Education & Climate Change

Discussion Summary

This e-Discussion was conducted by The Commonwealth Education Hub between 30 November 2015 and 18 December 2015.
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Introduction

Climate change presents a borderless and intergenerational phenomenon, with diverse and far-reaching impacts across the global community. Human activities are irreversibly changing the environment in which society exists, requiring collective, immediate and profound action on climate change. As Heads of State from around the world gathered at the 21st Conference of Parties to discuss the international community’s response to climate change (and out of which the Paris Agreement was born), the Education Hub launched a discussion on education’s role in propelling climate action.

The objective of the three-week discussion was to engage a wide range of education stakeholders from various professional and geographical backgrounds to critically reflect the role of education in addressing the issue of climate change.

The discussion reached out to 665 participants, comprising representatives from Education Ministries, development organisations, the private sector and academia. Responses were received from 9 countries across all Commonwealth regions and beyond, and was moderated by Emma Findlater of the Education Hub Facilitation Team.

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Discussion Summary

Key points

Climate change was discussed as an urgent issue requiring global action and necessitating a shift in thinking and decision-making to account for destructive human-environmental interactions. Participants acknowledged education as a necessary tool to address climate change. Education was recognised for its ability to empower, inform and motivate those engaged, the wider community and government to take action on climate change. Various examples were presented as means of integrating climate change into education, including those curriculum-based, community-based and technology-based approaches.

Participants argued that as part of the transformation for sustainable development, economic focus must shift and refocus on green growth. Education has a necessary role to play in said shift, helping to develop a workforce with the knowledge, skills and drive to develop a sustainable, green economy.

Policy was recognised as a key vehicle for driving the uptake of climate change into education. Recommendations included:

- Governments to lead on addressing climate change and the use a multisectoral approach to policy development;
- Addressing climate change and effective integration into education requires an understanding of the root causes and the social, economic and environmental relationships at play;
- Education should be engaged as a mechanism to develop a workforce with the knowledge to power green growth;
- Climate change be addressed through the use of formal, non-formal and informal education targeting a wide cross-section of stakeholders, including as students, communities, industries and governments;
- Climate change education should not be restricted by subject, but should be integrated across the curriculum, and requires emphasis on problem-solving and evidence-based thinking; and,
- Pursuit of a collaborative approach to teacher training to foster acceptance of new methodologies and integration of climate education across the system.

Issues discussed

Urgency and need for change

The urgency of addressing climate change was an underlying theme throughout the discussion. Climate change is a global issue, the effects of which are varying and widespread, and are already being felt. Human activities are fuelling climate change and having other environmentally-destructive impacts, necessitating a fundamental shift in thinking and action to address what are ultimately self-destructive human-environmental interactions. As affirmed by Mr Lueddeke, ‘[there is the need] to introduce or adapt learning at all societal levels to engage with the new realities [of climate change] and arrive at new ways of thinking and acting that ensure sustainability of the planet and future generations.’ And whilst there were conflicting views as to the success of the Paris agreement, it was viewed as an important starting point and launch pad for further action.
Contributions highlighted differentiated impacts across different social groups, and geographic and temporal scales, and various effects of climate change (including sea level rise and extreme weather events). Many contributors stressed the necessity to fundamentally transform the economic system, whilst suggestions included a move towards traditional knowledge, tools and attitudes, and the pursuit of low-carbon, green growth. The discussion ultimately emphasised the need for cooperative and collaborative action across the entire global community to address climate change and the causal human-environmental interactions.

Education as a tool for change

Education was discussed as a critical tool for change, both for understanding and empowerment. Contributors emphasised the need for integration of climate change education throughout the lifecycle — in early childhood, primary, secondary and post-secondary education, and beyond — and through formal, informal and non-formal education. Education was seen as essential for not only youth, but equally as important in the wider community, industry and government.

It was argued that education provides an understanding of climate change and its root causes, tackles climate apathy and distortions, and promotes advocacy and action for climate mitigation and adaptation. It was also highlighted as helping to bridge differences in responsibility and in severity of impacts towards a common goal, acting as a seed for change. Education propels an individual to action, and as a collective, promotes widespread change by fostering a climate conscious and active society and stimulates governments into action. It can play an important role in preparing people to deal the complexities of climate change, build resilience, and enhance innovation and collaboration in mitigation and adaptation.

Education and economic change

The dynamic interrelationships between climate change, economic activity and education were central throughout the discussion. The influence of economic activity on climate change has been growing since the start of the industrial revolution, precipitating in the climatic changes currently being felt, and growing in magnitude. Low-carbon green growth was presented by various contributors as essential for climate change mitigation, and to building human resilience and capacity to adapt to the changing environment.

Education was discussed as a necessary enabler of, and vehicle for green growth; in shaping a workforce with the skills, knowledge and desire needed to transition to a green economy and for sustainable livelihoods.

Need for transformation of the education system

Various contributors discussed the need for change within the education system itself to be able to effectively engage as a tool to address climate change. Traditional/conventional education was discussed as being constricted to rigid subjects and methods of teaching, not able to effectively address the complexities faced in relation to climate change and other 21st century issues. The role of evidence-based thinking and decision-making were highlighted by numerous participants as critical to this end.
The importance of integrated thinking, based on system dynamics methodologies and tools, was similarly highlighted.

It was argued that such a transformation would create an education system able to better address not just climate change, but other realities of the 21st century world. Talk of said transformation, however, has existed for decades and not yet materialised. It was cautioned, that such a transformation should not alienate education professionals by discounting their work and successes; thus, suggesting the need for a supportive, rather than threatening, environment for realisation of such change. Mr. Wynn also proposed that transformation of education does not need to occur in one fowl swoop, but can equally occur through a million small changes. Regardless of the route, it was reiterated that climate change urgently necessitated attention within education.

Integration into formal education

Various contributors suggested that climate change be formally integrated to the curriculum. In this respect it was stressed that education not only address the science of climate change, but the root causes and interrelationships between social, economic and environmental systems. The traditional curriculum was discussed by many as lacking a holistic approach to education, being strictly defined by subjects. Issues such as climate change, however, require transdisciplinary thinking. To this end, participants supported a shift in the curriculum to facilitate problem- and evidence-based learning across disciplines. Holistic formal integration can help produce citizens with the appropriate knowledge, critical thinking skills, technical skills, and social awareness and drive to address climate change. Various examples were presented offering curriculum and course material. These included the Cool Australia programme, as well as descriptive examples of how teaching and assessments can integrate learning across subjects.

