligning with this approach, recognizing that research alone is insufficient without innovation, which turns scientific discovery into practical benefits. STEM education, the National Education Policy (NEP), and the Science, Technology, and Innovation (STI) Policy are interconnected, forming the basis of a knowledge-driven society. She provided an example of a young innovator who built a robot to assist his ailing grandmother, demonstrating how scientific curiosity, social responsibility, and problem-solving intersect in meaningful ways.

Science education must extend beyond theoretical knowledge to include ethical, social, and emotional intelligence, ensuring that innovation remains human-centered.

Mr. Chander Mohan, Former Director, Vigyan Parasar, DST, Govt. of India, described the severe environmental and health crisis in Punjab's agricultural regions. The "Cancer Express"—a train carrying patients to Bikaner for treatment—is a telling proof of the catastrophic impact of agricultural malpractice. With nearly every family affected, the region faces not just pollution but irreversible poisoning of its soil and water. Despite extensive policy discussions on STEM, NEP, and the STI Policy, their impact is limited in communities where survival is at risk. Political inaction and a lack of localized engagement have kept these policies disconnected from ground realities. Scientific knowledge serves little purpose unless effectively communicated to those most affected.

He pointed to reaching young learners to instill awareness that can influence their families' choices in the region. However, the widespread aspiration to migrate abroad, particularly to Canada, further weakens the region's ability to recover. Without urgent intervention, the land will continue deteriorating, making it increasingly uninhabitable for future generations. Crises such as this position sustainability not as an academic concept but as an urgent necessity—one that demands action beyond policies and frameworks.

Audience Interaction

Q. How do you justify that all research should benefit society when many discoveries, like the Raman Effect, had no immediate application?

Dr. Mendiratta explained that research follows a natural progression—from fundamental science to R&D, innovation, and eventual societal application. India's science policy has expanded accordingly, shifting from a pure research focus (1958) to innovation-driven, application-based advancements today. All scientific knowledge forms the foundation for future progress, influencing advancements in ways that may not be immediately apparent.

Dr. Ramasami added that basic research remains essential even when its applications are unknown for decades. Science progresses through multiple layers of contribution, and while researchers may not witness the practical use of their work, it eventually becomes part of broader scientific advancements. He further distinguished between science and technology, stating that science itself is not a political activity, but technology carries political consequences.

Q. Why has engineering education not changed despite advancements, leaving students disengaged? How can universities improve mentoring and faculty expertise while adapting to the shift toward IT, and should undergraduate programs be broader instead of rigidly specialized?

Dr. Ramasami acknowledged that education policies, including NEP 2020 and science policies, serve as instruments for change by providing a structured framework, but transformation must occur at the societal level. Sustainability education must be integrated at the primary and middle school levels where character formation take place, instead of restricting it to tertiary education and technical disciplines.

Q. How can teachers be encouraged to see the value of sustainability education rather than viewing it as an additional burden?

Dr. Ramasami suggested that rather than implementing top-down mandates, teachers should be given the freedom to creatively incorporate sustainability into education, keeping them motivated. Teaching methods should inspire engagement rather than enforce compliance, allowing students to observe, reflect, and learn naturally. Sustainability education should not be framed as an additional burden but as an organic part of the learning process, where teachers, parents, and society collectively contribute.

Q. What role does activity-based learning play in making sustainability a natural part of early education, and how can it be effectively introduced at the primary level?

Dr. Ramasami strongly supported activity-based learning in early education because children learn best through real-world engagement, not just theoretical instruction. Sustainability must be introduced at a young age using methods that connect students to nature and practical experiences rather than making it a formal, exam-based subject. Therefore, early education must balance sustainability awareness with socio-economic realities, ensuring that sustainability is not just an academic lesson but a meaningful, relatable part of daily life.

Q. Why does a gap persist between awareness and practice in grassroots communities despite sustained efforts and government interventions, and how can sustainability become a lived experience rather than just a theoretical concept?

Dr. Ramasami remarked that sporadic green movements help create momentum but do not constitute actual solutions. Government efforts alone cannot resolve sustainability challenges, as large-scale change requires collective action. Rather than imposing external scientific solutions, indigenous knowledge must be respected and applied, ensuring that sustainability is adapted to local contexts. To close the gap between policy and action, sustainability education should be leveraged as a tool for practical engagement rather than just awareness. It must become interactive and experience-based so that communities actively participate in sustainable practices. By integrating sustainability into daily activities, traditional knowledge, and locally relevant approaches, it can shift from being a concept to a way of life.

Outcomes

- **Discussion on policies on sustainability education:** The session explored how STEM education, NEP 2020, and STIP 2020 align to create a framework for environmental awareness and action.
- **Challenges in translating policy into grassroots impact identified:** Despite structured initiatives, real-world implementation gaps persist, particularly in rural and underserved communities.
- **Need for integrating indigenous knowledge with modern science was highlighted:** Discussions affirmed that traditional ecological practices should be incorporated into sustainability education and policy.
- **Educators' role in shaping sustainability mindsets was outlined:** The discussion revealed that teachers should be engaged as active participants in sustainability education.

Recommendations

- **Integrate sustainability education into STEM curricula:** Institutions should include hands-on projects, interdisciplinary approaches, and real-world problem-solving in STEM education.
- **Strengthen the execution of sustainability policies at the ground level:** Government initiatives should be supported by localized action plans, ensuring policy impact reaches rural and underserved communities effectively.
- **Expand activity-based sustainability learning at the primary level:** Early exposure to sustainability concepts through experiential methods can instill long-term environmental awareness and responsible behavior.
- **Enhance collaboration between academia, industry, and policymakers:** Public-private partnerships should be leveraged to introduce sustainability-driven innovations and provide funding for applied research in environmental fields.
- **Promote STEM disciplines related to sustainability to counter the IT-dominant trend:** Schools and universities should highlight the relevance of core environmental sciences to future career opportunities to retain student interest.

WATER CONSERVATION: AN INTEGRAL ASPECT OF SUSTAINABILITY EDUCATION

SUSTAINABILITY SAMVAD 1

DR. RAJENDRA SINGH

Magsaysay Awardee, 'Waterman of India'
& Chairman – People's World Commission on Drought and Flood

Dr. Rajendra Singh, renowned as the 'Waterman of India,' is a Magsaysay Award-winning environmentalist and water conservationist. He is the Chairman of the People's World Commission on Drought and Flood, where he leads global initiatives on water management and climate resilience. Dr. Singh is celebrated for his pioneering work in reviving traditional water management systems in India, particularly in Rajasthan, where his efforts have restored rivers and brought water security to drought-prone areas. His work has earned him international acclaim, positioning him as a leading advocate for sustainable water practices and environmental stewardship.

Dr. Ashutosh Tiwari is a recognized authority in academia, research, and green innovation. He is the founding global president of the International Institute of Water (IIW) and founder director at Institute of Advanced Materials, Sweden. He is also the Secretary-General of IAAM, a non-profit scientific research organization with over 100,000 members from more than 150 countries and holds the position of Secretary-General for the People's World Commission on Drought and Flood. His academic journey includes a DPhil in Science and a DSc (Docent) in Applied Physics, specializing in biosensors and bioelectronics. He has held roles as a scientist, adjunct professor, and expert in various countries, including USA, UK, Sweden, India, Japan, and China. Dr. Tiwari has received numerous prestigious fellowships, such as the Marie Curie Fellowship of European Commission, JSPS Fellowships of Japan, and High-End Foreign Talents recognition from China. He has made significant contributions to sustainable innovations in materials science and nanotechnology. His book, "Rolling Out Climate Neutral Materials & Sustainable Innovations" was launched at COP28 in Dubai.

DR. ASHUTOSH TIWARI

Founder Director, Institute of Advanced Materials, Sweden

Water Conservation: Sustainability Education Facet

The Sustainability Samvad, part of the 6th International Conference on Sustainability Education (ICSE 2024), began with inviting individuals recognized for their impactful contributions to sustainability. The event explored diverse perspectives and practices in environmental stewardship, focusing on addressing global challenges like climate change and resource conservation while celebrating the knowledge and achievements of participating leaders.

Sustainability Samvad-1 was a dialogue between Dr. Rajendra Singh and Professor Ashutosh Tiwari. The discussion brought together their diverse expertise in water conservation and sustainable materials to explore solutions for a sustainable future.

Dr. Rajendra Singh described climate change as a fever afflicting the Earth, citing its devastating impact on weather patterns and traditional farming. He illustrated how unseasonal rains disrupt farmers' lives, causing uncertainty in sowing and harvesting cycles.

Dr. Singh critiqued modern science for its detachment from real-world contexts. He noted that science researchers often focus narrowly on data without addressing practical implications, advocating instead for *"science with sense"* that integrates common sense with scientific inquiry. Sharing insights from ancient times in Rajasthan, he recounted how Jaisalmer, one of the world's driest regions, sustained a thriving camel trade route despite receiving less rainfall than the Sahara Desert. He retorted if modern science can help replicate the feat of providing water for 1,500 camels daily, emphasizing the power of traditional knowledge systems.

Further, he discussed the interdependence of water and natural ecosystems and the role of maintaining natural processes in sustaining water cycles, elaborating on how vegetation supports microcloud formation, attracts larger clouds, and facilitates rainfall.

Turning to education, Dr. Singh criticized its disconnection from sustainability, questioning whether systems focused primarily on job creation could genuinely instill sustainable practices. He emphasized the importance of knowledge, rooted in Indigenous Knowledge Systems, as a foundation for sustainability. *Referring to Indian philosophies like चरेवेति चरेवेति (charaivati charaivati, eternal movement) and सनातन (Sanatan, perpetual existence), he called for reforms that prioritize harmony with nature over materialistic goals.*

Reflecting on his journey, Dr. Singh recounted his experience with an old villager, Mangu Kaka, who guided him in understanding practical water management. Through observing dry wells and tree growth, he learned to identify confined vertical fractures and their significance in sustaining water resources. This hands-on learning, he noted, was more meaningful than conventional academic degrees.

Dr. Singh shared concerns about India's overdrawn underground aquifers, which stand at 62%, warning that continued depletion could lead to Indians becoming climatic refugees within five years. He called for adopting traditional wisdom to mitigate such crises and emphasized the urgency of aligning human actions with nature's processes.

Pitching in, **Professor Tiwari** acknowledged the foundational context provided by Dr. Rajendra Singh and shared more on his role as Secretary General of the People's World Commission on Drought and Flood, where he collaborates with international experts to address water issues, including irregularities in the global water cycle. He highlighted a

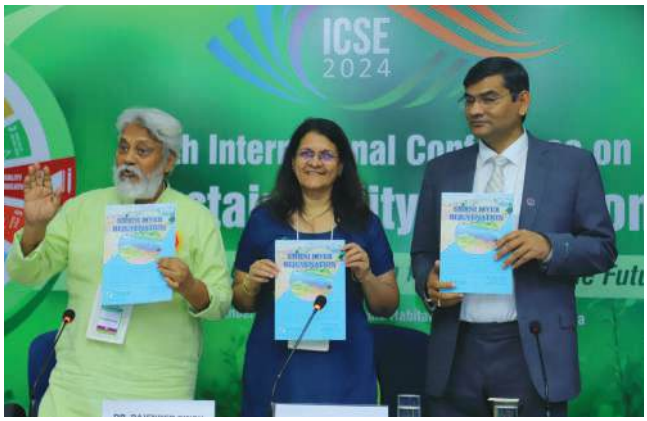
pivotal moment when the United Nations General Assembly formally recognized the grave risks of droughts and floods.

As part of his contributions to climate resilience, Professor Tiwari is the author of *"Rolling Out Climate Neutral Materials & Sustainable Innovations: Materials Science and Technology Handbook for Climate-Resilient Innovations and Achieving Net-Zero Milestones,"* scheduled for release at COP28 in Dubai. This work highlights his dedication to advancing sustainability and fostering green innovations.

Professor Tiwari also emphasized the collaborative ethos of the People's World Commission on Drought and Flood, which fosters partnerships to address global water challenges. *He concluded his address with an inspiring message: "We are all water, both physically and symbolically." He called for collective responsibility and collaboration and expressed confidence in the audience's ability to bring about change. Ending with a heartfelt "Let's work together," he left the audience motivated to engage in creating sustainable and climate-resilient solutions for the future.*

Dr. Singh also discussed the efforts of the People's World Commission on Drought and Flood (PWCDF) and its recent accomplishments. He mentioned the Second Annual Activity Report, which documented impactful activities across 75 countries and engagement with nearly 2 million people over the past two years.

Ms. Vinitaa Apte, Founder, Terre Policy Centre, Pune, was present during the event, and her book, *"Sairni River Rejuvenation,"* was formally released. The book documents the remarkable work of the Sairni River Rejuvenation Project in Rajasthan, a transformative initiative that revitalized the river and brought sustainable development to the region. Dr. Singh praised the book for shedding light on how communities came together to create impactful solutions to water challenges.



The Sairni River Rejuvenation Project achieved incredible milestones, including the construction of 15,800 small dams, which enabled barren lands to be transformed into fertile fields. This effort led to the rejuvenation of 23 tributaries of the Chambal River, with 9 rivers now flowing year-round despite record-low rainfall. Dr. Singh emphasized the economic transformation in villages like Mathara, Bhur Kheda, Kori Pura, and Maharaj Pura, where modest investments of 14-15 lakh INR resulted in an astounding 30 crore INR in community income.

Dr. Singh highlighted the broader social transformation tied to these efforts, sharing that 3,000 former dacoits in the Chambal region abandoned their guns and turned to sustainable agriculture, fostering peace and prosperity. He mentioned documentaries such as *"Chambal Ke Baaghi Bane Kisani"* (Bandits Turned Farmers in Chambal) and *"Water and Peace,"* which further underline the impact of these efforts. Dr. Singh also mentioned how such community-driven efforts prioritize societal well-being over corporate profit motives. Lamenting the modern shift from "Shubh" (goodwill) to "Labh" (profit), he called for a return to values that center on collective welfare and harmony with nature.

SUSTAINABILITY: MEANING AND ITS REAL-WORLD APPLICATION IN EDUCATION

SUSTAINABILITY SAMVAD 2

DR. VINITA APTE

Founder Director, TERRE Policy Centre

Dr. Vinita, founder of TERRE, started this NGO with a motto “To think is good but to act is better”. She has developed more than 10 forestries on high mountain ranges through the PPP (Public-Private Partnership) model. With a strong communication background, she was working as a consultant in the United Nations Environment Programme, Paris and developed Media Strategy, Outreaching strategy for social media, implemented the PPP model. Dr. Apte represented India in many international conferences on climate change.

Mr. Jean Paul, a passionate climate advocate with biodiversity conservation and agricultural sciences expertise, was the second speaker. His academic credentials include a Master’s in Agricultural Sciences and a Bachelor’s in Natural Resources. His work addresses deforestation and promotes environmental education in Congo, particularly through advocacy for loss and damage funding mechanisms. His dedication to conservation and education has made him a prominent figure in the environmental field.

MR. JEAN PAUL BYA’UNDAOMBE

Country Coordinator of C. NetZero Organisation, Democratic Republic of Congo

Insights shared by Dr. Vinitaa Apte

Dr. Apte began her address by emphasizing the need to shift from theoretical discussions to concrete action. Her structured approach to sustainability is encapsulated in the "SUSTAIN" framework:

Streams: Protecting smaller water bodies ensures the health of entire ecosystems, culminating in the sustainability of oceans.
Urbanization: Addressing rural migration by fostering sustainable livelihoods in villages can mitigate the swelling of urban centers and promote balanced development.
Solar Power: Countries like India and Africa, rich in sunlight but resource-constrained, can harness renewable energy through investments from wealthier nations.
Technology: Innovations designed to combat climate change can lead to transformative environmental outcomes.
Air Pollution: Adopting energy-efficient lifestyles, rather than relying heavily on appliances like air conditioners, can significantly reduce pollution levels.
Innovation: Empowering younger generations to develop creative solutions and technologies is critical to ensuring a sustainable future.
Nature: Prioritizing protecting and nurturing natural ecosystems guarantees long-term benefits for humanity.

Mr. Jean Paul Bya'undaombe's Perspective

Mr. Jean Paul shared an insightful account of his organization's "GREEN SCHOOL" initiative, a project that has embedded environmental education into the foundational years of schooling in the Democratic Republic of Congo (DRC). He began by explaining the context of environmental degradation in the DRC, emphasizing the widespread destruction of forest ecosystems. Reflecting on this critical issue, *C. NetZero observed that basic education often lacked a focus on environmental values, with many individuals encountering these concepts too late in life.*

He highlighted the initiative's specific objectives, which include training students to produce and plant trees, restoring school grounds, raising environmental awareness within local communities, and teaching practical environmental skills. These activities aim to empower participants to combat climate change and conserve natural resources. He presented examples from schools like Bichombo, Miramba, Kibati and Hodari, where students planted fruit trees and established green belts. The initiative has yielded significant results:

- 10 schools were selected as beneficiaries, with 137 hectares of school grounds and 163 hectares of community land reforested.
- More than 750,000 seedlings have been produced and distributed across local communities.
- Among the 2,507 students who actively participated in the initiative, 675 were girls, making up 27% of the participants. Similarly, of the 80 teachers trained under the program, 27 were women (33.75%), reflecting the focus on gender inclusivity while sustaining the program efficiently.
- 25 environmental ambassador clubs have been formed, spreading advocacy and knowledge among students and beyond.

Mr. Jean Paul emphasized the importance of persistence and collaboration, stating that these challenges underscore the need for a unified and coordinated effort to drive meaningful progress.

PERSPECTIVES ON PLASTIC POLLUTION

SUSTAINABILITY SAMVAD 3

DR. VIMAL KATIYAR

Professor & Dean of Research and Development, IIT Guwahati

Dr. Vimal Katiyar is a leading figure in sustainable polymers and nanomaterials. He is a professor at IIT Guwahati and the Dean of Research and Development. With a postdoctorate from the Technical University of Denmark, a Master's in Chemical Engineering from IIT Kanpur, and a PhD in Polymers and Nanomaterials from IIT Bombay, Dr. Katiyar's academic journey is remarkable. He leads the Center of Excellence for Sustainable Polymers at IIT Guwahati, chairs the Northeast Chapter of the Society for Polymer Science, India (SPSI), and is the Chair Professor under the MP Birla Group of Companies. Additionally, he is a Senior Fellow at the Kyoto Institute of Technology.

Prof. Janewit Wannapeera is a prominent researcher in energy technology. Currently a lecturer at the School of Agricultural Engineering at Suranaree University of Technology, Thailand, Prof. Wannapeera's career includes a tenure as a researcher at the Institute of Advanced Energy, Kyoto University, Japan, from 2015 to 2018. His academic credentials include a PhD in Energy Technology from King Mongkut's University of Technology Thonburi (KMUTT), Bangkok, in 2012, an M.Sc. in Energy Technology in 2008, and a Bachelor's degree in Agricultural Engineering in 2003. Prof. Wannapeera's extensive publications further underscore his contributions to the field.

PROF. JANEWIT WANNAPEERA

Lecturer, School of Agricultural Engineering, Suranaree University of Technology, Thailand

Dr. Vimal Katiyar began the session by welcoming the audience and introducing the session's focus: *the triple planetary crisis, which encompasses pollution, biodiversity loss, and climate change*. Highlighting the significance of plastic pollution within this context, he emphasized its role as a case study for understanding these interlinked challenges. A systems-based perspective, he noted, is consequential for addressing the environmental and ecological imbalance caused by plastics. He described the relationship between human society and the Earth through the analogy of a system and its surroundings. He likened society to a "system" generating waste and the Earth, or the "surrounding," to the entity responsible for regenerating that waste. Regeneration, in this context, refers to the Earth's natural processes for breaking down and recycling waste. This includes mechanisms like the decomposition of organic materials, absorption of pollutants by ecosystems such as forests and oceans, and recycling of nutrients within the biosphere to sustain life. These processes form the foundation of Earth's ability to maintain ecological balance.

THINK ABOUT IT!
HOW MANY PLASTIC ITEMS HAVE YOU USED SINCE MORNING?

Prof. Wannapeera began his segment with an engaging exercise, asking students to think how *many plastic items they had used since morning. He further questioned whether they could identify the types of plastics they had encountered. Recognizing that this awareness is often lacking, he emphasized the critical role of educators in enabling students to answer four fundamental questions on plastic usage: What type of plastic is it? Which plastics generate profit? Which ones produce energy? And which ones are used to create materials?*

He highlighted that while academics frequently teach the science of polymers, PPE, and other plastic-related topics, the real-world impact of this knowledge remains uncertain. Talking about Thailand, he described campaigns that involved collaborations between universities and private companies to tackle single-use plastics. At Minimat University, for example, a strict ban on single-use plastics initially drew complaints from students and staff. However, within a few months, the community adapted, shifting to reusable bags and demonstrating how education and social awareness can drive meaningful change.

Prof. Wannapeera contrasted this with *Japan, where public trash bins are scarce due to their removal after the 1995 Sarin gas attacks. Despite this, Japan's cities remain exceptionally clean because of a cultural norm where individuals take responsibility for their waste, carrying it home for proper disposal.* He explained that this practice, rooted in societal awareness and discipline, contrasts sharply with the casual waste disposal habits in

Thailand, where bins are readily available.

He also touched on the role of scientific innovation, citing the development of bioplastics as a promising solution to reduce environmental impact. He highlighted the efforts of professors and researchers who developed bioplastics, such as straws made from bagasse (a sugarcane-derived fibrous material), as part of campaigns to reduce plastic usage. While these campaigns initially gained traction, with an increase in the use of bioplastic straws during the first few months, consumption dropped substantially over time.

He explained one critical reason for this decline: the functional shortcomings of bioplastic products. For instance, when using a bioplastic straw to drink beverages like coffee or juice, the liquid gets absorbed into the material, altering the taste and making the experience less enjoyable. *This mismatch between product performance and consumer expectations has posed a significant barrier.*

Mr. Katiyar brought the discussion to the Indian perspective on plastic use and management, emphasizing the country's rapid adoption of measures to address plastic pollution. *He highlighted the government's decisive step three years ago to ban 14 single-use plastic items, including straws.* In response, the market quickly introduced alternatives such as paper-based and synthetic polymer straws. Compostable plastic straws have also become a common sight in establishments like Starbucks, marking a shift towards more sustainable materials.

He acknowledged Thailand's advancements in biodegradable polymers, citing the country's successful establishment of an 80,000-metric-ton pilot plant producing polymer-based biodegradable materials. He revealed that a similar plant is developing in Kargil, showing how lessons from Thailand are informing India's efforts in this domain.

Turning to India's progress, Mr. Katiyar emphasized that while eliminating plastics may not be feasible immediately, the country is promoting green and eco-friendly plastics. He mentioned that *Balrampur Chini, an Indian company, is building a facility to produce biodegradable plastics with an estimated capacity of 100,000 metric tons.* These developments signal India's growing efforts to address plastic pollution through innovation and sustainable practices.

Mr. Katiyar also detailed the characteristics and lifecycle of plastics, particularly emphasizing the common types like polyethylene and polypropylene. He explained that these plastics are valued for their performance and usability in specific applications. However, when it comes to compostable plastics, the fundamental difference lies in their post-service lifecycle. While their application for the public may seem similar to conventional plastics, compostable plastics break down into carbon dioxide through natural processes after use, returning the carbon content to nature in an environmentally friendly way.

While biodegradable plastics are emerging as a new class of plastic, these are not singular in type but encompass thousands of variations. This diversity presents a monumental challenge: how to manage these materials effectively at the end of their lifecycle. Mr. Katiyar pointed out that even with civic sense and discipline like in Japan, the critical question remains: **WHAT ULTIMATELY HAPPENS TO PLASTIC?** The dilemma of managing plastic waste, particularly through methods like incineration. While burning plastics may seem easy, it produces carbon dioxide, contributing to environmental concerns. This tells us about the complexity of finding sustainable ways to handle plastic waste, as even seemingly straightforward solutions have broader implications.

Mr. Katiyar delved into the origins of conventional plastics, explaining that over 99% of plastic is made from chemicals sourced from fossil fuels. He pointed out that fossil fuels account for more than 75% of all greenhouse gas emissions, making plastic production directly tied to annual increases in greenhouse gas emissions. This connection between fossil fuel-based plastics and environmental harm highlights the broader need for transition to green energy sources like hydrogen, solar, and wind energy, which have a lower carbon footprint and less impact on the climate.

While plastic production significantly contributes to carbon emissions, he cautioned that plastics are not the sole culprit in environmental degradation, but they remain a major concern due to their lifecycle. *Microplastics, which break down into tiny particles, infiltrate ecosystems and even human bodies.* Citing various reports, he noted the alarming presence of microplastics in human blood and other organs, raising potential health concerns. This emphasizes the urgent need for green technologies and systemic changes to mitigate plastic pollution. Even with efforts like recycling plastics or repurposing them for roads or bricks, tiny particles continue to seep into the environment through air, water, and soil.

He suggested that one solution could be to address the issue at its source, particularly in everyday household items like clothing, many of which are made from plastic. At this point, the *Principal of Mobius-supported Gyananand Vidyalaya illustrated their school's initiative to combat plastic waste. They collected 80 kg of plastic, which was sent to a recycling plant in Dasna, where it was recycled into benches, bottles, tables, and uniforms. The Principal remarked, "If we start with the children, they are the roots of the nation. If they learn how to deal with these problems, I believe that in the future, these issues will be sorted out.* These small steps matter."

Prof. Wannapeera offered a balanced perspective, cautioning against the tendency to vilify plastic entirely. He explained that while plastic has environmental drawbacks, it remains a crucial material for various industries. Eliminating its use outright, he noted, could lead to the collapse of the plastic industry. The solution lies in reducing its usage, adopting proper practices, and focusing on recyclable plastics.

An audience member then shared their thoughts:

WE ALREADY HAVE SOLUTIONS FOR PLASTIC; THE PROBLEM IS OVERCONSUMPTION.

"Instead of creating new types of plastic, we should focus on reducing what we use. In communities, people are aware of what they should be doing, but they need cooperation from all stakeholders. We need to work with existing plastics, not keep producing more. If we do this, plastic pollution will be minimized."

Mr. Katiyar agreed and shared insights into FSSAI's focus on creating packaging regulations to reduce plastic consumption. He emphasized the value of region-specific, eco-friendly solutions, citing the traditional use of banana leaves to serve masala dosa in southern India as an example. Such practices, he suggested, could be integrated into food contact material standards to help minimize reliance on conventional plastics.

Concluding the discussion, Mr. Katiyar reminded the audience: *"We need to be aware of how we use plastic. Use it carefully so it doesn't go to waste."*

OCEAN LITERACY

SUSTAINABILITY SAMVAD 4

MS. RAQUEL COSTA

Ocean Literacy Consultant, IOC-UNESCO, Paris

Ms. Raquel Costa is a Marine Geologist with experience in ocean education. Over the past six years, She has been the head of the Portuguese Blue School network, where she has been deeply involved in promoting ocean literacy initiatives. Additionally, since 2021, she has been a co-coordinator of the All-Atlantic Blue School network, working to expand ocean education efforts across borders. Her expertise lies in ocean teacher training and developing educational resources to foster a deeper understanding of the marine environment. Furthermore, she contributes as a reviewer for ocean literacy papers. She is an IOC Ocean Literacy Group of Experts member who actively shapes global ocean literacy strategies and initiatives. She is also a consultant for IOC-UNESCO, with the objective of establishing the Global Blue School Programme. In parallel, she is pursuing a PhD in Science Education focusing on Ocean Literacy, aiming to advance her knowledge further and contribute to the field.

Ms. Shweta Naik is the Executive Director of the Jane Goodall Institute, where she leads the organization's efforts in wildlife conservation, environmental education, and community-driven sustainable development. With a strong background in environmental advocacy, Ms. Naik has worked extensively in biodiversity protection and human-wildlife coexistence. Under her leadership, the institute continues to expand its impact, focusing on habitat restoration, youth empowerment through environmental education, and the promotion of ethical wildlife practices. Ms. Naik is committed to advancing Dr. Jane Goodall's legacy by fostering a harmonious relationship between people, animals, and the environment.

MS. SHWETA NAIK

Executive Director, Jane Goodall Institute India

WERE YOU TAUGHT ABOUT THE OCEAN, WHILE GROWING UP?

Ms. Shweta Naik commenced the session by reiterating the importance of the sea in our lives. Although it is distant and disconnected from many of us, it immensely impacts us all, regardless of geographical location. To ease into the theme of ocean literacy, she then invited **Ms. Katie Bagli** to guide the audience through a vivid, imaginative journey to the ocean. Ms. Katie Bagli then *led the audience through a meditative visualization, capturing the ocean's vastness, the rhythm of crashing waves, and the serenity of the underwater world.* Following this immersive exercise, **Ms. Raquel Costa** *asked the audience to reflect on their feelings and what the ocean meant to them. Some shared feelings of calmness, peace, and a connection to nature. Ms. Costa then linked this exercise to ocean literacy, emphasizing that emotions and engagement are key to understanding the ocean.*

She threw light on the origins of ocean literacy, which began in the early 2010s in the United States when schools weren't addressing the ocean in their science curricula. This prompted a movement led by scientists and educators to identify the main principles of ocean literacy and incorporate them into schools. Initially, the focus was solely on ocean science, but the concept has evolved. Today, ocean literacy involves forming a deeper emotional connection with the ocean. This connection must be holistic and interdisciplinary, with practical knowledge to drive meaningful change.

Ms. Shweta asked the audience if they were taught about the ocean while growing up. After hearing responses, she pointed out that despite living near the sea, most people, including her generation, had a limited understanding of the ocean's deeper connection to humanity. This realization led her to launch the **"Oceans Are Us"** program in India. The program's theme, *"Open your heart, let the ocean in,"* underscores the need for a deeper understanding of the ocean's significance.

Ms. Costa shared that despite her deep personal connection to the ocean, it was not part of her school education. As a marine geologist, Raquel's career led her to explore the depths of the ocean, where she had extraordinary experiences such as diving in submersibles and observing bioluminescent creatures. However, she soon realized that students were not taught about the ocean's deeper aspects, such as the extension of the continental shelf or the diverse marine life beneath the surface. This realization prompted her to develop a toolkit for teachers to help better educate students about the ocean. However, by 2010, she recognized that short-term activities weren't enough to create lasting change. This led to the **Blue Schools** program focusing on ocean-related issues year-round. *Through active engagement with the ocean—such as visiting beaches, cleaning up, and interacting with marine professionals—students began to form a deeper connection with the sea, fostering meaningful change.* She emphasized the importance of not just learning but turning that knowledge into action, urging the students to do the same.

Ms. Shweta left the audience with food for thought, urging them to view the ocean as a test of humanity's responsibility rather than just a resource or a solution to climate change. She closed with: *"Ask not what the ocean can do for you, but what you can do for the ocean."*

YOUTH CONCLAVE & YOUTH FOR EARTH AWARD CEREMONY

PLENARY 6

"Youth are central in achieving a more sustainable and healthier planet. Young people have a special role in instigating change and action on the pressing global challenges. Equally, they are pivotal to finding innovative solutions that speak to local and global realities."

