Sustainability Education for a Better World
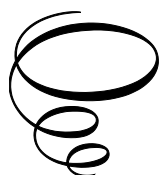
Sustainability Education for a Better World

Edited by

Ram Boojh and Natarajan Ishwaran

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PREFACE

It is a great privilege for us to present the publication *Sustainability Education for a Better World* as part of the proceedings of the International Conference on Sustainability Education (ICSE 2019). I hope that you will find it useful, exciting and inspiring. ICSE 2019 was organized with its ultimate goal of developing societies competent in the principles of sustainability and striving to live within the carrying capacity of the planet. It aimed to aid the implementation of education for sustainable development (ESD) which is culturally relevant, locally appropriate and occurring across the school education systems. I believe that two key factors which need attention are education and population stabilization. As people become educated, the population stabilizes and could reach a level lower than the replacement level as seen in some of the southern Indian states. Education is therefore the key to a stable population.

The current publication is a collection of selected papers presented during the ICSE 2019, which was able to create a new narrative for education for sustainable development. The sheer participation of over 750 delegates in the conference from over 40 countries ranging from sustainability educators, leaders, policymakers, teachers and practitioners to youth groups, school children, creative artists, exhibitors and industry leaders, presented a holistic view of the themes from across disciplines and professions. Conference delegates shared their experiences, stories and best practices providing the diverse facets of sustainability education from a broader perspective taking into consideration global issues and challenges as well as regional and national realities. The two-day event witnessed some 15 keynote addresses in 5 plenaries, 14 thematic parallel sessions, 25 exhibitions, 45 oral and 27 poster presentations besides inaugural and concluding plenaries. Two high-octane special events, one for the launch of the World Environment School and the other a STEM session for school children from India and Australia were the highlights of the event.

I keep remembering a verse in my head from my school days; when the dark clouds of trouble come, look for the silver lining; just remember that above the clouds, the sun is always shining. The conference has been the sun which showed us the way of how to come out of the clouds that are endangering the survival of the planet by educating the young to become responsible citizens, working as leaders for sustainability. I hope this

publication with its rich collection of sustainability education experiences, approaches, case studies and examples will be useful for a variety of readers interested in the sustainability of the planet.

Pradip Burman
Chairman, Mobius Foundation, Delhi, India

FOREWORD

Education has been considered as the key to address many challenges being faced by humanity and the planet Earth today. The foundation of environment education (EE) was laid down during the UN Conference on Human Environment (UNCHE) also known as the Stockholm Conference, held in 1972. The conference outcome document known as the Stockholm Declaration emphasized the need for responsible conduct by individuals, enterprises and communities in protecting and improving the environment in its full human dimension. The Stockholm Conference set principles and guidelines for EE which were further strengthened by various other UN deliberations during subsequent years. The Rio Earth Summit (1992) put education at the heart of sustainable development and became the main driver of sustainability. The real momentum for sustainability education was provided during the United Nations Decade of Education for Sustainable Development (DESD, 2005−2014) which laid guidelines and strategies for the integration of principles of sustainability into countries' educational strategies and action plans. The decade was instrumental in raising awareness about sustainability issues and generating interesting programmes and practices on sustainability education and education for sustainable development (ESD). After the conclusion of the DESD, a follow-up ESD Global Action Programme (GAP) was launched (2015−2019) to build on the efforts made by the DESD for advocacy and awareness-raising.

Transforming our world: the 2030 Agenda for Sustainable Development

The Agenda 2030 and associated sustainable development goals (SDGs), adopted unanimously by the UN General Assembly in September 2015, is a ground-breaking and transformative vision for creating a sustainable world by 2030. SDGs have explicitly set a distinct Goal 4 on education with the objective to "ensure inclusive and equitable quality education and promote lifelong learning opportunities for all" by 2030. Target 7 of the Goal 4, that is 4.7, specifically states that "by 2030 ensure all learners acquire the knowledge and skills needed to promote sustainable development, including among others through the education for sustainable

development and sustainable lifestyles, human rights, gender equality, promotion of a culture of peace and non-violence, global citizenship and appreciation of cultural diversity and culture's contribution to sustainable development". Besides, having a specific goal, the SDG4, education as such has been recognized as a means to help achieve all the other goals. This has been reinforced through the UN General Assembly Resolution 72/22210 which recognized ESD as "an integral element of SDG 4 on education and a key enabler of all the other SDGs." Sustainability education is considered as the key for the achievement of all the 17 SDGs covering key environmental challenges (e.g. SDG 6 on water, SDG 7 on clean energy, SDG 11 on sustainable cities and communities, SDG 12 on responsible consumption and production, SDG 13 on climate action, SDG 14 on oceans and SDG 15 on biodiversity) and the social issues that need to be taken into consideration in development discourses, such as poverty, gender equality and equity.