Role of teachers and training

Various contributors discussed the need for teacher training and a supportive environment which works with teachers to implement change. Professional development workshops, peer-to-peer learning, and online teacher forums were discussed as means of providing teachers with the necessary support.

Integration into school infrastructure

Contributions also highlighted the potential within the formal education environment to integrate environmental sustainability into school infrastructure. Zero-waste, solar power and wind power were included as amongst the examples of ways schools are physically integrating environmental sustainability. These not only reduce the particular school’s ecological footprint, but stimulate learning through teaching by example.

Non-formal and informal education

Participants stressed the need for education which reaches all citizens and communities, and the role of non-formal and informal education to this end. Various initiatives and ideas were contributed, including radio and television programmes, peer-to-peer engagement, participatory exhibitions, and community-based training. Non-formal and informal education can both provide a knowledge-base in
relation to climate change, as well as build resilience and empower those reached. Such initiatives present a critical means to reach those not engaged in the formal education system, including those in marginalised communities, the wider community, industry and policy- and decision-makers.

**Technological tools for education**

Various alternative technologically-based tools for education were discussed, offering different ways to view and understand climate change. These tools have potential application within the formal education system and beyond. Online courses and other web-based interactive and visualisation tools were discussed, a number of which are freely available and accessible, such as the online tool visualising future sea level rise based on different scenarios.

**Education and policy**

Participants discussed the role of policymakers in ensuring that education is employed as a mechanism to address climate change, as well as the need for education of policymakers themselves. The COP21 Paris Agreement demonstrates recognition amongst policymakers of the urgent need for change, but now requires words to be followed by actions. The role of education should not be overlooked in policy development, which requires an understanding of the relationship between climate change and economy, and a long-term outlook. Based on this understanding, cross-sector policies can be developed which integrate education, and take advantage of the opportunities presented to stimulate green growth, job opportunities and economic resilience.

Within the education system, policy can be used as a mechanism to integrate climate change into the formal, non-formal and informal education methods, which will result in a society that is equipped with the understanding, values, knowledge and skills to tackle the causes and impact of climate change. In turn, a climate conscious and resilient community will advocate for action, motivate policymakers to implement further changes and be resilient to change.
Commonwealth & other Case Studies

From Nicholas Watts, Global Sustainable Livelihoods Consulting, United Kingdom

Virtual University for Small States in the Commonwealth, Commonwealth of Learning

VUSSC is a collaborative network of Commonwealth small states for the development and sharing of free content resources to promote learning for sustainable development.

http://www.vussc.info/

Commonwealth Youth Climate Change Network

A network of youth climate leaders from across the Commonwealth working together to address climate change and other environmental issues.

http://www.yourcommonwealth.org/commonwealth-youth-climate-change-network

Schools at University for Climate and Energy

http://www.schools-at-university.eu/

Bethel Business and Community Development Centre, Lesotho (from Ivan Yaholnitsky, Bethel Business and Community Development Centre, Lesotho)

The Bethel Business and Community Development Centre (BBCDC) is a commercial and technical school providing skills and knowledge for well-being and self-reliance through experiential learning. The school is off-the-grid, using solar, thermal and wind systems for its energy supply.

The Australian Youth Climate Coalition, Australia (from Tom Reddington, Australian Youth Climate Coalition, Australia)

The Australian Youth Climate Coalition (AYCC) is the biggest youth-led organisation in Australia. A diverse group of thousands of young people from across the country volunteer their time to build a generation-wide movement to solve the climate crisis.

http://aycc.org.au

Education for Sustainability (from Anneloes Smitsman, EARTHwise International, Mauritius)

A programme in Mauritius implemented in various secondary and primary schools addressing the need for transformation and innovation of the educational system for sustainability.

http://educationforsustainability.info
Related Resources

From Nicholas Watts, Global Sustainable Livelihoods Consulting, United Kingdom

Sustainable Lifestyles Research Group
http://www.surrey.ac.uk/ces/research/social/projects/current/sustainable_lifestyles_research_group_slrg.htm

Walk a Mile in My Shoes
http://totallythames.org/events/info/a-mile-in-my-shoes

Learning from the Sharp End of Environmental Uncertainty in SIDS

Next Generation Science Standards Guide
http://www.nextgenscience.org/resources

From David Porter, British Columbia Institute of Technology, Canada

Climate Change 101
http://www.bcit.ca/sustainability/education/curriculum/change101.shtml

School of Energy
http://www.bcit.ca/study/programs/greentrades

New SFU-BCIT master’s program is like medical school for the environment
http://commons.bcit.ca/update/2015/08/new-sfu-bcit-masters-program-is-like-medical-school-for-the-environment/

Education Fast Forward (from Jim Wynn, Imagine Education, United Kingdom)
http://www.effdebate.org/

Global Population Health and Well-being in the 21st Century (from George Lueddeke, Consultant Education Adviser, United Kingdom)

From Robert Bortner, End Rural Poverty, United States

Why strong soft skills and mindsets are so important to sustainable development
Build Sustainable Livelihoods
http://www.endruralpoverty.org/who-we-are/about-us/core-capabilities/88-Programs/general-42289/557-build-sustainable-livelihoods

Background on the Rural Family Home
http://www.endruralpoverty.org/what-we-do/projects/rural-family-home/142-Programs/tourism/507-background-on-the-rural-family-home

From Paul West, The Commonwealth

Global sea level rise map
http://geology.com/sea-level-rise/

Consequences of sea level rise - what role for the courts?