—The United Nations Environment Programme (UNEP)

The large and growing global youth population, particularly in the Global South, including countries like India, is expected to increase stress on natural resources and create a higher demand for rapid job creation. In India, more than 50% of the population is below the age of 25, and over 65% is under the age of 35. Youth and children are particularly vulnerable to the impacts of climate change, placing them at the epicenter of the climate crisis, sustainable development initiatives, and making them a key audience for sustainability education.

The Youth Conclave at the 6th International Conference on Sustainability Education was designed to engage and empower youth for climate action. It brought together leading youth voices, educators, and ecosystem enablers in the field of sustainable development. This session was divided into two parts: the first part focused on a panel discussion, while the second part featured the Youth for Earth Award Ceremony.

PART I: Panel Discussion: Greening Education—Practical Experience, Challenges and Opportunities Impacting Youth Engagement in Climate Action

The discussion highlighted key motivations that drive youth toward leadership in sustainable development and how their early, high school, and undergraduate education empowered them. It also brought out key insights from youth leaders and educators on how effectively the existing curriculum design at the school and undergraduate levels addressed sustainable development and environmental education.

Objectives

- To encourage and involve young minds to develop and implement green action-based projects in their campus and communities.
- To build the environment, sustainable literacy & leadership skills among young minds for taking and promoting green action.
- To showcase and celebrate the positive impacts made by young changemakers in their communities and beyond.
- To provide a unique platform for young sustainability leaders to network and showcase their innovative projects and ideas.

Ms. Priyanka Sharma, Head, Projects & Partnerships, Mobius Foundation, Moderator of the

session, initiated the session by quoting Vladislav, a member of the UN Secretary-General's Youth Advisory Group on Climate Change. *"I think it would be beneficial for youth today to demand more from educational institutions—not only universities but also high schools and vocational or technical institutions. These institutions need to provide young people with the skills to succeed in the job market while pursuing careers with a green purpose. As a generation, we feel insecure on both counts."*

Ms. Tanya Singhal, Founder & Director, Mynzo Carbon, Keynote Speaker of the panel, covered several key points on how the Earth sustains life, from temperature regulation to the role of stabilizing gases like carbon dioxide and methane in enabling habitable conditions. However, human activity has disrupted this equilibrium, with rising greenhouse gas emissions pushing the planet beyond its natural state.

Ms. Singhal shared five essential elements for impactful climate action:

1. **Awareness** – Understanding the scale of the crisis and recognizing individual contributions to it.
2. **Skilling** – Gaining expertise in sustainability fields such as renewable energy, green finance, and climate technology.
3. **Using One's Voice** – Engaging in conversations that influence communities, workplaces, and policy decisions.
4. **Innovation** – Leveraging technology and creative solutions to build a more sustainable future.
5. **Action** – Making everyday choices that collectively lead to meaningful impact.

Summary of Discussions and Presentations

Q. How prepared are undergraduate and master's students for careers in the green economy, and what changes are needed in education to align with the sector's evolving demands?

Ms. Singhal highlighted that India is expected to create 35 million green jobs by 2047, spanning renewable energy, electric vehicles, waste and water management, circular economy, and sustainable finance. *A common misconception is that green jobs are limited to CSR work or non-profit organizations. However, green jobs are integral to various industries. India's 200 GW of renewable energy generation is possible only because of skilled professionals in green jobs.* Unlike coal plants that may eventually shut down, solar and wind energy will continue expanding, ensuring long-term career opportunities and financial stability.

These careers also offer a sense of purpose—the assurance that one's work is not just about personal advancement but also about contributing to a larger global cause. But a yawning skills gap exists and it must be addressed through strong policy interventions that adapt educational programs to integrate green skills across all disciplines—whether engineering, commerce, or the arts—ensuring sustainability becomes second nature to students and professionals.

Q. How did you choose a green career path, and how could your school and bachelor's experience have better prepared you for your chosen green career path?

Mr. Vipito Achumi, Mobius Young Professional, Dimapur, Nagaland, shared that he started his green career later than he would have liked, attributing the delay to a lack of awareness—

not environmental awareness, but career awareness. Even though he studied in a school that nurtured his love for nature, a career in sustainability never crossed his mind.

While students often understand environmental issues, they are rarely informed about professional opportunities in the green sector. It would have made a significant difference if schools and universities had actively introduced students to green careers, their scope, and their potential. Making sustainability-focused careers a mainstream option would give students the knowledge and direction to consider these paths earlier.

Q. Sneha, what motivated you to pursue a green career, and in what ways could your school and bachelor's education have better prepared you for this path?

Ms. Sneha Shahi, PhD scholar, UNEP Plastic Tide Turner Ambassador, noted that environmental science was only taught until the fifth standard, limiting her exposure to sustainability. However, her teachers fostered critical thinking, helping her relate everyday observations—such as melting ice—to broader issues like glacier loss, even before climate change became a widely discussed subject. However, while her education provided strong theoretical knowledge, it did not fully equip her to translate it into real-world action.

This is where teachers and mentors can make a difference by guiding students to take their education beyond theory and apply it practically. India already has programs to bridge this gap, including teacher training initiatives and young trainer programs. *Educators, institutions, and organizations should step up and collaboratively establish incubation programs at the undergraduate level to help students stay engaged and develop skills in conservation, resource management, and policy integration. These programs could combine economics, environmental science, and education into a more cohesive framework. "Real progress lies in action,"* remarked Ms. Sneha.

WHY IS ENVIRONMENTAL EDUCATION ONLY TAUGHT TILL GRADE 5 IN INDIA?

Q. Olivia, given your experience at FEE and its Green School partnerships, what global best practices can better prepare, motivate, and enable students at the school and bachelor's levels for green careers?

Ms. Olivia Copsy, Director of Education at FEE, Copenhagen, shared that learning about sustainability in higher grades at school encourages specialization and critical thinking. Students explore environmental justice, systemic issues, and practical applications. However, limiting such deep engagement to this stage remains a concern. Critical thinking, problem-solving, and a strong connection to the Earth must be cultivated much earlier, in primary and secondary levels. Encouraging young learners to develop analytical perspectives and engage with environmental issues early on could influence how students approach sustainability.

Existing education models, such as the IB curriculum, incorporate these principles, which comprises a Theory of Knowledge course and mandatory community service projects to help students apply learning beyond textbooks. Rethinking prevailing educational models is necessary for developing intellectual depth and problem-solving. Making space for a bottom-up approach enables students and educators to drive curriculum shifts from within.

Q. Ms. Anubhuti, what are the key gaps and opportunities in the Indian education system for preparing and motivating students for sustainability? Additionally, how does the undergraduate level contribute structurally to this effort?

Ms. Anubhuti Mehta, Former Asstt. Commissioner, Kendriya Vidyalaya Sangthan, identified the following shortcomings in the existing framework of environmental education in schools and suggested measures for improvement.

1. Fragmented Curriculum Structure
2. Lack of Academic Pathways for Environmental Science
3. Minimal School-Community Collaboration
4. Exam-Oriented Pedagogy and Symbolic Awareness Initiatives
5. Underutilization of Technology in Environmental Education
6. Disjointed Educational Trajectory in Environmental Studies

Ms. Anubhuti Mehta also suggested that knowing individuals who have thrived in this field can help students recognize that environmental careers offer stability and growth.

Audience Interaction

Q. What immediate steps can the young minds take today to contribute to sustainability? We often talk about how the world will look in 2047, but we don't have time to wait. Action is needed today.

Ms. Tanya Singhal reiterated Sustainability should not be seen solely as a career choice but as something deeply fulfilling—a way of life that eventually becomes second nature by practicing mindfulness in personal decisions or professional endeavors.

Ms. Anubhuti Mehta added while activism and advocacy raise awareness, change requires structured learning that connects sustainability with academic and professional growth.

Q: How do we address the contradictions between environmental education, industry practices, and real sustainability efforts, especially in the context of corporate greenwashing, short-term environmental solutions, fundamental issues like hunger that hinder access to quality education, and the lack of foresight in anticipating the unintended consequences of today's environmental strategies?

Mr. Vipito reaffirmed the need to engage students early on through the example of the Himalayan Development Program with the Mobius Foundation. The program identifies young climate leaders not by prescribing fixed career choices but by recognizing potential and guiding them toward opportunities in green sectors. He highlighted indigenous knowledge as a solution to short-term environmental solutions. In the Northeast, communities historically managed without plastic, regulated resources effectively, and prevented environmental degradation. Incorporating these long-standing methods into modern frameworks allows for stronger long-term planning, reducing the risk of today's solutions becoming tomorrow's problems.

Ms. Tanya Singhal cautioned against unethical behavior such as greenwashing, financial manipulation, and superficial sustainability commitments. Performative actions done for visibility, like planting trees without ensuring their survival are no different from falsifying ESG data for compliance. No level of education justifies compromising ethics.

PART II: Youth for Earth Award Ceremony

This session served as the culmination event for the Youth for Earth (Y4E) Campaign. The ICSE session highlighted and distributed prizes to 10 winning projects from the campaign. Youth from the winning teams presented key outcomes of their projects.

Background of the Youth for Earth (Y4E) Campaign

The Y4E campaign was launched in 2020 as a partnership between the Mobius Foundation and The Climate Reality Project. The campaign invited innovative, youth-led projects focused on sustainability and climate action. In 2024, the Y4E campaign focused on "Greening Education for a Sustainable Future," which was the overarching theme of the 6th ICSE. This theme acknowledged the imperative to reorient educational practices and systems toward environmental consciousness and long-term sustainability.

Mr. Bhavesh Swami, Lead, Clean Energy Policy & Engagements, CRP, initiated the Youth for Earth Award Ceremony, an event that recognized on-ground environmental efforts. **Organized by the Mobius Foundation and The Climate Reality Foundation, the awards celebrated sustained contributions to ecological restoration and climate initiatives.**

Youth For Earth Prize Distribution and Winning Project Showcase

Mr. Aditya Pundir, Director, Climate Reality Project India & South Asia, set the context for the event by sharing an overview of The Climate Reality Project. The organization identified education as a viable tool to make a difference in this scenario and launched the Teacher Training Program and the Green Campus Program. The Green Campus Program ensured that sustainability became an everyday experience for students—solar panels, rainwater harvesting, and waste management were not just theoretical concepts but part of their school environment. This daily exposure fostered a sense of responsibility, leading students to take the initiative beyond structured activities.

The initiative's impact, driven by the Youth for Earth program, has transcended individual schools. Recognizing its potential, organizations nationwide have launched their own versions of the program. It has also expanded to Brazil, the United States, and multiple European nations, reinforcing that localized action can create ripple effects across borders.

As the event progressed, **Mr. Bhavesh Swami** facilitated the official winner announcements. **The awards were presented by Mr. Pradip Burman, Mr. Praveen Garg, Dr. Ram Boojh, Mr. Aditya Pundir, a distinguished jury of experts from Y4E, and other notable dignitaries such as Mr. Kartikeya Sarabhai, Dr. Benno Boer and Dr. Harsh Gupta.** They honored the winners with cash prizes, recognizing their outstanding green projects on the international platform.

YOUTH FOR EARTH AWARD WINNERS - JUNIOR CATEGORY

1ST PRIZE: PROJECT KRISHI KALYAN

Focus: Soil pH stabilisation for better crop yield

2ND PRIZE: PROJECT VAAYU

Focus: Sustainable cooling solutions using teracotta

3RD PRIZE: PROJECT ECO SAVIOURS

Focus: Deconcretization to free urban trees

1ST CONSOLATION PRIZE: PROJECT SRISHTI

Focus: Conversion of invasive *Lantana camara* into organic fertilizer and sustainable products

2ND CONSOLATION PRIZE: PROJECT 404

Focus: 45 acre afforestation and ecological restoration at Rajaji National Park

YOUTH FOR EARTH AWARD WINNERS - SENIOR CATEGORY

1ST PRIZE: PROJECT PLANET SIMULATORS

Focus: Digital simulation models for environmental restoration & disaster mitigation

2ND PRIZE: PROJECT WASTE TO WEALTH

Focus: Transforming pre-loved clothes into ecofriendly market bags

3RD PRIZE: PROJECT BEACH GUARDIANS

Focus: Coastal cleanup, awareness and ecotourism development at Bakkhali beach

CONSOLATION PRIZE: PROJECT DECENTRALISED WASTE MANAGEMENT

Focus: Campus-wide waste segregation, composting & sustainability efforts at Symbiosis Vimanagar campus (SVC-Old) and SCMS-P

SPECIAL PRIZE: PROJECT RESOURCE REVIVAL

Focus: Repurposing single-use plastic into cushioning material for cardboard cartons

PROJECT DETAILS OF JUNIOR CATEGORY WINNERS

1ST PRIZE - PROJECT KRISHI KALYAN

Focus: Soil pH stabilization for better crop yield

Project Brief: Project Krishi Kalyan introduces an innovative approach to soil health management by stabilizing pH levels, optimizing crop growth, and enhancing agricultural productivity. The initiative aims to provide farmers with a practical and efficient tool to assess soil conditions and apply appropriate measures for improved yield.

Implementation: The project team collaborated with agricultural experts to understand the latest advancements in soil analysis. Leveraging this knowledge, they developed a device capable of rapidly assessing soil pH and providing precise recommendations for manure application. Extensive field demonstrations were conducted to familiarize farmers with the device and guide them on its effective use. A comprehensive manual was also created to ensure continued adoption and independent operation.

Results:

- Facilitated accurate soil pH assessment to determine optimal manure requirements.
- Enabled effective soil management strategies for enhanced crop productivity.
- Assisted farmers in selecting tolerant crop varieties based on soil conditions.

2ND PRIZE - PROJECT VAAYU

Focus: Sustainable cooling solutions using terracotta

Project Brief: Project Vaayu introduces an eco-friendly alternative to conventional cooling systems, utilizing terracotta-based designs to provide cost-effective temperature regulation. The initiative addresses excessive energy consumption and greenhouse gas emissions while offering relief to students in government schools lacking adequate cooling facilities.

Implementation: The project team conceptualized and developed a prototype for a sustainable terracotta cooler. Locally sourced materials, including traditional kulhads, were repurposed to construct the model. Government primary schools in Gurugram were identified as beneficiaries, and awareness sessions were conducted to educate students about eco-friendly cooling solutions. The prototype was rigorously tested before installation on school premises, ensuring effectiveness and durability.

Results:

- Achieved a 92.57% reduction in power consumption.
- Lowered carbon emissions significantly.
- Reduced ambient temperatures by 6-10°C, improving learning conditions.

3RD PRIZE - PROJECT ECO SAVIORS

Focus: De-concretization campaigns to free urban trees

Project Brief: Project Eco Saviors tackles the detrimental impact of urban concretization on tree health, advocating for sustainable urban planning. The initiative drives awareness and policy-level interventions to restore natural soil conditions around tree bases in various cities.

Implementation: The project team conducted extensive geo-tagged surveys in multiple urban areas, including Gurgaon, Faridabad, Noida, Delhi, and Satna (Madhya Pradesh). The collected data was presented to municipal councils and resident welfare associations, leading to actionable policy changes. Meetings with city officials resulted in directives for large-scale de-concretization efforts, ensuring the long-term preservation of urban greenery.

Results:

- Successfully freed 650 trees in Gurgaon.
- Influenced policy amendments for urban tree conservation.
- Secured municipal tenders for the de-concretization of an additional 300 trees in Faridabad.

4TH PRIZE - PROJECT SRISHTI

Focus: Conversion of invasive Lantana Camara into organic fertilizer and sustainable products

Project Brief: Project Srishti presents an innovative solution to the widespread ecological threat posed by Lantana Camara, an invasive weed disrupting native ecosystems. By transforming this plant into a beneficial agricultural and environmental product, the initiative simultaneously addresses biodiversity conservation and economic sustainability.

Implementation: Working alongside local communities in the Anaikatti region of Coimbatore, the team pioneered methods to convert Lantana into organic manure, nursery polybag fillers, and biomass sticks. Collection drives were organized to clear affected areas, while donation programs supported tribal settlements. Additionally, large-scale awareness campaigns and plantation drives were conducted to mitigate the further spread of the species.

Results:

- Improved soil health and water retention.
- Effectively controlled the spread of invasive species.
- Provided sustainable livelihood opportunities for tribal communities.

5TH PRIZE - PROJECT 404

Focus: 45-acre afforestation and ecological restoration at Rajaji National Park

Project Brief: Project 404 spearheads large-scale ecological restoration within the buffer zone of Rajaji National Tiger Reserve. The initiative integrates afforestation, biodiversity conservation, and soil stabilization strategies to revive degraded landscapes and create a sustainable habitat for flora and fauna.

Implementation: The project commenced with removing eucalyptus trees, allowing native vegetation to thrive. To enhance soil health and water retention, land recontouring was executed with precision. A nursery was established to propagate indigenous species, ensuring a steady supply of saplings for afforestation. The plantation process was systematically conducted over multiple seasons, maximizing survival rates and long-term sustainability.

Results:

- Cultivated 47 native plant species, including 17 critically endangered varieties.
- Dispersed 1.2 million seeds, rejuvenating vast barren landscapes.
- Planted 10,000 saplings, achieving an unprecedented 95% survival rate.
- Created a habitat supporting over 300 species of flora and fauna, with 400,000 trees flourishing.

Top: Team Krishi Kalyan
Bottom: Team Vaayu

Top: Project Vaayu
Bottom: Team Eco Saviours

Top: Project Srishti
Bottom: Project 404

PROJECT DETAILS OF SENIOR CATEGORY WINNERS

1ST PRIZE - PROJECT PLANET SIMULATORS

Focus: Digital simulation models for environmental restoration and disaster mitigation.

Project Brief: Project Planet Simulators deploys advanced digital modelling to predict environmental changes and aid in disaster mitigation. The initiative integrates technology with ecological knowledge to devise sustainable restoration strategies for vulnerable ecosystems.

Implementation: The team collaborated with environmental scientists to develop simulation models based on real-time data. Stakeholder consultations ensured that the models were refined for practical applicability. Site-specific restoration strategies were created, focusing on adaptive responses to climate-related challenges.

Results:

- Enhanced ecological health in three identified restoration zones.
- Developed predictive models for mitigating environmental risks.
- Facilitated informed decision-making for sustainable land management.

2ND PRIZE - PROJECT WASTE TO WEALTH

Focus: Transforming pre-loved clothes into eco-friendly market bags.

Project Brief: Project Waste to Wealth promotes circular economy principles by repurposing discarded textiles into sustainable alternatives to plastic bags. The initiative drives community engagement in waste reduction while fostering eco-conscious consumer practices.

Implementation: Community participation was encouraged through awareness drives, urging households to donate unused clothing. Tailoring workshops were organized, equipping students with stitching skills to craft reusable bags. Finished products were distributed locally, advocating for a shift towards sustainable shopping habits.

Results:

- Diverted textile waste from landfills through upcycling.
- Promoted eco-friendly consumer behavior in Karnataka communities.
- Distributed handcrafted sustainable bags across multiple districts.

3RD PRIZE - PROJECT DECENTRALIZED WASTE MANAGEMENT

Focus: Campus-wide waste segregation, composting, and sustainability efforts.

Project Brief: Implemented at Symbiosis Vimanagar Campus and SCMS-P, this project institutionalized decentralized waste management, integrating composting, recycling, and sustainable waste disposal techniques.

Implementation: Housekeeping and campus administration were engaged to develop structured waste segregation protocols. Training sessions were conducted, and biodegradable sanitary napkins were introduced to promote sustainable hygiene practices. Collaborative partnerships were formed to ensure ongoing impact.

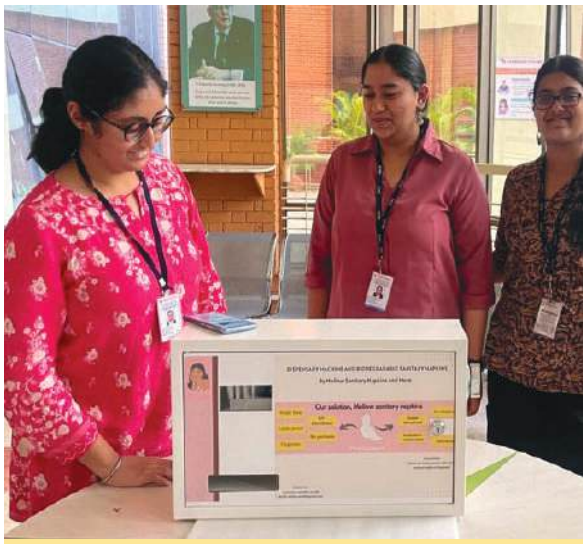
Results:

- Institutionalized sustainable waste management practices.
- Enhanced waste segregation efficiency on campus.
- Facilitated long-term composting and biodegradable product adoption.

Top: Team Planet Simulators
Bottom: Team Waste to Wealth

Top: Project Waste to Wealth
Bottom: Project Decentralized Waste Management

Top: Team Beach Guardians
Bottom: Team Resource Revival



4TH PRIZE - PROJECT BEACH GUARDIANS

Focus: Coastal clean-up, awareness, and ecotourism development at Bakkhali Beach.

Project Brief: Project Beach Guardians undertook the responsibility of restoring Bakkhali Beach through consistent clean-up efforts and long-term environmental awareness campaigns.

Implementation: The initiative involved local communities and tourists in structured clean-up activities. Sustainable waste disposal solutions were introduced, along with eco-awareness sessions. Green spaces were restored through tree plantations, ensuring a lasting ecological impact.

Results:

- Reduced beach pollution significantly.
- Strengthened local engagement in coastal preservation.
- Enhanced ecotourism through sustainable practices.

SPECIAL AWARD - PROJECT RESOURCE REVIVAL

Focus: Repurposing single-use plastic into cushioning materials for cardboard cartons.

Project Brief: Project Resource Revival, led by students from Kashmir, addresses plastic pollution by transforming waste materials into sustainable packaging solutions.

Implementation: Single-use plastics were collected from residential areas and shredded into cushioning material for cardboard cartons, replacing conventional packaging fillers.

Results:

- Reduced reliance on Styrofoam and bubble wrap.
- Diverted plastic waste towards practical, eco-friendly applications.

Outcomes

- **Increased Awareness of Green Careers:** The session clarified misconceptions about green jobs, highlighting their presence across industries beyond NGOs and CSR initiatives. The discussion reinforced that sustainability-related careers are financially viable and integral to various economic sectors.
- **Gaps in Sustainability Education and Need for Interdisciplinary Integration Identified:** Panelists noted that environmental education at the school, undergraduate, and postgraduate levels lacks structured career guidance, interdisciplinary learning, and hands-on training.
- **Skills Mismatch in the Green Economy Recognized:** Speakers highlighted that while the demand for green jobs is increasing, higher education curricula remain misaligned with industry needs.
- **Highlighting of Innovative Youth-Led Projects**: The Youth for Earth Award Ceremony celebrated impactful projects that addressed afforestation, waste management, sustainable cooling, and urban tree conservation, emphasizing real-world sustainability applications.

Recommendations

- **Train Educators to Promote Green Careers** – Schools should equip teachers with sustainability training, allowing them to guide students toward environmental careers instead of relying solely on dedicated counseling programs.
- **Expand Hands-On Learning in Schools** – Replace symbolic environmental activities with long-term, action-based projects that connect students to real-world sustainability efforts, such as community-led initiatives and extended ecological projects.
- **Mandate Green Sector Internships for College Students** – Establish structured internships in renewable energy, waste management, and circular economy sectors to provide students with career-ready skills and real-world exposure.
- **Leverage Technology for Sustainability Education** – Incorporate digital tools, AI-driven simulations, and virtual environmental models into curricula to make sustainability education interactive, practical, and career-focused.
- **Integrate Local Community Collaboration into Curricula** – Schools and universities should actively partner with local climate action groups, municipalities, and Indigenous knowledge holders to ensure students gain practical problem-solving experience.
- **Implement Policy Reforms for Green Education** – Governments should mandate structured sustainability education across all levels, ensuring continuity from school to professional degrees and integrating anti-greenwashing education to foster ethical environmental leadership.

EDUCATING FOR INFORMED FAMILY PLANNING CHOICES FOR A SUSTAINABLE POPULATION AND PLANET

PLENARY 7

Background

Achieving sustainable population growth is not about stagnation or decline of population, but about attaining a balance where human numbers harmonize with nature, ensuring development does not undermine ecological foundations. This balance necessitates a multifaceted approach, particularly focusing on the roles of education and healthcare accessibility. Education empowers individuals to make informed decisions regarding family size and resource utilization. Equally critical is the accessibility to quality healthcare that can ensure individuals to lead healthy lives, reducing mortality rates and improving overall quality of life. Comprehensive healthcare services, including reproductive health, enable informed family planning decisions, aligning population growth with environmental capacities. Achieving sustainable population growth necessitates the synergistic efforts of education and healthcare. This combined approach not only enhances individual well-being but also fosters a collective responsibility towards preserving the planet's ecological integrity.

The 6th ICSE features a Special Plenary Session titled "Educating for Informed Family Planning Choices for a Sustainable Population and Planet." This Session aims to emphasize to policymakers, sustainability experts, educators, and youth the vital importance of responsible population management for the planet's continued well-being and also that population stabilization is essential for completing the discourse on sustainability education.

Objectives

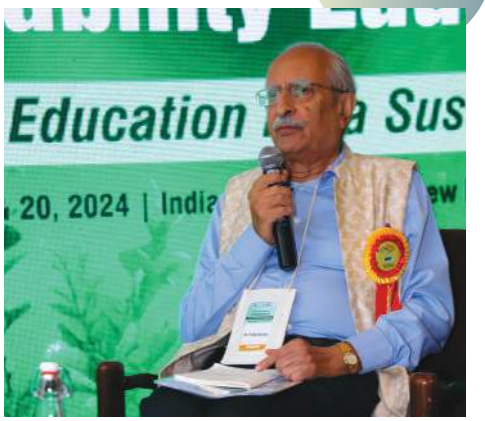
- Integrate family planning education into sustainability curricula to promote ecological balance and socio-economic stability.
- Facilitate stakeholder dialogues to translate knowledge into informed policies on population management and sustainable development.
- Showcase successful initiatives like Project Aakar to demonstrate the impact of education and healthcare accessibility on responsible family planning.

Session Break Up

This session is divided into three parts. The first part begins with a fireside chat focusing on population and related issues. The second part features a panel discussion with veteran experts in the field of population. The third part highlights ground realities, achievements, challenges, and experiences shared by the experts.

PART I: Fireside Chat

Mr. Pradip Burman, Chairman, Mobius Foundation, in conversation with **Ms. Meghna Deka, National Editor, Times Now.**



At the 7th plenary session of the 6th International Conference on Sustainability Education, Ms. Meghna Deka, National Editor of Times Now, steered an interesting discussion on the *intersection of education, family planning, and sustainability*. Framing the conversation around the global population's expected rise to 9.7 billion by 2050, she emphasized the urgency of aligning population dynamics with availability of resources and employment opportunities to ensure sustainable growth. While moving toward demographic stabilization in certain regions, India still grapples with notable differences, particularly in states like Uttar Pradesh and Bihar.

Mr. Pradeep Burman, Chairperson of the Mobius Foundation, addressed the dual challenge of population growth and resource scarcity. Despite the country's population increasing from 35 crore to 140 crore over decades, land and water availability has remained unchanged. This mismatch, compounded by increased consumption, severely strains natural resources and heightens climate challenges. The ecological consequences of population growth further complicate the scenario, stressed.

In rural India, limited access to contraceptives and healthcare perpetuates high fertility rates. *The Mobius Foundation's Aakar project, active in Uttar Pradesh, combines education, counseling, and healthcare to tackle these issues.* With plans to expand to 100 districts, followed by Bihar, the project aims to foster widespread awareness and access, recognizing that achieving stabilization often spans decades. *Similarly, the Gyan Shakti program, which focuses on educating girls in tribal and rural areas bolsters academic learning by leveraging technology like smartboards and equips students with career skills and counseling.* The program's holistic approach promotes economic independence, reduces gender disparities, and empowers informed family planning.

Healthcare inclusion ensures that the availability of essential resources leads to informed choices, further fortifying these efforts.

PART II: Panel Discussion: Educating For Informed Family Planning Practices Towards A Sustainable Population And Planet

Dr. Purushottam Kulkarni, Former Professor, Jawaharlal Nehru University, opened the discussion by contextualizing India's approach to population management since its inception.

The dominant narrative of the 1950s and 1960s emphasized population control as a national imperative and India was a global pioneer, launching an ambitious family planning program to reduce fertility rates. However, the methods employed—such as incentives, disincentives, and even coercive measures—often undermined reproductive autonomy. By 1976, public resistance marked a transition from state-imposed goals to individual-led decisions, with many families opting for fewer children to improve their quality of life.

Dr. Kulkarni also discussed the persistent challenges in ensuring access to high-quality contraceptives and informed decision-making. Despite progress, many individuals still lack comprehensive knowledge about the options available and potential side effects. *Greater emphasis on diverse and accessible contraceptive options, underpinned by robust education initiatives to ensure true reproductive choice, is the need of the hour.*

In the latter part of the discussion, Professor Kulkarni highlighted that the elderly population is expected to rise by 25%–30% by the end of the century. While aging is a natural process for individuals, it presents multifaceted burdens, including financial, healthcare, and emotional support for the elderly. The demand for pension schemes, healthcare services, and emotional well-being resources will rise. The discussion then was directed to regional population variations within India. While states like Uttar Pradesh and Bihar are projected to increase their population shares by 2-3 percentage points, southern states and some western regions, including West Bengal and Punjab, are likely to experience a decline of similar proportions. This disparity stems from differences in the timing of demographic transitions across states, with literacy rates, social structures, and other contextual factors influencing progress.

Miss Amy Jankiewicz, CEO, Population Matters UK, threw light on ethical, choice-based solutions to population challenges, underlining the importance of avoiding coercive or alarmist approaches. *She also presented a critical link between education and family size. Schooling for girls, particularly up to 12 years, results in delayed childbearing, improved birth spacing, and smaller family sizes. Besides, prioritizing male allyship and female leadership promotes equitable participation in governance, policymaking, and community decision-making.*

Concurrently, PHE approaches link population health and reproductive rights with environmental conservation and natural resource management. This integrated strategy benefits communities and ecosystems, forming a foundation of Population Matters' long-term vision. Improving health infrastructure and access to family planning resources creates opportunities for better outcomes in women's health and overall well-being.

UNIVERSAL SECONDARY EDUCATION COULD ELIMINATE CHILD MARRIAGE AND REDUCE FERTILITY RATES BY 1/3

Ms. Shweta Shirodkar, Population Matters, UK, built on Amy's points referred to the *World Bank's "The High Cost of Not Educating Girls" report*, which revealed that universal secondary education could eliminate child marriage and reduce fertility rates by a third in developing countries. In India, data from NFHS-5 shows the median age of first birth rises significantly—from 20 years for women with no schooling to 25 years for those with 12 years of education. This underscores how schooling empowers individuals to make informed reproductive decisions.