Advancing the sustainability education: ICSE 2019

The International Conference on Sustainability Education (ICSE) was organized on 9−10 September 2019 in New Delhi which brought together sustainability thought leaders, practitioners, teachers, educators, policymakers as well as the youth from around the globe to share innovative ideas, case studies, practices and policies, and came forward with recommendations for incorporating environmental sustainability as a core concept in the school education system. The conference deliberated on various facets of sustainability education taking a holistic viewpoint in terms of ESD (education for sustainable development), EE (environmental education) and climate change education (CCE). The first of its kind conference focused mainly on sharing case studies and experiences on environmental education with a focus on climate change education within the framework of education for sustainable development. It also deliberated on ways for effective integration of EE, CCE and ESD into the education systems. This was perhaps the first ever initiative to bring together the diversity of experiences from across India and the globe towards education for change, and bringing in the element of quality improvement in education.

Sustainability education for a better future

The present volume is a collection of selected papers presented during the conference, organized into 21 chapters. These chapters are an amalgamation of various approaches to sustainability education in the formal, non-formal and the informal sectors. They provide glimpses of good practices, case

studies, technological advances in teaching–learning, analysis of policies, curriculum and the pedagogy.

The book begins with an overview of sustainability education (Chapter 1) consisting mainly of the deliberations and key findings of the ICSE 2019 with a view to set the context and spectrum of sustainability education. The SE as a holistic vision goes beyond EE, CCE and the ESD. While ESD is development-centric, SE deals mainly with the societal challenges and practices, behaviours and skills needed to improve our life and the future of the planet.

Sustainability education in the school system

Chapter 2 by Donna Goodman looks at systemic challenges and opportunities of education for sustainable development from a child-centred lens with a focus on life skills and value-based approaches, emphasizing the need to respect all forms of life, integrated within the contextual understanding of facts and figures, green skills and behaviours, enhanced cooperation, equity, conflict resolution and personal well-being.

Case studies of *Paryavaran Mitra* (friends of the environment) schools in India are presented in Chapter 3. The programme is a network of young leaders from classes 6–8 (age group 11−15) involved in problem-solving sustainability action projects. The exemplar projects undertaken by the network of schools were selected as the *Good Practice Stories on ESD* by UNESCO in 2014.

Sustainability education for teachers

Chapter 4 on measuring teaching performance of school teachers of some selected secondary schools in Mymensingh, Bangladesh, presents a case study of evaluation of the teaching performance in reference to learning outcomes, student retention, faculty retention, time, classroom environment and the salary of secondary school teachers. Attributes such as use of the lesson plan, teaching aids and classroom management capability showed a positive association with the teaching performance.

Chapter 5, "Perspective building for environment among teachers: a curricular initiative for sustainable development" analyses the experiences and perceptions of teachers about the need for the environment education (EE) course and how it builds their understanding and the perspective about environment. The paper concludes that the course, being more of a practical relevance for the pre-service teachers, orients them about the pedagogy of

dealing with environmental issues in the classroom rather than just providing theoretical inputs.

The case study presented in Chapter 6 is on the New Zealand curriculum and SDGs for pre-service teacher education, which tells us about the perceived gaps in theory and practice in relation to the sustainability education pedagogy and the design of the course "Stewardship and Sustainability in Global and Local Contexts" introduced for pre-service teachers. The course introduces the application of the SDGs in both learning and teaching, and integration of the SDGs into curriculum learning using the head, heart and hands model. This model encourages pre-service teachers towards action competence through planned learning in the cognitive, socio-emotional and behavioural domains.