Climate Change Information Centre - Practitioner Tools
http://careclimatechange.org/tool-kits/

US Climate Resilience Toolkit
https://toolkit.climate.gov

Climate Change Toolkit

Planning for Climate Change - Toolkit UN-Habitat
http://unhabitat.org/books/planning-for-climate-change-toolkit/

Toolkit for Designing Climate Change Adaptation Initiatives

Pacific Gender and Climate Change toolkit - ReliefWeb
http://reliefweb.int/sites/reliefweb.int/files/resources/Toolkit%20booklet%20pages.pdf

Climatic Risk Toolkit - RICS
http://www.rics.org/uk/knowledge/research/research-reports/climatic-risk-toolkit/

Pacific Gender and Climate Change Toolkit - BookLibrary

Pacific Gender and Climate Change toolkit: Tools for practitioners
http://www.eldis.org/go/home&id=72693&type=Document#.Vm7zTja8H1A
Climate Change Toolkit

Climate Change Adaptation Toolkit and User Guide: a comprehensive guide to planning for climate change adaptation in three steps

ACS Climate Science Toolkit - American Chemical Society
http://www.acs.org/content/acs/en/climatescience.html

A Guiding Toolkit for Increasing Climate Change Resilience

Climate Change Adaptation Toolkit | TransitionKW
http://www.transitionkw.com/initiatives/toolkit/

Pacific Media and Climate Change Toolkit 2014

Adaptation to Climate Change Toolkit: Coasts

A Toolkit for Designing Climate Change Adaptation Initiatives

UNEP Climate Change Toolkit

United Nations Environment Programme (UNEP) - Climate Change Information Kit
http://unfccc.int/essential_background/background_publications_htmlpdf/climate_change_information_kit/items/305.php

Royal Institute of British Architects (RIBA) Climate Change Guidance for Architects and Consumers

Nurses Climate Change Toolkit
https://noharm-uscanada.org/content/us-canada/nurses-climate-change-toolkit
In Somaliland, climate change is now a life-or-death challenge
http://gu.com/p/4e78z?CMP=Share_iOSApp_Other

Meat tax far less unpalatable than government thinks, research finds
http://gu.com/p/4eeb7?CMP=Share_iOSApp_Other

Consequences of sea level rise - what role for the courts? International law firm White & Case examines the legal implications of rising sea-levels
http://tmsnrt.rs/1Xa4bcI

WHO calls for urgent action to protect health from climate change

World Bank calls for $16bn to help Africa weather the effects of climate change
http://gu.com/p/4egve?CMP=Share_iOSApp_Other

Pope warns of ‘grave environmental crisis’

Bill Gates launches multi-billion dollar clean energy fund

Major powers pledge $20bn for green energy research
http://www.theguardian.com/environment/2015/nov/30/major-powers-pledge-20bn-for-green-energy-research?CMP=Share_iOSApp_Other

Critical Thinking (from Sue Dale Tunnicliffe, Commonwealth Association for Science, Technology, Engineering and Mathematics Educators, United Kingdom)

From the Education Hub Facilitation Team

Cool Australia
http://www.coolaustralia.org/

Infographic: What climate change means for Africa and Asia

World is locked into about 1.5°C warming & risks are rising, new climate report finds

The United Nations Conference on Climate Change Official website
Discussion Question

From: Education Hub Facilitation Team
Sent: 30 November 2015 17:00
To: The Commonwealth Education Hub
Subject: [edu-hub] DISCUSSION: The role of education in propelling climate action – Discussion ends 18 December 2015

Dear Education Hub Members,

As hundreds of thousands of climate activists march across the globe, Heads of State from around the world are gathered this week at the 21st Conference of Parties (COP21) to discuss the international community’s response to climate change. COP21 aims to develop a new universal agreement on climate change, with the aim to limit global temperature rise to under 2°C.

Climate change presents a borderless and intergenerational phenomenon, with diverse and far-reaching impacts across the global community. Human activities are irreversibly changing the environment in which society exists, including adverse effects on food and water security, human settlements and infrastructure, coastal and low-lying regions, and the magnitude and occurrence of extreme weather events. Climate change is indiscriminate in nature, with small states, which make up roughly 60% of the Commonwealth membership, being disproportionately impacted despite being some of the lowest contributors per capita. And while the impacts of climate change are beginning to be felt, future generations will feel the full force of past and current activities.

The Education Hub is launching a discussion in line with this gathering of States. This discussion will be guided by the following questions:

- How can formal and informal education be used as a tools to shape a climate literate and action-oriented generation? Provide share any examples
- What role can education play in ensuring climate policy moves from words to actions?

Please provide examples and good practices in line with the guiding questions. The discussion will close on Friday, 18 December 2015, after which we will consolidate a synthesis of the discussion which will be published on the Education Hub portal (https://www.thecommonwealth-educationhub.net/).

This discussion opens today and will be moderated by the Education Hub Facilitation Team. Our team will post no more than one "digest" email per day, which will include all responses and moderator's comments. All messages received will be reviewed by the moderator. To assist, we have included related resource links below.

To input to the discussion simply reply to this email or email edu-hub@groups.thecommonwealth.info.

We look forward to a productive discussion.

With best regards,

The Facilitation Team
The Commonwealth Education Hub
Email: edu-hub@groups.thecommonwealth.info
Full Responses

Responses received with thanks from:

1. Alan Pulis, Ministry of Education and Employment, Malta
2. Nicholas Watts, Global Sustainable Livelihoods Consulting (SLC), United Kingdom
3. Sue Dale Tunnicliffe, Commonwealth Association for Science, Technology, Engineering and Mathematics Educators, United Kingdom
4. David Porter, British Columbia Institute of Technology, Canada
5. Ivan Yaholnitsky, Bethel Business and Community Development Centre, Lesotho
6. Jim Wynn, Imagine Education, United Kingdom
7. Tom Reddington, Australian Youth Climate Coalition, Australia
8. George Lueddeke, Consultant Education Adviser, United Kingdom
9. Robert Bortner, End Rural Poverty, United States
10. George J MaelToka, Government of Vanuatu, Vanuatu
11. Paul West, The Commonwealth
12. Tony Nelson, Chinese University of Hong Kong, Hong Kong, China
13. Sue Dale Tunnicliffe, Commonwealth Association for Science, Technology, Engineering and Mathematics Educators, United Kingdom
15. Jim Wynn, Imagine Education, United Kingdom
16. Anneloes Smitsman, EARTHwise Centre, Mauritius

Alan Pulis, Ministry of Education and Employment, Malta

How can formal and informal education be used as a tools to shape a climate literate and action-oriented generation?

First of all, education, both formal and informal, should be a major driving force that instils awareness amongst the younger generations (and also the not so young!) about the global climate phenomenon and the need to act in its regard. Education should serve to promote action at the individual and the local levels. The collective action of many individuals particularly in schools and higher education institutions reinforces the effort of policymakers at the highest levels, demonstrating that there is genuine concern and that action needs to be addressed at national and global levels.

Climate action requires a grassroots, bottom-up approach that stimulates policymakers to address issues that arise from practically all sectors of the economy - energy, transport, agriculture, water management, tourism, health and others - within the overarching context of sustainable development. Policies that integrate climate action stimulate green growth which in turn provides job opportunities in practically all sectors and thus the need to act on climate is not just about dealing with a threat, it is mostly an opportunity that cannot be missed. Education is the 'conveyor belt' that serves to achieve this very important aim.