However, Ms. Shirodkar argued that education alone is insufficient without access to quality healthcare and contraceptives, particularly in rural and tribal areas. PHE initiatives must adopt culturally sensitive, inclusive, and community-led approaches that help address interconnected challenges—such as reproductive health, resource management, and conservation—without being prescriptive or placing all the responsibility only on women.

Professor Syed Unisa, Adjunct Professor, Tata Institute of Social Sciences (TISS), Mumbai, listed the challenges in contraceptive delivery, including inadequate healthcare infrastructure, irregular supply chains, and limited testing for contraceptive methods like IUDs. *Referencing her studies in Haryana and Uttar Pradesh, she revealed that up to 70% of contraceptives were wasted due to poor distribution systems and lack of necessary resources. These shortcomings highlight the need for improved healthcare systems, reliable supply chains, and accessible counseling services.*

When it comes to education, private schools in urban areas often lack population education programs, leaving many students uninformed about reproductive health. In rural regions, limited access to facilities hampers individuals' ability to make informed choices. *She recommended incorporating gender-focused topics into curricula, which is essential to fostering awareness and equity, mainly through innovative, community-centered methods. For instance, cooking competitions for boys effectively challenge entrenched stereotypes, reframing household responsibilities as shared tasks rather than gendered ones.* Besides, different teachers should deliver population education, not just science instructors. For example, mathematics teachers could contribute by addressing data-driven aspects of population studies.

Teachers show reluctance when discussing reproductive health topics in mixed-gender classrooms. Therefore, reproductive health should be taught as a part of biological systems, alongside topics like the digestive and respiratory systems, to normalize it within the curriculum. Additionally, inviting healthcare professionals or community health workers to provide lectures could help bridge gaps in understanding.

Lastly, professional development and teacher training programs should be given momentum. Regular updates to curricula and ongoing certification programs could ensure educators remain equipped to teach relevant topics. These training efforts should be region-specific and tailored to area-specific needs, as what works in Kerala may not suit Haryana or Bihar.

Professor Saroj Yadav, Former Dean, NCERT, known for her work in education and policy, recounted how the concept gained traction in 1960, inspired by Sweden's earlier recognition of education's role in addressing population challenges. *To broaden its appeal, the term "population education" was adopted, moving away from labels like "family planning" or "sex education."*

NCERT took steps to bridge the gap between national objectives and individual priorities, launching a population education cell in 1980 across all states and union territories. The initiative addressed themes such as population dynamics, economic and social development, family life, and environmental interconnections, supported by teacher training and material development.

Embedding values in education and examining the interplay between population, environment, and resource consumption was emphasized, particularly as consumerism exacerbates resource strain. Citing a Lancet study, she explained that investing in children yields triple benefits: improved health, empowerment, and better generational outcomes. Secondary education alone offers tenfold economic returns, while higher secondary education delivers even greater advantages.

SECONDARY EDUCATION ALONE OFFERS TENFOLD ECONOMIC RETURNS

She called for action to meet the unique needs of adolescents, including reproductive health education, growing-up concerns, and decision-making skills, and referenced the 1994 ICPD Conference for the paradigm shift that goes beyond raising awareness and enabling change. *Collaboration between the Ministry of Health and Family Welfare and the Ministry of Education has led to initiatives like the "Health and Wellness of School going Children." This program encompasses 11 themes, including gender equity, emotional well-being, nutrition, and reproductive health.* Teachers and doctors are receiving joint training to address adolescent concerns effectively while removing stigma and encouraging experiential learning through case studies, activities, and digital resources.

PART III: Ground Realities, Achievements, & Challenges

Ms. Shilpa Nair, Lead and Head, Uttar Pradesh, Population Foundation of India, shared that transitioning from population control to stabilization and promoting informed choices and reproductive rights are the basis of *PFI's Umeed program, supported by the Mobius Foundation. The program adopts a rights-based, multi-sectoral approach, actively engages communities, empowers women and men, and integrates family planning into broader societal frameworks.*

Since 2014, PFI has been working with the Uttar Pradesh government to develop a comprehensive population policy. After years of persistence, the effort culminated in the Uttar Pradesh Population Policy 2021 to broaden the scope of family planning through systemic improvements and community-driven strategies.

Ms. Shilpa spotlighted Behraich district, home to Umeed's first phase in the Jarwal block. The data shared made it evident why Behraich was chosen:

- Child marriages occur at alarming rates, with 38% of girls married before 18, far above the state average of 15.8%.
- Modern Contraceptive Prevalence Rate (MCPR) sits at 33%, lagging behind the state average of 44%.
- Unmet need for family planning is a staggering 28%, more than double the state average of 12.9%.

Despite these challenges, *the Umeed program has been impactful within a short span.*

Starting in Jarwal block and covering 121 villages, the initiative rapidly scaled up in April 2023, now spanning 7 districts and 50 blocks. It includes 12,000+ frontline workers, establishing 200+ family planning counseling corners in public health facilities, and an aim to serve 2.19 million couples in their reproductive years.

The program directly supported ASHAs (Accredited Social Health Activists), enabling them to organize group discussions, conduct home visits, and guide women in accessing services through Village Health Days or at Primary Health Centers (PHCs) and Community Health Centers (CHCs).

However, biases such as hesitation in counselling newlyweds or assumptions about sterilization for women with multiple children still need to be addressed among these providers.

Umeed tackles these issues through targeted training and behavior change communication materials. These tools empower providers and clients, helping women make informed choices about their reproductive health.

The program's results were indeed encouraging:

- 70% increase in Chhaya (non-hormonal pill) distribution.
- 74% increase in condom uptake.
- 26% increase in Antara (injectables) usage.
- 79% increase in emergency contraceptive pill use—a particularly remarkable achievement, given that this option was previously unknown in many communities.

Ms. Manju Devi, Asha Sangini from Jarwal, Behraich, mentioned that Umeed, holds monthly cluster meetings with ASHA workers. They have now gained new information, including knowledge about emergency contraceptive pills (EC pills), which Ms. Manju, too, distributes in the field.

During vaccination drives, Umeed workers have brought in many new people who have adopted family planning methods, easing the workload of ASHA workers and improving outcomes.

Shri Nishant Maurya, Gram Pradhan of Gram Panchayat Katka Marautha, outlined several noticeable changes in the village since the Umeed Project's introduction. Conversations around family planning, previously considered taboo, have become more common, with women actively adopting these practices. *A recent meeting with approximately 50 men marked a notable shift in awareness. Participants acknowledged their earlier lack of information about family planning methods but expressed a newfound willingness to explore and implement them.* Efforts to combat child marriage have also gained momentum. Establishing a girls' inter-college in the near future has become a priority to address the challenges of long commutes and create a supportive environment for women's learning.

Dr. Kriti Chaurasia, Chemistry Teacher at Government Girls Inter College, Basaiyya Paate, shed light on the *efforts made under the Umeed Project to improve student attendance, particularly among girls*, by addressing challenges such as inadequate school infrastructure, safety concerns due to remote location, and societal biases against girls' education. Economic barriers, including families' reluctance to invest in daughters' schooling, were countered by teachers providing financial assistance or connecting students to scholarships like the

INSPIRE Award and the National Means-cum-Merit Scholarship. *Adjustments in school timings allowed girls to fulfill household responsibilities without missing school.* Community outreach significantly raised enrollment, notably in Nasirganj village, where continuous efforts increased girls' enrollment from zero to nearly 40 within two years. Additionally, safety and confidence-building measures through workshops by The Bharat Scouts & Guides and health initiatives covering menstrual hygiene, anemia screening, and nutritional counseling helped build trust among parents and supported girls' overall academic participation.

Dr. Kunwar Ritesh, Medical Superintendent of the Community Health Service, Mustafabad, Jarwal, outlined the measures adopted by the Umeed Project to ensure substantive results in reducing Infant Mortality Rates (IMR), Maternal Mortality Rates (MMR), and achieving the targeted Total Fertility Rate (TFR) to recognizing a notable gap in the government's family planning initiatives—specifically, inadequate training of healthcare workers in counseling techniques—the Umeed Project prioritized community interaction to influence lasting behavioral shifts. This targeted strategy delivered measurable progress: during the Population Fortnight campaign (August 2024), Antara contraceptive injections administered to women increased sharply from 230 to 730 compared to the previous year. The project also facilitated the first-time use of Post-Abortion Intrauterine Devices (PAIUCDs) in Jarwal.

Specialized training programs for ASHA workers effectively dispelled misconceptions, resulting in increased attendance at health centers during vaccination days. Additionally, collaborative partnerships forged with district authorities, including the District Magistrate and Chief Medical Officer, amplified local participation and official backing. Complementary campaigns advocating appropriate marriageable age received formal commitments from district officials. Umeed representatives consistently provided guidance to field personnel, reinforcing effective community-level implementation and ongoing behavioral counseling.

Dr. Sanjay Kumar, Chief Medical Officer of Behraich, spoke about the counseling centers established with the support of the Mobius Foundation. Currently operational in one block, these centers offer guidance on family planning methods, including delaying pregnancies, spacing children, and permanent contraception options. Plans are underway to extend the initiative to eight blocks, strengthening 50 facilities such as Common Service Centers (CSCs) and primary health centers. Approximately 2,500 frontline workers, including ASHA workers, Auxiliary Nurse Midwives (ANMs), and other staff, will be trained and supported as part of this expansion. The initiative has equipped ground-level workers with the skills required for effective counseling while allowing them to dedicate more time to family-planning-related tasks. Adding trained personnel is expected to expand the program's reach and effectiveness as it scales to eight blocks. Dr. Kumar remarked that the initiative could substantially improve the district, where the Total Fertility Rate (TFR) currently stands at 3.9—much higher than in more developed areas.

Mr. Vikash Raj Chaturvedi, Regional Manager of Janani in Uttar Pradesh, introduced the *Clinical Outreach Team (COT) model in Bihar and Uttar Pradesh. This model, introduced under Janani's, significantly increased IUCD placements, particularly in areas such as Aligarh and Mathura.* The government recognized Janani's contributions in these regions.

A similar approach is being used in Siddharth Nagar under the Aakar Project, supported by the Mobius Foundation. The COT model, involving a mobile clinical team and a dedicated van, provides same-day contraceptive services to eligible couples through field day activities (FDAs). *These services include procedures like female sterilization performed under local anesthesia, allowing clients to resume their routines within hours. In cases where transportation poses a challenge, the COT van ensures clients can return home safely, eliminating logistical barriers to accessing family planning services.*

To ensure contraceptive products are readily available in underserved areas, Janani's team works closely with government representatives to improve distribution at both block and Anganwadi levels. This collaborative effort ensures that unmet family planning needs are effectively met across communities.

Dr. Purnamasi Kanaujia, Medical Officer, Outreach Team of Janani, described the features and services of the model being implemented in Siddharth Nagar. It employs a dedicated vehicle equipped with a trained team to ensure accessibility to remote village centers such as PSCs and CSCs. The team raises awareness about family planning at these centers and delivers sterilization and other related services. The focus remains on enabling clients to make informed and voluntary choices through consultations with trained counselors, building trust, and ensuring satisfaction with their selected methods. Clients are fully briefed on the process and receive post-operative care, including five days of medication, instructions on its use, and dietary advice. Follow-up care is provided through fortnightly and monthly telephonic calls, as well as home visits, with arrangements in place to manage complications at clients' homes or the nearest field day activity (FDA) center. He also underlined collaboration with district authorities, healthcare professionals, and staff at the CSC and PSC levels, strengthening care delivery and extending the program's reach to underserved communities.

Outcomes

- **Raised awareness of population dynamics:** Participants explored how education, healthcare, and family planning influence population growth and environmental balance, leading to a deeper understanding of their interconnections.
- **Demonstrated effective programs:** Real-world examples, including the Aakar Project, Umeed Program, and the COT model, illustrated how integrated services in healthcare, education, and family planning can be successfully implemented and scaled.
- **Provided insights from experts:** Speakers examined historical population trends, demographic shifts, and the impact of education and healthcare on fertility rates, reinforcing the need for informed and voluntary reproductive choices.
- **Highlighted community-driven progress:** Reports from Uttar Pradesh showed that grassroots efforts have led to higher contraceptive use and increased male involvement in family planning conversations, signaling a shift in societal attitudes.
- **Encouraged cross-sector collaboration:** Policymakers, sustainability advocates, and educators came together to exchange ideas, form new alliances, and explore ways to align family planning with broader development goals.
- **Examined policy influence on family planning:** Discussions on state policies, such as the Uttar Pradesh Population Policy 2021, underscored the role of advocacy in integrating reproductive health initiatives into wider policy frameworks.

Recommendations

- **Integrate reproductive health into education:** Participants called for structured inclusion of reproductive health and gender topics in school curricula, with a focus on interactive

and inclusive teaching methods to engage students effectively.

- **Expand healthcare access in underserved areas:** The need for more family planning counseling centers and better-equipped healthcare services was emphasized, along with enhanced training for ASHA workers, ANMs, and other community health professionals.

- **Address misconceptions through public outreach:** Awareness campaigns should be launched to correct myths surrounding contraceptive use and normalize discussions on family planning, with an emphasis on involving men and boys in these conversations.

- **Strengthen policy implementation:** Attendees stressed the importance of ongoing coordination between education and health ministries to develop integrated programs and advocated for region-specific strategies to address varying population needs.

- **Use technology and data for better outcomes:** Digital tools, such as online learning platforms and smartboards, should be leveraged for reproductive health education, while continuous monitoring of contraceptive use and fertility trends should guide policy decisions.

- **Encourage multi-stakeholder partnerships:** Government bodies, NGOs, and private organizations were urged to collaborate on scaling up successful programs like Umeed and Aakar to ensure broader reach and impact in high-need areas.

- **Support adolescent and women-focused initiatives:** Programs should focus on reproductive health education, mental well-being, and life skills for adolescents, while economic opportunities for women should be strengthened through vocational training and healthcare support.

SAFE IN SCHOOL: A PANEL DISCUSSION ON INTEGRATED RISK MANAGEMENT FOR SAFE AND SUSTAINABLE SCHOOLS

PLENARY 8

Background

Children are most vulnerable in times of disaster, facing physical harm, emotional distress, and the disruption of their education. While schools serve as safe spaces and provide essential services, such as food, health care, and psychosocial support, the destruction or closure of schools due to disasters both natural and induced can leave children without vital resources. It is crucial to prioritize the creation of safe learning environments for our children, including implementing disaster-resilient infrastructure, ensuring access to basic services during emergencies, and providing mental health support to help children recover from traumatic experiences. Collaboration between governments, policymakers, educators, and communities is essential to develop comprehensive strategies that address the unique needs and vulnerabilities of children. Integrated Risk Management (IRM) is a comprehensive method that unifies several risk management practices to address multiple hazards consistently and coherently. IRM recognizes, evaluates, and ranks risks - social, technological, environmental, and economic - highlighting their independence. By integrating risk management into decision-making processes, a school can build the capacity to handle uncertainties and improve preparedness for both natural and induced disasters. The Sendai Framework for Disaster Risk Reduction (2015-2030) emphasizes the importance of education in reducing disaster risks and advocates for a more proactive and preventative approach to managing risks. It outlines four priorities for action: understanding disaster risk, strengthening disaster risk governance, investing in disaster risk reduction for resilience, and enhancing disaster preparedness for effective response and recovery. School safety is a critical component within the context of the Sendai Framework, emphasizing the need to make educational facilities safer by incorporating disaster risk reduction measures into school planning, construction, and management.

Objectives

- Raise Awareness of Integrated Risk Management (IRM)
- Strengthen Education's Role in Risk Management
- Align with Sustainable Development Goals (SDGs)
- Incorporate the Sendai Framework
- Enhance School Safety

Summary of Presentations and Discussions

Ms. Prarthana Borah, Vice President-Sustainability, Momentum India, Moderator of the session, framed the discussion by providing context on Momentum India's role in integrating safety with sustainability. With over a decade of experience in school systems, the organization has focused on safety education, risk management tools, and on-ground implementation strategies. She emphasized that safety extends beyond infrastructure,

encompassing water, energy, and behavioral preparedness. While efforts have been made, much remains to be done to ensure comprehensive risk management in schools.

Mr. Hem Pande, IAS (Retd.), Former Secretary, Govt. of India, Chair of the session, raised the point of the *stark omission of sustainability in political discourse*. Across electoral manifestos, fundamental concerns such as clean air and potable water, elements that underpin a truly sustainable future, are conspicuously absent. Also, the Sustainable Development Goals (SDGs) were designed as a comprehensive global framework, but have borne little fruit. Policymakers and corporations use the complexity of SDGs as an excuse for inaction, often resorting to symbolic environmentalism rather than substantive reform.

Institutions have, for decades, presented tangible solutions, only to have them shelved in favor of yet another committee, yet another blueprint—repeating an unending bureaucratic charade. With 2030 drawing closer, he implored a shift from token commitments to verifiable enforcement, ensuring that sustainability efforts translate into measurable environmental resilience.

Before moving to the Q&A segment, **Ms. Prarthana Borah** referenced the UNESCO Comprehensive School Safety Framework (2022–2030), which outlines three fundamental pillars of school safety while incorporating sustainability into the conversation.

- The first pillar focuses on safe learning facilities, aligning with ongoing efforts to strengthen school infrastructure.
- The second pillar covers the social aspects of safety, meaning extending protective measures beyond school premises and instilling a culture of preparedness within the broader community.
- The third pillar pertains to risk reduction and capacity-building, ensuring individuals develop a deeper understanding of hazards and enhance their ability to respond effectively.

Q. Given your extensive work in climate risk reduction, Disaster Risk Reduction (DRR), and the school system, how do you see these elements coming together to enhance school safety and sustainability?

Prof. Anil Gupta, Professor & HoD, ECDR Division, National Institute of Disaster Management, said that while education involves both teaching and learning, discussions on safety often overlook students and are dominated by administrators, educators, and policymakers. It is also pertinent to reassess and upgrade conventional safety measures according to modern infrastructure and evolving lifestyles. For example, automated systems, glass-heavy designs, and changing classroom environments have introduced new risks, making it essential to rethink outdated protocols rather than apply them indiscriminately. Imposed safety measures seldom yield lasting results. There should be a seamless flow of safety consciousness between schools and homes, ensuring that risk-aware behavior is reinforced naturally, not treated as an isolated institutional duty. *"Safety must be a lived practice, not just a textbook subject,"* Prof. Gupta advised to build a resilient education system.

Q. How should schools prepare children to discuss climate risks and disasters without scaring them or limiting the discussion to just mitigation and safety?

Prof. Gupta, elucidated the importance of hazard awareness for preparedness and mitigation. Acknowledging risks should not be seen as fear-mongering but as a necessary step toward proactive safety measures. Discussing school safety initiatives, he explained that while India experiences worst-case scenarios, it also demonstrates successful safety models. Fires in coaching institutes across cities, the impact of earthquakes on schools, and Delhi's recent air pollution crisis exemplify evolving vulnerabilities. Further, heat waves, urban floods, and waterlogging, though not traditionally classified as disasters, disrupt education services and must be integrated into school safety planning.

He also brought focus on the necessity of economic support through market-driven mechanisms, CSR initiatives, and business investments, which must complement disaster management efforts. Without financial backing, sustaining large-scale safety initiatives becomes difficult.

Besides, he recommended context-appropriate approaches to school safety. Given differences in geography, infrastructure, and local challenges, what works in Gujarat may not be suitable for Tamil Nadu or the Northeast. Safety models must be localized and context-specific to address the unique risks faced in different regions.

Q. Could you talk about some of the work you've been doing in disaster risk management and school safety, especially regarding educational continuity and child health, which are also key focus areas of Pillar Two in the UNESCO framework?

Ms. Monal Jayaram, Co-founder & Director at School of Education & System Change, Piramal School of Leadership, Piramal Foundation, advocated for teaching children that compassion extends beyond interpersonal relationships to environmental and community responsibility. Rethinking rigid subject structures is necessary, promoting learning models that build adaptability and crisis preparedness. She cited a zero-waste initiative where students moved beyond theory, mobilizing local leaders and families to adopt sustainable practices. This hands-on approach reinforced accountability and long-term behavioral shifts. Grounding education in real-world problem-solving, strengthens resilience and continuity, essential for India's development goals.

Q. How can schools effectively integrate sustainability and safety while addressing the

challenges they face at the implementation level?

Ms. Anuradha Rai, Consultant, University of New Mexico, USA, articulated that intent must be the foundation of sustainability and safety efforts in schools. For sustainability to be more than an abstract concept. Curriculum design plays an equally essential role. Complex themes, including gender equity and disaster preparedness, require engaging and immersive teaching strategies. Storytelling, role-playing, and experiential learning bridge the gap between theoretical concepts and real-world applications. Training efforts, she noted, must change from one-time sessions to sustained engagement, promoting continuous reflection and dialogue. Collaboration remains essential—building networks of practitioners allows educators and experts to refine strategies and craft solutions tailored to specific contexts.

Q. How have you incorporated sustainability and safety into school initiatives based on your experience in an educational institution?

Mr. Hem Pande cautioned against rainbow washing and advised aiming for measurable results rather than symbolic gestures. Schools must also close the disconnect between what students learn in school and what they encounter beyond its walls. While children are taught essential habits—fastening seat belts, wearing helmets, and standing in queues—the world outside often contradicts these lessons.

Based on his experience with one of the schools in Delhi, he highlighted risks schools face, including bus accidents, fire hazards, structural issues, bullying, and child abuse. To address these concerns, schools in compliance with Supreme Court and government regulations must implement measures such as:

- Thorough screening of school bus drivers before employment.
- Installation of bus safety features, including CCTV cameras, alarms, GPS tracking (accessible to parents), fire extinguishers, first aid kits, and window grills.
- Deployment of female conductors to enhance student security.
- Unannounced bag inspections to detect sharp objects or hazardous materials.
- Efforts should also extend to student protection and discipline, ensuring children receive age-appropriate education on safe and unsafe physical contact and monitoring teacher behavior to prevent corporal punishment.

20% OF THE POPULATION STILL CONSUMES 80% OF AVAILABLE RESOURCES

Besides, schools must promote sustainability through:

- Recycling of stationery materials.
- Waste management and composting initiatives.
- Tree plantation campaigns.
- Rainwater harvesting and solar panel installations.

Outcomes

- Integrated Risk Management (IRM) Was Recognized as Essential for School Safety
  The discussion reinforced the need for schools to move beyond isolated safety measures and adopt a structured, multi-hazard approach, ensuring preparedness for environmental, technological, and social risks.

- The Gap Between School Safety Measures and Everyday Realities Was Acknowledged
  It was noted that while schools implemented safety protocols, these principles often failed to translate into students' behavior outside of school, highlighting the need for better continuity.
- The Scope of Disaster Safety Was Expanded Beyond Infrastructure
  The conversation underscored that disaster safety was not limited to infrastructure concerns but also encompassed emotional well-being, psychological security, and societal risks such as bullying and gender-based violence.

- Barriers to Implementing School Safety Policies Were Identified
  The session highlighted key barriers, including budget constraints, inadequate infrastructure, and lack of specialized training, which hindered the effective adoption of safety and sustainability measures.

Recommendations

- **Risk reduction principles must be embedded within school governance:** Schools must move beyond compliance-driven approaches and incorporate safety and sustainability as core elements of decision-making, infrastructure planning, and educational policies.

- **Stronger collaboration between schools, families, and communities needs to be established:** Efforts should go beyond school premises to ensure a seamless safety culture at home, in public spaces, and within the broader community.

- **Safety education must address emotional and social risks, not just physical hazards:** Programs need to equip students with strategies to handle bullying, gender-based violence, and psychological stress, fostering a holistic approach to student well-being.

- **Capacity-building as part of ongoing professional development for teachers:** Disaster preparedness and risk management training should become continuous, ensuring educators are equipped to integrate safety into daily learning.

- **Context-specific safety frameworks need to be developed:** Rather than applying a universal model, safety measures must be tailored to reflect the risks schools face in urban, rural, and disaster-prone areas.

- **Public-private partnerships should be leveraged for financial and technological support:** Schools must collaborate with corporate and government stakeholders to secure funding for risk assessment tools, infrastructure upgrades, and emergency preparedness programs.

- **Integration of disaster preparedness and environmental sustainability into the curricula:** Education systems should incorporate climate resilience, sustainability, and disaster risk reduction into learning modules, encouraging students to apply these principles in real-world situations.

SKILLING FOR GREEN CAREERS: HIGHLIGHTING SUSTAINABLE AND HIGH IMPACT SECTORS

PLENARY 9

Background

The global shift towards sustainable development has driven the emergence of the green economy. The International Labour Organization (ILO) projects a potential 24 million new jobs by 2030, driven by global efforts to combat climate change. A further 6 million jobs could be unlocked by embracing circular economy principles, moving away from linear "take-make-waste" models to embrace reuse, recycling, and resource efficiency. As per the Green Jobs Handbook of the Skill Council of Green Jobs, India alone has the potential to create 35 million green jobs by 2047. Realizing the full potential of this green economic transformation hinges on a critical factor: bridging the global green skills gap. This gap between the required skills and available talent is an essential barrier to realizing the potential of the green economy. Existing training programs and educational institutions often lag behind the rapid evolution of green technologies and practices, resulting in a stark mismatch between employer demands and jobseeker qualifications. A staggering 40% of global employers struggle to find workers with adequate training for green jobs. This skills deficit, highlighted by the ILO, is mirrored in the Indian context, where only a dismal 2% of the workforce possesses formal skill training. Further exacerbating the issue, the government of India's Ministry of Skill Development and Entrepreneurship (MSDE) reports that even fewer are trained explicitly for green jobs. A survey by the Confederation of Indian Industry (CII) paints a stark picture: 55% of Indian companies lack awareness of green job potential, further hindering the sector's growth. Integrating green skills into core academic programs is crucial to preparing future generations.

Objective

To analyze the dimensions of the global and Indian green skills, provide compelling data and evidence, and delve into sectoral skills demands in high-impact sectors such as fashion, tourism, renewable energy, waste management, and beyond.

Summary of Discussions and Presentations

Ms. Noemie Metais, Youth & Education Officer, Higher Education, UNEP, talked about UNEP's collaboration with multiple stakeholders in India, including the Green Skill Council of India and the Ministry of New and Renewable Energy, contributing to the Prime Minister's Green Hydrogen Mission, which aims to generate 600,000 green jobs. Also, the Green Jobs for Youth Pact, introduced at COP 27 in partnership with the International Labour Organization (ILO) and UNICEF, seeks to expand employment in sustainable sectors through coordinated action with governments, private enterprises, academic institutions, and social partners.

To ensure youth participation in these transitions, UNEP has established a Youth Advisory Group and launched accelerator programs across regions, training thousands in circular economy practices. The private sector has also stepped forward, with organizations such as Ramboll, Pan International, and LinkedIn pledging to enhance workforce capabilities in sustainability. The discussion extended to education and training initiatives, with the Green Skills and Learning Accelerator launched in Bangkok in collaboration with Times Higher Education and student sustainability networks. Ms. Noemie called for collective participation by youth, educators, employers, and policymakers in advancing green employment and skill-building.

Mr. Tomas Stenstrom, Senior Specialist, Employment Decent Work Team, International Labour Organization, New Delhi, outlined the International Labour Organization's (ILO) role in advancing employment-related initiatives.

Green employment exists in traditional industries like manufacturing and construction and emerging fields such as renewable energy and resource efficiency. While some roles directly contribute to environmental progress, others require sector-wide process improvements.

Between 2021 and 2030, 54 million jobs could emerge in water management, waste management, green construction, and renewable energy. However, moving from coal to *waste-to-energy (WTE)* presents challenges. *While coal jobs decline, projections suggest 460,000 WTE jobs by 2050, allowing displaced workers to shift to cleaner industries.* The WTE sector demands engineering, operations, waste processing, and environmental compliance expertise. Transitioning workers needs reskilling in emerging technologies, and policy interventions will be necessary for job placement, given the geographic disparities between traditional and green industries. With the right approach, WTE can become a significant employment generator while contributing to sustainable energy solutions.

Ms. Niti Singal, Co-founder & Director, ELF Outdoors, New Delhi, recollected how witnessing large amounts of plastic pollution in Nainital and Jim Corbett National Park developed her interest in sustainable tourism. Industry exposure revealed that while some eco-friendly initiatives existed, most travel companies lacked structured waste management systems. The COVID-19 pandemic provided an opportunity to develop ELF Outdoors, allowing *sustainability to be incorporated into travel education*. Collaborating with schools and educators, the initiative integrated sustainability into IB and CBSE curriculums, benefiting from New Education Policy (NEP) support to link community service with travel experiences. A plastic waste collection initiative was introduced, ensuring travelers retrieve waste instead of leaving it behind. Efforts are underway to partner with NGOs for responsible recycling. However, challenges exist, as many travelers continue to prefer luxury over sustainability. Despite this, ELF Outdoors continues expanding its initiatives to embed sustainability within tourism experiences.

INDIA'S 'KABAADIS' FORM A CENTURY-OLD RECYCLING SYSTEM

Ms. Pallavi Mohan, Designer and Member, NIFT Industry Advisory Board, described sustainability as both a business strategy and a responsibility embedded in her company's ethics. She mentioned that operating sustainably brings financial constraints, as responsible practices increase costs and lower profit margins. Despite fashion being among the world's largest polluting industries, government policy support for sustainable textile manufacturing is limited.

India has practiced recycling and sustainable consumption for over a century, evident in the kabaadi system (scrap dealing), long before the West recognized its importance. Sustainability, she emphasized, is not a passing trend—it is a mindset that requires conscious effort and long-term dedication.

Dr. Varsha Gupta, Professor, Master of Design Dept., NIFT, Ministry of Textiles, GOI, New Delhi, recounted that a turning point in her sustainability journey came in 2002 when a study on *chindi dari* rugs revealed environmental concerns and the social impact of sustainable practices. Since then, she has worked to integrate sustainability into every facet of her academic and personal pursuits. *Once viewed as an elective addition, sustainability is now an intrinsic part of fashion curricula, and all institutions must integrate these principles at every level to drive meaningful change.* Beyond academia, sustainability is deeply ingrained in cultural traditions. Historically, waste was minimal—every resource had a purpose. *The real task, she emphasized, is not about introducing sustainability but restoring awareness of practices that have always existed.*

Dr. Avinash Chandra, Asstt. Professor, Dept. of Vocational Studies, Univ. of Delhi, explained that while tourism is often seen as a low-impact industry, unchecked mass tourism presents serious environmental challenges. *Events like the Kumbh Mela demonstrate how overcrowding can exceed a destination's carrying capacity, causing ecological strain.* Weak regulation enforcement, particularly in India and parts of Asia, adds to the issue, making strict policies essential. Education has a substantial influence on responsible tourism. Dr. Chandra pointed out that while environmental awareness is second nature to some, many require structured learning to develop an understanding of ecology, sustainability, and ethical engagement with local communities.

