

Integration of Climate Change Adaptation into National Education Processes

Policy Brief | August 2020

Key messages:

- Integrating climate change adaptation into **formal, non-formal, and informal education** is crucial to create awareness and allow children and youth to enact change within their communities and the global environment.
- Climate change and environmental education is acknowledged and supported by **international legal frameworks and processes** such as the Rio Declaration, the Pacific Islands Framework for Action, the Paris Agreement, and the Sustainable Development Goals.
- **Approaches to integrate climate change adaptation into all aspects of education** include reorienting curriculums, disseminating relevant information, increasing opportunities for children to use practical adaptation measures and apply their knowledge and skills, promoting extra-curricular activities, developing school adaptation plans and green school policies, and providing climate change training to educators.
- In addition to scientific knowledge, learning programmes benefit from being integrated with **interdisciplinary, cooperative, participatory, experiential, and place-based components** to **build skills, attitudes, and values** of youth toward climate change.

Children and youth are highly exposed to climate risks and one of the most affected vulnerable groups in the event of climate-induced disasters. Schooling and learning systems are disrupted by damages to and destruction of schooling facilities, leading to prolonged access limitations to learning opportunities. The majority of youth in regions with low levels of governance and economic, social, and political instability lack resilience to the adverse impacts of climate change.¹ Therefore, education should be a key focus for country-specific strategies and adaptation measures to build resilience against climate change.

Formal, non-formal, and informal education are essential for people of all ages, especially children, to raise awareness of programmes and promote adaptation measures to address the wide-ranging impacts of climate change. Currently, children and youth worldwide have limited access to innovative and effective forms of climate change education in order to enact change within their local and global environments and communities.²

Formal education is education recognised by means of qualifications and acquired through organised and structured programmes delivered typically via schools and other educational

¹ The Commonwealth. 2016. *Climate Change and Education: A policy brief (Draft)*. Online: The Commonwealth. Available at https://www.thecommonwealth-educationhub.net/wp-content/uploads/2016/02/Climate-Change-Policy-Brief-Draft_140416_v4.pdf

² Rousell D and Cutter-Mackenzie K. 2019. *A systematic review of climate change education: giving children and young*

people a 'voice' and a 'hand' in redressing climate change.

Online: Children's Geographies. Available at <https://doi.org/10.1080/14733285.2019.1614532>; Lee N. 2013. *Childhood and Biopolitics: Climate Change, Life Processes, and Human Futures*. Hampshire: Palgrave Macmillan

Box #1

UN CC: Learn

The One UN Climate Change Learning Partnership (UN CC: Learn) and UNESCO's Climate Change Education for Sustainable Development programme are two examples of UN initiatives that contribute to supporting countries in integrating climate change in their national education systems, providing guidance and assistance to governments as well as support for teachers' training and schools activities.

Source(s): UNICEF and UN CC: Learn. 2017. *Children and Climate Change*. Online: UN CC: e-Learn. Available at <https://unccelearn.org/>

institutions.³ Non-formal education, on the other hand, is acquired through organised programmes or courses. Unlike formal education, non-formal education does not typically lead to formal certification and is not recognised by means of qualifications. It also includes the development of environment-related livelihood skills and vocational education.

Non-formal education can supplement the overall education of youth and children, especially out-of-school youth. This can be achieved through the provision of suitable educational and learning resources to youth and educators, development and implementation of climate change adaptation programmes and extra-circular activities, and effective training offered to educators.⁴

Informal education is education acquired outside organised programmes and courses, through daily activities relating to entertainment, community, work, sports and recreation, family, leisure, awareness programmes, and media campaigns.⁵

Frameworks Supporting Climate Change Education

In the last few decades, Climate Change and Environmental Education (CCEE) has become a key tool for ensuring sustainable development and environmental protection. The Rio Declaration on Environment and Development of 1992 and the United Nations Decade of Education for Sustainable Development acknowledged the fundamental role that children play in achieving sustainable development, subsequently contributing to global and national efforts to enhance climate change adaptation.⁶

Principle 4 of the Pacific Islands Framework for Action on Climate Change 2006-2015 recognised the importance of education, training, and awareness, encouraging national action plans to promote the range of career opportunities available for children in climate science.