Education, therefore, should not just be about conventional teaching and learning situations covering themes related to climate change. More radically, education set-ups need to present climate action as an opportunity that enables a more sustainable economy that promotes an improved quality of life now and in the future.

What role can education play in ensuring climate policy moves from words to actions?
The key lies in the ability of policy makers in the field of education and educators themselves to link climate action more directly with green and blue economic growth. Developing the blue economy in line with climate action is crucial for coastal and Small Island States the economy of which is usually heavily dependent on marine related activities. With COP21 in the process of achieving, hopefully, a landmark international agreement on climate, policymakers in education should be asking questions about enhancing education programmes at all levels, and not least at the tertiary education level, that promote skills complementing the efforts by national governments towards green and blue growth.

Very clearly, education plays a critical role in the development of policy strategies and action plans in this direction. It is then entirely up to the policy makers to ensure that the necessary institutions through which these strategies and action plans should be implemented operate effectively and efficiently.

**Moderator’s Note, Emma Findlater**

Thank you Mr. Pulis for your contribution, and for highlighting the important interrelationship between climate, economy, education and quality of life. The influence of climate change on economic activity is growing both by sector and in magnitude. Green growth policies are essential in mitigating climate change, and building economies resilient to its impacts; able to adapt and grow within the changing economic architecture. Education and economy are intrinsically linked, and can together profoundly influence climate mitigation and human adaptive capacity. The role of education in shaping human capital can be overlooked in the development of economic strategies for green growth, with education and economic policies often not aligned to this end. Education can be used as tools to shape societies with the skills and knowledge required to transition to a green economy, is a necessary enabler of green growth. As Mr. Pulis speaks to, policymakers should be asking how to enhance education through different means and at all levels to reach this goal.

Are there any examples in the Commonwealth or beyond of how government has been able to align education and economic policy for green growth?

**Nicholas Watts, Global Sustainable Livelihoods Consulting (SLC), United Kingdom**

At the time of writing (7 December 2015), the North of England is suffering major flood damage from Storm Desmond, with a record-breaking 13 inches of rain in one day at Honister in Cumbria – and this is at 0.7 degrees Celsius increase of global temperatures. Yet, 2 degrees still seems an elusive target at the Paris COP. What will it take to secure agreement? Obviously, a better understanding of climate change through education is one necessary condition.

First, there is both an established and an emergent infrastructure in Commonwealth intergovernmental organisations. The Commonwealth of Learning Virtual University for Small States in the Commonwealth (VUSSC) is established, and the Education Hub and the Commonwealth Youth Climate Change Network (CYCN) are building a basis for further development.

This discussion presents an opportunity to develop a Commonwealth perspective on climate-related education initiatives. As the Sustainable Development Goals, of which Climate Change is one (number 13), are based on the principle of universality, or, universal applicability, examples from Commonwealth developed countries are included here. People from Commonwealth developed countries, and the more prosperous in developing countries, will need to make lifestyle adjustments compatible both with a long-term commitment to carbon neutral development and with the developmental aspirations of developing countries.

First, the Commonwealth Youth Climate Change Network CYCN Expert Group Meeting on Climate Change (June 2015) made a simple plea: to have climate change adopted in the curriculum across the Commonwealth, one that would have the consequence of shifting the curriculum to problem-based learning across the disciplinary silos, and
one that is to be welcomed. It is also important that such education address the needs for education across the whole life cycle, while focusing on youth. (CYCN Expert Group Meeting on Climate Change, June 2015).

Second, in this ‘climate curriculum’, the education system needs to include the outputs of research into attitudes, behaviours and the infrastructure needed to support such change (particularly at tertiary level). One example is to be found in the UK, in the Economic and Social Research Council (ESRC) / Department of Environment, Food and Rural Affairs (Defra) sustainable behaviours research programme, as exemplified in the Sustainable Lifestyles Research Group at the University of Surrey. It is important to find ways of replicating methodologies where feasible across the Commonwealth so that best practice can be scaled up. This research also highlights the importance of training in the social sciences to support responses to climate change, and to build capacity to provide the data needed to measure the impact of policy responses.

Third, we come to the role of arts and culture in promoting awareness of climate issues and positive responses. Here, museums can act as a focus for community-based out-of-school learning experiences, as can universities. Two examples illustrate these roles. First, in In September 2015, the Empathy Museum held its first exhibit in London, ‘Walk a Mile in My Shoes’. This exhibit (which will travel to open in Perth, Western Australia in February) was about empathising with the lives of others, but illustrates the need to develop skills to empathise with those experiencing the ‘sharp end’ of climate change, who stand to have their livelihoods, their homes and even their countries sacrificed on the altar of our consumer preferences? And, related to his, to what extent does empathy build support for governments working together on adaptation and mitigation? Indeed, to what extent are public sympathies ahead of those of political elites? Museums and participatory exhibitions in them that include their local communities can make an important contribution to promoting support for policy measures that limit the destructive impacts on communities across the world.

Fourth, universities and colleges can become a community resource for climate education to 'shape a climate literate and action-oriented generation'. A European example is the SAUCE programme (Schools at University for Climate and Energy), an Intelligent Energy Europe programme that ran across Austria, Denmark, Germany, Latvia, the Netherlands and the United Kingdom. In this programme, primary school children (ages from 9-12 depending on education system) were engaged in visits to their local university and worked across disciplines from music, art and dance to small engineering projects (building model wind turbines from waste materials and testing these in specially constructed wind tunnels, then modifying and re-testing, making model insulated houses or assembling model hydrogen powered cars and competing in teams to see which would go furthest). These activities were put into context against background sessions showing climate change developments, but framed in a way to show how children - and their families and communities - can make a positive difference. The website provides a handbook and resources guide to draw from in support of a programme in any national context. (For anyone interested, please feel free to contact the author at nsjwatts@gmail.com)

The SIDS’ blue economy initiative is also an important component of a Commonwealth response to climate challenges. The partnership ‘Learning from the Sharp End of Environmental Uncertainty in SIDS’ also plans to support sharing approaches and methodologies across Commonwealth education systems, particularly South-South and South-North.