Before concluding, **Ms. Arpan Singh, Youth Officer, UNEP India** (Moderator), invited the panelists to offer a key takeaway for those striving to achieve sustainability. Ms. Pallavi Mohan urged individuals to explore the industry and continually expand their knowledge. Ms. Niti Singhal said that ethical responsibility must guide enthusiasm, ensuring that every action aligns with environmental and social well-being. Dr. Varsha Gupta recommended cultivating a firm grasp of the technical basis of sustainability while applying practical reasoning to real-world challenges. Dr. Avinash Chandra encouraged a love for nature, mindful choices, and responsible tourism.

Outcomes

- **Heightened awareness of the green skills gap:** The discussion highlighted the urgency of green workforce development and the need for immediate action.
- **Insights into global and national sustainability initiatives:** Spotlight on models such as

Green Jobs for Youth Pact and Green Skill Development Program for advancing green employment.

- **Clarity on challenges in integrating sustainability into education:** Current sustainability education is unstructured, requiring a systematic, long-term approach to achieve lasting impact.

Recommendations

- **Develop a standardized sustainability accreditation framework:** Establish a unified system to ensure consistency in green industry standards and policy implementation.
- **Embed sustainability into mainstream education:** Integrate circular economy principles across curricula rather than treating sustainability as an elective.
- **Enhance policy incentives for sustainable businesses:** Introduce financial support mechanisms for industries following ethical and eco-friendly practices.
- **Improve consumer awareness through advocacy:** Utilize social media, brand transparency, and targeted campaigns to drive responsible consumer behavior.
- **Implement ethical waste management strategies:** Address environmental and social risks in industries like fashion and tourism through structured waste disposal policies.
- **Encourage responsible tourism and sustainable lifestyles:** Promote mindful travel and eco-conscious habits to reduce the negative environmental impact of mass tourism.

BLUE EDUCATION FOR A SUSTAINABLE FUTURE

PLENARY 10

Background

The Blue Education "focuses on integrating ocean literacy and marine sustainability into educational frameworks. It emphasizes the importance of our oceans and waterways in the broader context of environmental sustainability and aims to inspire students to become stewards of the marine environment." Therefore, the blue education is much broader in scope combining ocean literacy and sustainability and covers programmes and activities in both formal and informal education and communication, ensuring that emotional connection to the ocean and behaviour change are goals, rather than simply knowledge exchange. This is in line with many global initiatives including UNESCO's ESD 2030 Framework and IOC-UNESCO initiative on Blue education Curricula which contribute to enhancing the blue education and ocean literacy efforts carried out within the framework of the UN Decade of Ocean Science for Sustainable Development (2021-2030) as well. The European Union was the first to launch a Blue Education Charter to respond to the challenges faced by marine ecosystems and the ocean in Europe and to engage pupils in ocean knowledge and conservation.

Objective

Raise awareness on blue educational activities, boost regional and global interdisciplinary collaboration, integrate blue education with the broader sustainability agenda, and provide a platform for interested groups to understand how to collaborate with the future Blue Schools National Network of India.

Summary of Presentations and Discussions

Dr. Harsh Gupta, Former Secretary, Ministry of Earth Sciences, Government of India, Chair of the session, proudly recounted India's journey toward developing a tsunami warning system, contextualized within the broader challenges faced by marine ecosystems.

After the catastrophic tsunami in 2004, India relied on the Pacific Tsunami Warning System. However, a false alarm during an 8.5 magnitude earthquake in 2005 triggered unnecessary evacuations and widespread confusion. Representing India at an IOC meeting in Paris, Dr. Gupta voiced dissatisfaction with these inaccuracies and advocated for a region-specific tsunami warning system. Although initial resistance arose from some member states, his proposal gained traction. Within just 28 months, India established a state-of-the-art tsunami warning system. The system integrates risk assessment, real-time detection, efficient dissemination, and public awareness, serving the Indian Ocean region reliably for nearly two decades.

Ms. Shweta Khare Naik, Executive Director, Jane Goodall Institute (JGI), India, Moderator of the session, a part of the Jane Goodall Institute India led Ms. Naik to confront her own limited understanding of the ocean and the creation of the Oceans Are Us program, designed to connect people, animals, and marine ecosystems. This initiative empowers communities to explore the wonders of the ocean while finding solutions to its degradation. A noteworthy part of this effort is **Jane's Hope Box**, a resource filled with materials aimed at educating and engaging individuals to take an active role in ocean conservation.

Ms. Ana Vitória, Associate Programme Specialist, Ocean Literacy, IOC-UNESCO, Paris, stated that the ocean regulates the climate, absorbs approximately 30% of carbon dioxide emissions from human activities, and has absorbed 80-90% of the excess atmospheric heat over the past 50 years. While these functions are crucial, the resulting impacts of over-absorption are now affecting ecosystems and human lives globally. Despite its importance, the ocean remains largely absent from formal education systems worldwide, Ms. Ana observed.

To address this gap, UNESCO-IOC introduced the Blue Curriculum in 2022, a resource aimed at assisting policymakers and curriculum developers in incorporating ocean literacy into education frameworks. This material, translated into multiple languages, is part of a broader call to action from UNESCO's Director-General, urging member states to promote ocean literacy within their educational systems.

Ms. Raquel Costa, Ocean Literacy Consultant, IOC-UNESCO, Paris, introduced the Blue School Global Network, coordinated by IOC-UNESCO, which currently includes 18 countries, including Canada, the United States, Brazil, Portugal, South Africa, and soon India.

The network's goal is to strengthen national Blue School programs through global collaboration, advancing ocean literacy, and fostering a sense of community among Blue Schools worldwide.

It directly contributes to Sustainable Development Goals 4 (Inclusive and equitable quality education and lifelong learning opportunities for all), 14 (Conservation and sustainable use of oceans, seas and marine resources for sustainable development), and 17 (Strengthening the means of implementation and revitalizing the Global Partnership for Sustainable Development), while also bridging the gap between education and the marine and maritime sectors, which are often disconnected. She has several examples of Blue School initiatives from around the world, which are summarized in the table on the following page.

Finally, **Ms. Raquel Costa** explained that the Blue Schools initiative, originally founded in Portugal, initially developed as a European network. It later expanded into an Atlantic network before UNESCO brought it to a global level. Thereafter, Dr. Gupta accentuated India's contributions to ocean education and technology. The Geological Society of India has published a booklet on oceans, with translation into 13 Indian languages and distribution to schools nationwide. Complementing this, trained educators visited schools to explain ocean concepts, making the programme immensely popular.

School	Country	Blue School Initiatives
Luderitz Blue School	Namibia	Integrated ocean education into school life; introduced 'Marine and Maritime Studies' (M+Ms) covering topics like Ocean Culture, Geography, Arts, and Futures.
Jap P. Thijsse School	Netherlands	Addressed declining interest in maritime careers by involving parents, providing logistical support, and hosting workshops with maritime professionals.
Various Schools	Portugal	Blue School Day on May 19th with coordinated activities such as creating murals and engaging communities.
Various Schools	Ireland	Utilize IT technology to connect with international schools working on similar subjects, furthering global collaboration.
Various Schools	Brazil	Students lead the program by forming an ocean literacy club, organizing cleanups, seeking eco-partnerships, and presenting at scientific conferences.
Educational Marine Area (EMA)	France	Focus on preserving small marine environments near schools; training eco-citizens through hands-on conservation projects.

Ms. Vinita Apte, Founder Director, Terre Policy Centre, Pune, India, presented her organization, TERRE Policy Centre's work on ocean literacy. In collaboration with the International Ocean Institute (IOI), which offers training programs on Ocean Governance, the center has developed impact-oriented initiatives. Dr. Apte opined that public awareness about the ocean often remains superficial, with many perceiving fishing solely as a livelihood while overlooking the vast and intricate diversity of marine species—70% of which remain unfamiliar to the general populace. This limited understanding reflects a broader disconnection from the ocean's ecosystems and the extraordinary range of life they harbor.

Mr. Sunil M. Shastri, Consultant, Educator and Speaker, Ocean and Environmental Governance, UK, proposed reimagining VUCA, a management concept as Vision, Understanding, Clarity, and Agility and connected it to ocean literacy, education, and ocean governance for fostering awareness and galvanizing impactful action.

Citing the motto on ocean-governance.org—"Our whole thinking must change. The change must come from within. Each of us must be an agent of change. We must do the right thing because it is the right thing to do"—Mr. Shastri affirmed that inner transformation is essential for putting sustainability in practice.

Historically, the ocean was seen as "too big to fail," which led to rampant exploitation and pollution. When the damage became evident, a fatalistic narrative emerged: the ocean was "too big to fix." He urged the audience to adopt a new perspective: the ocean is "too big to ignore," emphasizing that indifference jeopardizes humanity itself.

Outcomes

- **Dialogue on Blue Schools in India:** The session facilitated discussions on integrating the Blue Schools initiative into India's educational framework, with insights into its global origins and scope.
- **Enhanced Understanding of Ocean Literacy:** More insights into ocean literacy's role in sustainability education and its interdisciplinary potential. Global examples provided actionable models for implementation in India.
- **Discussion on India's Contributions:** India's advancements in ocean governance, including the tsunami warning system, ocean education efforts, and desalination technology were highlighted.
- **Emphasis on Collaboration:** The session underscored the interconnection between marine and terrestrial ecosystems, calling for collaborative approaches to environmental challenges.

Recommendations

- **Pilot Blue Schools in India:** Collaborate with interested schools to initiate a pilot Blue School program, ensuring alignment with local cultural and educational contexts. Develop partnerships with institutions like the Geological Society of India and TERRE Policy Centre to provide resources and training for schools.
- **Integrate Ocean Literacy into Curricula:** Adopt the UNESCO Blue Curriculum to embed ocean literacy into India's education system, highlighting its role in sustainability across disciplines.
- **Awareness Campaigns:** Launch nationwide awareness campaigns and incorporate multimedia tools and IT platforms to foster engagement and accessibility.
- **Capacity Building for Educators:** Train educators in ocean literacy and sustainability education to act as ambassadors for the initiative within their schools and communities. Simultaneously, encourage student-led programs to increase youth participation and engagement.

GREENING CURRICULUM: SASEANEE EXPERIENCE

PLENARY 11

Background

Greening education, the process of integrating sustainability into all aspects of learning, is vital for achieving the Sustainable Development Goals (SDGs). By embedding environmental principles into curricula, teaching methods, and campus operations, greening education equips students with the knowledge and skills necessary to address global challenges such as climate change, resource depletion, and inequality. This approach fosters critical thinking, problem-solving, and a deep understanding of the interconnectedness of social, economic, and environmental issues, thereby supporting a wide range of SDGs, including quality education (SDG 4), climate action (SDG 13), and responsible consumption (SDG 12). Moreover, greening education promotes equity and inclusivity, ensuring that all learners, regardless of their background, have access to quality education that empowers them to contribute to sustainable development. Greening education is an educational imperative and a critical strategy for driving progress toward a more sustainable and equitable world. Various countries have made considerable efforts in greening education, aligning the educational systems to integrate environment and sustainability into curricula, creating educational resources, and developing teacher capacity to transact activity-based active learning. The ICSE provides an opportunity to bring together some of these efforts.

Objective

To integrate sustainability principles into education, strengthen collaboration across South and Southeast Asia to advance greening education, advocate for supportive policies, empower educators with resources, and actively engage students in environmental stewardship.

Summary of the Presentations and Discussions

Ms. Joyce Poan, Chief Education Sector, UNESCO New Delhi, spearheading the Greening Education Partnership initiative, highlighted that climate change affects children, learners, and students as well as disrupts education systems. Education is central to identifying and implementing sustainable solutions through widespread understanding and accurate teaching of climate issues. UNESCO's global monitoring reveals that climate change is often confined to science-related subjects, missing broader educational perspectives. Social-emotional impacts on students and teachers receive little attention, and curricula lack actionable steps for addressing these challenges collaboratively.

Advancing sustainability education requires participation from UN agencies, stakeholders, youth, civil society, and educators worldwide. Key initiatives, including the Green School Quality Standards and the Greening Curriculum, promote a whole-school approach integrating infrastructure, educators, and communities. Partnerships with organizations such as the Mobius Foundation, the Center for Environment Education (CEE), and the South and South East Asia Network for Environmental Education (SASEANEE) continue driving

sustainability efforts across regions. A jointly produced UNESCO-CEE report on climate change education aligns with the 2023 National Curriculum Framework(NCF).

Ms. Suparna Diwakar, Dean of Research and Academics, Indian School of Development Management (ISDM), and a key member of the National Syllabus and TLM Committee, India, shone a spotlight on how NCF goes beyond sustainability and subsumes environmental restoration and regeneration, integrating ecological, social, economic, and political dimensions into education. Giving precedence to environmental literacy and deep compassion for nature, which is rooted in India's cultural and civilizational heritage, the approach aims to restore the connection between human activity and the natural world by developing emotional sensitivity, ethical awareness, and practical understanding, along with cognitive and behavioral growth, through periodic reviews and collaborative contributions across curricular areas.

Ms. Olivia Copsey, Director of Education, FEE- Green Education in practice- experience from FEE, commended India for its remarkable progress in designing a curriculum that reflects empathy, cultural depth, and practical relevance and accented the need for countries to develop education models per their contexts and specific challenges. She provided an example from the EOS Schools Program, which helped schools in Rwanda address challenges caused by climate pressures. A two-year initiative funded under the Transforming Education for Sustainable Futures project brought educators, students, and community members together to form eco-committees. These groups identified key issues, like malnutrition, and developed projects to tackle food insecurity, improve student engagement, and reduce dropout rates within the existing educational framework. This collaborative method provided practical solutions for immediate issues while overcoming societal and systemic hurdles.

Dr. Rini Solihat, M.Si. Senior lecturer at Universitas Pendidikan Indonesia (UPI), Bandung, India, outlined Indonesia's approach to integrating climate change education into its national curriculum, Kurikulum Merdeka. *She cited UNESCO's analysis of over 100 national curricula, which found that nearly half fail to adequately respond to climate change or teach students to take meaningful actions.* Therefore, Indonesia's Ministry of Education, Culture, Research, and Technology developed Education for Climate Change, a guidebook in Bahasa Indonesia. It offers clear principles and practical tools for incorporating climate change themes into classrooms, co-curricular projects, and extracurricular activities. The framework is built on four elements—impact, causes, adaptation, and mitigation—tailored to each stage of education, from primary to high school. In the Indonesian education system, climate education is not limited to subjects like science or geography. To promote sustainability awareness, students take part in projects such as tree planting and sustainable farming schools under the Pancasila framework. Extracurricular programs, such as Scouts, reinforce these lessons through community engagement. At the university level, climate education is integrated into new and existing courses alongside research and community initiatives.

Dr. Umesh Kumar Mandal, Professor, Tribhuvan University, Kathmandu, Nepal, underlined the following alarming statistics from a 2021 UNESCO study: over 70% of students lack

exposure to climate change education, only 23% of teachers incorporate it effectively in classrooms, and 43% of institutions fail to include it in their curricula. These findings have led to global measures such as UNESCO's Greening Curriculum and Green School programs. Dr. Mandal shared Nepal's innovative education system combining local content with experiential learning to confront climate challenges.

The country's shift to a federal structure has decentralized education, allowing its 753 local administrative units to create educational content specific to their environmental and cultural realities. From the Terai plains to the Himalayas's high-altitude regions, curricula for primary education (grades 1–8) now discuss local ecosystems and societal needs. The Green School initiative supplements this effort by encouraging hands-on learning. Activities such as erosion management, tree planting, and addressing deforestation enable students to develop practical solutions to environmental challenges. These programs bridge the gap between theoretical knowledge and real-world application, equipping young learners to address pressing ecological issues within their communities.

Mr. Jamyang Thinley, Educator, Royal Academy, Paro & Druk Gyalpo's Institute, Bhutan, outlined Bhutan's unique educational philosophy that harmonizes personal growth with a deep connection to nature. The Bhutan Baccalaureate, envisioned by the king of Bhutan, aspires to nurture "persons of substance"—individuals who contribute thoughtfully to a cooperative and equitable society. The framework encompasses five dimensions of development: cerebral, emotional, social, spiritual, and physical. Education here transcends classroom walls with practices like the Ngondro, a morning ritual of reflection in nature.

Amidst places with rich biodiversity, students spend 20 minutes connecting with their environment, practicing mindfulness and introspection. Classes are conducted outdoors, whether students explore scientific concepts or perform theatre in the natural environment. Twice a year, students and teachers partake in nature retreats, documenting their journeys through stories, photography, and art, which become part of the curriculum. *A signature element of Bhutan's sustainability-in-education framework is the "Seven Gifts," where students bring cultural treasures—patterns, recipes, songs, dances, games, and stories—from their communities, using them in learning activities.* This enriches the curriculum and boosts students' grasp of Bhutan's heritage and culture.

Concluding Discussion

During the Q&A session, **Prof. Umesh Kumar Mandal** explained that understanding natural events, geography, agriculture, culture, and forestry practices connects students to daily life. These aspects, shaped by climate change and other influences, warrant inclusion in the curriculum. Transforming lived experiences into structured learning strengthens students' grasp of their environment, communities, and their role within them.

Dr. Kartikeya Sarabhai remarked that environmental education lags behind in schools due to the nature of education rather than faults in the system. Learning progresses gradually,

building upon earlier stages. *Recalling a visit to the NCERT director's office, he mentioned mistaking an English textbook for an environmental studies book because it included a dialogue between a child and a neem tree.* This example illustrated how environmental themes are seamlessly incorporated across subjects. The New Education Policy introduces environmental education progressively in India. By the 10th grade, students study a dedicated environmental textbook, consolidating earlier learning and reinforcing foundational concepts over time.

Outcomes

- **Need for Region-Specific Environmental Education Recognized:** The session equipped participants with approaches to include context-specific environmental and sustainability principles in education systems.
- **Educators Equipped with Initial Resources:** Educators learnt about practical strategies and foundational resources for engaging students in sustainability education and environmental stewardship.
- **Foundation for Continued Collaboration:** The session focused on collaboration between educators and policymakers to strengthen sustainability efforts within national and regional education frameworks.

Recommendations

- **Include Environmental Themes Across Curricula:** Expand climate change education beyond science subjects by incorporating it into language, mathematics, arts, and social studies, etc., ensuring students engage with environmental challenges and solutions from various perspectives.
- **Focus on Experiential and Community-Based Learning:** Promote hands-on activities such as tree planting, sustainable farming, and community clean-ups to make learning practical and relevant to local realities.
- **Create Resources:** Develop accessible guidebooks, frameworks, and teaching materials suited to different educational stages, enabling teachers to address climate-related topics effectively.
- **Enhance Teacher Training and Skill Development:** Introduce specialized programs like the Integrated Teacher Education Programme (ITEP) to provide educators with the knowledge and techniques required to teach sustainability.
- **Promote Global and Local Partnerships:** Facilitate collaboration among international organizations, local governments, schools, and communities to exchange resources and ideas for enhancing green education efforts.
- **Encourage Emotional and Ethical Awareness:** Inculcate values such as compassion, mindfulness, and ethical responsibility into education frameworks, making students aware of their connection to nature and their role in environmental care.
- **Enforce Policies on Environmental Education:** Ensure adherence to policies that mandate environmental education, supported by well-defined curricula, regular monitoring, and evaluation mechanisms.

GLOBAL INITIATIVES AND TRANSFORMATIVE SUSTAINABILITY

SUSTAINABILITY SAMVAD 5

PROF. MIRIAN VILELA

Executive Director, Earth Charter, Costa Rica

Prof. Mirian Vilela is the Executive Director of the Earth Charter International Secretariat and the Center for Education for Sustainable Development at UPEACE. Mirian has been working with the Earth Charter Initiative since early 1996. She coordinates the UNESCO Chair on Education for Sustainable Development with the Earth Charter and served as a member of the UNESCO Expert Reference Group for the Decade of Education for Sustainable Development (DESD). Over the years she has led and facilitated numerous international workshops, courses and seminars on values and principles for sustainability. Prior to her work with the Earth Charter, Mirian worked for the United Nations Conference on Environment and Development (UNCED) for two years in preparation of the 1992 UN Earth Summit and a year at the United Nations Conference on Trade and Development (UNCTAD). She actively participated in the 2002 World Summit of Sustainable Development, held in Johannesburg, and the 2012 UN Conference on Sustainable Development/Rio+20. Mirian holds a PhD. in Education from LaSalle University and a Master´s Degree in Public Administration from the Harvard Kennedy School of Government, where she was an Edward Mason Fellow.

MR. KARTIKEYA SARABHAI

Founder Director, CEE, Ahmedabad

Mr. Kartikeya Vikram Sarabhai is the founder and director of the Centre for Environment Education headquartered in Ahmedabad, with offices across India. He is also the chairperson and trustee of the Sabarmati Ashram Preservation and Memorial Trust. He has served on many committees set up by the Ministry of Environment and Forests and Ministry of Education of the Government of India, primarily focusing on the greening of India's formal education system, and initiatives for biodiversity education. His contributions to the field have been recognized at the highest levels, including being honored with the prestigious Padma Shri award in 2012 for his exceptional service in environmental education and sustainable development. Currently he chairs the CAG-EE (Curricular Area Group-Environment Education) for developing textbooks as per the National Education Policy 2020.

Mr. Kartikeya Sarabhai: How did you and your team bring the Earth Charter to fruition with its launch in 2000, despite notable resistance from nations hesitant to adopt an ethical framework for guiding decisions and the challenges of a time without the connectivity we now take for granted?

Prof. Mirian Vilela: The Earth Charter, developed through the 1990s and officially launched in June 2000, emerged from an inclusive process of multicultural and multi-sectoral consultations. At its core was one fundamental question: What shared values and principles can guide humanity toward a just, sustainable, and peaceful world?

This question drove years of collaboration among experts in international environmental law, theologians, faith leaders, Indigenous communities, youth, women, and others. These dialogues explored universally resonant principles while reflecting commitments from existing international agreements. The resulting document, the Earth Charter, serves as both a framework and a guiding light, inspiring dialogue and informing decisions. It calls for reflection on global citizenship and offers pathways to create a just, sustainable, and peaceful future.

Mr. Kartikeya Sarabhai: Could you share how Dr. Kamla Chowdhry played a significant role in bringing Indian perspectives into the Earth Charter dialogue, particularly Gandhi's philosophy, as documented by Steven and others?

Prof. Mirian Vilela: Dr. Kamla Chowdhry was an active and deeply committed member of the Earth Charter Commission. She made significant contributions to the language of the final sections of the Charter, particularly those addressing democracy, nonviolence, and peace. She also influenced the articulation of humanity's relationship with the broader living world, including animals and non-human life. Beyond drafting, she represented the Earth Charter at numerous international events, amplifying its message globally.

Mr. Kartikeya Sarabhai: How do you view the importance of values in environmental and climate change education and their role in addressing the triple planetary crisis?

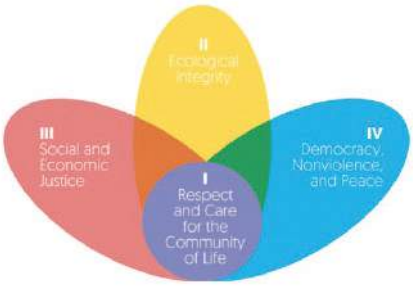
Prof. Mirian Vilela: Values profoundly influence how we perceive and interact with the world, shaping our everyday choices—from the clothes we wear to how we relate to others, both human and non-human. These underlying values, informed by upbringing, exposure, and education, also shape our worldviews and determine what we consider essential or insignificant. When discussing education for sustainable development, global citizenship, or greening education, UNESCO consistently prioritizes values. Their documents call for equipping learners with the values alongside knowledge and skills for the 21st century. However, defining and integrating these values into education can be challenging, sometimes leading to their being overlooked.

In my view, values are essential. Value-based education is not only a catalyst for societal change but also a powerful tool to awaken sensitivity, understanding, and a deep sense of responsibility toward the broader living world.

Mr. Kartikeya Sarabhai: You've initiated the Earth Charter Schools program as part of a newer effort to engage with schools. How do schools become part of this movement, and could you share more about how you're reaching out to them?

Prof. Mirian Vilela: When the Earth Charter was launched in 2000, it was envisioned as an educational tool designed to inspire dialogue and promote an ecocentric rather than anthropocentric vision of sustainability. This vision, deeply embedded in the Charter, encourages questioning assumptions, expanding understanding, and fostering meaningful conversations.

"Reimagining Education for Ecological Civilizations"



From the start, the aim was not to impose the Earth Charter or have people memorize it but to allow educators and institutions to use it flexibly, adapting it to their unique contexts. Over the past 24 years, many educators, schools, and universities worldwide have embraced the Earth Charter in various ways.

However, as the movement grew, schools and educators began expressing a desire for formal recognition as Earth Charter Schools to feel a stronger sense of belonging to the initiative. Several years ago, a school in England declared itself the first Earth Charter School in the UK, which sparked our curiosity about their criteria for this designation.

The Earth Charter School Seal incorporates a set of indicators and a process that engages educators, administrative staff, and students in examining the school's curriculum, pedagogy, and institutional practices through the Earth Charter lens. The certification process is supported by verifiers or auditors who assess the school's adherence to the criteria. We are currently in the final stages of this project's pilot phase, with several schools already completing the certification process.

Mr. Kartikeya Sarabhai: So, the process maintains diversity, right? You use indicators to provide a framework but allow schools and countries to adapt it to their specific contexts.

Prof. Mirian Vilela: Yes, the Earth Charter School Seal serves as a common standard—not a tool for judgment but a means for schools to reflect on their practices. It helps them recognize the positive steps they are taking and identify areas for improvement should they choose to enhance their efforts.

For instance, the most recent schools engaged in this process include the International School of Bavaria in Germany and a school in Puerto Rico. Interestingly, some of these schools had been working with the Earth Charter for years. One school in Puerto Rico and another in Costa Rica, for example, have been using the Earth Charter for over a decade. Through the self-evaluation process associated with the Earth Charter School Seal, they reported gaining new insights and expanding their approaches.

Mr. Kartikeya Sarabhai: Could you share insights into how the Earth Charter influences business leaders and decision-makers? Given its applicability at various levels, how are you engaging with businesses and, more broadly, with those in leadership roles?

Prof. Mirian Vilela: The Earth Charter is a global initiative grounded in Costa Rica, where it operates from the University for Peace campus, home to an education center dedicated to sustainable development. Despite this base, the movement is decentralized, coordinating efforts to inspire individuals, organizations, universities, schools, and businesses to engage with the Earth Charter in diverse ways. Its applications range from educational tools to ethical guides and frameworks for policymaking and strategic planning.

Although the initiative does not directly engage with all businesses, the movement has inspired many to adopt the Earth Charter's principles. A notable example is Itaipu, the

largest hydropower plant in Brazil, co-owned by Brazil and Paraguay. Generating 80% of Paraguay's energy and 20% of Brazil's, Itaipu lacked a corporate social responsibility (CSR) framework until it discovered the Earth Charter in Costa Rica in 2003. The Charter became the foundation of its CSR strategy, prompting a shift from solely energy production to improving the quality of life in nearby communities.

Mr. Kartikeya Sarabhai: As new challenges emerge, it's remarkable how the Earth Charter's relevance remains so strong. Do you think new values are needed to address these challenges, or do you see the Earth Charter as something that will continue to guide us as it is?

Prof. Mirian Vilela: The Earth Charter continues to guide us. Its principles remain relevant, providing a comprehensive framework for tackling global issues such as climate change, equity, and sustainability. What is required now is not new frameworks but a deeper commitment to applying and implementing the values it already articulates. Societal attitudes have also evolved. Ideas in the Charter that once faced resistance—such as its calls for non-discrimination and the recognition of women's rights—are now widely accepted, reaffirming its forward-thinking nature. The Charter's life-centric perspective challenges us to rethink our relationship with the planet and each other.

INNOVATIVE TECHNOLOGIES FOR ADVANCING SUSTAINABILITY EDUCATION

SUSTAINABILITY SAMVAD 6

MR. TIMOTHY JOHN CONNORS

Executive Director, EdTech Advisory Group, USA

Mr. Tim Connors is the Executive Director of the EdTech Advisory Group, based in Boston, USA. With extensive experience in the education technology sector, he is a recognized leader in advancing innovative solutions to enhance learning outcomes. Mr. Connors has a proven track record of advising educational institutions, startups, and non-profits on effective technology integration, strategic planning, and scaling impactful programs. His work focuses on fostering collaboration among stakeholders in the education ecosystem to drive systemic change and improve access to quality education. Mr. Connors is also a passionate advocate for using technology to empower educators and students, ensuring that digital tools are leveraged to create inclusive and engaging learning environments.

Mr. Tim Connors highlighted that for many, the term "sustainability" lacks impact and fails to resonate, slipping through conversations without leaving a lasting impression. Therefore, making it more relatable and engaging is the need of the hour. He likened education to user-friendly software—simple, intuitive, and engaging. He emphasized that the first step is educating leaders—corporate executives, governors, and policymakers—because empowering the next generation is challenging without their understanding and commitment.

Commenting on resistance from profit-driven systems, Connors laid emphasis on the need for community-driven sustainability, as done by the children who became Beach Guardians to protect their environment. He shared a past collaboration with the Government of India for the Sakshat Mission, where accessing content via a USB dongle, even with limited 2G connectivity, was demonstrated to children. The key takeaway from this exercise was that content alone isn't enough—it must be optimized for delivery, particularly in rural areas with limited access. Engaging content optimized for low bandwidth ensures broader reach, preventing disparities in underserved Tier 3, Tier 4, and remote areas. The content must be tailored to its audience and the delivery context. It's not about one solution but a combination of approaches, each playing its role.

Audience Interaction

With the example of Madhya Pradesh, an audience highlighted teachers needing extra support, as many students are now more technologically savvy than their educators. This generational gap in technological understanding creates challenges for teachers, who struggle to keep up with new tools and methods, leaving them stuck and unable to grasp technology as quickly as the students.

In response, **Mr. Connors** brought the focus back to the community, stressing the need to educate teachers about both technology and sustainability. The curriculum should be structured to support educators and ensure effective teaching. The key lies in the content—what will be produced, who will create it, and whether it suits the intended age group. Sustainability, he argued, should be integrated into all subjects, such as Math, Science, languages, and English. Instead of isolating sustainability, it should run through every lesson, becoming a theme throughout the school day.

The audience members raised the following points:

1. There has often been skepticism about how technological initiatives can lead to sustainable education or sustainability in third-world countries. He pointed out the need to move beyond focusing on quantity and access to technology and instead prioritize the qualitative aspects of what these technological solutions provide.
2. The gap between information and knowledge is wide, and the practical application of what sustainability education teaches gets overlooked over the course of schooling. How can we teach and engage students effectively at each stage of their education?