Article 10 subsection (e) of the Kyoto Protocol promotes the development and implementation of education and training programmes that strengthen national capacity building and public awareness, and access to information on climate change for all relevant stakeholders, including children and youth, at an international level.⁷

³ UNICEF and UN CC: Learn. 2017. *Children and Climate Change*. Online: UN CC: e-Learn. Available at <https://unccelearn.org/>

⁴ Ibid

⁵ Ibid

⁶ Iltus S, Sugar S, Hodge S, et al. 2012. *Climate Change and Environmental Education: A Companion to the Child Friendly*

Schools Manual. New York: UNICEF's Division of Communication. Available at https://www.unicef.org/publications/files/CFS_Climate_E_w eb.pdf

⁷ Iltus S, Sugar S, Hodge S, et al. 2012. *Climate Change and Environmental Education: A Companion to the Child Friendly Schools Manual*. New York: UNICEF's Division of

Box #2

The Unite4Climate Initiative in Zambia

Through the “Unite4Climate” initiative, UNICEF has been equipping young people in Zambia with knowledge and advocacy skills to help them to be leaders on climate change. This child-led advocacy programme empowers 11-17-year-olds to become climate ambassadors. They go on to inspire thousands of children through peer-to-peer outreach and education, media programmes, debates, advocacy efforts, and implementation of low-cost community projects on climate change adaptation and mitigation. From creating a plan to build a floating school in areas where flooding restricts school attendance every year, to hosting radio programmes and theatre performances that address climate change, over 1,000 ambassadors are putting their training into action and reaching more than 1 million community members through their efforts.

Source(s): UNICEF and UN CC: Learn. 2017. *Children and Climate Change*. Online: UN CC: e-Learn. Available at <https://unccelearn.org/>

As part of Education for Sustainable Development (ESD) and CCEE efforts, climate change education promotes the knowledge, skills, and values and attitudes that contribute to the progress of attaining a sustainable future. This has been highlighted at an international level through various international climate agreements such as Article 12 of the Paris Agreement which state that ‘[p]arties shall cooperate in taking measures, as appropriate, to enhance climate change education... recognizing the importance of these steps with respect to enhancing actions under this Agreement’ and Article 6 of the United Nations Framework Convention on Climate Change which recognises the integral role that CCEE and training plays in the local and global efforts to address the challenges of climate change.

Target 13.3 of Goal 13 in the Sustainable Development Goals (SDGs) also highlights the global need to improve education on climate change adaptation to combat climate change and its impacts. The National Adaptation Plan (NAP) technical guidelines encourage the design and implementation of programmes on climate

change education to combat the weaknesses and capacity gaps in undertaking the NAP process.⁸

Key Elements for Integration

The challenge is to integrate CCEE concepts into all aspects of education by taking into consideration the environment, economy, and society. General approaches to promote climate change adaptation in education and national processes include:

- Reorienting national and local level curriculums to integrate climate change adaptation, taking into consideration local contexts and localised impacts of climate change
- The dissemination and increase in the availability of information on significant climate change related subjects
- Increasing the availability of practical measures of adaptation that students can use in their day-to-day activities and future employment which enhances their knowledge, skills, attitudes, and values on resilience to prepare for the current and future challenges of climate change

Communication. Available at https://www.unicef.org/publications/files/CFS_Climate_E_w eb.pdf

⁸ LDC Expert Group. 2012. *National Adaptation Plans: Technical guidelines for the national adaptation plan process*.

Bonn: UNFCCC secretariat. Available at <https://unfccc.int/topics/adaptation-and-resilience/workstreams/national-adaptation-plans-naps/guidelines-for-national-adaptation-plans-naps>

Box #3

Integrating Environment and Sustainability into University Teaching and Research

The United Nations Environment Programme (UNEP) promotes the integration of environment and sustainability concerns into teaching, research, community engagement and the management of universities, provides training courses on sustainable development, preparedness for disaster risk reduction, environment risk reduction and environmental law through the Global Universities Partnership on Environment for Sustainability, develops and implements outreach programmes with the Tunza Network, children and youth organizations, and through partnerships with the scouts, girl guides, school children, and students.