**Moderator’s Note, Emma Findlater**

Thank you Mr. Watts for bringing up a number of important points. Education is essential in tackling climate apathy and distortions, and promoting advocacy and action for mitigation and adaptation. This doesn’t necessarily require redefining the wheel, but as Mr Watts has pointed out, good practices already exist from which methodologies are often adaptable/replicable. In relation to the formal adoption of climate change into the curriculum, a vast amount of material already exists. For example, the Cool Australia programme developed in Australia provides material for the Australian curriculum as well as learning activities, toolboxes related to various aspects of environmental sustainability, and professional development workshops for teachers. The idea of interactive/visualisation tools to teaching the value of actions is also an innovative approach.
Mr Watts has also raised an interesting point on empathy in promoting individual action across the globe. The effects of climate change are not uniform, being of a different nature and of varying magnitude dependent on location. For example, the Pacific islands are already feeling the force of climate change on a much greater and life-changing scale than Europe or North America. Climate change, however, requires everyone to act, regardless of how it will impact them individually. Thus, not only are knowledge and technical skills required to address climate change, but social and emotional learning.

Sue Dale Tunnicliffe, Commonwealth Association for Science, Technology, Engineering and Mathematics Educators, United Kingdom

In some parts of the world, we as educators recognise the adagio shifts that have occurred in formal education, including the importance of preschool education, engaging conversation and listening to children’s observations and explanations about their world, and the development of critical thinking skills. Critical thinking skills are an important part of evidentiary based decision-making in science and in history is important in a person’s education.

The essence of decision-making is that it should be evidentiary based on observations and data, not on inference and emotions. Education in schools and preschool is stressing evidentiary based learning. History is taught not as lists of facts, but as considering the evidence around the accepted facts. Likewise, science is not taught as facts without practical work, and when practical work is carried out it is not instructional with the outcome known but as in an investigations planned by the learners.

Science from the earliest years is about inquiry. In the United States, education uses nationally produced standards, which have to be adopted locally if so agreed, focusing on science practice (often called the Nature of Science) where observations and investigations are assessed with the evidence to justify the claim made.

If countries focused on a similar approach to teaching science, instead of memorisation and regurgitation of facts, this might help develop a literate population whose members can evaluate evidence critically, assessing arguments and situations based said evidence.

This also depends on citizens having access to accurate, unbiased information, and people's ability to understand both sides of argument an argument. Different forms of media highlight differing interpretations of the same story. You only have to compare accounts of the same issue in popular press and other electronic media.

Politicians have told me that politics is not evidentiary based, but other aspects are what affect decision-making, like winning votes, doctrinal beliefs.

Education systems need to prepare in training and professional development for their teachers to teach their pupils how to read evidence, analyse it and consider whether the claim of whatever the topic, in this case the occurrence of climate change, is supported by the evidence available.

Read Next Generation Science Standards Guide published by the National Science Teachers Association in USA.

David Porter, British Columbia Institute of Technology, Canada

The British Columbia Institute of Technology (BCIT) in Canada offers a free Climate Change 101 course for faculty, staff and students. The objective of this online course is to help all participants understand their influence on climate, and climate’s influence on them.

BCIT has tried to make this course as enjoyable as possible, mainly using short videos as learning tools. To make sure you learn and retain information; they also added a short and easy quiz at the end of each module. It should take participants between 1 and 3 hours to complete the course which can be done in chunks so that you can allocate just 30 minutes at a time. Faculty members or instructor designers are free to use it in class.
Other green online programmes include: http://www.bcit.ca/study/programs/greentrades

And, a masters program in ecological restoration: http://commons.bcit.ca/update/2015/08/new-sfu-bcit-masters-program-is-like-medical-school-for-the-environment/

Ivan Yaholnitsky, Bethel Business and Community Development Centre, Lesotho

Climate change thinking needs to not only be incorporated into teaching plans, but within the physical environment of educational institutions. This both addresses the environmental footprint of the institutions, as well as brings climate mitigation and adaptation activities into the laps of the learners.

The Bethel Business and Community Development Centre (BBCDC) is off-grid and obtains most of its energy from solar PV or thermal systems. Thermal systems are used extensively for water heating, cooking, space heating (passive design), cooling (solar chimneys and radiation), greenhouses and day lighting. PV systems are used for lighting, to operate shop tools and equipment, for water pumping and irrigation, appliances and office equipment. A state of the art biogas system is also in place, along with two small wind turbines. Several integrated platforms are innovative and resource efficient. BBCDC operates a commercial enterprise which sells PV equipment and solar water heaters. The contribution of solar and renewable energy to the operation, management and financial viability of this institution is substantial and also provides for high net levels of human realization and effectiveness. Radiation science is not just a technical application at BBCDC, but central to an entire framework which BBCDC refers to as landscape energy quality. The aim of good solar energy engineering and design in the built environment, aims for warmer winter conditions and cooler summer conditions, along with as much technical conversion as necessary. A critical understanding of oasis and greenhouse effects, enable an emerging earth systems science that is proactive. An elaborate and diverse irrigation and water collection distribution system is in operation on the BBCDC campus. Solar energy studies and utilization are a core curriculum component at BBCDC since its inception in 1993.

Fig. 1: New solar power system installed to supply office and Learning Centre in Sept. 2014; LED lighting in ceiling.
Fig. 2: Children’s home built and landscaped by BBCDC students in 2014. Solar water heaters, passive heating of washrooms and day lighting was applied.

Fig. 3: Lesotho Council of NGOs study tour in Dec. 2014.
Fig. 4: Installation of 2.5KW solar azimuth tracking array at BBCDC: Sept 2015. Power is used primarily for irrigation.

Fig. 5: Parabolic baking ovens developed at BBCDC and in use: Nov. 2015.
Fig. 6: National University of Lesotho education students on study tour at BBCDC exploring solar baking technology: Nov. 2015.

Jim Wynn, Imagine Education, United Kingdom

I started teaching in 1976 and have seen many attempts to drive important issues of the day into the curriculum. There has always been the need and desire to link subjects together, cross-curricular themes and all that, but there have also been attempts to bring matters such as citizenship into the curriculum. The cry today, as it was back in 1976, is that “there isn’t enough time” as schools try to shoehorn new things into the standard subject structure. So it continues and at the moment the warp of the curriculum are discrete subjects: Literacy, numeracy, mathematics, physics and so on and we make appeals to the curriculum designers to thread a weft of important issues into and across the curriculum that we believe will produce citizens with the right skills in traditional subject areas and understanding of issues such as citizenship, culture or climate change.

As pointed out in last week’s Education Fast Forward, the elephant in the room is assessment. The simple fact is that assessment regimes (of student progress) are driven by the main subjects (the warp) - so the others (the weft) are always treated as an add-as-optional, and as a result have not and will not get enough attention.