Mr. Connors answered that sustainability is not just a student issue but a community issue. Educators have a significant role in teaching children about the three pillars of sustainability, but many are not specifically tasked with this responsibility. While directly changing classroom dynamics is difficult, providing instruction, support, and necessary tools for educators and students is crucial. Besides, sustainability should be integrated into core subjects like math, science, and English. A sustainability movement is needed within the teaching community, with more widespread involvement essential for driving change. Technology alone will not solve the problem; personal choices and daily actions are key to sustainable living, particularly in educating children about the importance of these choices.

Leadership from principals, head teachers, and district leaders can also push the sustainability agenda ahead. Professional development and a green curriculum must be provided for educators, from young students to adults. Pollution and the lack of green initiatives are immediate dangers that require urgent action. *"If we don't act, the Earth may decide it no longer wants us."*

Mr. Connors underlined the need to involve children in conversations about sustainability. Their actions and insights offer valuable lessons and could guide both peers and adults in addressing sustainability. Humanity's greatest challenge is sustainability, surpassing even artificial intelligence (AI), which he described as both an opportunity and a challenge. While AI can be a tool for change, it is not a panacea or technology synonymous with education. Instead, the focus must remain on fostering community understanding and awareness about sustainability. He called on adults to take responsibility by leading awareness campaigns, making actionable plans, and moving beyond endless planning to take decisive action. He concluded with a clear call to action: "Let's act."

INNOVATIVE PATHWAYS TO A SUSTAINABLE AND GREENER FUTURE

SUSTAINABILITY SAMVAD 7

MR. ALAN EGBERT

CEO, ACER, Dubai

Mr. Alan Egbert is the CEO of ACER, a leading global technology company renowned for its innovative hardware, software, and services. Under his leadership, ACER has seen significant advancements in cutting-edge technology, including artificial intelligence, cloud computing, and sustainable IT solutions. Egbert's visionary approach emphasizes research and development, strategic partnerships, and a strong commitment to environmental sustainability. With a background in engineering and extensive experience in the tech industry, he has successfully steered ACER towards maintaining its competitive edge in the fast-evolving digital landscape.

Dr. Ibrahim Hafeezur Rehman is the Director of the School of Sustainability and CEO of NAMTECH at IIT Gandhinagar, India. He is a seasoned expert in sustainability, with extensive experience in environmental management, renewable energy, and sustainable development. Dr. Rehman has played a pivotal role in advancing sustainability education and research in India, focusing on innovative solutions to environmental challenges. His leadership at NAMTECH, a cutting-edge technology and research hub, underscores his commitment to integrating sustainability into technological advancements. Dr. Rehman is also known for his contributions to policy advocacy and his efforts in building partnerships between academia, industry, and government for a sustainable future.

DR. IBRAHIM HAFEEZUR REHMAN

Director, School of Sustainability and CEO, NAMTECH, IIT Campus, Gandhinagar, India

Mr. Alan Egbert turned attention to findings from two major assessments—the Programme for International Student Assessment (PISA) and the Trends in International Mathematics and Science Study (TIMSS)—which indicate a stagnation in environmental literacy among adolescents. Student responses reflected a pattern: recognition of environmental issues coexisted with a sense of helplessness. This sentiment surfaced across nations, suggesting a shared sense of disconnection. TIMSS data deepened the concern—more than half the respondents were unable to respond accurately to fundamental scientific questions on climate dynamics, ozone depletion, and rising global temperatures.

He cited international research showing that raising awareness, while necessary, does not automatically lead to behaviour change. Learners may excel in examinations yet feel unequipped to act meaningfully. This disconnect suggests that instructional models centred solely on theoretical knowledge fall short. Unless young people are guided toward applying what they encounter in the classroom, environmental education risks becoming performative rather than consequent.

Dr. Ibrahim Hafeezur Rehman challenged the default framing of sustainability as a matter of skill-building, technological sophistication, or curriculum design, as well as the belief that visible infrastructure signals deeper environmental awareness. For example, clean public spaces abroad were not a product of superior technology but a reflection of civic consciousness. In India, despite access to waste segregation methods and lower per capita waste in many households, the external environment shows a disconnect.

He emphasized the concept of the **"CONSCIOUS TECHNOLOGIST"**—a phrase that runs through his work at NAMTECH and NEC. The intent is not to reject digital tools but to ground their use in values. ChatGPT and other AI platforms, for instance, can accelerate work only when the user brings sound judgment and foundational competence. Without that baseline, technology risks eroding essential human capabilities such as writing and self-expression. Digital fluency must follow, not precede, ethical awareness.

His talk also examined how infrastructure can either reinforce or erode environmental sensibilities. Schools that pride themselves on modern amenities but run on high-powered air conditioning systems send conflicting messages to learners. Alternatively, there are shining examples, such as the Rajkumari Ratnawati School in Jaisalmer, designed by architect Diana Kellogg. Structurally, the school is designed to withstand temperatures of 50 °C or higher without the use of air conditioning, utilizing local sandstone and employing passive cooling techniques.

"Children must learn in biophilic environments, not merely in green-painted classrooms". Gardens that teach local biodiversity, spaces that allow engagement with smart agriculture, and campus designs that minimize ecological footprints offer far more instructional value than abstract lessons.

Dr. Rehman distilled his framework into four intersecting domains: capacity development, infrastructure, technology, and consciousness—each incomplete without the others. The comfort of isolated excellence often obscures the scale of systemic reform required. A single institution like MIT cannot address the structural deficiencies in global education. Every school and university must take responsibility for cultivating not only knowledge but also environmental awareness that informs everyday decisions.

ENVIRONMENTAL SUSTAINABILITY AND CONSERVATION

SUSTAINABILITY SAMVAD 8

MR. JADAV PAYENG

Environmentalist & Forest Man of India

Mr. Jadhav Payeng is recognized for his decades-long afforestation efforts, which transformed the barren sandbars of the Brahmaputra into the flourishing Molai Forest. His work earned him the Padma Shri in 2015 and honorary doctorates from Agricultural University and Kaziranga University.

Also an environmental writer, Mr. Phukan has contributed to global climate discourse, including polar expeditions.

MR. RITURAJ PHUKAN

Environmentalist, Chief Operating Officer for Walk for Water

Discussing Assam's climate shifts as an example, **Mr. Phukan** painted a grim picture of escalating environmental changes manifesting in soaring temperatures, extreme humidity, and unpredictable weather swings between floods and heat waves. He then introduced *"the Mising community, to which Mr. Payeng belongs—renowned for its nature-backed self-sufficiency and exceptional health"*. However, such extreme temperatures may not only affect the availability of food and resources in urban populations but also pose challenges for these traditionally resilient communities.

Responding to the discussion, **Mr. Payeng** shared the deep connection between the Mising community and nature and how his journey toward afforestation began in 1979 after witnessing a snake's death due to extreme heat. Over the next 30 years, his efforts expanded

into Molai Forest, a 550-hectare ecosystem that now shelters elephants, rhinos, vultures, and tigers. However, conservation came with challenges in the form of resistance from locals, politicians, and police. Mr. Payeng's defiance and persistence led to national recognition and the title "Forest Man of India" after Jawaharlal Nehru University (JNU) studied the biodiversity of his forest.

The talk shifted to the prominent role of bamboo in the Mising community's Indigenous sustainability. Bamboo provides food, shelter, medicine, and livelihood and is deeply embedded in their way of life. With 60% of India's bamboo reserves concentrated in the Northeast, the region has become a hub for Ayurvedic research and sustainability studies, drawing scholars seeking to understand traditional ecological knowledge.

Addressing audience questions, *"Mr. Payeng lamented that despite widespread reverence for Earth as Mother Nature, modern education fails to instill a sense of responsibility for its preservation"*. Practical environmental education, such as assigning students tree-nurturing duties, could cultivate a more ecologically conscious generation. Development remains essential, yet India lacks the technology for sustainable progress—unlike China and Taiwan, where afforestation and economic growth coexist. Advancement cannot come at the expense of the environment, as ecological destruction erodes the very foundation on which civilizations thrive. **Mr. Phukan** highlighted the challenge of enforcing conservation laws in remote areas, citing a recent incident where trees from a protected forest were illegally felled and smuggled away overnight.

The discussion emphasized integrating indigenous wisdom with modern practices to combat the present and future environmental challenges.

TRIPLE PLANETARY CRISIS

SAMVAD 9

PROF. THAMMARAT KOOTTATEP

Asian Institute of Technology, Bangkok, Thailand

Prof. Thammarat Koottatep is a prominent faculty member at the Asian Institute of Technology in Bangkok, Thailand. He specializes in environmental engineering and management, focusing on sustainable development, climate change adaptation, and urban resilience. With a rich background in academic research and practical applications, Prof. Kootateb has contributed to numerous projects aimed at improving environmental policies and practices across Asia. His work often involves interdisciplinary approaches, combining engineering principles with social sciences to address complex environmental challenges. Prof. Kootateb is highly regarded for his innovative teaching methods and his commitment to mentoring the next generation of environmental leaders.

Dr. Benno Böer is a professional project manager with 30 years of international experience in the global environmental sciences, with longer service periods in Europe, the Arab Region, Africa, and Asia. He currently serves as UNESCO Natural Science Specialist in New Delhi, with a geographical focus on Bangladesh, Bhutan, India, the Maldives, Nepal, and Sri Lanka, in addition to some regional and international projects. His work addresses socio-ecological issues, including climate literacy, ecosystem conservation and restoration, blue carbon ecosystems, catalyzing adaptation and mitigation options for sustainable human life in times of rapid global changes. He carried out numerous plastic-waste-management activities in different countries and regions. In 2018 he was mandated to develop UNESCO's Plastic Initiative that led to the establishment of an online platform on issues related to ecosystem restoration and plastic-waste, called QUEST4ACTION. Prior to his work with UNESCO he was involved in scientific research towards nature conservation and protected areas, and received a PhD in Physical Geography from the University of Paderborn(Germany), for his work on 'Ecosystems, anthropogenic impacts and habitat management techniques in Abu Dhabi Emirate, UAE.

DR. BENNO BÖER

Chief, Natural Sciences Unit, UNESCO Delhi

Dr. Benno Böer reminded the listeners about 1971, a milestone in global environmental efforts. The year marked the beginning of initiatives that continue to guide sustainability strategies today. Shifting to contemporary challenges, Dr. Böer brought up the **"PLASTIC PARADOX,"** a concept emphasizing society's dependence on plastic for convenience, which comes at a grave ecological cost. Plastic pollution infiltrates cities, rivers, coastlines, and oceans, disrupting ecosystems. Microplastics and nanoplastics are consumed by zooplankton, eventually entering the human food chain through marine creatures. Marine life also suffers directly; ghost nets ensnare turtles, dolphins, and whales, causing their demise. Many animals ingest plastic, which hardens in their stomachs, leading to fatal starvation. Despite clear evidence of these impacts, plastic production and consumption continue to rise. This paradox reveals humanity's conflicting relationship with plastic—acknowledging its dangers while remaining dependent on it, jeopardizing terrestrial, aquatic, and riverine ecosystems.

Carrying the discussion forward, **Prof. Thammarat** highlighted the pervasive presence of microplastics and nanoplastics—not just in rivers and oceans but even in the air we breathe. In his country, Thailand, the open burning of garbage, including plastic waste, is a common waste management practice. This releases harmful PM2.5 particles laden with microplastics and nanoplastics, severely affecting air quality and public health. Therefore, behavioral change is urgently necessary, starting with reducing single-use plastics. For example, younger generations replace smartphones more frequently, generating plastic waste and e-waste containing hazardous metals and chemicals. Prof. Thammarat warned that if these patterns persist, future generations will bear the brunt of these unsustainable practices. He called for rethinking consumption habits and developing innovative solutions to minimize waste while promoting more responsible resource use.

Dr. Benno Böer underlined the role of collective negligence in worsening the plastic crisis, contrasting it with the potential of collective intelligence to counter such challenges. He recalled a visit to Thailand, where a banana—already protected by its peel—was encased in additional plastic at a 7-Eleven store. This unnecessary packaging was further compounded by another plastic bag at checkout, showcasing the ubiquitous nature of redundant plastic use. He also raised a hard-hitting question: why does decisive action often follow only after catastrophe strikes? Despite plastic pollution being a visible issue since the 1960s, meaningful progress has remained elusive. This inertia is linked to broader crises, including biodiversity loss and climate change. This interconnectedness becomes apparent less immediately, but such challenges demand urgent attention before they escalate into irreversible damage. Practical and collaborative solutions, including voluntary engagement from corporations and global stakeholders, are key to achieving tangible results.

In continuation, Prof. Thammarat Koottatep highlighted how catastrophic events often become the tipping point for action, while opportunities for implementing preventive measures are frequently overlooked. Scientists and researchers across the globe have long been aware of the escalating dangers of plastic pollution. However, the challenge lies in converting this awareness into decisive political action. Institutions like AIT and UNESCO produce insightful policy briefs and recommendations, which get delayed as decision-makers adopt a "maybe later" approach.

Prof. Thammarat also pointed out the reactive nature of public awareness: When dead marine animals like dolphins and dugongs wash ashore or distressing images of plastic-choked environments circulate on social media, people quickly blame single-use plastics. However, he argued that the problem runs deeper. Careless disposal of food waste, tissue paper, and other materials also contributes to the growing crisis, reflecting broader consumption patterns and inadequate waste management.

He further cautioned that while his generation may evade the worst consequences, younger generations will inherit overwhelming environmental burdens. Cities like Delhi and Mumbai already grapple with towering waste dumps, making sustainable intervention imperative. However, every cloud has a silver lining. Innovation and science can help turn the table in this scenario, said Prof. Thammarat. Emerging technologies have the potential to transform waste into valuable products, creating opportunities for profitable business ventures. He insisted on the importance of younger generations embracing these innovations, adopting sustainable habits, and reducing dependency on single-use materials.

Talking of **GREENWASHING**, Dr. Benno Böer shared a personal observation from his visits to grocery stores in Germany. Fresh and frozen fish are almost always wrapped in plastic, which is often labeled by wildlife conservation organizations as "environmentally friendly." He identified this as a classic case of greenwashing—deceptively portraying unsustainable practices as eco-friendly—and stressed the need to address and eliminate such misleading practices.

Turning to history, he recalled that UNESCO established the World Network of Biosphere Reserves in 1971, recognizing the urgency of protecting natural ecosystems. This initiative followed warnings from earlier environmental conferences in 1968 and 1969 about the unsustainable exploitation of resources. These discussions culminated in the 1972 Stockholm Conference, the first global gathering to address environmental issues, which also led to the creation of the United Nations Environment Programme (UNEP). The Stockholm Declaration laid the foundation for the Millennium Development Goals (MDGs), which later evolved into the 17 Sustainable Development Goals (SDGs). "*However, there is a notable omission in the SDGs—clean air".* While humans can survive weeks without food and days without water, we cannot last more than minutes without air. Despite its fundamental importance, air is not explicitly addressed as a standalone goal.

He also reflected on the global energy crisis that began in 1971. At that time, fossil fuels dominated the energy supply more than today, accounting for over 80%. That pivotal moment should have spurred political leaders to transition toward clean energy and electric mobility. Yet, most governments lacked the environmental ministries or foresight necessary to act decisively. Five decades later, these solutions are finally being discussed, but the delays have come at a significant cost.

Concurring with Dr. Benno Böer, Prof. Thammarat asked a critical question: How can we ensure the right messages reach those in positions of influence? While individuals can inspire change within their communities, large-scale transformation ultimately depends on decision-makers—those with the authority to shape and implement policies. While there's no shortage of innovative ideas, strategies, and solutions, solely relying on voluntary efforts or goodwill will not produce the desired results. For instance, while waste segregation—particularly for plastics—is often discussed, the focus must shift toward industrializing these efforts and integrating them into business models that turn waste into valuable resources. Waste can also be a resource for energy production. Those in power should encourage and empower society to leverage technological advancements so that multiple environmental issues, such as energy and waste crises, can be targeted simultaneously.

Dr. Benno Böer shared how his journey into environmental science began in a time when no formal Environmental Management programs existed, leading him to navigate

through related fields to build the necessary expertise. Today's students, who now have structured opportunities in this field, should take advantage of these options and contribute meaningfully to solving the planet's environmental crises.

Audience Interaction

Dr. Benno asked the audience to share a piece of advice for the government or the president. The audience members shared a variety of perspectives on the issue. An audience member said that instead of a new suggestion for a new policy, the disconnect between existing policies and their on-ground execution needs more attention because the lack of proper implementation often renders these plans ineffective. There is a need for a system to analyze and address gaps in the process, such as insufficient resources, limited expertise, or inefficiencies in execution. The speaker suggested incorporating ongoing feedback loops to fine-tune processes and ensure outcomes align with intended goals. Dr. Böer agreed with this viewpoint that ineffective implementation often undermines even the most carefully planned policies.

Yet another audience member spoke about how the younger generations born after 2000 have different consumption habits. So, asking them to abandon these habits without viable alternatives is unrealistic. Practical innovations in technology and sustainable goods are required to alter consumption patterns effectively. Dr. Böer connected this point to Sustainable Development Goal (SDG) 12: Responsible Consumption and Production. He said that achieving these goals requires global cooperation, and everyone has a role in promoting responsible consumption.

Before closing the session, Dr. Benno Böer invited the audience, particularly the younger participants, to share their ideas or recommendations for advancing the sustainability agenda. A college student from Miranda House eagerly took the floor, introducing a project spearheaded by her institution's Enactus Society, which is part of a global organization active in 13 countries. The initiative aims to produce eco-friendly packaging materials from mushroom mycelium and agricultural stubble to mitigate plastic pollution and reduce agricultural stubble burning. These biodegradable alternatives can help replace styrofoam and bubble wrap and contribute to combating the growing plastic crisis. However, she candidly acknowledged the hurdles they face in making the project economically feasible and sustainable.

Commending her efforts, Dr. Böer drew a parallel between this project and a similar initiative supported by the Regional Center for Biotechnology (RCB), a UNESCO Category 2 Institute based in New Delhi. The startup, led by four Indian women, processes rice and wheat straw by washing and incubating it with fungal enzymes to produce a foam material that is an alternative to plastic and can also be used as insulation. Dr. Böer emphasized that developing sustainable solutions requires perseverance; while setbacks are expected, careful planning can take such green initiatives forward.

Wrapping up the session, the moderator identified accountability as essential for collectively resolving the plastic pollution crisis and appreciated the speakers' insights and the participants' thoughtful engagement.

CLIMATE CHANGE AND GLOBAL ACTION

SAMVAD 10

MR. RAJAN MEHTA

Fellow, Harvard University and Author of "Backstage Climate"

Mr. Rajan Mehta is a Harvard University Advanced Leadership Fellow and author of bestseller "Backstage Climate". At Harvard, he focused on climate change and the circular economy. He is currently incubating Climate Ventures Partner to bring clean tech solutions to India and is the Founder of Climate Action Labs as a platform for climate action. He has been a serial tech entrepreneur and held senior leadership roles at companies like Motorola and Nortel and played an instrumental role in their startup operations in India and South Asia.

Dr. Sudhanshu Sinha was amongst the top 10 Indian scholars selected in 1993 for the prestigious Cambridge Nehru Scholarship for doing a PhD at the University of Cambridge, England. With over 20 years of Environmental, Climate and CSR work experience in India and overseas with United National Development Programme (UNDP), Canadian and British High Commissions in India, Dr Sinha is currently Regional Monitoring and Evaluation lead of British Council.

DR. SUDHANSHU SINHA

Senior Advisor, British Council

Dr. Sinha: There's so much literature on climate—how did you think of writing a book like this, especially in such a simple format? What was the thought behind it?

Dr. Mehta: Last year, an international survey among adolescents asked a simple multiple-choice question: "What is climate change?" One of the options was summer, winter, autumn, and spring, while another was global warming, along with other choices. Shockingly, 53% of the respondents chose summer, winter, autumn, and spring. That was a wake-up call for me. While people may have access to information, they don't necessarily have awareness or understanding. My goal in writing this book was to bring the climate issue to center stage—into everyday conversations at dining tables—so we all start discussing it. Once conversations begin, action will follow.

Dr. Sinha: Your book, "*Backstage: Climate*" recently published in 2024, incorporates two decades of literature, making it one of the most updated works on the topic. So, what is climate change, and why should we be worried about it?

Mr. Mehta: We are all aware of climate change because nature has been sending urgent warnings—through cloudbursts, floods, heatwaves, droughts, and rising sea levels. These are not isolated incidents but direct manifestations of climate change, which stems from global warming, the gradual rise in the Earth's average temperature. One major consequence of this warming is the melting of glaciers, which leads to rising sea levels. To put this into perspective, if the Antarctic and Greenland ice sheets were to melt completely, sea levels would rise by 200 feet. Such a scenario would submerge coastal cities, where much of the global population and critical infrastructure are concentrated, creating unprecedented challenges. Vector-borne diseases and mental health challenges are also expected to increase in frequency due to climate-related stressors. Climate change will also severely impact food systems. Shrinking land areas will reduce arable land, making food production more difficult. Crops will be increasingly vulnerable to extreme weather events such as floods and heatwaves, further jeopardizing food security. Beyond habitation, health, and food, infrastructure is at significant risk of damage from climate-related disasters. These interconnected challenges make climate change an urgent concern. The repercussions span every facet of our existence, demanding immediate and collective action.

Dr. Sinha: What exactly is the science behind climate change, in simple language, so people

can understand? What is causing it?

Dr. Mehta: Climate change, in itself, isn't new. The Earth has always experienced extreme heat and cold cycles—from being a ball of ice to having no ice at all. These natural shifts are governed by two primary cycles: the orbital cycle and the carbon cycle. The carbon cycle governs the movement of carbon across the atmosphere, biosphere (living organisms), geosphere (the ground), and hydrosphere (oceans). Although the total carbon on Earth remains constant, it transitions between these spheres. For instance, when plants and animals die, carbon is stored in the ground as fossil fuels or released into the atmosphere. Oceans also play a role in absorbing carbon dioxide, keeping it in constant flux. During periods when atmospheric carbon dioxide is low, the Earth efficiently radiates excess heat into space. However, when greenhouse gases like carbon dioxide accumulate, they form a blanket around the Earth. This blanket doesn't generate external heat but traps the Earth's heat, like a winter blanket that prevents warmth from escaping, warming the planet. Today, industrialization and the excessive burning of fossil fuels have intensified this natural cycle. Emissions are being released unprecedentedly, thickening the greenhouse gas blanket. This is akin to piling on multiple blankets on a winter night, making the planet increasingly uncomfortable.

Dr. Sinha: Why is the world not doing enough to address climate change?

Mr. Mehta: There are several fundamental and technical reasons behind the lack of sufficient action on climate change. From a technical perspective, the world's dependence on fossil fuels hampers anti-climate-change action. Many governments, for example, derive a large portion of their revenue from fossil fuels. In India, fossil fuels contribute 18% of government revenue. Eliminating this dependency would create a significant revenue shortfall, making it difficult to fund essential national programs. Furthermore, addressing climate change requires managing a dual challenge: reducing greenhouse gas emissions, which directly affects revenue from fossil fuels, while simultaneously investing in alternative energy sources, which demands substantial financial resources. Governments find themselves caught in this financial dilemma, making it difficult to take decisive action. These intertwined issues, both fundamental and technical, illustrate why meaningful progress on climate change remains so elusive.

Dr. Sinha: Who has caused the problem, and how are we trying to solve it at the political and technological levels?

Mr. Mehta: The root cause of climate change lies in greenhouse gases, primarily carbon dioxide, methane, and nitrous oxide. These emissions originate from fossil fuels, industry, and agriculture and land use, with fossil fuels accounting for 70% of the damage, industry contributing 20%, and agriculture and land use responsible for the remaining 10%. Let's cover these one by one.

The largest contributor is fossil fuels, used predominantly for electricity generation. Currently, 66% of global electricity is produced from thermal sources reliant on fossil fuels, resulting in 36 billion tons of carbon dioxide emissions annually. The global response to this involves transitioning to renewable energy. Although progress is being made, efforts and investments in renewable energy must intensify to accelerate this shift. Transportation, another major emitter, contributes approximately 26-28% of greenhouse gas emissions across surface, sea, and air travel. The adoption of electric vehicles (EVs) offers a solution, though some critics argue that emissions are merely shifted from vehicle tailpipes to power plants. Industrial processes, particularly cement and steel production, contribute about 11% of global greenhouse gas emissions, amounting to six billion tons of carbon dioxide annually. Innovations in electrochemistry are being explored to mitigate emissions in these sectors, though further advancements are needed to significantly reduce their impact.

Although agriculture is perceived as natural, it contributes 10% of emissions through several processes. Deforestation for farming releases stored carbon into the atmosphere, while tilling exposes soil microbes that decompose and emit carbon dioxide. Rice cultivation involving flooded fields leads to microbial fermentation that releases methane, a gas 80 times more potent than carbon dioxide. Furthermore, approximately 33% of food produced globally is wasted, with decomposition adding to emissions.

Livestock, is another significant contributor. Methane is released during their digestive process through fermentation in their stomachs, with belching accounting for substantial emissions. Methane from livestock manure adds to the problem, and the cultivation of cattle feed exacerbates deforestation. Notably, 17% of the Amazon rainforest has been cleared for this purpose in the last 25 years. Efforts are underway to address these challenges. Probiotic feed additives can reduce methane emissions from livestock by about 30%. Shifting consumer preferences toward plant-based meat can decrease livestock demand, alleviating environmental pressures. For the broader issues, transitioning to renewable energy, adopting EVs, and advancing industrial processes remain critical.

Audience Interaction

Audience: What is your take on the heat island effect caused by urbanization? Cities are contributing to this phenomenon, becoming heat islands and adding to the climate challenge.

Mr. Mehta: The heat island effect is well-recognized, and observed in many urban areas. If you map a city in concentric circles, you will find that the core is always the hottest, with temperatures gradually reducing as you move outward. Urbanization is significant in this phenomenon because ambient heat tends to be retained in cities due to the materials and structures present. Efforts are being made to counteract this effect in several cities worldwide.

For instance, places like Melbourne and Los Angeles have adopted measures such as:

- *Greening the City:* A scientific approach to urban greening is employed, as not all green initiatives deliver the same results.
- *Reflective Materials:* These are being used on rooftops and streets, helping to reflect heat rather than absorb it.

Interestingly, while cities face the heat island effect when designed and managed well, densely populated urban areas can be more climate-friendly than semi-urban sprawl or rural areas. In dense cities, per capita material usage is lower, and the surface area that absorbs heat is also reduced. For example, let's compare a city like New York to an equivalent population spread across suburban areas. New York proves to be far more sustainable in terms of resource use and energy efficiency.

Audience: Common but differentiated responsibilities (CBDR) have been a key principle since the Paris Agreement. However, financial assistance provided by developed countries to least developed countries (LDCs) or island nations seems very undefined and inconsistent. Promises are made, but they are often not fulfilled. How should the policy around this issue

work? There needs to be consistency in funding to achieve collective growth.

Mr. Mehta: This question addresses two interconnected issues: the principle of common but differentiated responsibilities (CBDR) and the financial support developed nations provide to less developed and island countries.

The CBDR principle is one of the most significant inclusions in the Paris Agreement. Global consensus on climate action would have been nearly impossible without this clause. CBDR recognizes that while all nations must work collectively toward reducing emissions, each country can decide its specific contributions. This flexibility acknowledges nations' varied capacities, resources, and historical responsibilities. While debates continue about whether nations meet their self-determined targets, the framework creates a pathway for collective progress toward global goals.

On the issue of funding, the developed world is undoubtedly historically responsible for the current climate crisis. These nations were the first to exploit fossil fuels, utilizing this "black gold" for industrial, military, and social advancement. Now, as the climate crisis intensifies, developed countries are urging developing nations to decarbonize and transition to renewable energy—a process that requires significant resources.

From the developing world's perspective, taking decisive action is not just about meeting global expectations; it is a matter of survival. Climate disasters disproportionately affect developing nations, which lack the technology, infrastructure, and financial resources to cope. While developed nations may have the means to manage these crises effectively, developing countries often have no recourse but to rely on nature's mercy. This shows the urgent need for the developing world to align its efforts toward reducing greenhouse gas emissions, even as it seeks support from wealthier nations.

Financial assistance from developed nations remains a critical yet unresolved issue. Promises made are often unfulfilled, leaving the developing world in a precarious position. However, mounting global pressure on developed nations to fulfill their financial commitments offers some hope.

Securing financial commitments has taken decades of negotiations, and while no one parts with money easily, continued dialogue and international pressure will hopefully lead to meaningful resolutions soon.

NATURE-CLIMATE-HEALTH INTEGRATION FOR SUSTAINABILITY

SUSTAINABILITY SAMVAD 11

PROF. NIDHI NAGABHATLA

Senior Fellow and Program Lead,
United Nations University, Belgium

Prof. Nidhi Nagabhatla is a Senior Fellow and Program Lead (Nature, Climate, and Health) at the United Nations University (UNU- UN think tank), Belgium. She has nearly 25 years of experience in sustainability science and systems analysis. She holds academic and professional roles at McMaster University (Canada), Universidad Mayor de San Andrés (Bolivia), Oxford (UK), Leibniz (Germany), Imo State (Nigeria) and Ghent (Belgium) Universities. She is a contributor to various UN initiatives and coordinated more than 560 projects worldwide, both in the Global North and South. She is actively involved with UN-led initiatives, including IPBES, WASAG, and PEDRR (currently Co-Chair); she has published over 250 works related to science-policy interfacing.

Ms. Stefania Fontana is a skilled project management assistant at Fondazione Lombardia per l'Ambiente (FLA) in Milan. With a keen focus on environmental sustainability and project coordination, she plays a crucial role in supporting the development and implementation of various environmental initiatives. Ms. Fontana excels in organizing and managing project timelines, coordinating with stakeholders, and ensuring that environmental projects align with the foundation's goals of promoting sustainable development and environmental conservation. Her expertise and dedication contribute significantly to the success of FLA's mission to foster a healthier and more sustainable environment.

MS. STEFANIA FONTANA

Project Management Assisstant,
Fondazione Lombardia per l'Ambiente (FLA), Milan

Prof. Nidhi Nagabhatla introduced the United Nations University (UNU), headquartered in Japan with 14 global offices specializing in themes such as digital innovation in Macau and multi-level governance from Brussels, alongside activities in Canada, Africa, and Asia. While UNU lacks an office in India, efforts are underway to establish operations benefiting Indian scholars. She highlighted programs supporting young professionals, including financial aid for participation in global events like COP, enabling meaningful contributions to sustainability efforts.

Ms. Stefania Fontana described the work of the Lombardy Foundation for the Environment, tracing its roots to a catastrophic industrial accident in 1976 that spurred the need for stronger safeguards against environmental risks. This incident shaped regional responses and catalyzed the European Union's Seveso Directive, bringing comprehensive policies to prevent industrial disasters. The foundation now plays a broader role in advancing sustainability through its technical support to the regional administration.