Non-formal sustainability education

Chapter 7, "Promoting sustainability in non-formal education: the role of Japanese *kominkan*" presents the case study of the Okayama Kyoyama ESD Environment Project (KEEP) in promoting community-based ESD and learning activities of non-formal education (LANFE) in Kominkans, or community learning centres (CLC) of Japan. The study analyses the significant impact of formal and non-formal education, cooperative learning activities in promoting ESD, and concludes by recommending LANFE to policymakers for promoting ESD in communities.

Chapter 8, "Multilayered plastic management in an educational institute" is a case study of a community-based approach to solve the issue of multilayered plastic (MLP) waste management through the involvement of students, teachers and families of Smt. Sulochanadevi Singhania School in partnership with the Safai Bank of India, a Mumbai-based NGO.

"An integrated model for environment and sustainability education for adolescents in urban poor neighbourhoods in Surat, India" is presented in Chapter 9. The case study of four innovative and context-specific models to engage children in schools and beyond, in the community, links them with larger issues of sustainability and education.

Chapter 10, "*Vayam*: a case study on community education for sustainability" talks about the forest-dependent tribes of the North Western Ghats who were empowered and trained in sustainability practices such as preparation of people's biodiversity registers, protection of forests, tree plantation, water management, and skills training to enable them to be locally employed and to stop their migration to other regions.

Policy for sustainability education

Chapter 11 describes the role of education for achieving the SDGs along with various tools and methodologies adopted as best practices, including various policy-level interventions to promote an ecosystem of sustainability capacity-building. The paper examines the role of technology in increasing the participation of multiple stakeholders in the education for sustainability, and subsequently actions for the achievement of the same.

Chapter 12, "Transforming education to future-proof societies", discusses a practical, scalable framework for sustainability education in schools. The task of initiating a mindset shift can be performed by transformative schools and transformative leadership, experiencing and facilitating positive changes. Schools with a clear vision, positive culture, participative decision-making and are modelling best practices, have higher chances of making a change.

Community-based sustainability education experiences

Chapter 13 focuses on the experience of the life skills education pilot programme for adolescents in the city of Surat in the state of Gujarat, India, where the programme attempted to integrate life skills with environmental education. A group of 25 master trainers selected from the city schools were trained as a resource pool. Context-appropriate training modules and plans were developed. Training content included eight life skills accredited by UNICEF which were further integrated with relevant subjects including the environment, climate change and health. A variety of innovative training methods were piloted with the major thrust on experiential and fun-based learning.

Chapter 14, "Sustainability education in agriculture: the prospects of Digital Green in India" is based on a study of democratization of information in the agricultural sector. The study emphasizes the need to establish digital opportunities for farmers to bridge the digital divide. As Digital Green also provides the farmers with a new version of extension services, the study tries to unfold the contribution made by the process of conventional agricultural extension services first and thus can substantiate the uniqueness of Digital Green interventions.

Chapter 15, "Cycle and fission impact: education and empowerment for sustainability", describes the impact of climate change on women and children and the role of awareness, education and opportunities in their empowerment. The study concurs that education and empowerment can help women and children deal in a better way with the climate catastrophe.

Sustainability education through campaigns

Chapter 16, "Am I a dustbin? Case study of a campaign to create awareness about single-use plastic, creatively!" is about an awareness campaign by the Climate Conscious Network (CCN) focusing on plastic pollution in the city of Surat, India. The campaign included clean-up activities in and around water bodies, riverbanks, beaches, lakes and canals within the city. The collected plastic waste was displayed in an exhibit titled *AM I A DUSTBIN?* This was made to float on the river with the help of four boats as a part of the awareness campaign.

Chapter 17, "Promoting scientific temperament for sustainable development" presents the case of the mobile science exhibition and the Regional Incubation Science Hub for Innovators (RISHI) innovation programmes of the *Pushpa Gujral Science City* in India. This is for the promotion of critical thinking, questioning, problem-solving and decision-making skills within the general public and the students in particular, to serve as models for ESD. The study shows how young minds are innovative and can solve societal problems if tapped adequately.

