

TOWARD CLIMATE-SMART EDUCATION SYSTEMS: A 7-DIMENSION FRAMEWORK FOR ACTION

April 2023

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1. The paper can be found on the GPE website at <https://www.globalpartnership.org/content/quality-education-planet-mind>.
2. <https://www.sustainabilityfrontiers.org>.

ABBREVIATIONS

CSSF	Comprehensive School Safety Framework
EMIS	education management information systems
ESD	Education for Sustainable Development (framework)
GPE	Global Partnership for Education
INEE	Inter-agency Network for Education in Emergencies
NAP	National Adaptation Plan
NDC	Nationally Determined Contribution
ODA	official development assistance
SDG	Sustainable Development Goal
UN	United Nations
UNESCO	United Nations Educational, Scientific, and Cultural Organization
UNFCCC	United Nations Framework Convention on Climate Change
USAID	U.S. Agency for International Development

EXECUTIVE SUMMARY

The planetary crisis—an interlocking crisis of climate change and environmental degradation—is of an unprecedented scale. Challenges faced by children, their teachers and education systems in lower-income countries are compounded by climate change-induced shocks and a deteriorating natural environment. Education has a critical role to play in securing a sustainable future for all by addressing the root causes and key drivers of current climate and environmental crises and by helping the transition to greener societies. Yet as governments try to navigate education system reform amid an increasingly uncertain future, it has become urgent to articulate how they can better maximize the co-benefits of efforts to build climate resilience, advance environmental sustainability and achieve quality education for all.

The Global Partnership for Education’s Strategy 2025 aims to accelerate access, learning outcomes and gender equality through equitable, inclusive and resilient education systems fit for the 21st century. As Global Partnership for Education (GPE) partner countries convene in dialogue around key system transformation priorities, both the short- and long-term effects of climate change are risk multipliers for the achievement of universal quality education. At the same time, climate change is precipitating the need for shifts to better protect biodiversity, improve the management of the planet’s natural resources and mobilize the human resources required to ensure a greener future. In response to requests from partner countries for support in addressing climate change in the education sector, GPE has developed this working paper to help maximize complementarity between presently siloed approaches and initiatives for climate resilience and climate action. Building on resources and efforts led by different education partners, in particular the *Heat Is On* publication series commissioned by UNICEF South Asia,¹ this paper proposes a seven-dimension framework to leverage

potential entry points and address gaps within national education systems to strengthen the resilience and relevance of education to climate change and environmental degradation. It highlights opportunities for leveraging the role of education in wider climate change, disaster risk and environmental efforts. The paper also highlights existing frameworks and approaches related to the seven dimensions, where available, that policy makers can use to guide sector dialogue.

The framework for climate-smart education systems ultimately encompasses the broader goals of advancing equitable quality education, protecting the planet’s life systems and promoting climate justice. It situates education systems within the planetary boundaries of the earth’s ecosystems, building upon GPE’s contextualized approach to system transformation. This approach recognizes the interconnectedness, interdependence and complex interactions between the two systems, as well as the potential for changes in one system to have impacts on others. To address these complexities, the framework emphasizes the need to develop climate-smart education systems that take into account these interactions. GPE’s systems approach aims to enhance large-scale implementation, mobilizing and aligning actors and resources. The framework encompasses seven dimensions of an education system that should be seen as interrelated, as achievements under one dimension are not sustainable in isolation:

- 1. Data and Evidence:** Data concerning climate and disaster risk and environmental degradation as they implicitly or explicitly relate to the education system should be gathered and systematically analyzed and reported. Education planners should also consider what other evidence, such as targeted qualitative or quantitative research, is available or needed on the impacts of climate change on children, communities and schools.

1. Kagawa, *The Heat Is On! Towards Climate Resilient Education Systems in South Asia*.

Data emerging should subsequently be made readily available for evidence-based decision making and policy deliberation in aid of building resilience as well as climate and environmental action across the education sector. Facilitating peer learning and cooperation can support a learning-based approach to innovation and inspire stakeholders to act.

- 2. Policy and Planning:** National plans and policies for education, climate and environment provide the foundation for better addressing the interlinkages between education and climate change, both in terms of the impacts of climate change on education systems and the role of education in climate adaptation and action. It is therefore critical that education sector plans and policies consider disaster risk, environmental protection and climate change goals. It is equally important that climate and disaster risk plans and strategies such as national disaster risk reduction plans, Nationally Determined Contributions, National Adaptation Plans, National Biodiversity Strategies and Action Plans and other environmental strategies clearly incorporate the roles and contributions of the education sector. Policy alignment across sectors can help ensure that the co-benefits and intersectoral dependencies between education, climate and environment are made explicit in the implementation of national strategies. Monitoring and evaluating the implementation and impact of education sector plans in relation to their effectiveness in advancing climate change adaptation, mitigation and sustainability will help build an understanding about what works in developing a climate-smart education system.
- 3. Coordination:** To strengthen education sector leadership in climate and environmental action, ministries of education should proactively participate in national climate change decision making and coordination platforms while enhancing their cross-sectoral collaboration and partnerships. Existing education sector

coordination mechanisms also need to be enhanced to better address the needs and rights of crisis-affected children. Different stakeholders and initiatives at different levels should be connected in a synergistic and purposeful way. Strong accountability mechanisms enacted in national systems and embedded in implementation approaches are critical in the success of policies and programs to ensure safety, sustainability and the realization of basic rights such as education, particularly for the most vulnerable.