The solution is to turn the curriculum round by 90 degrees. If the driver for the curriculum has to be climate, water, energy, land, sea (and all the other SDGs), these have to be the main warp threads of the new curriculum cloth. The weft threads have to be the old traditional subjects and assessment needs to.

Imagine a lesson on climate change where a graph of the temperature of the oceans brings into a lesson the ability to interpret graphs and carry out a statistical analysis of the facts. Is this lesson about climate or mathematics - of course it is about both - but by design we build an understanding of BOTH. The assessment and answer will be about climate, which will need mathematics to understand the question. That is the shift Governments need to drive.

I saw a citizenship question from India which told a story about a boy spending a percentage of his money on presents, on savings and on a street children project. The question asked to convert the percentages to rupees,
but also the write about agreeing or not with how the money was spent - citizenship and mathematics assessment hand-in-hand.

Good teachers have done this for a long time but we need to legislate so that all teachers must take this approach. The shift has to be agreed and swap the warp and the weft and the appropriate assessment around.

Tom Reddington, Australian Youth Climate Coalition, Australia

The Australian Youth Climate Coalition (AYCC) is the biggest youth-led organisation in Australia. A diverse group of thousands of young people from across the country volunteer their time to build a generation-wide movement to solve the climate crisis.

High school students are often considered difficult to engage in education for sustainability. We find that while many students care about climate change they often feel powerless to act. While they will inherit the consequences of the decisions being made about the climate now, they feel isolated from the decision-making process. They are, for example, unable to vote and often constrained by the top down decision-making processes in schools and communities. On top of this, the segmented school curriculum often lacks a holistic appreciation of climate change as a sustainability challenge that transcends environmental, political, cultural, economic and social spheres. For example, climate change might be taught in only science.

Switched on Schools is a program run by the Australian Youth Climate Coalition to foster an interest in climate change and sustainability in high school students. The program uses a peer-to-peer approach to ignite students’ interest in climate change. Students develop their understanding of sustainability and build skills in change making. They are then connected to a youth leadership network and supported to make meaningful change in their schools, communities and beyond. In 2014, the program engaged over 10,000 students across Australia!

The programme has four parts:

- **Website:** The Switched on Schools website lets students start their own campaign and recruit supporters from their networks.

- **In-school presentations:** Trained AYCC mentors (aged 18 to 30) deliver presentations on climate science and solutions to hundreds of high schools – highlighting the role of young people in leading change.

- **Transformative summits:** Two-day excursions with students across different high schools, where they hear from climate science and solutions experts, and active young change-makers in their communities. Facilitators help students develops skills needed to create change, and students plan sustainability campaigns to take back to their school and communities.

- **Student Climate Action Network (SCAN):** All students are connected to SCAN, which provides a horizontal platform for students to develop their in-school campaigns and collaborate/plan initiatives across schools.

Giving students the opportunity to build power and engage decision-makers is an important part of the Switched on Schools program’s success. We find that high school students, as young adults, are ever conscious of our interconnected world and feel compelled to act against global inequalities. They want to engage meaningfully with the challenges that will define their generation and to participate actively in the solutions, even beyond the schoolyard. That is why Switched on Schools provides opportunities for students to engage in national and global campaigns.

*For more information, visit [www.switchedonschools.org.au](http://www.switchedonschools.org.au).*
Moderator’s Note, Ms Emma Findlater

Thank you everyone for your contributions. In the wake of the Paris agreement this weekend, it’s good to see examples of practical projects engaging education as a tool to address climate change. Projects such as these can be considered for their potential application or adaptation elsewhere. As Mr Yaholnitsky points out, education’s approach to climate change can go beyond the syllabus, and be built into the infrastructure of the learning environment.

The need for integration of climate education into the curriculum has been echoed throughout this discussion. Mr. Wynn’s contribution calls for governments to drive this change. Can the Paris agreement be utilised as a basis for and mechanism to drive this change - adapting the traditional curriculum to reflect the realities of the 21st century and human-induced climate change?

George Lueddeke, Consultant Education Adviser, United Kingdom

I certainly share many of the ideas and concerns mentioned so far. School and higher education programmes across the globe still favour, by and large, traditional content (especially STEM subjects) and teaching methods (e.g., whole class teaching/lecturing) - underpinned to a large extent by 20th century assumptions - over those that are perceived to be less crucial in meeting personal and/or immediate employer needs. The transmission model of learning along with ‘robust’ assessments still generally predominate most secondary school programmes and professional preparation.

In terms of health care - and arguably generalisable across many other disciplines - the Lancet Commission report, ‘Health professionals for a new century: transforming education to strengthen health systems in an interdependent world’, highlights a number of systemic failures or key issues in relation to the preparation of health professionals. Of these, the “mismatch of competencies to patient and population needs” may be particularly relevant to the discussion here. On a global level the historic Paris climate agreement, endorsed by the 196 nations, finally recognises the folly of pursuing the present planet and people destructive course of action and reinforces the need to introduce or adapt learning (formal and informal) at all societal levels to engage with these new realities and arrive at new ways of thinking and acting that ensure sustainability of the planet and future generations.

As the U.S. One Health Commission (OHC) and the global One Health Initiative (OHI) have been advocating for the past 10 years or more, alongside the WWF, all species are now at risk of a poisoned environment - human, animal, plant. Learning about sustaining life on this planet must therefore begin early in families and communities and be reinforced thematically in ECE, primary school and carry on throughout secondary, undergraduate /postgraduate education, ideally through much more ‘integrated’ and interdisciplinary problem-based curricula as well as involve those working in small businesses and large corporations, especially in Big Business, Big Government, and Big Media. New economic models may need to emerge and significant sums set aside by policy-makers at every level and for the long-term to ensure that what we now know is given the highest priority and is translated into daily practice. Our future demands re-thinking and debating a lot of fundamental issues. Ensuring the survival of the planet and its species can’t wait, and it seems totally appropriate that global public health educators/providers -as the CS is doing- become the ‘seed carriers’ and lead the way.


Robert Bortner, End Rural Poverty, United States

Formal and informal rural education for youth and adults can have direct impact upon the stemming climate change. By strengthening the soft skills and mindsets, as well as facilitating vocational training of adults and youth in rural communities in the Brazilian Amazon, CEN is helping residents there to build sustainable livelihoods that enable
them not only to build vibrant communities, but also become stewards for the environment around them. By overcoming learned helplessness, residents are better capable of taking charge of their own development, and provide a more effective counter-force to outside commercial and political interests.