She critically examined the barriers to sustainability implementation, focusing on the gap between policy frameworks and ground-level impact. While effective strategies and solutions exist, the challenge lies in overcoming entrenched individualistic mindsets and short-term priorities, which hinder collective action. Resistance from stakeholders—questioning why they should invest in changes with deferred benefits—illustrates the disconnect between awareness and motivation, an obstacle to sustainability education.

Audience Interaction

Ms. Priyanka Sharma, Head of Projects & Partnerships, Mobius Foundation, asked: How can sustainability efforts transition from mere awareness-raising to creating economic systems and incentives that make green careers and the green economy mainstream, i.e. default choices for individuals?

In response, Ms. Fontana mentioned operationalizing sustainability by discussing the European Union's structured approach, which pairs investments with incremental regulatory measures. "Regions are closer to citizens and local problems, enabling them to find solutions, provide financial assistance, and address issues like climate adaptation effectively," said Stefania on the role of regional administrations. This approach makes

resources accessible directly to individuals and corporations, bypassing NGOs and thereby supporting engagement.

What pathways are available for individuals to engage deeply with sustainability efforts and collaborate with organizations to build collective action in this space.

Prof. Nidhi pointed to a plethora of opportunities available to youth in the current era. She contrasted it with a time in 2014 when youth were absent from high-level meetings, leading to the creation of the world's first global youth platform under the FAO of the UN.

Over the past decade, young people have progressed from having a seat in the room to gaining a voice at the table. The speaker encouraged youth to explore networks, join organizations, and reach out to discover numerous ways for meaningful contributions to sustainable development.

Ms. Fontana observed that in Italy, formal education often takes precedence over practical experience, with entry-level roles frequently requiring a PhD. This undervalues diverse experiences like volunteering and international exposure, which offer unique strengths. The rigid university system further limits access to opportunities. She recommended exploring third-sector organizations, which provide avenues for collaboration, partnerships, and global exchange, empowering young people to contribute meaningfully.

CLOSING CEREMONY

Ms. Anupama Madhok quickly recapped the two-day conference before **Dr. Ram Boojh** shared a few words acknowledging the efforts of the Scientific Committee for Drafting Recommendations (SCDR), chaired by **Dr. Erach Bharucha, Director, BVIEER, Pune**. The other committee members included:

- **Prof. Vinod Sharma**, Indira Gandhi Institute of Development Research, Mumbai
- **Prof. Sangeeta Sharma**, Director, Indian Institute of Environment Management, Mumbai
- **Ms. Anupama Madhok**, Executive Director, Water Digest, New Delhi

Following his remarks, **Dr. Kartikeya Sarabhai** felicitated the committee members on stage. This was followed by the felicitation of the **Academic, Policy & Action Advisory Committee (APAAC)**, which comprised:

- **Dr Prabhjot Sodhi,** Sr. Director, CEE Ahmedabad (Chair)
- **Dr. Suraj K. Tripathi**, Associate Dean, School of Chemical Technology, KIIT
- **Dr. A.K. Swar**, Former Chief Engineer, Odisha Pollution Control Board
- **Dr. Abdhesh Gangwar**, Focal Point, RCE Srinagar, J&K
- **Prof. Suprava Patnaik**, Former Principal Advisor, AB Institute of Good Governance and Policy
- **Dr. Tabassum Jamal**, Chairperson, Zaheer Science Foundation, New Delhi

GUEST OF HONOUR

Dr. Harsh Gupta, Former Secretary, Govt of India, highlighted the contribution of geosciences to sustainability, referencing data from the International Geology Congress 2024 in Busan. Geosciences account for 19% of the total impact on the Sustainable Development Goals (SDGs), spanning all 17 goals. Therefore, geology, an often-overlooked subject, should be introduced at earlier educational stages. Dr. Gupta also called for earthquake preparedness, citing alarming statistics from a study simulating the impact of a magnitude 8 earthquake in the Kangra region. Such an event could result in over half a million fatalities in Himachal Pradesh, Haryana, Punjab, and Chandigarh if it occurred at night. Since higher magnitudes release exponentially greater energy, preparedness is essential. He shared the success of earthquake scenario exercises conducted in Himachal Pradesh, Haryana, Punjab, Chandigarh, and eight northeastern states, which improved readiness among citizens, government machinery, and other stakeholders. Presenting Nepal as an example, he proposed observing an **"Earthquake Day"**, which led to preparedness and a significant drop in casualties in the aftermath of the 2015 earthquake in Nepal.

GUEST OF HONOUR

Mr. Hem Pande, Former Secretary, Govt of India, began his speech with a Sanskrit verse:

विद्दा ददाति वनियं वनियाद् याति पात्रताम्।
पात्रत्वात् धनम् आप्नोति धनाद् धर्मं ततः सुखम्॥

Vidya dadati vinayam vinayad yati patratam,
Patratvat dhanam apnoti dhanad dharmam tatah sukham.
("Knowledge makes one humble; humility begets worthiness; worthiness creates wealth; and wealth, used rightly, leads to proper conduct and contentment.")

He then urged the audience to reflect on the meaning of the verse and whether its essence is genuinely being realized—whether today's education system fosters humility or adequately prepares individuals for employment, particularly in the Indian context, as tied to SDG4. He voiced concerns about unemployment and education's inability to meet its goals. Preferring the term "ecology" over "environment" for its focus on the interconnectedness of all living beings—a perspective often missed, Mr. Pande flagged ecological concerns and critiqued token gestures like observing environment days, calling them "rainbow washing" or "greenwashing.

He observed in San Francisco how discipline—such as standing in queues and obeying traffic rules—comes naturally to people because it is ingrained through education from an early age. Contrasting this with the lack of public discipline in India, he urged individuals to first focus on improving their behavior, whether in public conduct or adopting sustainability in daily life and emphasized that embedding such values into early education is essential to bringing about these lasting changes. Speaking from experience, Mr. Pande shared

that ministries and agencies frequently operate in isolation, with little collaboration. For instance, the Environment Ministry was often called a "clearance ministry" because it prioritized approvals over compliance. He cautioned that unless the discourse is revisited, the Sustainable Development Goals (SDGs), like the Millennium Development Goals (MDGs), will remain unfulfilled targets on paper while the destructive impact of human activity continues unchecked, affecting 1.7 million known species and an estimated 100 million unknown.

He shared examples of grassroots efforts in Maharashtra and his work in Midnapur from 1994-1997 under the Swachh Bharat Abhiyan, where he made progress in just 100 out of 14,000 villages. He also identified India's population challenge, housing one-fifth of the world's population and comprising only 2-2.5% of the earth's geographical area. In this scenario, taking small steps rather than waiting for one entity to take charge is crucial.

In his concluding remarks, ***Dr. Benno Böer, Chief, Natural Sciences Unit, UNESCO New Delhi***, presented six key takeaways.

- First, while awareness of environmental issues exists, it needs substantial improvement, particularly in schools and universities. With an estimated 5 to 10 million schools worldwide, making every child an environmental steward to create a positive impact is urgently required. He contextualized the growing urgency by referencing the UNESCO biosphere reserves established during the 1971 world energy crisis when the global population was 3.5 billion compared to today's 8.1 billion.
- Second, while many environmental challenges are well-known and solutions exist for most, some remain unresolved—such as removing microplastics and nanoplastics from oceans. He commended the two award-winning women from Kashmir for their innovative solution of repurposing plastic waste as packaging material, describing it as both impactful and applicable, and emphasized the need for more such initiatives.
- Third, scientific research and monitoring of urban and natural ecosystems should be increased, as they allow for the detection of changes—both positive and negative—and enable timely corrective actions.
- Fourth, schools should act as sustainability hubs, encouraging sustainable practices such as rainwater harvesting, recycling water, and forming youth-led initiatives focusing on clean energy, biodiversity, school gardens, and waste management. Embedding sustainability into daily school activities is essential.
- Fifth, he recognized the green economy as the future of sustainability and outlined a progression from green science to green education, culminating in a thriving green economy.
- Finally, Dr. Böer called on governments and institutions to "walk the talk." With UNESCO's 194 member states and approximately 55-60 UN agencies, he urged all stakeholders to lead by example. Beyond governments, individuals must also adopt sustainable practices in their own lives. He concluded his remarks by quoting Mr. Sunil M. Shastri, Consultant, Educator, and Speaker on Ocean and Environmental Governance: "Each one of us has to be an agent of change."

Dr. Kartikeya Sarabhai, Founder, CEE, first responded to a question asked previously: *Are we failing to address environmental challenges?* He explained that progress often begins by slowing decline before rebuilding, citing successes such as India's lion population recovering with community support and the global efforts to mend the ozone layer, which is expected to be fully restored by 2050. However, unlike ozone depletion, environmental challenges require action from every citizen. Change, he noted, begins in schools, where children influence their parents, as seen in behavioral shifts like reduced smoking. Unfortunately, fear also begets change, as demonstrated by COVID-19, where panic drove precautionary measures.

Dr. Sarabhai noted that environmental issues show their effects gradually. However, climate change has now become a local and personal issue. Children, who once drew polar bears and melting glaciers as symbols of climate change, now depict floods and droughts they see or hear about in their surroundings. Linking this shift to education, he emphasized that it is a key tool to prevent ecological disasters. Acting with knowledge is far better than learning through suffering, said Dr. Sarabhai, citing a lesson from the Bhagavad Gita.

He also shared insights from Dr. Ashok Khosla's analysis, which showed that women's empowerment and education could significantly reduce population growth, and also appreciated Mr. Pradip Burman's ground-level work in addressing population-related challenges in environmental contexts. Using worsening traffic congestion as an example, Dr. Sarabhai underlined that increased income and advancements could also result in inefficiencies and environmental degradation without an alternate development model. Therefore, the role of education, particularly through the National Curriculum Framework (NCF), in fostering sustainability is far-reaching, with teacher training being consequential in achieving these goals. He reaffirmed that collective efforts will continue until these challenges are resolved.

Dr. Aditya Pundir, Director, Climate Reality Project India and South Asia, introduced three approaches to integrating sustainability into education and practice.

- First, regular reality checks are essential. He urged individuals not to disconnect from their surroundings or deny the visible impacts of climate change. Earlier in the climate movement, he noted how conversations once centered on consequences showing up in a distant future. However, rising temperatures and frequent floods make immediate awareness and preparedness crucial today.
- Second, he underlined the need to align sustainability education with community resilience. Current approaches often rely on reactive measures and adaptation, but such methods are no longer sufficient to address the escalating challenges predicted by scientists. Instead, he called for transformative strategies integrating resilience and sustainability education to drive meaningful progress.
- Finally, Dr. Pundir highlighted the intersection of sustainability education and mental health. During his fieldwork, he observed that growing anxiety among youth has led many to question their future and life choices amidst environmental crises. Therefore, mental health support should be incorporated into sustainability education to manage these psychological repercussions effectively.

CONCLUDING REMARKS

Mr. Pradip Burman, Chairman, Mobius Foundation

"It is truly an honor to speak at the conclusion of this important gathering. I would like to share the vision that drives the Mobius Foundation. From the beginning, we have focused on two critical areas of sustainability: education and population. In my view, these two priorities are at the core of the solutions we need for the challenges we face today.

Addressing the population crisis is a long-term process. Reducing the global population from 8 to 4 billion may take at least 50 years, but we must start now. In India, the situation is equally urgent. I believe that to balance rising aspirations and limited resources, we need to work toward reducing the population from 140 crores to 70 crores. This may seem like a daunting task, but it is a necessary one if we are to ensure the survival of future generations.

Our youth hold the power to transform this vision into reality. They have the energy, determination, and potential to bring about change. If we fail to empower them today, they will rightfully question us tomorrow. Greta Thunberg's Fridays for Future movement sparked a global wave of climate activism. Such initiatives show the incredible potential of young people when they are inspired to act.

Education is the key to empowering our youth. But education must go beyond textbooks and classrooms. It should be about experiential learning—helping students understand sustainability through real-world applications. Schools can become hubs for change by adopting practical initiatives like installing solar panels, managing waste effectively, and implementing water conservation systems. When students see these solutions in action, they will grow up with a deeper understanding of environmental stewardship.

Another area that demands attention is biogas production from cow dung. India's vast cattle population presents an enormous opportunity to produce clean energy and biofertilizers. By adopting such measures, we can reduce reliance on chemical fertilizers, restore soil health, and contribute to sustainability in a very tangible way.

Finally, meaningful change must come from within. True transformation begins with a change in mindset. As one of the sessions highlighted, whether we are discussing geography, history, or sustainability, it all starts with how we think. Once we challenge our perspectives and priorities, external change will naturally follow. Let us leave this conference inspired to act, not just for ourselves but for future generations. Together, we can make sustainability an ideal and a way of life."

Mr. Parveen Garg IAS (Retd.), President, Mobius Foundation

"Good evening, ladies and gentlemen, each one of us, no matter our role or level of influence, has the ability to lead by example. Change begins with individual actions, whether at the personal, community, or institutional level. Of course, we can talk and deliver speeches for hours, but what truly matters is setting an example. That is where transformation starts. I urge all of you to start small. Don't put it off for tomorrow—begin now, here and today. I recommend a simple, actionable idea: create a personal list of 10 green deeds—actions that align with sustainability. These deeds can be small, medium, or big, depending on what you can commit to each day.

For instance, consider conserving water while bathing or commuting by bicycle. While I know cycling isn't always the safest in India, in many Western countries, cyclists are given the first right to cross the road. It's a small change, but it can make a big difference. These small actions matter because every drop contributes to creating an ocean. Committing to your 10 green deeds can set an example that inspires others to act. This conference has inspired us all, and now it's our turn to turn that inspiration into action. The time to act is now. Let's not wait for tomorrow."

ADDRESS BY THE CHIEF GUEST

Dr. Rajendra Singh, Magsaysay Awardee, 'Waterman of India', & Chairman, People's World Commission on Drought and Flood

"I congratulate the Mobius Foundation for keeping its dreams and determination alive. But let me say this clearly—solutions don't come from talking alone. They come from action. And action must begin today, not tomorrow. The increasing floods and worsening droughts we are witnessing today are nothing but the "Pralay" (apocalypse) described in our Indian scriptures—caused by humanity's ongoing disregard for nature. Words alone will not lead to meaningful change.

Let me share a small incident. On March 23 last year, I was at the UN headquarters in New York for the second Water Convention—47 years after the first one. Experts from all over the world were present, but I noticed something deeply concerning. Everyone was talking about water from their own needs and perspectives. No one mentioned rivers, trees, plants, the earth, or oceans. We were a delegation of 52 people from India. Seeing this narrow view, I coined the slogan *"Neer, Naari, Nadi"* (Water, Women, Rivers). I told their team, "Water means peace, but everything you're discussing here is about war." We requested to meet

someone who would listen to us. The UN General Secretary came forward and proposed celebrating the next World Water Day as Water Peace Day. But I told him, "Don't just declare a day. People's hearts and minds must turn toward nature."

If we genuinely want to address this climate emergency, we must reconnect with nature. Humanity must shift its focus from material desires to nurturing our natural world. When people naturally love nature and water, population growth will slow, and ecological balance will begin to restore itself. This shift must also transform our education system—embedding sustainability into its foundation.

VOTE OF THANKS

Dr. Ram Boojh, Convener, ICSE

"It is with immense gratitude that I stand here today to extend my heartfelt thanks to all those who have contributed to the success of this remarkable event. As rightly emphasized by all the speakers, the thread of sustainability is woven into the very fabric of life, and this thread is the foundation we must protect.

I want to share a poignant thought inspired by an editorial from The Times of India titled "Eating of the Earth." It sheds light on the unsettling reality of elephants being killed in Namibia and Zimbabwe to feed humans—a stark illustration of how humanity's actions have reached unprecedented extremes. It's a call to reflect on our responsibilities, as echoed in the Sanskrit phrase: **"प्रकृति रक्षति रक्षिता"**—Nature protects if it is protected.

Once again, I am deeply grateful to all the esteemed luminaries present here today, including those who have tirelessly supported this mission. A special acknowledgment goes to the Mobius Foundation team. Behind the scenes, our ICSE Secretariat team—a small but extraordinary group of individuals comprising Mr. Shrawan Kumar, Dr. Bhagyashree Kesherwani and Ms. Palakdeep Kaur—has been the backbone of this event. Their contributions, alongside our media and logistics teams, ensured everything ran smoothly.
Thank you all for your presence, support, and contributions. Together, we have made this event a meaningful step toward sustainability."

RECOMMENDATIONS FROM ICSE 2024

1. **Strengthen Environmental Literacy:**
   Integrate environmental education and literacy into curricula and making it compulsory (Credit based) at all education levels and augmenting the existing strategies to ensure a foundational understanding of sustainability principles and systems thinking.

2. **Promote Sustainable Lifestyles:**
   Implement initiatives like Project LiFE to encourage mindful consumption and integrate traditional values with modern sustainability practices.

3. **Hands-On Learning Projects:**
   Advocate for the 'Handprint' approach that emphasises practical, action-oriented projects to teach sustainability and green job skills and at the same time making the students the Agents of Change.

4. **Green Campuses:**
   Establish sustainable practices within educational institutions, including net- zero initiatives and renewable energy adoption, to model environmentally-friendly behaviours.

5. **Empower Educators:**
   NEP and NCF exists on the basis of which we need to build capacities of teachers at all levels to be able to achieve SDG goals by 2030. Provide comprehensive training for teachers to effectively teach sustainability topics and act as key change agents in their communities. Focus on critical thinking and adaptive learning models.

6. **Digital Education Expansion:**
   Leverage digital platforms to deliver sustainability education to underprivileged areas, expanding reach and impact through initiatives like Gyan Kanya Shakti Programme.

7. **Interdisciplinary Collaboration:**
   Encourage interdisciplinary approaches in higher education to tackle environmental challenges through a mix of science, policy, and societal understanding.

8. **Policy Advocacy:**
   Support policies that prioritise sustainability in education, ensuring equitable access and integration of environmental goals in the National Education Policy (NEP) 2020 and NCF 2023.

9. **Global Partnerships:**
   Strengthen international collaborations, sharing best practices and resources for sustainability education through partnerships with organisations like UNESCO.

10. **Youth Empowerment:**
    Develop programs to train young leaders in climate action and sustainability, engaging them in forums to voice ideas for a sustainable future. To bring climate resilience Adaptation using Nature-based Solutions.

11. **Green Skills Development:**
    Bridge the gap between education and industry by incorporating green skills and sustainable practices into educational programs.

12. **Traditional Knowledge Integration:**
    Recognise the value of indigenous knowledge systems in environmental education, embedding it into modern curricula to address contemporary challenges.

13. **Societal Change through Education:**
    Position education as a proactive force in driving societal change towards sustainability, not merely responding to industry demands.

14. **Policy and Governance for Plastic Pollution:**
    Strengthen policies like Extended Producer Responsibility (EPR) to manage plastic waste, and support international treaties targeting plastic pollution.

15. **Innovation in Green Chemistry:**
    Invest in R&D for bioplastics and sustainable materials, promoting chemical recycling and local adaptations in waste management technologies.

16. **Business Collaboration for Recycling:**
    Incentivise businesses to adopt sustainable models for plastic recycling and upcycling, fostering collaborations with academia and government.

17. **Circular Economy Awareness:**
    Educate the public on the health impacts of plastic pollution and promote behavioural changes to reduce plastic use.

18. **Product Redesign for Circular Economy:**
    Shift to designing products for durability, repairability, and recyclability to extend resource lifecycles and minimise waste.

19. **Shared Economy Promotion:**
    Advocate for models that reduce ownership, such as shared and rental services, to decrease resource demand and environmental impact.

20. **Empowering Women and Communities:**
    Include women in decision-making and support community-based circular economy initiatives that integrate traditional practices.

21. **AI in Sustainability Education:**
    Use AI-driven tools for personalised learning and curriculum design, enhancing engagement and scalability of sustainability education.

22. **Population growth has a direct impact on sustainability.** Addressing the growing population pressure is crucial for managing resources and maintaining sustainable development.

23. **Environment, population and energy have a dialectical relationship and need to be addressed together through the 4A principles—Acceptability, Accessibility, Affordability & Accountability.**

CULTURAL EVENING

The Cultural Evening of the 6th International Conference on Sustainability Education (ICSE 2024) was a powerful blend of art, tradition, and ecological wisdom. The event opened with a vibrant performance by students from Gyan Anant Vidyalaya, celebrating the strength and nurturing spirit of women. This was followed by an inspiring keynote by **Padma Vibhushan Dr. Sonal Mansingh, renowned classical dancer and cultural icon,** introduced by Ms. Priyanka Sharma of Mobius Foundation.

CHIEF GUEST'S ADDRESS

Dr. Sonal Mansingh, Former, M.P. (Rajya Sabha), Celebrated Bhartiya Classical Dancer

Dr. Mansingh eloquently connected Indian classical arts with ecological consciousness. She emphasized *Bhumi Pranam*, the ritual of bowing to Earth, and reflected on the interconnectedness of all life, rooted in Indian philosophy. *Through stories from mythology and ancient gurukul traditions, she highlighted the urgent need to revive value-based education that fosters humility, gratitude, and reverence for nature.*

Warning against modern excess and environmental degradation, she cited floods, ecological imbalances, and human greed as symptoms of neglecting natural balance. She stressed that sustainability must go beyond slogans—it requires inner transformation, mindful consumption, and deep respect for Mother Earth.

Dr. Mansingh's address, enriched with poetry, personal anecdotes, and spiritual reflections, left the audience with a profound question: *Who is Krishna today? Who will rise to protect the environment? Her message was a call to action—for each of us to become custodians of the planet through purposeful living and meaningful choices.*

This was followed by enchanting performance by Dr. Sonal Mansingh's disciples of "Centre for Indian Classical Dances artists".

Above: Students of Gyan Anant Vidyalaya
Below: Artists from Centre for Indian Classical Dance

EXHIBITION AT ICSE 2024

MOBIUS FOUNDATION

The Mobius Foundation Exhibition at ICSE 2024 showcased 'BIJUKA' (Scarecrow), a powerful installation that highlighted the growing issue of overconsumption in society. The exhibit served as a stark reflection of how individual patterns of excessive consumption were contributing to the increasing strain on the Earth. Through the symbolic representation of the scarecrow, BIJUKA challenged visitors to confront the consequences of unsustainable living while advocating for a shift towards mindful, want-based living. The thought-provoking showcase urged viewers to reconsider their role in environmental degradation and embrace a more conscious, responsible way of life.

SUNDESH

Sustainable Development Society (SUNDESH) actively participated in the ICSE Conference 2025, showcasing its impactful initiatives in education, health, and community development. Through our dedicated stall, we engaged with educators, policymakers, and industry leaders, highlighting our efforts. The conference provided an excellent platform to share best practices, foster collaborations, and reinforce our commitment to transforming lives through sustainable interventions. The response from attendees was encouraging, further motivating us to scale our efforts for a greater impact.

AGRILIV RESEARCH FOUNDATION

Agriliv Research Foundation (ARF) actively participated in the ICSE Conference 2025 showcasing its research and innovations in environmental sustainability, particularly its testing capabilities and research initiatives aimed at promoting sustainable agricultural practices. The participation aimed at forging new collaborations, exploring new opportunities, and showcasing ARF's contribution towards environmental stewardship.

POPULATION FOUNDATION OF INDIA

The Population Foundation of India exhibition highlighted the importance of awareness and contraceptive methods under the Aakar project in Umeed 1.0 & 2.0, supported by the Mobius Foundation. It showcased how clients across different districts receive support through Umeed Paramarsh Kendras. These Kendras have been established in Community Health Centers (CHCs) and Primary Health Centers (PHCs) in every district to raise awareness, promote women's health, prevent child marriage, delay early pregnancies, and address other related issues. The stall was visited by all Mobius heads, who appreciated their efforts.

JANANI

Janani actively participated in ICSE 2024, setting up a stall to explain and showcase various family planning methods under the Aakar project in Sidharth Nagar, supported by the Mobius Foundation. They displayed different method kits and demonstrated how these methods are provided to clients and effectively implemented in the field. The stall was visited by all Mobius heads, who appreciated their efforts. It was a valuable experience for the Janani team, offering opportunities for networking and presenting their work on an international platform.

THE CLIMATE REALITY PROJECT, INDIA & SOUTH ASIA

The Climate Reality Project India & South Asia set up a stall at the ICSE conference with an interactive 'Pledge Selfie' activity designed to raise awareness about key sustainability issues. Focusing on various issues related to climate change through this initiative, participants were encouraged to select a pledge, take a selfie with it, and receive a badge of commitment. More than 230 visitors took selfies with us, committing to green action to address climate change and wearing the badges as a symbol of their commitment.

CENTRE FOR ENVIRONMENT EDUCATION

The exhibition featured a demonstration of canvas paintings created by students of Bharat Mata School, highlighting themes of environmental sustainability and education. Engaging hands-on activities were conducted to promote carbon footprint reduction and sustainable plastic waste management methods. Additionally, a video showcase presented the impact of the Badlaav campaign, led by Sodhi Sir from CEE New Delhi, across five different locations in India.

NOBEL CITIZEN FOUNDATION

The exhibition highlighted our initiatives aimed at equipping young minds with the knowledge and skills to drive sustainable change while fostering holistic development in children and youth.

TERRE POLICY CENTRE

TERRE Policy Centre stall represented the organization's unwavering dedication to environmental sustainability and awareness. The stall had many environmental educational products, lots of interactive and informative materials on important environmental issues

PARACOAT PRODUCTS LTD.

Paracoat Products Ltd. set up an innovative stall at the International Conference on Sustainability (ICSE)! The company focused on showcasing cutting-edge recycled products crafted from agro-waste. The exhibit drew the attention of sustainability leaders and industry experts, who appreciated the company's commitment to eco-friendly solutions and a circular economy.

MOBIUS FOUNDATION

ICSE 2024

6th International Conference on Sustainability Education (ICSE 2024)

Greening Education for a Sustainable Future

Date: 19th September, 2024

Venue: India Habitat Centre, New Delhi

The opening day of the International Conference on Sustainability Education (ICSE) 2024, organised by Mobius Foundation, was a remarkable convergence of global thought leaders, educators, scientists, and policymakers, all dedicated to advancing sustainability education. With the theme of 'Greening Education for a Sustainable Future', the opening day for the sixth edition of the conference set the tone to not just understand sustainability, but to think critically about it and take action now to secure our collective tomorrow.

INITIATING WITH INSPIRATION - OPENING CEREMONY

The conference commenced with the Lighting of the Lamp, symbolising the light of knowledge and sustainability. A special 'ICSE Journey of 5 years: Lookback Video' captured key milestones of ICSE, showcasing the progress of sustainability education in India and globally. Students from Gyan Anant Vidyalaya (GAV) school welcomed the attendees with beautiful Welcome Songs in English and Hindi, setting the tone for an inspiring day ahead. Their innocence and sweetness were a reminder of the importance of this event.

Dr. Ram Boojh, Advisor, Mobius Foundation, delivered the Welcome Address & Introduction, reflecting on ICSE's five-year journey and remarking that the great stars of sustainability are gathered here today.

Keynote Addresses were delivered by Professor Shambhu Nath Singh, Vice Chancellor, Central University, Tezpur, India and Mr. Kartikeya Sarabhai, Founder Director, Centre for Environmental Education (CEE). Prof. Singh emphasised the importance of environmental education in curriculum, while Mr. Sarabhai mentioned 5 key aspects of greening education.

Mr. Praveen Garg, IAS (Retd.), President, Mobius Foundation then delivered the Special Address, stressing the need to think about GDP in green terms. This was followed by a Special Message from Dr. K. Kasturirangan, Chairman of India's National Education Policy (NEP) 2020 & NCF, Former Chairman, ISRO, who unfortunately was unwell and therefore his message was read by Mr. Dilip V. Sarkar, Executive Director, Vikram A Sarabhai Community Service Centre. The Guest of Honour, Mr. Tim Curtis, Director and Representative, UNESCO New Delhi South Asia Regional Office then delivered his address, stressing that we need to rethink our relationship with the planet.

The Chairman's Address was delivered by Mr. Pradip Burman, Chairman of Mobius Foundation, emphasising the role of education in fostering sustainable development.

Hon'ble Minister of State for Education, Government of India, Shri Choudhary Jayant Singh, through his video message, emphasised the importance of youth education in improving rural societies.

The final address was from the Hon'ble Minister of Education, Govt. of India, Shri Dharmendra Pradhan, which was read out by Dr. Ram Boojh, Advisor, Mobius Foundation. The Hon'ble Minister appreciated the fact that the conference is ideal platform for academicians, researchers and students to engage ideas and experience on varied facets of the theme for a nuanced understanding of climate change.

The ceremony concluded with the release of the ICSE 2024 Souvenir and presentation of mementoes to the dignitaries.

A Stimulating Discussion - Special Plenary 1: Greening Education for a Sustainable Future

A thought-provoking Vice Chancellors' Round Table set the first plenary session in motion, with Prof. Somak Raychaudhuri, Vice Chancellor of Ashoka University serving as the Chair and Moderator. Vice Chancellors from prominent universities across India and beyond engaged in a stimulating discussion on how academia can lead the charge in transforming education for sustainability. Following this, a dynamic Educators' Round Table brought forth diverse perspectives on the practical challenges and opportunities of embedding sustainability in curriculums. Dr. Erach Bharucha, Director of Bharti Vidyapeeth Institute of Environment Education, Pune, moderated the session.

Post a vigorous question-answer session the session concluded with the release of a book authored by Dr. Rajendra Singh, Magsaysay Awardee, 'Waterman of India' & Chairman – People's World Commission on Drought and Flood and presentation of mementoes to all the panellists by Dr. Ram Boojh, Advisor, Mobius Foundation.

Vice Chancellors' Round Table Panellists: Professor Somak Raychaudhuri, Vice chancellor, Ashoka University, Sonipat, Haryana (Chair & Moderator), Professor Shambhu Nath Singh, Vice Chancellor, Central University, Tezpur, India, Proffessor Nidhi Nagabhatla, Sr. Fellow and Program Lead, United Nations University, Belgium, Professor P. K. Biswas, Vice Chancellor, Jagran Lake City University, Bhopal and Professor Prithvi Yadav, President & Vice Chancellor, Sir Padampat Singhania University, Udaipur

Educators' Round Table panellists: Dr. Erach Bharucha, Director, Bharti Vidyapeeth Institute of Environment Education, Pune (Moderator), Professor Rajeev Ahuja, Director, IIT Ropar, India, Professor Madhabananda Kar, Executive Director, AIIMS Jodhpur, Professor Ashutosh Tiwari, Director, Institute of Advanced Materials, Sweden, Ms. Stefania Fontana, Fondazione Lombardia per l'Ambiente (FLA), Milan, and Mr. Alan Egbert, CEO, ACER (Australian Council of Educational Research), Dubai

Scientific Solutions - Special Plenary 2: Mobilising Green Chemistry to Beat Plastic Pollution

The first half of this session focused on chemical recycling of plastic and its legal and economic challenges. Experts, including Chair and Moderator Dr. Benno Böer, Chief, Natural Sciences Unit, UNESCO New Delhi, deliberated on the issue and spoke of the plastic paradox and the legal and financial challenges in chemical recycling of plastic.