The United Nations University Institute of Advanced Studies (UNU-IAS) advanced Education for Sustainable Development (ESD), including climate change related training, education, research and action, through its ESD programme by promoting the incorporation of ESD into curricula at all levels of education and in all levels of society and developing learning systems for sustainable development through its 127 Regional Centres of Expertise on ESD that include regional and local networks of organizations representing institutions of formal and non-formal learning including universities and schools.

Source(s): UN Office of the Secretary-General's Envoy on Youth. 2020. UNEP and Youth. Available at

<https://www.un.org/youthenvoy/2013/08/unep-and-youth/>

UNU-IAS. 2020. *RCE Contributions to a More Sustainable World: Celebrating Five Years of Innovative Projects on Education for Sustainable Development (2015–2019)*. Tokyo: UNU-IAS, Tokyo.

- Increasing the opportunities available for children and youth to apply their knowledge and skills to practical situations through climate change projects and programmes and problem-solving activities
- Promoting extra-curricular activities such as field trips, visits to environmental sites, and youth camps focusing on climate-related activities
- Developing adaptation plans for schools to protect students from climate-induced events like floods, storms, landslides, hurricanes, and heatwaves
- Promoting green school policies and environmentally friendly behaviour in schools
- Providing climate change training for educators like teachers which incorporates disaster risk reduction, adaptation, aspects

of climate change related policy, planning, and implementation so that this can be communicated to students effectively.⁹

The unique and complex challenges introduced by climate change require some aspects of climate adaptation education such as disaster risk and preparedness education to include issues beyond reducing environmental impacts, which has been the traditional focus of environmental education globally.¹⁰ The challenge for environmental education is to address a range of issues that are integral to climate adaptation in a consistent and concise manner. For example, health issues such as malnutrition in relation to agricultural failure and food- and water-borne diseases exacerbated by climate change should be included in climate change education.¹¹

⁹ The Commonwealth. 2016. *Climate Change and Education: A policy brief (Draft)*. Online: The Commonwealth. Available at https://www.thecommonwealth-educationhub.net/wp-content/uploads/2016/02/Climate-Change-Policy-Brief-Draft_140416_v4.pdf

¹⁰ Krasny ME and DuBois B. 2016. *Climate adaptation education: embracing reality or abandoning environmental*

values. New York: Environmental Education Research. Available at <http://dx.doi.org/10.1080/13504622.2016.1196345>

¹¹ UNICEF. 2012. *Climate Change Adaptation and Disaster Risk Reduction in the Education Sector: Resource Manual*. New York: UNICEF

The central focus of current climate change education in primary and secondary schools is mostly to increase the scientific knowledge and conceptualisation on the impacts of climate change. However, large-scale empirical studies revealed that there is little to no correlation between scientific knowledge and pro-environmental behaviour.¹² Research suggests that learning programmes integrated with interdisciplinary, cooperative, participatory, experiential, and place-based components significantly impact the knowledge, skills, attitudes, and values of children and youth toward climate change.¹³

Tertiary education is also focused mainly on scientific knowledge, but research suggests that there is greater focus on innovative and interdisciplinary approaches to climate change education compared to primary and secondary education.¹⁴ For example, open-source and web-based climate education resources and materials for tertiary education are available for use in different disciplines and localised contexts in a cross-disciplinary manner by universities worldwide. The majority of publications related to climate change education available to students in tertiary education and some formal education in schools is associated with STEM (science, technology, engineering and mathematics) education and environmental and sustainability education, some of which included elements of resource management such as adaptation and

mitigation initiatives within businesses, local councils and municipalities, and agricultural communities. Again, a large number of these publications primarily or exclusively focused on a scientific knowledge- and cognitive understanding-based approach toward climate change education.¹⁵

Students in tertiary education have been found to effectively use digital and social media platforms to engage with sustainable development actions in response to climate change.¹⁶ There is an increasing trend of universities harnessing cross-disciplinary practices to create new curricular and pedagogical approaches to climate change education to better equip students with the knowledge, skills, attitudes, and values necessary to resolve and adapt to the complex issues brought about by climate change.