One particular promising project we’re working on today involves strengthening the Rural Family Home (CFR) movement in the region. The CFR is a three-year school for rural young men and women that aims to improve their quality of life and opportunities for sustainable livelihoods. Offering a locally relevant, interdisciplinary education, the CFR enables youth to act as rural professionals and to become better able to exercise their full rights and responsibilities as citizens. In this respect, the CFR seeks to improve farmers' quality of life through the acquisition and application of expertise and scientific knowledge. CFRs have a proven track record reducing urban migration by demonstrating to youth and their families the great many opportunities that exist within their own communities, and provide them with the knowledge and tools they need to be successful.

George J MaelToka, Government of Vanuatu, Vanuatu

I am very privileged to learn from the discussions surrounding the topic and would like to agree that procedural knowledge on climate change is crucial for the new generation.

The move for more traditional knowledge in sustaining traditional technologies, knowledge and attitudes are indispensable for developing countries like Vanuatu, particularly, for 80% population who are directly attached to primary industries and their physical land.

I see curriculum in such context is truly the change agent and brings about both the prescribed and non-prescription of change, hence, could foster a paradigm shift from the so-called academia syndrome of learning and research to a more inclusive and climate driven methodologies in learning and sharing of limited resources.

Moderator’s Note, Emma Findlater

Thank you Mr MaelToka, Mr Bortner and Mr Lueddeke for your contributions. These contributions highlight both the urgency of the matter and the need for a fundamental shift in thinking. In this respect, education is not isolated. As discussed in these and previous posts, similar urgency and need for change exists in the health and economic spheres. As Mr Lueddeke affirms, ‘[there is the need] to introduce or adapt learning at all societal levels to engage with these new realities and arrive at new ways of thinking and acting that ensure sustainability of the planet and future generations.’

The time is now to turn words into actions. Education is a key tool in developing an informed and action-oriented populous. Many valuable examples and ideas of how to engage education to this end have been presented, but how do we effectively reach those people not involved in formal education systems? Mr Bortner presents one such example of extending educational projects beyond students, to integrate the greater community. Stemming from this, how can climate education reach society on a larger scale?

Paul West, The Commonwealth

I am very privileged to learn from the discussions surrounding the topic and would like to agree that procedural knowledge

Climate change is projected to have a major impact on the lives of millions of people. It is predicted that entire countries will disappear below the surface of the sea in the Pacific, and other parts of the world are also expected to be heavily impacted.

According to articles in the news, with a 2-degree centigrade (about 3.5- degree Fahrenheit) increase in temperature, London in the United Kingdom may be flooded by the water rising from the Thames River. Millions of
peoples’ homes in Bangladesh will be flooded and they will have to find new places to live. The rising sea will impact on communities living near the sea around the world, be they in industrialised countries or developing countries. Websites have been set up to illustrate some of the impact of rise in sea level (http://geology.com/sea-level-rise). Not only are sea levels rising, but large areas of the earth that have up to now supported human and animal habitation are becoming uninhabitable. The impact is on all forms of life and no-one and nothing are escaping the change. Implications of climate change may have greater consequences for many people and countries other than where the "problems" are caused. Countries most affected by climate change may begin to seek damages in international courts of law (http://reports.thomsonreuters.com/susty7/catastrophe/legal-implications-sea-level-rise).

Policy-makers are expected to engage with the concepts around climate change to ensure positive action is taken in countries to address the causes of climate change and to prepare for the inevitable consequences of the changes that have begun to take place. The list below provides an indication of the kinds of resources and toolkits that policy-makers may access in their research to address climate change responses.

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**Tony Nelson**, Chinese University of Hong Kong

Many people are understandably encouraged by the tone of the climate negotiations in Paris: governments are finally taking climate change seriously, and are even expressing a willingness to take concrete steps. Nonetheless, they have once again failed to take the necessary action to prevent catastrophic climate change. In fact, the most effective steps to reduce CO2 emissions were never discussed in Paris. Instead, delegates quibbled over piecemeal quasi-solutions while leaving the systemic root causes of the problem unchallenged.

If we are going to limit warming to the 2-degree Celsius benchmark (much less the 1.5 degree limit demanded by the group of “most vulnerable” countries), there will need to be a fundamental shift in the economy: away from growth-at-any-cost globalisation – a system that is heavily tilted in favour of the biggest corporations and financial institutions – towards more diversified, localised economies that serve the real needs of people and the planet.

Distortion of climate science, and corporate-led shift in blame from industry to individuals, promotion of market-based solutions and use of North-South divisions to block agreement are fighting this change. While a shift towards renewable energies no doubt has a role to play, renewables are often portrayed as a means to maintain the current structures of the global economy – changing little but the fuel that runs it.

Attempts to maintain the current system are not effective, as it is necessary to deal with the fundamentals of the issue, and bringing about the necessary transformation of socio-environmental-economic interrelationships.

Education can be used as a tool for change to move away from this environmentally-destructive, and ultimately self-destructive, system.

One of the conundrums we now face, is how to translate evidence into policy. So the question is how do we foster a process that enforces ‘evidenced-based policy’ in political decision-making?

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**Sue Dale Tunnicliffe**, Commonwealth Association for Science, Technology, Engineering and Mathematics Educators

Of course we need to turn words into action. I reiterate the point I made before, we have to have a paradigm shift in particularly the teaching and learning of science from the pre-school stage so that from their earliest years children, citizens to be, are bought up with the concept of evidentially based learning. It means an investment in teachers and training and a change from the focus on secondary teaching and learning- that’s too late.

I refer you all the editorial of the New Scientist Journal of Dec 12 2015, volume 228, no 3051.
Moderator’s Note, Emma Findlater

Again, the discussion highlights the urgent need for a fundamental shift, both in education and more broadly, to facilitate the transformation for sustainable development, as well as the critical role of evidence-based thinking and decision-making to this end. Acceptance and understanding of the interlinkages between social, environmental and economic systems needs to guide this change to be able to develop and implement effective policy.

But as Mr Nelson asks, how do we foster a process that enforces ‘evidenced-based policy’ in political decision-making?