The dignitaries were felicitated with mementoes by Dr. Ram Boojh Advisor, Mobius Foundation. In the second half of the plenary, moderated by Ms. Neha Midha, National Programme Officer, Natural Sciences, UNESCO New Delhi the panel discussed how academia can perhaps explore new solutions to the legal and business problems put forward in the previous session.

The session concluded with a presentation of mementoes to the panellists by Dr. Aditya Joshi, Advisor Thinktank Mobius Foundation.

Panellists: Dr. Benno Böer, Chief, Natural Sciences Unit, UNESCO New Delhi (Chair &Moderator), Professor Thammarat Koottatep, Asian Institute of Technology, Bangkok, Thailand, Mr. Christian Walter, TAKT Ltd., Bangkok, Thailand, Dr. Lipika Sharma, Quest4action (Switzerland & India), Ms. Neha Midha, National Programme Officer, Natural Sciences, UNESCO New Delhi (Moderator, 2nd half), Dr. Arvind Sahu, Executive Director, UNESCO Regional Centre for Biotechnology, Faridabad, India), Professor Vimal Katiyar, Dean, Research and Development, Indian Institute of Technology, Guwahati, India, and Professor Janewit Wannapeera, Suranaree University of Technology, Nakhon Ratchasima, Thailand

Rounding Up Solutions - Special Plenary 3: Advancing Circular Economy Education for a Resource Efficient Future

Chaired and moderated by Mr. Rajan Mehta, Fellow, Harvard University and Author of "Backstage Climate", this session focused on the ubiquitousness of plastic waste and the importance of circular economy education. The panel of eminent experts, discussed how a resource-efficient future can be driven by innovative technology and new perspectives of looking at the problem of plastic waste.

Panellists: Mr. Rajan Mehta, Fellow, Harvard University and Author "Backstage Climate" – Chair & Moderator, Professor Amar K Mohanty, Professor & Distinguished Research Excellence Chair, University of Guelph, Canada (virtual), Professor Manjusri Mishra, Professor & Canada Research Chair (CRC) in Sustainable Biocomposites, University of Guelph, Canada (Virtual), Dr. Santosh Kumar, Head of the Department, Food Engineering and Technology, Central Institute of Technology (CIT), Kokrajhar, India, Professor Aparna Uma Raman, Visiting Faculty, IISC and RV University, Bengaluru, India and Dr. Anil Kumar, Ex-Director, Department of Environment, Govt of Delhi.

Technology Meets Tradition - Special Plenary 4: New and Innovative Technologies for Sustainability Education

The penultimate session of the day was chaired by Dr. Kiran Karnik, Former President, NASSCOM, New Delhi and moderated by Dr. Nakul Parashar, Former Director, Vigyan Prasar, DST, Govt. of India. The session highlighted cutting-edge educational technologies like AI and Large Language Models like ChatGPT that can be used to support sustainability. Speakers shared transformative insights into how the integration of technology and traditional knowledge can help build a more sustainable future.

Panellists: Dr. Kiran Karnik, Former President, NASSCOM, New Delhi (Chair), Dr. Nakul Parashar, Former Director, Vigyan Prasar, DST, Govt. of India (Moderator), Mr. Tim Connors, Executive Director, EdTech Advisory Group, Boston, USA, Dr. Ibrahim Hafeezur Rehman, Director, School of Sustainability and CEO, NAMTECH, IIT Campus Gandhinagar, India, Ms. Neelima Vobugari, Co-founder, AiEnsured, Responsible AI, Bengaluru, India and Dr. Kumudhini Ravindra, CSO and Co-founder, Inytu Inc and Chief Mentor at Blue Lotus Inc, Bengaluru, India

A Celebration of Sustainability - Special Plenary 5: People of Nature Awards

The final plenary session of the day was an Expert Talks session chaired by Mr. Ashok Lavasa (IAS Retd.), Former Secretary, Finance and Environment, Forests and Climate Change, Government of India and moderated by Mr. Amit Banka, CEO, We Naturalists, Mumbai. It also featured a soul-stirring folk song dedicated to Mother Earth. The session culminated in the WeNaturalists People of Nature Awards ceremony, honouring exceptional individuals for their commitment to preserving nature and fostering environmental stewardship.

Panellists: Mr. Amit Banka, CEO, We Naturalists, Mumbai (Moderator), Mr. Vinod Dubey - Folk song dedicated to Mother Earth (written and performed), Mr. Ashok Lavasa IAS (Retd.), Former Secretary, Finance and Environment, Forest and Climate Change Government of India (Chair), Mrs. Novel Lavasa, Author, 'Echoes of Faith: Tales of Explorations, Nature & Divinity' and Dr. Shree Govind Shah, Environmental Planner and Environmental & Social Safeguard Expert

Parallel Tracks

Technical Track 1: Integrating Stem, NEP 2020, and STI Policy for Sustainability Education in India

Chaired by Dr. T. Ramasami, former Secretary, Department of Science & Technology, Government of India, the session was moderated by Mr. Dilip Surkar, Executive Director, Vikram Sarabhai Community Science Centre, the session delved into how the NEP and STI frameworks can be aligned to foster a future-ready generation equipped with the knowledge and skills necessary for sustainable development.

Panellists: Dr. T. Ramasami, Former Secretary, Department of Science & Technology, Government of India (Chair), Dr. B. C. Sabat, Former Director, Mahatma Gandhi Institute for Combating Climate Change, Government of Delhi, Dr. Nisha Mendiratta, Executive Director, Indo-US Science & Technology Forum, New Delhi, and Mr. Chander Mohan, Former Director, Vigyan Parasar, DST, Government of India,

Sustainability Samvad - Conversation with Sustainability Leaders

ICSE also featured 4 Sustainability Samvad sessions, offering engaging dialogues with prominent sustainability leaders. These insightful conversations covered a wide array of topics, from innovative approaches to climate action and green technology to the integration of sustainability into business strategies. The sessions emphasised the need for collective responsibility and inspired attendees to implement sustainable practices in their respective fields, reinforcing the conference's commitment to driving impactful change.

Sustainability Leaders: Dr. Rajendra Singh, Waterman of India and President, Peoples' World Commission on Drought & Flood, Professor Ashutosh Tiwari, Director, Institute of Advanced Materials, Sweden, Dr. Vinita Apte, Mr. Jean Paul Bya'undaombe, Country Coordinator, Cnetzero Organisation, Congo, Professor Janewit Wannapeera, Suranaree University of Technology, Thailand, Professor Vimal Katiyar, IIT Guwahati, Ms. Raquel Costa, Ocean Literacy Consultant, IOC-UNESCO, Paris, and Ms. Shweta Naik, Executive Director, Jane Goodall Institute India

Cultural Evening & Networking Dinner

The day concluded with a vibrant performance by the students of GAV School, which was introduced by Ms. Priyanka Sharma, Mobius Foundation. The keynote address was delivered by the Chief Guest, Hon'ble Dr. Sonal Mansingh, Former M. P. (Rajya Sabha) and celebrated Bhartiya classical dancer. This was followed by a Networking Dinner, offering a space for delegates to forge connections and exchange ideas.

Tales Full of Insight

In her address, Chief Guest, Hon'ble Dr. Sonal Mansingh, Former M. P. (Rajya Sabha) and celebrated Bhartiya classical dancer, mentioned the famous Mahatma Gandhi quote, 'The earth has enough for everyone's need but nor for their greed.' She then enthralled the audience with stories of Krishna and Buddha. She also touched upon cultural symbols, highlighting the lotus, India's national flower, and its deep connection to our culture and emphasised that sustainability will remain only a slogan unless we are conscious about it and make people aware of it.

MOBIUS FOUNDATION

ICSE 2024

6th International

Conference on Sustainability Education (ICSE 2024)

Greening Education for a Sustainable Future

Date: 20th September, 2024
Venue: India Habitat Centre, New Delhi

The second day of ICSE 2024 continued its dynamic exploration of sustainability with a packed schedule of thought-provoking sessions and conversations. From engaging dialogues on greening education to showcasing how the next generation is stepping up to lead the fight against climate change and environmental degradation, each session offered actionable insights into building a more sustainable future.

YOUTH FOR EARTH AWARD CEREMONY

Consolation Prize: Project 404
(Junior Category)

Consolation Prize: Project Shristhi
(Junior Category)

3rd Place: Project Ecosaviours
(Junior Category)

2nd Place: Project Vaayu
(Junior Category)

Winner: Project Krishi Kalyan
(Junior Category)

Consolation Prize: Project Decentralised
Waste Management System (Senior Category)

3rd Place: Project Beach Guardians: Unite
for a Cleaner Coastline (Senior Category)

2nd Place: Project Waste to Wealth: Creating
Bags from Preloved Clothes (Senior Category)

Winner: Project Planet Simulators
(Senior Category)

Special Award: Project Resource Revival:
A Waste to Wealth Initiative (Senior Category)

An Illuminating Conversation - Special Plenary 5: Sustainability Samvad 5

The day began with an insightful Sustainability Samvad featuring a conversation between sustainability leaders, Mr. Kartikeya Sarabhai, Founder Director, CEE Ahmedabad and Professor Mirian Vilela, Executive Director, Earth Charter, Costa Rica. The dialogue focused on how sustainability principles like those enshrined in the Eart Charter can guide global development and education.

Celebrating the Future - Special Plenary 6: Youth Conclave & Youth for Earth Award Ceremony

Introduced by Ms. Priyanka Sharma, Mobius Foundation and moderated by Ms. Tanya Singhal, Founder & Director, Mynzo Carbon, who was also the Keynote Speaker, the Youth Conclave offered a platform for young environmental leaders to share their perspectives on the intersection of climate action and youth engagement. This was followed by the Youth for Earth award ceremony where young changemakers and their contributions to sustainability were celebrated.

Panellists: Ms. Priyanka Sharma, Mobius Foundation, Ms. Tanya Singhal, Founder & Director, Mynzo Carbon, Mr. Vipito Achumi, Mobius Young Professional, Dimapur, Nagaland, Ms. Sneha Shahi, PhD Scholar, Ashoka Trust for Research in Ecology and the Environment, Bengaluru, UNEP Plastic Tide Turner Ambassador, Ms. Olivia Copsey, Director of Education, FEE, Copenhagen, Ms. Anubhuti Mehta, Consultant, Former Asstt. Commissioner, Kendriya Vidyalaya Sangathan

People and the Planet - Special Plenary 7: Educating for Informed Family Planning Choices for a Sustainable Population and Planet | Ground Realties, Achievements & Challenges

This plenary explored the connection between informed family planning choices and sustainability. A fireside chat between Mr. Pradip Burman, Chairman of Mobius Foundation, and ET Now anchor, Meghna Deka set the stage.

The second part of the plenary was moderated by Ms. Shilpa Nair, Lead & Head, UP, Population Foundation of India and consisted of ground stories from health officials, Asha workers, teachers etc. highlighting both the challenges and successes in the field. Dr. Ram Boojh, Advisor, Mobius Foundation, delivered the concluding remarks and felicitated all the panelists.

Panellists: Mr. Pradip Burman, Chairman, Mobius Foundation, Meghna Deka, ET Now Anchor, Dr. Purushottam Kulkarni, Former Professor Centre for study of Regional Development, Jawaharlal Nehru University, New Delhi, Ms. Amy Jankiewicz, CEO, & Ms. Shweta Shirodkar, Coordinator, Population Matters, London, UK (Virtual), Professor Sayeed Unisa, Adjunct Professor, Tata Institute of Social Sciences (TISS), Ex Professor, International Institute of Population Sciences (IIPS), Mumbai, Professor Saroj Yadav, Former Dean (Academic) & Project Coordinator, National Population Education Project (NPEP) and School Health Programme (SHP), NCERT, New Delhi, Ms. Shilpa Nair, Lead & Head, UP, Population Foundation of India, Manju Devi, Nishant Maurya, Gram Paradhan, Dr. Kriti Chaurasia, Dr. Kunwar Ritesh, Medical Superintendent, Dr. Sanjay Kumar, CMO, Vikash, Janani, Dr. Pornamasi Kannauajia, Medical Officer, Outreach Team, Janani

Risking the Odds - Special Plenary 8: Integrated Risk Management: Education for Safety and Sustainability

This session, chaired by Mr. Hem Pande, IAS (Retd.), Former Secretary, Government of India and moderated by Ms. Prarthana Boraha, Vice President-Sustainability, Momentum India, delved into the crucial role of education in addressing risks related to safety and sustainability. The importance of behavioural change within people and society emerged as a crucial issue. In conclusion, Dr. Ram Boojh, Advisor, Mobius Foundation felicitated all the panellists.

Panellists: Mr. Hem Pande, IAS (Retd.), Former Secretary, Government of India, Ms. Prarthana Boraha, Vice President, Sustainability, Momentum India, Professor Anil Gupta, Prof. & Head, ECDRM Division, National Institute of Disaster Management (NIDM), New Delhi, Ms. Monal Jayaram, Co-founder & Director, School of Education & System Change, Piramal School of Leadership, Piramal Foundation, Mumbai, and Ms. Anuradha Rai, Consultant for University of New Mexico, USA

The Future is Green - Special Plenary 9: Skilling for Green Careers: Highlighting Sustainable and High Impact Sectors

The ninth plenary addressed the growing need for skills aligned with green industries. Ms. Arpan Singh, Youth Officer, UNEP India, served as the moderator for this session. Discussions highlighted the importance of equipping youth with the skills necessary for emerging green jobs and sectors such as renewable energy, sustainable agriculture, and waste management. Additionally, the session underscored the need for responsible tourism practices that minimize environmental impact and support local communities, urging individuals to be mindful travelers who contribute positively to the places they visit.

Panellists: Ms. Arpan Singh, Youth Officer, UNEP India, Ms. Noemie Metais, Youth & Education Advocacy Officer, Higher Education, UNEP (video message), Tomas Stentstrom, Senior Specialist, International Labour Organisation, Ms. Niti Singal, Co-founder & Director, ELF Outdoors, New Delhi, Ms. Pallavi Mohan, Designer & Member NIFT Industry Advisory Board, Dr. Varsha Gupta, Asstt. Professor, NIFT, New Delhi, and Dr. Avinash Chandra, Asstt. Professor, Dept. of Tourism, University of Delhi

Blueing the Future - Special Plenary 10: Blue Education for a Sustainable Future

A discussion chaired by Dr. Harsh Gupta, Former Secretary, Ministry of Earth Sciences, Government of India, emphasised the significance of ocean literacy. Experts like Ms. Shweta Khare Naik, Executive Director, Jane Goodall Institute (JGI), India, who also moderated the session, shared their insights on the need for ocean literacy to build a more sustainable future.

Panellists: Dr. Harsh Gupta, Former Secretary, Ministry of Earth Sciences, Government of India, Ms. Shweta Khare Naik, Executive Director, Jane Goodall Institute (JGI), India, Ms. Ana Vitória, Associate Programme Specialist, Ocean Literacy, IOC-UNESCO, Paris (Virtual) Ms. Raquel Costa, Ocean Literacy Consultant, IOC-UNESCO, Paris, Ms. Vinita Apte, Founder Director, Terre Policy Centre, Pune. India and Mr. Sunil M. Shastri, Consultant, Educator and Speaker, Ocean and Environmental Governance, UK

Greening Education - Special Plenary 11: Greening Curriculum: SASEANEE Experience

This session explored practical approaches to integrating sustainability into education, featuring Mr. Kartikeya Sarabhai, Founder Director, Centre for Environmental Education (CEE), as Chair and moderator, with a diverse panel that included educators from UNESCO, Bhutan, Nepal, and the Philippines. The session concluded with the felicitation of the dignitaries by Mr. Praveen Garg, IAS (Retd.), President, Mobius Foundation.

Panellists: Mr Kartikeya Sarabhai, Founder Director, CEE, Ms. Joyce Poan, Chief Education Sector, UNESCO New Delhi (virtual), Professor Umesh Mandal, Tribhuvan Univ., Kathmandu, Nepal, Mr. Jamyang Thinley, Educator, Royal Academy, Paro & Druk Gyalpo's Institute, Bhutan (virtual), Prof. Umesh Mandal, Tribhuvan Univ., Kathmandu, Nepal, Ms. Suparna Diwakar, Dean of Research and Academics, Indian School of Development Management (ISDM), Ms. Olivia Copsey, Director of Education, FEE, and Ms. Amor Q. De Torres Capitol University, Vice President for Academic Affairs, Principal, Sr. High School, Corrales/Osmena Extension, Cagayan de Oro City, Philippines (virtual)

Parallel Tracks

Sustainability Samvad- Conversations with Sustainability Leaders

The parallel tracks hosted multiple Sustainability Samvad sessions featuring leaders from leading organisations from across the world engaging in inspiring discussions on sustainability challenges and solutions.

Panellists: Mr. Tim Connors, Executive Director, EdTech Advisory Group, Boston, USA, Mr. Alan Egbert, CEO, ACER, Dubai, Dr. Ibrahim Hafeezur Rehman, Director, School of Sustainability and CEO, NAMTECH, IIT Campus Gandhinagar, India, Mr. Jadav Payeng, Environmentalist & Forest Man of India, Mr. Rituraj Phukan, Environmentalist, Chief Operating Officer for walk for Water, Professor Thammarat Koottatep, Asian Institute of Technology, Bangkok, Thailand, Dr. Benno Boer, UNESCO, New Delhi, Mr. Rajan Mehta, Founder Climate Ventures Partner/Climate Action Labs, Harvard University, Dr. Sudhanshu Sinha, Senior Advisor, British Council, Ms. Nidhi Nagabhatla, Senior Fellow and Program Lead (Nature, Climate, and Health), United Nations University, Belgium and Ms. Stefania Fontana, Fondazione Lombardia per l'Ambiente (FLA), Milan

A Celebration of Sustainability - Closing Ceremony

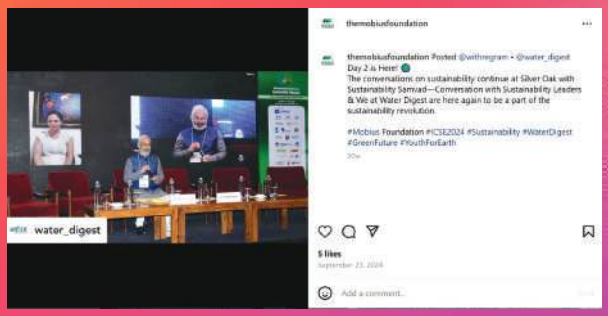
The day concluded with the presentation and adoption of key recommendations by Dr. Erach Bharucha, Director, BVIEER, Pune and Ms. Anupama Madhok, Director & Editor, Water Digest. The committee members were then felicitated by Mr. Kartikeya Sarabahi, Director CEE. This was followed by closing remarks from the Guests of Honour, Dr. Harsh Gupta, Former Secretary, Government of India, and Mr. Hem Pandey, IAS (Retd.), Former Secretary, Govt of India. Thought leaders Dr. Benno Boer, UNESCO New Delhi, Mr. Kartikeya Sarabahi, Director CEE, and Mr. Aditya Pundir, Director, Climate Reality Project India and South Asia, New Delhi, India shared their closing statements. The concluding remarks were delivered by Mr. Pradip Burman, Chairman, Mobius Foundation and Mr. Praveen Garg, IAS (Retd.), President, Mobius Foundation. The Chief Guest, Dr. Rajendra Singh, Magsaysay Awardee, 'Waterman of India' & Chairman – People's World Commission on Drought and Flood, delivered an inspiring address. The formalities then ended with the felicitation of the host, Ms. Shilpa Bhawna by Mr. Pradip Burman, Chairman, Mobius Foundation and a vote of thanks by Dr. Ram Boojh, Advisor, Mobius Foundation.

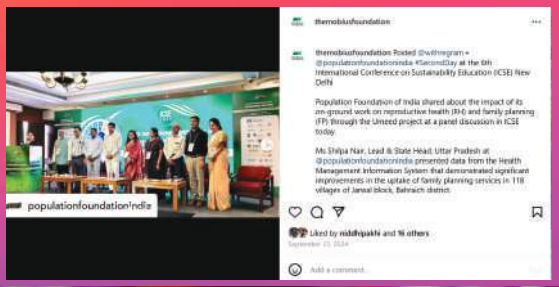
Committee Members: Dr. Erach Bharucha, Director, BVIEER, Pune, Dr. Neelima Jerath, Former Director General, Pushpa Gujral Science City, Kapurthala, Professor Vinod Sharma, Indira Gandhi Institute of Development Research, Mumbai, Professor Sangeeta Sharma, Director, Indian Institute of Env Management, Mumbai, Dr. Kumudhini Ravindra, CSO and Co-founder, Inytu Inc and Chief Mentor at Blue Lotus Inc, Bengaluru, India, Mr. Arawat Kumar, Manager-Content, Teamwork Communications, Mr. Sharad Sharma, Content Writer, Ms. Anupama Madhok, Director, Water Digest, New Delhi, Dr. Prabhjot Sodhi, Sr, Director, CEE Ahmedabad, Dr, Tabassum Jamal, Chairperson, Zaheer Science Foundation, New Delhi, Dr. Suraj K Tripathi, Assoc. Dean, School of Chemical Technology, KIIT, Dr. A. K. Swar, Former Chief Engineer, Odisha Pollution Control Board, Dr. Abdhesh Gangawar, Focal Point, RCE Srinagar, J&K, Professor Suprava Patnaik, Former Principal Advisor, AB Instt. of Good Governance & Policy, and Ms. Bushra Fatima Taqvi, Associate Director-Content, Teamwork Communications

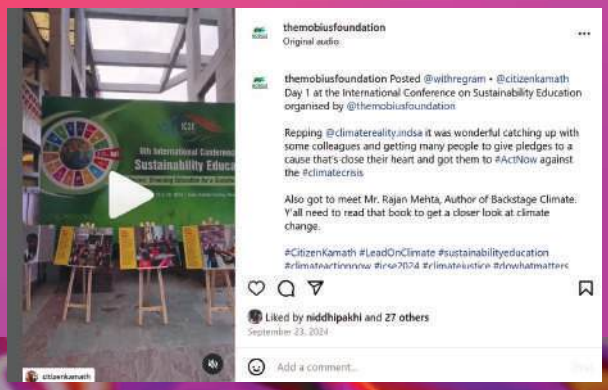
MEDIA CAMPAIGNS

INSTAGRAM

1.5M	81K	317K	1.1M
Impressions	Engagement	Views	Reach







SOCIAL MEDIA CAMPAIGNS

	META	TWITTER	LINKEDIN	GOOGLE
Clicks	7818	3425	213	614
Impressions	2.3M	500K	32K	7.49% [CTR]

50+ Participating Countries

5,000+ National and International Delegates

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PRESS COVERAGE

Education TIMES

PORTAL EXCLUSIVE: HEIs need to integrate sustainability into curricula, equip students with skills relevant to green jobs

Corporations and industries are required to combine efforts with educational institutions to design skill-building training programmes, writes Ram Boojh, advisor, Mobius Foundation

Share

TNN | Posted December 30, 2024 07:00 AM

'Green education' and 'green jobs' have evolved as new sustainability concepts as the world faces urgent challenges of climate change and environmental degradation. The opportunity to create green jobs that help preserve or restore the environment — is now a pathway to not just fighting climate change but also driving economic growth and social progress. It would go a long way if the academic world and corporate world come out with a healthy collaboration in terms of filling in skills gaps for a sustainable workforce future.

Around The Times- page no -03

People stand on top of a damaged car at the scene of a missile strike in the southern suburbs of Beirut, Lebanon

—AT Correspondent—

New Delhi : The 6th International Conference on Sustainability Education (ICSE) organized by Mobius Foundation, in partnership with key global organizations, was held on September 19-20, 2024, at the India Habitat Centre. The two-day event focused on the theme "Greening Education for a Sustainable Future" and brought together over 500 thought leaders, educators, policymakers, and environmentalists from 20+ countries. The conference centered on the need to integrate sustainability into education systems, emphasizing a collective movement toward eco-conscious living and sustainable lifestyles.

A key highlight of the event was the mutual recognition of the importance of the National Education Policy (NEP) 2020 and National Curriculum Framework (NCF) 2023 in advancing sustainable education. This year's discussions emphasized 'green education' and 'green jobs,' marking them as pivotal to the future of sustainability efforts in India and across the globe.

The event featured a distinguished lineup of speakers, including Dr. Pradip Burman, Chairman of Mobius Foundation; Dr. Ram Boojh, Advisor at Mobius Foundation; Dr. Tim Curtis, UNESCO Director; Dr. Rajendra Singh, Waterman of India; environmentalist Jadav Payeng, and Mr. Kartikeya Sarabhai, Founder Director, CEE. Among other dignitaries were Dr. T Ramasami, Former Secretary, Department of Science and Technology, Govt of India; Dr. Kiran Karnik, Former President, NASSCOM, New Delhi; Dr. Harsh Gupta, Former Secretary, Ministry of Earth Sciences, GOI, and Mr. Hem Pandey, IAS (Retd.), Former Secretary, GOI. These thought leaders delivered powerful keynote speeches, roundtable discussions, and interactive sessions that addressed sustainability from various angles.

Mayur Samvad, Page No- 05

5 विविध — नई दिल्ली, सोमवार, 23 सितम्बर, 20

शिक्षा सस्टेंबिलिटी (स्थिरता) के लिए एक प्रेरक शक्तिः मोबियस फाउंडेशन का 6वां आईसीएसई समिट पाठ्यक्रम को ग्रीनिंग बनाने के सशक्त संदेश के साथ संपन्न हुआ

संवाददाता (दिल्ली)। मोबियस फाउंडेशन द्वारा प्रमुख वैश्विक संगठनों के साथ साझेदारी में आयोजित छठा इंटरनेशनल समिट ऑन सस्टेनेबिलिटी एजुकेशन (आईसीएसई) 19-20 सितंबर, 2024 को नई दिल्ली में इंडिया हैबिटेट सेंटर में आयोजित किया गया। दो दिवसीय यह कार्यक्रम "Greening Education for a Sustainable Future" थीम पर केंद्रित था। इस कार्यक्रम में 20 से ज्यादा देशों के 500 से ज्यादा विचारक, शिक्षक, नीति निर्माता और पर्यावरणविद एक साथ शामिल हुए थे। समिट एजुकेशन सिस्टम में सस्टेनेबिलिटी को एकीकृत करने की आवश्यकता पर केंद्रित थी। समिट में पर्यावरण के प्रति जागरूक जीवन और टिकाऊ जीवन जीने की आदत के लिए एक सामूहिक आंदोलन पर जोर दिया गया। इस कार्यक्रम का मुख्य आकर्षण सस्टेनेबल एजुकेशन (सतत शिक्षा) को आगे बढ़ाने में राष्ट्रीय शिक्षा नीति (एनईपी) 2020 और राष्ट्रीय पाठ्यक्रम रूपरेखा (एनसीएफ) 2023 के महत्व पर सभी ने सहमति व्यक्त की। इस साल की चर्चाओं में ग्रीन एजुकेशन और ग्रीन जॉब्स पर जोर दिया गया, तथा उन्हें भारत और दुनिया भर में सस्टेनेबिलिटी प्रयासों के भविष्य के लिए महत्वपूर्ण बताया गया। 2019 में अपनी स्थापना के बाद से आईसीएसई ने खुद को शिक्षा के माध्यम से सस्टेनेबिलिटी चुनौतियों का समाधान करने के लिए एक वैश्विक मंच के रूप में स्थापित किया है। 2024 के समिट ने इस विरासत को आगे बढ़ाया, इसके अलावा इस समिट ने पर्यावरण संबंधी मुद्दों के लिए इनोवेशन और समाधान को बढ़ावा देने के उद्देश्य से

व्यक्तियों में भारत सरकार के विज्ञान और प्रौद्योगिकी विभाग के पूर्व सचिव डॉ. टी रामासामी, नैसकॉम, नई दिल्ली के पूर्व अध्यक्ष डॉ. किरण कार्णिक, भारत सरकार के पृथ्वी विज्ञान मंत्रालय के पूर्व सचिव डॉ. हर्ष गुप्ता और भारत सरकार के पूर्व सचिव श्री हेम पांडे, आईएएस (रिटायर्ड) शामिल थे। इन विचारकों ने प्रभावशाली मुख्य भाषण, गोलमेज चर्चाएं और संवादात्मक सत्र किये, जिसमें विभिन्न कोणों से सस्टेनेबिलिटी पर चर्चा की गई। अपने उद्घाटन भाषण में डॉ. प्रदीप बर्मन ने सस्टेनेबिलिटी को आगे बढ़ाने में शिक्षा के महत्व पर जोर दिया। उन्होंने इस पर कहा, "पिछले छह सालों में हमने अपने बड़े सस्टेनेबिलिटी लक्ष्यों की ओर लगातार प्रगति की है, जिसमें ज्ञान कन्या शक्ति जैसी पहल शामिल है। यह पहल ग्रामीण क्षेत्रों में लड़कियों को खासकर सशक्त बनाती है। हालांकि अभी भी जनसंख्या वृद्धि एक गंभीर चुनौती बनी हुई है, इस कारण से संसाधनों की कमी हो रही है और सस्टेनेबल डेवलपमेंट (सतत विकास) प्रयासों में बाधा पड़ रही है। कार्यक्रम की शुरुआत "Greening Education for a Sustainable Future"

(ईबुकलेट) के रूप में दर्शाया गया। दोपहर के सत्र में व्यावहारिक समाधानों पर ध्यान केंद्रित किया गया, जिसमें Mobilizing Green Chemistry to Beat Plastic Pollution और Advancing Circular Economy Education for a Resource-Efficient Future पर चर्चा हुई। इसकी अध्यक्षता क्रमशः यूनेस्को के डॉ. बेनो बोअर और हार्वर्ड यूनिवर्सिटी के फेलो और 'बैकस्टेज क्लाइमेट' के लेखक श्री राजन मेहता ने की। एक्सपर्ट्स ने उत्पादों के लाइफ साइकल को बढ़ाने और पर्यावरणीय अपशिष्ट को कम करने में सर्कुलर इकोनॉमी प्रथाओं की भूमिका पर चर्चा की। थॉट प्रोवोकिंग सेशन (विचारोत्तेजक सत्र) में श्री अशोक लवासा (रिटायर्ड आईएएस) ने दर्शकों से जलवायु परिवर्तन से जलवायु कार्रवाई की ओर जाने का आग्रह किया और सभी विषयों में सस्टेनेबिलिटी के एकीकरण और विशेषज्ञता की आवश्यकता पर बल दिया। इस बीच प्रसिद्ध भारतीय शास्त्रीय नृत्यांगना डॉ. सोनल मानसिंह ने कहानी सुनाने और डांस के माध्यम से भारत की समृद्ध सांस्कृतिक विरासत के साथ सस्टेनेबिलिटी को जोड़ा और पर्यावरण