New and emerging technologies/initiatives

Chapter 18, "Teacher training for sustainable development in the context of design education" explores the question of sustainability education through the use of real-life examples, in the context of design education. The chapter provides avenues and ways of improvement on how teacher training could be better developed through exposure to industry design practices, working on specific research projects, speaking and participating in conferences, etc.

The role of "Gamification in teaching and education using technology" is explained in Chapter 19. The chapter describes the benefits of gamification in achieving increased learning engagement, skill proficiency, retention of learning and acquiring a feeling of achievement and satisfaction. It provides examples of teaching and promoting sustainability using altruistic and gamification principles, through a game called "Ecoman" to learn about sustainability while saving or reducing carbon dioxide emission, making better lifestyle choices and having fun doing it.

Chapter 20, "Sustainability leadership programme for twenty-first century learners" proposes to empower school-going students (13 years and above) with crucial competencies, such as systems thinking, problem-solving, critical thinking, normative competence, anticipatory competency and

others, catering to all three domains – head, heart and hand − to foster key competencies to advance the 2030 Agenda for Sustainable Development.

Chapter 21, "Could conscientious commerce be a paradigm of sustainability education in business, economics and management?" draws its rationale from the fact that in popular perception, business in government and civil society appear to be the weakest link in ensuring sustainable futures and realizing sustainable development goals (SDGs). Conscientious commerce, in its sum and substance, is commerce based on our conscience rather than on selfish intent.

We do hope that this volume will be able to generate interest and stimulate the ongoing transformation in the education system to lead it towards sustainability. We also hope it to be useful to a variety of stakeholders involved in sustainability education and will serve as a good resource for education, training and capacity-building in diverse situations.

We are grateful to all the contributors and reviewers who have taken the pain in shaping this volume into its current form. We acknowledge our sincere appreciation to our colleagues in the Mobius Foundation, Mr Pradip Burman, Ms Archana Kushwaha, Ms Kavya Singh Yadav, Mr Madhu Bopanna, Ms Nidhi Singh and Col Santhosh Kumar for their unstinted cooperation and support to make this volume a reality. Our grateful thanks to Mr Adam Rummens of Cambridge Scholars Publishing and his colleagues for their patience and perseverance while developing this publication.

—Ram Boojh and Natarajan Ishwaran
Editors

CHAPTER 1

SUSTAINABILITY EDUCATION:
SETTING THE CONTEXT

RAM BOOJH

CEO & DIRECTOR PROGRAMMES,
MOBIUS FOUNDATION AND CONVENER, ICSE 2019

Abstract

The role of education in the context of sustainable development has been acknowledged and recognized globally as being of prime importance. Sustainability education is being practised in various forms such as environment education (EE), climate change education (CCE), education for sustainability (EfS) and education for sustainable development (ESD). The UN Decade of Education for Sustainable Development (2005–2014) provided a major thrust to the idea of sustainability education. The UN Sustainable Development Goals (SDGs) have a standalone Goal 4 on education and Goal 4.7 calls for ensuring all learners acquire knowledge and skills needed to promote sustainable development by 2030. The International Conference on Sustainability Education (ICSE) organized in New Delhi in September 2019 was a major international initiative to bring forth various facets and dimensions of sustainability education from a wider perspective and context. The diversity of approaches and experiences shared during the ICSE challenged the notion of a rigidly structured "one size fits all" standardized approach for education. It provided a much-needed alternative approach to sustainability education which is all inclusive, innovative and transformative. ESD for the future needs to find answers to sustainability challenges of the day and bring about necessary transformation, and accelerate the transition to green technologies through equipping people with the required green skills for a better future for all.

Introduction

Education plays a critical role in societal transformation and sustainable development. Societies across the world have been uplifted through access to quality education. The role of education in solving environmental and sustainability concerns has also been duly recognized. Currently, education about sustainability is being promoted not only to raise awareness about critical environmental issues but also as a means of improving the quality of education. There are several approaches and strategies being experimented around the world with regard to sustainability education in various forms such as education for sustainability (EfS), education for sustainable development (ESD), environment education and climate change education. Sustainability education integrates key sustainable development issues into teaching and learning through participatory methods that motivate and empower learners to change their behaviour and take action for sustainable development. It promotes a transformative education by equipping learners with the necessary knowledge, skills, values and attitudes to enable a more sustainable and just society for all. Sustainability education promotes competencies like critical thinking, imagining future scenarios and making decisions in a collaborative way (Boojh 2001; UNESCO 2019).