Sultana Ladhani, The Commonwealth

I agree with many of the points discussed, and the moderator raises a valid point about reaching those not involved in formal education systems. Quality non-formal education for wider society is essential to support all citizens and communities to mitigate against and adapt to climate change, and could be implemented through:

- Innovative communication strategies, through media such as radio and television programmes and mobile applications, which teach individuals useful techniques etc.;
- Online forums, to allow communities to discuss their concerns and actions, and share best practice; and,
- Community-based training sessions which teach individuals how to address climate change issues in their own areas and communities.

In addition to educating wider society, it is necessary to educate decision-makers within industries to ensure environmentally friendly industry practice which also mitigate and adapt to climate change. A key way of doing so could be the use of financial incentives and disincentives which encourage industries to become more environmentally friendly.

Jim Wynn, Imagine Education, The United Kingdom

I really worry about paradigm shift and words like reform and transformation. If you are a teacher that has been teaching in a certain way for say 10 years or longer and somebody says that you need a paradigm shift in how and what you do think, you will feel very threatened. This approach tells me that everything I do is wrong and all I believe in is invalid. I seem to do well in my system and my learners pass exams and get jobs- so why do I need this paradigm shift which implies a change in all the underlying assumptions about education?

Moreover teachers have been told this for many years (well over 50), yet things have not changed and it is this language that is at the route of the problem. We need to do the opposite. Find a million small steps that will take us on the journey. It isn’t a chasm we have to leap in one almighty bound. It is a road which we travel a step at a time. The teacher population need support, not threats, they are different characters, some are ready and willing to change some unready and some even unwilling. We expect teachers to treat learners as individuals with individual needs but we treat teachers as one big group of clones. How can this be right?

There is a massive elephant in the room and that is around evidence. If the evidence that politicians accept is the easy to measure sort then that will force certain behaviours, it always does and the need to show new types of evidence becomes a barrier to a change in practice. So we not only need to talk about small changes in practice we need to introduce small changes to how and what constitutes evidence.

For me I’d focus totally on teacher behaviours. Does a teacher ask for feedback from their learners? Does a teacher celebrate the success of great work? Does a teacher share their lesson planning with colleagues and ask for feedback? These and other small but achievable behaviours will lead to change – not simply telling teachers that they need to leap an impossible chasm.
Moderator’s Note, Emma Findlater

Thank you Mr Wynn and Ms Ladhani for your contributions. The urgency of climate change requires that education adapt to help foster a climate conscious and active society. Human activities won’t change without the basic societal learning of the reason/need for change. Mr Wynn, however, has made an important point related to approaching change. It is important to acknowledge that a million small steps can still create the same end. The examples provided to reach those not involved in formal education also demonstrate that educational actions do not have to be mind-shattering/mould-breaking. This discussion in itself, can be viewed as an educational tool, both to discuss the matters and share opinions and solutions.

As we close this discussion, it is important that this discussion continues outside of the Community of Practice. If you come across information or resources of value, please share them with eduhub@commonwealth.int.

Anneloes Smitsman, EARTHwise Centre

Education can play a key role for the development of climate-literacy provided it promotes system-based higher-level thinking and the development of practices of care. Action without an understanding of how we impact the world around us will lead to more of the same; namely unforeseen and unwanted consequences. Instead of only promoting more action, education should be providing a critical role in first and foremost taking time to pause and reflect to better understand the root causes as to why we are in the current situation we are. Without this comprehensive understanding people will simply repeat the same mental models that are at the root of our sustainability crisis. The purpose of current educational systems is to prepare people for the labour market; yet it is precisely this economic system that we are deeply entrapped in and is for a very large part driving the problem.

An important question to consider is: how can we promote climate literacy within educational systems that are driven by the same systems responsible for the climate crisis? Perhaps climate literacy should be the incentive for the transformation and innovation of conventional educational systems. This is a very different approach compared to simply adding more knowledge and information in existing curricula about climate change. The same rationale applies to the expectation of ‘actions’. Many people want action, but action driven by the wrong mental models simply leads to more input in the wrong direction. I would therefore suggest that the need for climate change literacy should support the transformation of formal and informal education in such a way that it prepares people to deal with the complexities of these issues, builds resilience, and enhances creative and collaborative thinking and action.

Climate change solutions start by changing at the deepest level how we think about these issues, how we approach the problems and each other, and how we perceive our own role and responsibility within this. In Mauritius through our Education for Sustainability (EfS) programme with three secondary schools and one primary school we have been addressing the need for this transformation and innovation of the educational system. The EfS programme acts as a framework and commitment for the innovation and transformation of educational systems, facilitated by:

1) Raising the vision, purpose, and objective of the educational systems.
2) Implementing EfS practices and principles in the whole curriculum across all age groups.
3) Restoring the heart of education by embedding values and practices of care for a sustainable and flourishing future.
4) Preparing and empowering students as Change Agents for a Sustainable Future.
5) Developing a learning community for EfS within the school culture and system.

This programme started in 2011 and is currently implemented in the whole curriculum across all year groups and has led to a significant change also in the organisational culture of the schools. For more information visit:

- http://educationforsustainability.info/
What role can education play in ensuring climate policy moves from words to actions?

Education is a very broad term, my commentary will limit itself to primary and secondary schools based on our case-studies and best practices of the Education for Sustainability programme with the schools in Mauritius. The schools that participate in the Efs programme receive extensive training in climate change science and multi-stakeholder engagement practices through student-led campaign development and climate change school projects. This includes, school gardening projects, measuring of the Ecological Footprint (EF) of the schools, zero-waste initiatives, and field trips to various climate change adaptation and mitigations projects. Students are also supported to bring these initiatives at home by raising awareness within their own families of how we can all reduce our EF and move towards a zero-waste society. Furthermore, education as mentioned in my earlier discussion can play a critical role in the development of higher level integrated thinking based on system dynamics methodologies and tools. This will empower and prepare students who become policy makers to develop projects for climate change actions that have a high leverage and high impact factor across different scales and by linking different markets through a multi-stakeholder approach. For education to play this role it will require training of teachers first in these various methodologies, strategies and school policies for the implementation of such initiatives within the school curriculum.

On a final note beyond this context of schools, my advice for ensuring that “climate policy moves from words to action” is to design into policy implementation a learning network approach. A learning network approach means that we design for 'learning feedback loops' between policy makers, project developers, organisations responsible for the implementation, and other stakeholders. These feedback loops create a learning system through which best practices and lessons learned on the ground also feedback into the policy making processes. This approach is a 'learning approach' to action. For people to open to this approach education may be required in the form of training and capacity development through which people learn how to implement this approach in their policy and project development and implementation with all the different stakeholders.
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