Irrespective of scientific knowledge, the change in behaviour has been acknowledged as a primary approach for effective climate change education in the context of formal, informal, and non-formal educational settings at all levels of education. Climate change education and adaptation initiatives should aim to build adaptive capacity and reduce the vulnerability of individuals, environments, and communities in response to the adverse impacts of climate change and changing climatic conditions. Therefore, key subject, methodological, and personal and social competencies to enhance the knowledge, skills, attitudes, and values associated with effective

¹² Rousell D and Cutter-Mackenzie K. 2019. *A systematic review of climate change education: giving children and young people a 'voice' and a 'hand' in redressing climate change*. Online: Children's Geographies. Available at <https://doi.org/10.1080/14733285.2019.1614532>; Dijkstra EM and Goedhart MJ. 2012. Development and Validation of the ACSI: Measuring Students' Science Attitudes, Pro-Environmental Behaviour, Climate Change Attitudes and Knowledge. Online: Environmental Education Research. Rousell D and Cutter-Mackenzie K. 2019. *A systematic review of climate change education: giving children and young people a 'voice' and a 'hand' in redressing climate change*. Online: Children's Geographies. Available at <https://doi.org/10.1080/14733285.2019.1614532>; Öhman J

and Öhman M. 2013. *Participatory Approach in Practice: An Analysis of Student Discussions About Climate Change*. Online: Environmental Research Education

¹⁴ Rousell D and Cutter-Mackenzie K. 2019. *A systematic review of climate change education: giving children and young people a 'voice' and a 'hand' in redressing climate change*. Online: Children's Geographies. Available at <https://doi.org/10.1080/14733285.2019.1614532>

¹⁵ Kautto N, Trundle A and McEvoy D. 2019. *Climate adaptation planning in the higher education sector*. Melbourne: International Journal of Sustainability in Higher Education. Available at <https://doi.org/10.1108/IJSHE-02-2018-0028>

¹⁶ Ibid

Box #4

Child-Friendly Schools and Direct Participation

Children took the lead in the 2004 post-tsunami reconstruction and repair of the schools in the Trincomalee district of northeast Sri Lanka. Some of their murals included messages on how to protect the environment. But most importantly, the project ensured that protection and safety were primary goals. With the direct participation of 800 children, this initiative showcased the key principles of child-friendly schools: child-centredness, protection, inclusiveness and child participation.

climate change education at the early childhood care and development, primary education, secondary education, technical and vocational education and training, and tertiary education levels that should be taken into consideration when integrating climate change adaptation education into national processes.¹⁷

Tools and Recommendations

The incorporation of climate change education into national curriculums that consider adaptation measures in localised contexts is of great importance. Lessons on key climate change topics that should be included are global warming, the greenhouse effect, weather-related disasters, local adaptation policies and practices, addressing disaster risk reduction, emergency preparedness, and locally relevant sustainable development options.¹⁸

National education strategies for formal, informal, and non-formal education at all education levels should integrate appropriate goals and monitoring and evaluation mechanisms. Surveys on children and youth can

be used to determine baseline levels of school knowledge to tailor national education strategies to local contexts.¹⁹

Additionally, tools and recommendations to develop a nationally significant, participatory approach to climate change education, especially in the primary and secondary levels of educations, include training workshops, strategies to raise awareness, guaranteeing a protective, child-friendly physical environment, climate change projects and programmes, and resource guides.²⁰

There are multiple training workshops and teacher training programmes and modules that cover climate change, environmental education, and sustainable development. These modules and programmes give teachers and other educators the pedagogical support to develop the necessary skills and knowledge to increase their understanding of the environment, climate, and sustainability issues. These training initiatives should also increase their understanding of the social aspects of climate change, including the