Towards sustainability

The idea of sustainability can be traced back to the United Nations Conference on Human Environment held during June 5–16 1972 in Stockholm, Sweden. The conference laid emphasis on the importance of education to address environmental and development issues. The Stockholm Declaration – the outcome document of the conference – was instrumental in setting up the United Nations Environment Programme (UNEP) and the International Environment Education Programme (IEEP). As a follow-up to the Stockholm Conference, the World Commission on Environment and Development (WCED), also known as the Brundtland Commission, was set up in 1983. The Commission's report *Our Common Future* also known as the Brundtland Report after its chairperson Dr Gro Harlem Brundtland, for the first time defined "sustainable development" as the development that meets the needs of the present without compromising the ability of future generations to meet their own needs (WCED 1987). The

UN Conference on Environment and Development (UNCED) also known as the Earth Summit was organized at Rio de Janeiro in 1992. This conference gave birth to UN conventions on climate change, biodiversity and desertification, and the Agenda 21 road map to sustainable development. The foundation of sustainability education was laid in Chapter 36 of Agenda 21 which states, "education, including formal education, public awareness and training should be recognized as a process by which human beings and societies can reach their fullest potential." (UN 1992; Boojh 2009).

UN Decade of Education for Sustainable Development

Sustainability education received the much-needed thrust at the World Summit on Sustainable Development (WSSD) in Johannesburg in 2002 which recommended adopting a Decade of Education for Sustainable Development (DESD). This was subsequently endorsed during the 57th Session of the UN General Assembly in December 2002 (WSSD 2002; Boojh 2001, 2003; Sarabhai *et al.* 2007). The DESD was instrumental in integrating the principles and practices of sustainable development into all aspects of education and learning. Its main contribution was awareness-raising, which helped generate interesting practices and projects (UNESCO 2014). The UN Conference on Sustainable Development, named Rio+20 organized in 2012 again in the Brazilian city of Rio de Janeiro, was the next important milestone in the journey towards sustainability. The 53-page outcome document of this conference *The Future We Want* laid the groundwork for a green economy and the sustainable development agenda. It was termed a blueprint for making the world a brighter, safer place (UN 2012). With the adoption of the Agenda 2030 and the 17 sustainable development goals (SDGs), the issue of sustainability education is now firmly placed on the international agenda and discourse (UN 2015; Boojh 2017). Education is placed as one of the standalone goals, SDG 4.7, which specifically states that "by 2030, ensure that all learners acquire the knowledge and skills needed to promote sustainable development, including, among others, through education for sustainable development and sustainable lifestyles, human rights, gender equality, promotion of a culture of peace and non-violence, global citizenship and appreciation of cultural diversity and of culture's contribution to sustainable development" (UNESCO 2019).

ESD 2030 Framework

With the close of the DESD in 2014, the Global Action Programme (GAP) was launched for the period 2015 to 2019 with the objective of scaling up action on ESD. The period of GAP was mainly used to expand the ESD network and develop a future framework aligned with the Agenda 2030 and SDGs, particularly Goal 4. Post GAP, the ESD 2030 Framework was prepared through a wide-ranging consultative process building upon the lessons learned and experiences of both the DESD and GAP. The ESD has been recognized as an integral element of SDG 4 and a key enabler of all the other SDGs by the UN General Assembly Resolution 72/222, which states that "ESD for 2030" is to build a more just and sustainable world through the achievement of the 17 SDGs. Therefore, ESD and global citizenship education (GCED) are at the core of SDG 4 Target 4.7, which aims to ensure that all learners acquire the knowledge and skills needed to promote sustainable development (UNESCO 2019).

The SDGs provide an excellent opportunity to strengthen our perspective of the ESD. The 17 SDGs cover the key environmental challenges (e.g. climate change, water, ocean and land), and the fundamental issues that need to be taken into consideration in development discourses such as poverty, gender equality and equity. However, education is the first to be impacted by challenges and disruptions. The UN Agenda 2030 and associated SDGs have provided the global community with an important tool to lead the world towards a sustainable and resilient pathway so that no one is left behind.