Vir Arjun, Page no-02

मोबियस फाउंडेशन का 6वां आईसीएसई समिट सम्पन्न

नई दिल्ली,(वीअ)। मोबियस फाउंडेशन द्वारा प्रमुख वैश्विक संगठनों के साथ साझेदारी में आयोजित छठा इंटरनेशनल समिट ऑन सस्टेनेबिलिटी एजुकेशन नई दिल्ली में आयोजित किया गया। दो दिवसीय यह कार्यक्रम ग्रीटिंग एजुकेशन फॉर ए सस्टेनेबल फ्यूचर थीम पर केंद्रित था। इस कार्यक्रम में 20 से ज्यादा देशों के 500 से ज्यादा विचारक, शिक्षक, नीति निर्माता और पर्यावरणविद एक साथ शामिल हुए थे। समिट एजुकेशन सिस्टम में सस्टेंबिलिटी को एकीकृत करने की आवश्यकता पर केंद्रित थी। समिट में पर्यावरण के प्रति जागरूक जीवन और टिकाऊ जीवन जीने की आदत के लिए एक सामूहिक आंदोलन पर जोर दिया गया। इस कार्यक्रम का मुख्य आकर्षण सस्टेंबल एजुकेशन (सतत शिक्षा) को आगे ब में राष्ट्रीय शिक्षा नीति 2020 और राष्ट्रीय पाठ्यक्रम रूपरेखा 2023 के महत्व पर सभी ने सहमती व्यक्ति की। इस साल की चर्चाओं में 'ग्रीन एजुकेशन' और 'ग्रीन जॉब' पर जोर दिया गया, तथा उन्हें भारत और दुनिया भर में सस्टेंबिलिटी प्रयासों के भविष्य के लिए महत्वपूर्ण बताया गया।2019 में अपनी स्थापना के बाद से आईसीएसई ने खुद को शिक्षा के माध्यम से सस्टेंबिलिटी चुनौतियों का समाधान करने के लिए एक वैश्विक मंच के रूप में स्थापित किया है। 2024 के समिट ने इस विरासत को आगे बया, इसके अलावा इस समिट ने पर्यावरण संबंधी मुद्दों के लिए इनोवेशन और समाधान को बढावा देने के उद्देश्य से सार्थक संवाद और सहयोगात्मक कार्रवाइयों को बढा देना जारी रखा।

Lok Bharti, Page no- 13

सस्टेनबल भविष्य के लिए हरित शिक्षा पर जोर

लोक भारती न्यूज ब्यूरो

नई दिल्ली। मोबियस फाउंडेशन द्वारा प्रमुख वैश्विक संगठनों के साथ साझेदारी में आयोजित छठा इंटरनेशनल समिट ऑन सस्टेनेबिलिटी एजुकेशन इंडिया हैबिटेट सेंटर में आयोजित किया गया। दो दिवसीय यह कार्यक्रम ग्रीटिंग एजुकेशन फॉर सस्टेनबल फ्यूचर थीम पर केंद्रित था। इस कार्यक्रम में 20 से ज्यादा देशों के 500 से ज्यादा विचारक, शिक्षक, नीति निर्माता और पर्यावरणविद एक साथ शामिल हुए थे। समिट एजुकेशन सिस्टम में सस्टेंबिलिटी को एकीकृत करने की आवश्यकता पर केंद्रित थी। समिट में पर्यावरण के प्रति जागरूक जीवन और टिकाऊ जीवन जीने की आदत के लिए एक सामूहिक आंदोलन पर जोर दिया गया। इस कार्यक्रम का मुख्य आकर्षण सस्टेंबल एजुकेशन (सतत शिक्षा) को आगे बढ़ाने में राष्ट्रीय शिक्षा नीति 2020 और राष्ट्रीय पाठ्यक्रम रूपरेखा 2023 के महत्व पर सभी ने सहमती व्यक्ति की। इस साल की चर्चाओं में 'ग्रीन एजुकेशन' और 'ग्रीन जॉब' पर जोर दिया गया, तथा उन्हें भारत और दुनिया भर में सस्टेंबिलिटी प्रयासों के भविष्य के लिए महत्वपूर्ण बताया गया।

इस कार्यक्रम में कई प्रतिष्ठित वक्ताओं ने भाग लिया, जिनमें मोबियस फाउंडेशन के अध्यक्ष डॉ. प्रदीप बर्मन, मोबियस फाउंडेशन के सलाहकार डॉ. राम बूझ, यूनेस्को के डायरेक्टर डॉ. टिम कर्टिस, भारत के जलपुरुष डॉ. राजेंद्र सिंह, पर्यावरणविद् जादव पायेंग और सीईई के फाउंडिंग डायरेक्टर श्री कार्तिकेय साराभाई शामिल थे। अन्य गणमान्य व्यक्तियों में भारत सरकार के विज्ञान और प्रौद्योगिकी विभाग के पूर्व सचिव डॉ. टी रामासामी, नैसकॉम, नई दिल्ली के पूर्व अध्यक्ष डॉ. किरण कार्णिक, भारत सरकार के पृथ्वी विज्ञान मंत्रालय के पूर्व सचिव डॉ. हर्ष गुप्ता और भारत सरकार के पूर्व सचिव श्री हेम पांडे, आईएएस रिटायई शामिल थे। अपने उद्घाटन भाषण में डॉ. प्रदीप बर्मन ने सस्टेंबिलिटी को आगे बढ़ाने में शिक्षा के महत्व पर जोर दिया।

उन्होंने इस पर कहा, पिछले छह सालों में हमने अपने बड़े सस्टेंबिलिटी लक्ष्यों की ओर लगातार प्रगति की है, जिसमें ज्ञान कन्या शक्ति जैसी पहल शामिल है। यह पहल ग्रामीण क्षेत्रों में लड़कियों को खासकर सशक्त बनाती है।

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मोबियस फाउंडेशन ने सस्टेंबिलिटी शिक्षा पर अंतर्राष्ट्रीय सम्मेलन के 6वें संस्करण की मेजबानी की

नई दिल्ली। मोबियस फाउंडेशन द्वारा प्रमुख वैश्विक संगठनों के साथ साझेदारी में आयोजित छठा इंटरनेशनल समिट ऑन सस्टेनेबिलिटी एजुकेशन 19-20 सितंबर, 2024 को नई दिल्ली में इंडिया हैबिटेट सेंटर में आयोजित किया गया। दो दिवसीय यह कार्यक्रम "Greening Education for a Sustainable Future" थीम पर केंद्रित था। इस कार्यक्रम में 20 से ज्यादा देशों के 500 से ज्यादा विचारक, शिक्षक, नीति निर्माता और पर्यावरणविद एक साथ शामिल हुए थे। समिट एजुकेशन सिस्टम में सस्टेंबिलिटी को एकीकृत करने की आवश्यकता पर केंद्रित थी। समिट में पर्यावरण के प्रति जागरूक जीवन और टिकाऊ जीवन जीने की आदत के लिए एक सामूहिक आंदोलन पर जोर दिया गया। इस कार्यक्रम का मुख्य आकर्षण सस्टेंबल एजुकेशन को आगे बढ़ाने में राष्ट्रीय शिक्षा नीति 2020 और राष्ट्रीय पाठ्यक्रम रूपरेखा 2023 के महत्व पर सभी ने सहमती व्यक्ति की। इस साल की चर्चाओं में 'ग्रीन एजुकेशन' और 'ग्रीन जॉब' पर जोर दिया गया, तथा उन्हें भारत और दुनिया भर में सस्टेंबिलिटी प्रयासों के भविष्य के लिए महत्वपूर्ण बताया गया।

इस कार्यक्रम में कई प्रतिष्ठित वक्ताओं ने भाग लिया, जिनमें मोबियस फाउंडेशन के अध्यक्ष डॉ. प्रदीप बर्मन, मोबियस फाउंडेशन के सलाहकार डॉ. राम बूझ, यूनेस्को के डायरेक्टर डॉ. टिम कर्टिस, भारत के जलपुरुष डॉ. राजेंद्र सिंह, पर्यावरणविद् जादव पायेंग और इंश्धश्व के फाउंडिंग डायरेक्टर श्री कार्तिकेय साराभाई शामिल थे। अन्य गणमान्य व्यक्तियों में भारत सरकार के विज्ञान और प्रौद्योगिकी विभाग के पूर्व सचिव डॉ. टी रामासामी, नैसकॉम, नई दिल्ली के पूर्व अध्यक्ष डॉ. किरण कार्णिक, भारत सरकार के पृथ्वी विज्ञान मंत्रालय के पूर्व सचिव डॉ. हर्ष गुप्ता और भारत सरकार के पूर्व सचिव श्री हेम पांडे शामिल थे। इन विचारकों ने प्रभावशाली मुख्य भाषण, गोलमेज चर्चाएँ और संवादात्मक सत्र किये, जिसमें विभिन्न कोणों से सस्टेंबिलिटी पर चर्चा की गई।

PROGRAM SCHEDULE

19:30 onwards	**18th September 2024** **Preconference Welcome Dinner: Venue: Silver Oak Lawns**

Day 1

September 19, 2024
Venue: STEIN AUDITORIUM

8:30-10:00	**Registration**
9:30-11:00	**Opening Ceremony** Lighting of the lamp and inauguration by all dignitaries on the dais Welcome Song by GAV school children ICSE Journey of 5 years: Lookback video **Welcome & Introduction:** **Dr. Ram Boojh**, Advisor, Mobius Foundation **Keynote Addresses:** **Prof. Shambhu Nath Singh**, Vice-Chancellor, Central University, Tezpur **Mr. Kartikeya Sarabhai**, Founder & Director, CEE **Special Address:** **Mr. Praveen Garg**, IAS (Retd.), President, Mobius Foundation **Special Message:** **Dr. K. Kasturirangan**, Chairman, India's NEP 2020 & NCF, Former-Chairman ISRO **Guest of Honor's Address:** **Mr. Tim Curtis**, Director and Representative, UNESCO, New Delhi South Asia Regional Office **Chairman's Address:** **Mr. Pradip Burman**, Chairman, Mobius Foundation **Chief Guest's Message:** **Hon'ble Shri Jayant Chaudhry**, Minister of State for Education & Skilling, Govt. of India
11:00-11:30	Tea/Coffee Break
11:30-13:30 **Special Plenary 1** **Venue: Stein Auditorium**	**Setting The Agenda: Greening Education For A Sustainable Future** **Vice Chancellors Round Table (60 Mins)** • **Prof. Somak Raychaudhuri**, Vice chancellor, Ashoka University, Haryana **(Chair & moderator)** • **Prof. Shambhu Nath Singh**, Vice-Chancellor, Central University, Tezpur • **Dr. Prithvi Yadav**, President & Vice Chancellor, Sir Padampat Singhania University, Udaipur • **Prof. Raghuvir Singh**, Vice Chancellor, K R Mangalam University, Gurgaon • **Prof. P. K. Biswas**, Vice Chancellor, Jagran Lake City University, Bhopal • **Ms. Nidhi Nagabhatla**, Senior Fellow and Program Lead, United Nations University, Belgium **Educators Round Table (60 Mins)** • **Dr. Erach Bharucha**, Director, Bharti Vidyapeeth Institute of Environment Education, Pune **(Moderator)** • **Prof. Rajeev Ahuja**, Director, IIT Guwahati & Ropar, India • **Prof Madhabananda Kar,** Executive Director, AIIMS Mangalagiri, Andhra Pradesh • **Prof. Ashutosh Tiwari**, Director. Institute of Advanced Materials, Sweden • **Mr. Alan Egbert**, CEO, ACER (Australian Council of Educational Research), Dubai • **Ms. Stefania Fontana**, Fondazione Lombardia per l'Ambiente (FLA), Milan
13:30-14:30	Lunch Break (Charminar Area)

14:30-15:45 **Special Plenary 2** **Venue: Stein auditorium**	**Mobilizing Green Chemistry To Beat Plastic Pollution**: With Focus on Chemical Recycling of Plastic for Eco-Restoration Specific to Biosphere Reserves **Addressing The Issue And The Role That UNESCO Coastal Biosphere Reserves Can Play** • **Dr. Benno Böer**, Chief, Natural Sciences Unit, UNESCO New Delhi **(Chair & Moderator)** • **Dr. Arvind Sahu**, Executive Director, Regional Centre for Biotechnology, Faridabad, India • **Dr Lipika Sharma**, Quest4action (Switzerland & India) **Solutions: Bringing Academia And Business Together** • **Ms. Neha Midha**, National Programme Officer for Natural Sciences, UNESCO New Delhi **(Moderator)** • **Prof. Thammarat Koottatep**, Asian Institute of Technology, Bangkok, Thailand • **Prof. Vimal Katiyar**, Dean, Research and Development, Indian Institute of Technology, Guwahati, India • **Mr. Christian Walter**, TAKT Ltd., Bangkok, Thailand • **Prof. Janewit Wannapeera**, Suranaree University of Technology, Nakhon Ratchasima, Thailand
15:45-16:45 **Special Plenary 3** **Venue: Stein auditorium**	**Advancing Circular Economy Education For A Resource Efficient Future** • **Mr. Rajan Mehta**, Fellow, Harvard University and Author "Backstage Climate" **(Chair & Moderator)** • **Prof Amar K. Mohanty**, Professor & Distinguished Research Excellence Chair, University of Guelph, Canada • **Prof. Manjusri Mishra**, Professor & Canada Research Chair (CRC) in Sustainable Biocomposites, University of Guelph, Canada (Virtual) • **Dr. Santosh Kumar**, Head of the Department, Food Engineering and Technology, Central Institute of Technology (CIT), Kokrajhar, India • **Dr. Anil Kumar**, Ex Director, Department of Environment, Govt of Delhi. • **Prof. Aparna Uma Raman**, Visiting Faculty, IISC and RV University, Bengaluru, India
16:45-17:00	Tea/Coffee Break
17:00-18:00 **Special Plenary 4** **Venue: Stein auditorium**	**New And Innovative Technologies For Sustainability Education** • **Dr. Kiran Karnik**, Former President, NASSCOM, New Delhi **(Chair)** • **Dr. Nakul Parashar**, Former Director, Vigyan Prasar, DST, Govt. of India **(Moderator)** • **Mr. Tim Connors**, Executive Director, EdTech Advisory Group, Boston, USA • **Dr. Ibrahim Hafeezur Rehman**, Director, School of Sustainability and CEO, NAMTECH, IIT Campus Gandhinagar, India • **Ms. Neelima Vobugari**, Co-founder, AiEnsured, Responsible AI, Bengaluru, India • **Dr. Kumudhini Ravindra**, CSO and Co-founder, Inytu Inc and Chief Mentor at Blue Lotus Inc, Bengaluru, India
18:00-19:00 **Special Plenary 5** **Venue: Stein auditorium**	**People Of Nature Awards** • **Mr. Ashok Lavasa** (IAS Retd.), Former Secretary, Finance and Environment, Forest and Climate Change, Govt. of India **(Chair)** • **Mr. Amit Banka**, CEO, We Naturalists, Mumbai **(Moderator)** • **Mr. Vinod Dubey**-Folk song dedicated to Mother Earth Expert Talks: • **Dr. Shree Govind Shah**, Former ADB Environmental specialist, Bengaluru • **Mrs. Novel Lavasa**, Author of Echos of Faith: Tales of Explorations, Nature & Divinity • **Ms. Latika Nath**, Author, Photographer & Wildlife Conservationist • **Award ceremony**
19:00-20:00 **Venue: Stein auditorium**	**Cultural Evening** Welcome Performance: **GAV Students** Introduction: **Ms. Priyanka Sharma**, Mobius Foundation Keynote Address by Chief Guest: Hon'ble **Dr. Sonal Mansingh**, former M.P. (Rajya Sabha), celebrated Bhartiya classical dancer Performance: **Centre for Indian Classical Dance artists**
20:00 onwards	Networking Dinner (Charminar Area)

Parallell Track
September 19, 2024
Venue: CASURINA

TECHNICAL TRACK	
14:30-15:30 **Technical Track 1**	**Integrating STEM, NEP 2020 and STI Policy for Sustainability Education in India** by Vikram Sarabhai Community Science Centre • **Dr. T. Ramasami**, former Secretary, Department of Science & Technology, Govt. of India **(Chair)** • **Dr. Nisha Mendiratta**, Executive Director, Indo-US Science & Technology Forum • **Mr. Chander Mohan**, Former Director, Vigyan Parasar, DST, Govt. of India • **Dr. B. C. Sabat**, Former Director, Mahatma Gandhi Institute for Combating Climate Change, Govt. of Delhi • **Dr. Neelima Jerath**, Former Director General, Pushpa Gujral Science City, Kapurthala • **Mr. Dilip Surkar**, Executive Director, VASCSC **(Moderator)**
SUSTAINABILITY SAMVAD–CONVERSATION WITH SUSTAINABILITY LEADERS	
15:30-16:00 **Samvad 1** **Venue: Casurina**	**Dr. Rajendra Singh**, Waterman of India and President, Peoples' World Commission on Drought & Flood in conversation with **Prof. Ashutosh Tiwari**, Director, Institute of Advanced Materials, Sweden
16:00-16:30 **Samvad 2** **Venue: Casurina**	**Ms. Vinita Apte**, Founder Director, Terre Policy Centre, Pune. India in conversation with **Mr. Jean Paul Bya'undaombe**, Country Coordinator, C. netzero Organisation, Congo
16:30-16:45	Tea/Coffee Break
16:45-17:15 **Samvad 3** **Venue: Casurina**	**Prof. Janewit Wannapeera**, Suranaree University of Technology, Thailand in conversation with **Prof. Vimal Katiyar**, IIT Guwahati
17:15-18:00 **Samvad 4**	**Ms. Raquel Costa**, Ocean Literacy Consultant, IOC-UNESCO, Paris in conversation with **Ms. Shweta Naik**, Executive Director, Jane Goodall Institute India

Day 2

September 20, 2024
Venue: SILVER OAK

8:30-9:00	**Registration**
9:00-9:30 **Special Plenary Samvad 5** Venue: Silver Oak	**Sustainability Samvad- Conversation With Sustainability Leaders** **Prof. Mirian Vilela**, Executive Director, Earth Charter, Costa Rica in conversation with **Mr. Kartikeya Sarabhai**, Founder Director, CEE Ahmedabad
9:30-11:00 **Special Plenary 6** **Venue: Silver Oak**	**Youth Conclave & Youth for Earth Award Ceremony** • **Ms. Priyanka Sharma**, Mobius Foundation: Introduction • **Ms. Tanya Singhal**, Founder & Director, Mynzo Carbon **(Keynote Speaker & Moderator)** Panel Discussion - Greening Education: Practical experience, challenges and opportunities impacting youth engagement in climate action. • **Mr. Vipito Achumi**, Mobius Young Professional, Dimapur, Nagaland • **Ms. Sneha Shahi**, PhD scholar, UNEP Plastic Tide Turner Ambassador • **Ms. Anubhuti Mehta**, Former Asstt. Commissioner, Kendriya Vidyalaya Sangthan • **Ms. Olivia Copsey,** Director of Education, FEE, Copenhagen **Youth For Earth Award Ceremony (45 Mins)** • **Mr. Aditya Pundir**, Director, Climate Reality Project India & South Asia - Introduction • **Mr. Bhavesh Swami**, Lead, Clean Energy Policy & Engagements, CRP • **Award Distribution and showcase of winning projects by youth teams** • **Felicitation of Jury members** • **Vote of Thanks**
11:00-11:30	Tea/Coffee Break
11:30-13:00 **Special Plenary 7** **Venue: Silver Oak**	**Educating for Informed Family Planning Choices for a Sustainable Population and Planet** **Fireside Chat (10 Minutes):** **Mr. Pradip Burman**, Chairman, Mobius Foundation in conversation with ET Now Anchor **Panel Discussion (40 Minutes)** • **Dr. Purushottam Kulkarni**, former Professor Centre for study of Regional Development, Jawaharlal Nehru University, New Delhi • **Ms. Amy Jankiewicz**, CEO, Population Matters, & **Ms. Shweta Shirodkar**, Coordinator, Population Matters, London, UK (Virtual) • **Prof. Sayeed Unisa**, Adjunct Professor, Tata Institute of Social Sciences (TISS), Ex-Professor, International Institute of Population Sciences (IIPS), Mumbai • **Prof. Saroj Yadav**, Former Dean (Academic) & Project Coordinator, National Population Education Project (NPEP) and School Health Programme (SHP), NCERT, New Delhi **Ground Realties, Achievements & Challenges (30 Mins)** Curated and Coordinated By PFI • **Ms. Shilpa Nair**, Lead & Head, UP, Population Foundation of India **(Moderator)** Ground stories as narrated by Health officials, Asha workers and staff nurse, teachers and Gram Pradhan and representative of PFI and Janani **Dr. Ram Boojh**, Advisor, Mobius Foundation : Concluding Remarks
13:00-14:00	Lunch Break (Charminar Area)

14:00-15:00 **Special Plenary 8** **Venue: Silver Oak**	**Integrated Risk Management: Education for Safety and Sustainability** • **Mr. Hem Pande**, IAS (Retd.), Former Secretary, Govt. of India **(Chair)** • **Ms. Prarthana Borah**, Vice President-Sustainability, Momentum India **(Moderator)** • **Prof. Anil Gupta**, Proffessor & HoD, ECDR Division, National Institute of Disaster Management • **Ms. Monal Jayaram**, Co-founder & Director at School of Education & System Change, Piramal School of Leadership, Piramal Foundation • **Ms. Anuradha Rai**, Principal, Ambience Public School, Gurugram
15:00-15:30	Tea/Coffee Break
15:30-16:30 **Special Plenary 9** **Venue: Silver Oak**	**Skilling For Green Careers: Highlighting Sustainable and High Impact Sectors** • **Ms. Prajakta Verma**, IAS, Joint Secretary, Ministry of Textiles, Govt of India • **Mr. Tomas Stenstrom**, Youth & Education Officer, Higher Education, UNEP • **Ms. Noemie Metais,** Youth & Education Officer, Higher Education, UNEP (video message) • **Ms. Arpan Singh**, Youth Officer, UNEP India **(Moderator)** • **Dr. Alok Sharma**, Director, Indian Institute of Tourism & Travel Management • **Dr. Avinash Chandra**, Asstt. Professor, Dep. of Vocational Studies, Univ. of Delhi • **Ms. Varsha Gupta**, Asstt. Professor, NIFT, New Delhi • **Ms. Pallavi Mohan**, Member NIFT Industry Advisory Board • **Ms. Niti Singal**, Director, ELF Outdoors, New Delhi
16:30-17:30 **Special Plenary 10** **Venue: Silver Oak**	**Blue Education for a Sustainable Future** • **Dr. Harsh Gupta**, Former Secretary, Ministry of Earth Sciences, Government of India **(Chair)** • **Ms. Shweta Khare Naik**, Executive Director, Jane Goodall Institute (JGI), India **(Moderator)** • **Ms. Ana Vitória**, Associate Programme Specialist, Ocean Literacy, IOC-UNESCO, Paris (Virtual) • **Ms. Raquel Costa**, Ocean Literacy Consultant, IOC-UNESCO, Paris • **Ms. Vinita Apte**, Founder Director, Terre Policy Centre, Pune. India • **Mr. Sunil M. Shastri**, Consultant, Educator and Speaker, Ocean and Environmental Governance, UK
17:30-18:30 **Special Plenary 11** **Venue: Silver Oak**	**Greening Curriculum: SASEANEE Experience** • **Mr. Kartikeya Sarabhai (Chair & Moderator)** • **Ms. Joyce Poan**, Chief Education Sector, UNESCO New Delhi • **Ms. Suparna Diwakar**, Dean of Research and Academics, Indian School of Development Management (ISDM) • **Mr. Jamyang Thinley**, Educator, Royal Academy, Paro & Druk Gyalpo's Institute, Bhutan • **Prof. Umesh Mandal**, Tribhuvan Univ., Kathmandu, Nepal • **Ms. Amor Q. De Torres,** Capitol University, Vice president for Academic Affairs, Principal, Sr. High School, Corrales/Osmena Extension, Cagayan de Oro City, Philippines • **Ms. Olivia Copsey**, Director of Education, FEE - Green Education in practice - experience from FEE • **Dr. Rini Solihat**, M.Si. Senior lecturer at Universitas Pendidikan Indonesia (UPI), Bandung, India

18:30-19:30 **Venue: Silver Oak**	**Closing Ceremony** Presentation and adoption of Recommendations • **Dr. Erach Bharucha**, Director, BVIEER, Pune • **Ms. Anupama Madhok**, Executive Director, Water Digest Closing Statements from thought leaders/partners • **Dr. Harsh Gupta**, Former Secretary, Govt of India- Guest of Honour • **Mr. Hem Pandey**, Former Secretary, Govt of India- Guest of Honour • **Dr Benno Boer**, Chief, Natural Sciences Unit, UNESCO New Delhi • **Mr. Kartikeya Sarabhai**, Director CEE • **Mr. Aditya Pundir**, Director, Climate Reality Project India and South Asia, New Delhi, India **Concluding Remarks by:** • **Mr. Pradip Burman**, Chairman, Mobius Foundation • **Mr. Praveen Garg**, IAS (Retd.), President, Mobius Foundation **Address by Chief Guest**: **Dr. Rajendra Singh**, Magsaysay Awardee, 'Waterman of India' & Chairman-People's World Commission on Drought and Flood **Vote of Thanks**: **Dr. Ram Boojh**, Advisor, Mobius Foundation
19:30 onwards	Networking and Dinner (Silver Oak Patio)

Parallell Track
September 20, 2024
Venue: MAGNOLIA

SUSTAINABILITY SAMVAD-CONVERSATION WITH SUSTAINABILITY LEADERS	
14:00-14:30 **Samvad 6** Venue: Magnolia	**Mr. Tim Connors**, Executive Director, EdTech Advisory Group, Boston, USA in conversation with **Dr. Kiran Karnik**, Former President, NASSCOM, New Delhi
14:30-15:00 **Samvad 7** Venue: Magnolia	**Mr. Alan Egbert**, CEO, ACER, Dubai in conversation with **Dr. Ibrahim Hafeezur Rehman**, Director, School of Sustainability and CEO, NAMTECH, IIT Campus Gandhinagar, India
15:00-15:30	Tea/Coffee Break
15:30-16:00 **Samvad 8** Venue: Magnolia	**Mr. Jadav Payeng**, Environmentalist & Forest Man of India in conversation with **Mr. Rituraj Phukan**, Environmentalist, Chief Operating Officer for Walk For Water
16:00-16:30 **Samvad 9** Venue: Magnolia	**Prof. Thammarat Koottatep**, Asian Institute of Technology, Bangkok, Thailand in conversation with **Dr. Benno Böer**, Chief, Natural Sciences Unit, UNESCO Delhi
16:30-17:00 **Samvad 10** Venue: Magnolia	**Mr. Rajan Mehta**, Fellow, Harvard University and Author "Backstage Climate" in conversation with **Dr. Sudhanshu Sinha**, Senior Advisor, British Council
17:00-17:30 **Samvad 11** Venue: Magnolia	**Ms. Nidhi Nagabhatla**, Senior Fellow and Program Lead (Nature, Climate, and Health), United Nations University, Belgium in conversation with **Ms. Stefania Fontana**, Fondazione Lombardia per l'Ambiente (FLA), Milan

SCIENTIFIC COMMITTEE FOR DRAFTING RECOMMENDATION (SCDR)
SCHEDULE OF COMMITTEE MEETINGS

September 19, 2024	17:00-18:00	Venue: Mahogany
September 20, 2024	17:00-18:00	Venue: Mahogany

Committee Members:

- **Chairperson: Dr. Erach Bharucha**, Director, BVIEER, Pune

Members:

- **Dr. Neelima Jerath**, Former Director General, Pushpa Gujral Science City, Kapurthala
- **Prof. Vinod Sharma**, Indira Gandhi Institute of Development Research, Mumbai
- **Prof. Sangeeta Sharma**, Director, Indian Institute of Environment Management, Mumbai
- **Dr. Kumudhini Ravindra**, CSO and Co-founder, Inytu Inc and Chief Mentor at Blue Lotus Inc, Bengaluru, India
- **Arawat Kumar**, Manager-Content, Teamwork Communications
- **Sharad Sharma**, content writer
- **Member Secretary: Ms. Anupama Madhok**, Director, Water Digest, New Delhi

ACADEMIC, POLICY & ACTION ADVISORY COMMITTEE (APAAC)
SCHEDULE OF COMMITTEE MEETINGS

September 19, 202	16:00-17:00	Venue: Mahogany
September 20, 2024	16:00-17:00	Venue: Mahogany

Committee Members:

- **Chair: Dr. Prabhjot Sodhi**, Sr, Director, CEE Ahmedabad
- **Co-chair: Dr. Tabassum Jamal**, Chairperson, Zaheer Science Foundation, New Delhi

Members:

- **Dr. Suraj K Tripathi**, Associate Dean, School of Chemical Technology, KIIT
- **Dr. A. K. Swar**, Former Chief Engineer, Odisha Pollution Control Board
- **Dr. Abdhesh Gangwar**, Focal point, RCE Srinagar, J&K
- **Prof. Suprava Patnaik**, Former Principal Advisor, AB Institute of Good Governance and Policy
- **Member Secretary: Ms. Bushra Fatima Taqvi,** Associate Director-Content, Teamwork Communications

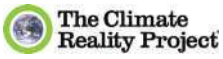
ABOUT MOBIUS FOUNDATION

Established in 2015, the Mobius Foundation is a non-profit organization dedicated to advancing environmental sustainability. With a primary goal of raising awareness about the environment and sustainability, the foundation has been at the forefront of numerous initiatives across India. Among its flagship projects is the annual International Conference on Sustainability Education (ICSE), initiated in 2019, which brings together global leaders, educators, and policymakers to address sustainability issues through educational avenues.

The foundation's Project Aakar focuses on promoting population stabilization across eight districts in Uttar Pradesh, targeting approximately 7,500 villages. Additionally, the Gyan Kanya Shakti: 100 School Program strives to adopt and run girls' schools in rural Uttar Pradesh and Madhya Pradesh, aiming to empower underprivileged girls through the provision of quality education. Through its Think Tank, the organization engages in diverse programs and research areas such as renewables, agriculture, environment, forest and wildlife, and climate change, seeking to integrate "Environmentality" with sustainability in human actions.

Constantly in pursuit of opportunities, Mobius Foundation remains dynamic and proactive in contributing to the global effort in building a greener future.

PARTNER ORGANISATIONS



Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all

MOBIUS FOUNDATION

ICSE Secretariat,
301, Antriksh Bhawan, 22 K.G. Marg, New Delhi-110001, India
Website: www.icse-esd.org | www.mobiusf.org
Email: icse@mobiusf.org | info@mobiusf.org
Phone: 011-4985-4523 | 011-4943-3823

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