¹⁷ Iltus S, Sugar S, Hodge S, et al. 2012. *Climate Change and Environmental Education: A Companion to the Child Friendly Schools Manual*. New York: UNICEF's Division of Communication. Available at https://www.unicef.org/publications/files/CFS_Climate_E_web.pdf

¹⁸ The Commonwealth. 2016. *Climate Change and Education: A policy brief (Draft)*. Online: The Commonwealth. Available at https://www.thecommonwealth-educationhub.net/wp-content/uploads/2016/02/Climate-Change-Policy-Brief_Draft_140416_v4.pdf; Iltus S, Sugar S, Hodge S, et al. 2012. *Climate Change and Environmental Education: A Companion to the Child Friendly Schools Manual*. New York: UNICEF's Division of Communication. Available at

https://www.unicef.org/publications/files/CFS_Climate_E_web.pdf

¹⁹ The Commonwealth. 2016. *Climate Change and Education: A policy brief (Draft)*. Online: The Commonwealth. Available at https://www.thecommonwealth-educationhub.net/wp-content/uploads/2016/02/Climate-Change-Policy-Brief_Draft_140416_v4.pdf

²⁰ Iltus S, Sugar S, Hodge S, et al. *Climate Change and Environmental Education: A Companion to the Child Friendly Schools Manual*. New York: UNICEF's Division of Communication. Available at https://www.unicef.org/publications/files/CFS_Climate_E_web.pdf

roles of gender, social status and other social differentiators and involve intensive and organised participation from local communities. Although attempts to incorporate effective climate change and environmental education into teacher training programmes could distract teachers and educators from their already burdened heavy schedules and principal duties, once they are given the resources and responsibility, they quickly appreciate the social relevance of this training. Furthermore, increased parent and student support can help teachers and other educators to integrate climate change education into formal, informal, and non-formal modes of education.

Media campaigns, messaging through children and youth radio programmes, theatre and music, conferences, and other events and programmes within schools, out-of-schools, and extra-curricular activities can significantly strengthen learning and complement formal curricula. These strategies to raise awareness will be greatly enhanced by the collaboration of non-governmental organisations, government institutions, and the private sector.

Formal, non-formal, and informal education systems can work together to create a holistic system that provides meaningful climate change education. Extra-curricular activities offer an opportunity for children and youth to interact with their environment through field trips, research, and climate projects and programmes. Education focused on green jobs and disaster risk reduction can help children and youth to develop their creativity, engage in productive work, and contribute to the emerging green economy and local communities. The development of 'green schools' and guaranteeing a protective, child-

friendly physical environment are two examples of such initiatives since school environments can promote the involvement of children and youth in climate change education by visually incorporating environmental education messages.

Some of the challenges faced by tertiary education providers to integrate climate change education in the context of local-level climate adaptation planning processes can be overcome by integrating climate risk in existing risk management and sustainability planning processes, education, and research, improving the knowledge and understanding of the drivers and barriers of climate action at the executive and operational level, improving curriculums through internal academic expertise on climate change to develop assessment and adaptation planning from the higher education level, tertiary education institutes collaborating with external actors and campus networks to utilise and secure resources, expertise, and the involvement of other stakeholders in climate adaptation, and communicating sector-specific institutional climate risks and opportunities in adaptation planning and climate resilience, both internally and externally.

This policy brief is part of a series of briefs developed as part of the Technical Examination Process on Adaptation (TEP-A), which in 2020 is focusing on the topic of Education and training, public participation and youth to enhance adaptation action. The brief was developed by SLYCAN Trust (GTE) Ltd. in its capacity as a volunteer expert organization contributing to the TEP-A in 2020.

The TEP-A was established under the United Nations Framework Convention on Climate Change (UNFCCC) process in 2015 and seeks to identify concrete opportunities for strengthening resilience, reducing vulnerabilities, and increasing the understanding and implementation of adaptation actions. The process is organized by the SBSTA and SBI and conducted by the Adaptation Committee. For more information see tep-a.org