ICSE 2019

The International Conference on Sustainability Education (ICSE 2019) organized on 9−10 September 2019 in New Delhi, was an attempt towards bringing together some 750 participants from 40 countries. These represented sustainability education professionals, youth leaders, policymakers, teachers and practitioners from across the disciplines and professions to share their experiences, stories and best practices. This included various facets of sustainability education from a broader perspective, taking into consideration global issues and challenges as well as regional and national realities. The two-day event witnessed some 15 keynote addresses in 4 plenaries, 14 thematic parallel sessions, 25 exhibitions, 45 oral and 27 poster presentations besides inaugural and concluding plenaries. The conference witnessed the launch of the World Environment School, an exclusive school devoted to environment and sustainability education. A special session for schoolchildren

from India and Australia was also a highlight of the conference. The participants had ample opportunity to network and socialize during the welcome dinner and cultural evening.

The participants had the opportunity to write out their recommendations/ideas on a conference "declaration wall" which provided a wish list of ideas and thoughts on sustainability education. ICSE 2019 provided an exciting experience to the delegates as summed up by Dr Christa Henze, University of Duisburg-Essen, Germany: "The conference was not just about 'nice to meet you' or listening to speakers. I could experience so many ideas that I can take home and utilize in our university." The conference was organized at a time when the Global Action Programme on ESD was to end in 2019 and a new ESD 2030 Framework was underway. It provided useful insights and pointers for sustainability education professionals and practitioners including other stakeholders, to prepare for the new challenges of sustainability and related educational opportunities to address these challenges. Some of these are reflected in Table 1.1 below.

Table 1.1: Quotes from the ICSE declaration wall

• Sustainability education has never been on the agenda of the elections in India. It should become part of political discourse as well.	• We have to start mobilizing all of us including the youth. We have to create the opportunities, the will, the actions and the movement that will bring people together.
• The holistic approach to deal with the current system is important. The inclusion should be at all the "touch points", all age groups, all sectors say water, air, poverty, pollution and biodiversity. Only this will help us bring the change that will actually reverberate through the entire globe taking all into consideration.	• With sustainability education we should try to build a generation of youth with capacity, skills and the right knowledge ready to take on the challenges. The list should include not only scientists and engineers but also teachers, journalists, planners and politicians to build this awareness "that we are really not doing well and we need to change the way we live".
• Stimulate future eco-preneurial behaviour.	• Values need to be included in the overall agenda of sustainable living and unless we address values and lifestyle, we will not be able to make the transformation.
• It has become relevant for us to bring back the cultivation of spiritual values in our children. Unless you touch the spiritual springs in the heart of a child, there is no way you really help them to grow as an integrated human personality with a sharp brain, compassionate heart and competent hands.	• There are three critical pillars of sustainability education: - A: The first is its interdisciplinary nature to educate for sustainable development. - B: The second is holistic in the sense of applying at all aspects of our lives. - C: The third pillar in addition to interdisciplinary and holistic nature, is the ethical core of sustainable development.

• Sustainability education should work towards bringing drastic change in the mindset of children rather than nudging them into slowly bringing change in their lifestyle.	• "Love" is the word, only if we love and reconnect with nature, we will be able to find the solutions. Education can only help us become aware of the problem but will not derive solutions. Solutions will come with connecting and adopting a sense of responsibility towards our Earth, towards our nature.
• Our education system needs to be one that makes children know that they are not the victims, but are co-creators of the world they want and as an adult, we have to let go off our death grip to control them and should allow them to really co-create the world they want to live in.	• If we want people to act with the responsibility we have to speak in the language and ways they understand, teach them the love for nature and see the magic unfold.
• A single-level education system should be created to bring equality and equal opportunity for all in the field of education, be it for the poor or the rich.	• The concept of sustainable happiness can contribute to the development of a unified vision that fosters well-being for all and forever.

Sustainability education: key messages

ICSE 2019 witnessed a plethora of thoughts and ideas from eminent professionals from across disciplines and countries. The following are some of the key messages delivered by eminent experts and dignitaries attending the conference.

- The best agent to implement SDGs is education and the *Right to Education* provides access to quality education to every citizen of the country. Sustainable lifestyle is in the Indian ethos, and we need to re-emphasize it. **Prakash Javadekar, Minister for Environment, Forest and Climate Change, India**

- Integrating environment education, climate education and sustainability in the school curriculum and pedagogy would go a long way to making our education system really transformative and helpful in attaining the sustainable development goals. **Ramesh Pokhriyal Nishank, Education Minister, India**

- Few would dispute that the number of learners accessing education has increased significantly over the last few decades and yet we are experiencing the highest levels of unsustainable development. Many educators share my concern that, currently, education is not fit for purpose. We need the education to be transformative and education systems to be transformed. This conference provides an opportunity to rethink education and redefine learning. It will help develop partnerships, pathways and inspiration needed to attain SDG 4 and move us closer to a fairer and more sustainable world. **Daniella Tilbury, Commissioner for Sustainable Development, HM Government of Gibraltar**

- We are proud that UNESCO's leadership in the field of education has placed us at the forefront of global efforts to achieve SDG 4. UNESCO is delighted to partner with the Mobius Foundation to co-organize the International Conference on Sustainability Education in New Delhi on 9–10 September 2019. We believe that the conference will be instrumental in building momentum and interest for the uptake of sustainability education and will help the new generation in making sustainable development a reality. **Éric Falt, Director and UNESCO Representative for the UNESCO New Delhi Cluster Office**

- Environmental education, education for sustainable development and climate education potentially overlap synergistically, but in practice they are often marginalized and forced to compete for limited coverage in the curriculum. Education has been massively transformative in the past and it must be for the future, but this requires recognizing the nature and depth of the challenge, accepting the truth of the situation, and responding accordingly. **Mark S. McCaffrey, Co-focal Point for ECOS (Education, Communication and Outreach Stakeholders)**
- Sustainability education must avoid the pitfalls of "all theory and no practice"; sustainability educational curricula that emphasize learning are a critical need in both formal and non-formal education sectors. **Natarajan Ishwaran, Editor in Chief, Environmental Development (Elsevier), Pariss**
- The concept of ecopreneurship, the entrepreneurship for the environment, needs to be integrated as part of sustainability education. **Ajay Mathur, Director General, TERI, India**
- It was India, during the UN Conference on the Human Environment in Stockholm, who pointed out that removal of poverty and preserving the environment are really two sides of the same coin. This whole issue of bringing sustainability and environmental education together really goes back to an initiative of that time. India became the first country in the world where environmental education became a compulsory part of every level of formal education. It was a remarkable change that happened in India and gave a fillip to sustainability education. **Kartikeya Sarabhai, Founder Director, Centre for Environment Education (CEE), India**
- Let this conference be the sun which will show us the way of how to come out of the clouds that are endangering the survival of the planet, by educating the young to become responsible citizens, working as leaders for sustainability. **Pradip Burman, Chairman, Mobius Foundation, India**
- Gandhi Ji, and we all love to quote him, always said, walk the change or be the change. We often talk about these things, but we don't ask to practise the change. So that open laboratory of practice has to be something that we incorporate in our environmental education programme, and I can tell you from the CSE's [Centre for Science and Environment] Green School Programme, it is a game changer. When children come to present their benchmark on water, on waste, on air pollution, they believe that they can do it because they have

done it. That is where we need to go. **Sunita Narain, Director General, Centre for Science and Environment, India**

- It's not fine when we are playing with the future of this planet, and the future of our children and our grandchildren. We need a consciousness shift, a shift in our educational model of success not in terms of grades or ranking, the money you make, who you control, what you control to a model of success that says about the impact of your life on planet Earth. **Sadhvi Bhagawati Saraswati, Secretary-General of the Global Interfaith Water Alliance**

- We have a plan for 2030, but we have to remind ourselves that it's a compromise, it's a compromise in the direction of more sustainable approaches. We cannot say that if we achieve these SDGs by 2030, we will suddenly live on a sustainable planet. Sustainability is really like a ship that you are trying to bend around a little bit. So, sustainability would really be the next step. **Guy Broucke, Programme Specialist, UNESCO, New Delhi**

- The soul of education is the education of the soul. Unless you touch the spiritual springs in the heart of the child, there is no way you really help him to grow as an integrated human personality with a sharp brain, compassionate heart and competent hands; you have to touch the spiritual moorings of the child. **B. N. Narasimha Murthy, Chancellor, Sri Satya Sai University for Human Excellence, India**

- I think it's really important for young people to be educated, particularly about climate change. We are destroying our planet and we don't have that long to get together and find solutions to make the world a better place for our children. I hope that you will all be able to exchange meaningful ideas and get together to make a difference, to join hands to make this a better world before it's too late. **Jane Goodall, Founder, Roots and Shoots Institute, India**

- I would point to three critical pillars of education in sustainability. The first is to educate in the interconnected systems of the physical Earth, the engineered world, policy and politics, social dynamics and human behaviours. Second, it is holistic – we need education for sustainability as individuals in our life choices, lifestyles, health, behaviour and the virtues or excellences that will be needed for sustainable development. The third pillar in addition to the interdisciplinary nature and the holistic nature is the ethical core of sustainable development. Ethics too means the right kinds of behaviour for well-being, applied at different scales and different

dimensions. **Jeffrey D. Sachs, Director for Sustainable Development, Columbia University**.

ICSE: Plenary discussions

Plenary session 1 – Setting the agenda

The session was chaired by Dr Natarajan Ishwaran and co-chaired by Dr Ram Boojh. Initiating the discussion, Mr Martin Siegert, Professor, Geo Sciences and Co-Director, Grantham Institute, Imperial College, London emphasized the need to understand whether we are training this generation with the skills that they really need for the next decades so they can lead and manage this transition. Students are the future and training them with the right skill sets should be looked at – in schools and universities – and this is critical to deliver the developing zero carbon economy.

Mr Vivek Menon, Executive Director and CEO, Wildlife Trust of India said that sustainability education needs to focus on the practical part, which is often forgotten. Students need to be involved with actual issues and should be given hands-on experience to solve the prevailing difficulties in the current world. Only then will this education for sustainable development take a holistic approach. Also, the biggest challenge is having teachers with the right skills to impart the right knowledge.

Ms Ushio Miura, Programme Specialist UNESCO, Asia-Pacific Bureau of Education, Bangkok, Thailand added that sustainability education is not

only about bringing the concept of sustainability into classrooms, but also about bringing education and learning into the community life for everyone so they can collectively take action for sustainable development.

Dr Pramod Kumar Sharma, Senior Director of the Foundation for Environmental Education, Copenhagen talked about the need for scaling up, perfecting and improving the ongoing activities instead of trying for new and exciting ideas to work with. The second biggest challenge is also about the skills to lead these transformative processes, and the skill building of teachers to do active learning.

Ms Chandrika Bahadur, President of the SDSN Association spoke about the complexities in imparting sustainability education as lifelong learning by making it flexible.

Plenary session II – Sustainability education approaches and experiences

The session began with a statement by Mark S. McCaffrey, Co-Focal Point for ECOS who stressed that information alone is not enough to motivate behaviour change. But when knowledge is paired with effective research-based pedagogy and communicated by trusted messengers, measurable changes in attitudes, behaviour and actions are seen. Modern education has ironically become a part of the problem facing the planet. However, the potential and the power of education can transform the world if it is authentic, down to earth, and touches people's hearts and minds.

Prof. Ashok Kumar, Professor of Management, Grand Valley State University, MI, USA focused on sustainability education for future managers who, if not properly educated, can be huge polluters. It is important for everyone to think about the cycle of products and their impact on the environment, and how this whole economy and the business world should work in a sustainable way.

Goutam Kumar Dalapati, Department of Physics, SRM University, Amravati, India emphasized the need for innovation to develop sustainability and to make people sustainable. New technology should also be the point of focus in the developing economy as this is the only way to bring in the solution to the prevailing problems in the world.

Rajendra Shende, Chairman TERRE Policy Centre, Pune, India spoke about sustainability and its various dimensions, and how students would like to get involved at various levels of sustainability to widen their perspective and knowledge, thus helping them to be a skilful resource and establishing them in the economic market as an asset. Apart from this, sustainable development education should keep pace with what the market requires and