- 4. Finance:** Given the co-benefits of investing in education and climate, international climate financing may help advance objectives across both areas by targeting resources to finance climate adaptation and sustainability in the education sector. Domestic financing can be mobilized to support the education system to be more climate responsive and also to contribute to climate development goals. To mainstream climate actions across education spending, the education community needs to strengthen the case for and ensure the efficiency of climate-related spend in the sector. Given disproportionate impacts of climate change on the most vulnerable, equitable financing mechanisms are necessary, targeting the children, schools and regions most affected by climate change and environmental degradation.
- 5. Infrastructure:** Both new and existing school infrastructure should integrate climate change adaptation and sustainability considerations into planning, design, construction and maintenance, ensuring a safe and healthy learning environment for students while minimizing the environmental footprint of infrastructure. School and community stakeholders should play an active role in making decisions about and maintaining the school infrastructure to ensure it becomes safer and greener.

6. Teaching and Learning: The formal curriculum, including content and learning outcomes, delivered through the grade levels and across all subjects, is a powerful entry point to empower students as change agents and advocates who can critically and constructively engage with issues of climate change and environment. Teachers likewise need to be supported in their role to apply quality pedagogies and standards to enable relevant, engaging and inspiring climate education and climate-sensitive student behaviors and practices at all stages of their development.

7. Schools and Communities: Schools should serve as community hubs in the enhancement of local safety and resilience, by promoting environmentally sustainable practices in communities and drawing community members into the climate change, disaster risk management and environmental conservation initiatives of the school, and tapping into their wealth of knowledge. There should be school- and community-based engagement platforms for children and young people, enabling them to exercise and hone their change agency, advocacy and climate leadership capacities as they help take climate and environmental action forward

We encourage stakeholders in the education, climate and environment communities to provide their feedback on this framework and collaborate with us to support partner countries in addressing the intertwined challenge of learning outcomes and climate change. This working paper is a starting point on which we intend to build upon and improve. Our goal is to create a coalition of actors that emphasizes the role of education in both climate resilience and climate action. We also hope that the framework and the gaps it identifies inspire researchers to establish an evidence base in these areas. Lastly, we hope that GPE partner countries find the framework valuable as they engage in dialogue about key system transformation priorities, and we welcome feedback on its use in promoting climate-oriented policy dialogue in the education sector.

INTRODUCTION

The goal of the Global Partnership for Education (GPE) Strategic Plan 2021–2025 is “to accelerate access, learning outcomes and gender equality through equitable, inclusive and resilient education systems fit for the 21st century.” Strengthening resilience and mitigating the systemic impacts of crises, including those resulting from climate change, is a critical part of GPE’s mission over the five-year period.¹

GPE’s contextualized approach to system transformation situates education systems within the planetary boundaries of the earth’s ecosystems. It recognizes the interconnectedness, interdependence and complex interactions between the two systems, as well as the potential for changes in one system to have impacts on others. The success of GPE’s system transformation approach relies on partners working together effectively at the country level, coordinating dialogue and aligning resources and support. With governments in the lead, partners at the country level collectively:

- Diagnose key bottlenecks within the education system that, if unblocked, can have a transformative effect on the system to deliver a quality education for every child.
- Discuss and agree on a priority reform that has the potential to positively impact broader parts of the education system and improve service delivery at scale.
- Acknowledge the value of all partners aligning their resources and efforts to support the policy reform area outlined in a jointly developed partnership compact.

A number of GPE partner countries have recently expressed the need for support in more systematically addressing climate change in the education sector. Building on existing work in this area, in particular a publication series commissioned by UNICEF South Asia and written by Fumiyo Kagawa,² this working paper aims to respond to this request from partner countries by highlighting opportunities to maximize complementarity between presently siloed approaches and initiatives for climate resilience and climate action. The paper proposes a framework to leverage potential entry points and address gaps within national education systems to strengthen the resilience and relevance of education to climate change and environmental degradation. It highlights opportunities for leveraging the role of education in wider climate change, disaster risk and environmental efforts. The paper also highlights existing frameworks and approaches related to the seven dimensions, where available, that policy makers can use to guide sector dialogue.

The framework for climate-smart education systems ultimately encompasses the broader goals of protecting and advancing quality, relevant and equitable education, protecting the planet’s life systems and promoting climate justice (see figure 1). The framework covers seven dimensions of the education system (explored further in section 2; see also figure 2) that should be seen as inter-related, as achievements under one dimension are not sustainable in isolation:

1. Data and Evidence
2. Policy and Planning
3. Coordination
4. Finance
5. Infrastructure
6. Teaching and Learning
7. Schools and Communities

1. Global Partnership for Education (GPE), *GPE 2025 Strategic Plan*.

2. Kagawa, *The Heat Is On! Towards Climate Resilient Education Systems in South Asia* and country reports for each of the following: Bangladesh, Bhutan, India, the Maldives, Nepal, Pakistan and Sri Lanka.

The scope of the framework covers early childhood, pre-primary, primary and secondary levels of formal education, and nonformal education for school-age children and young people. It is important to note that impacts of climate change naturally extend to techni-

cal and vocational education and training, as well as tertiary education. The contributions of these levels to addressing climate change are rich and varied, but they are not covered in this paper, given GPE's focus on 12 years of education plus pre-primary.

Figure 1. Goals of a Climate-Smart Education System

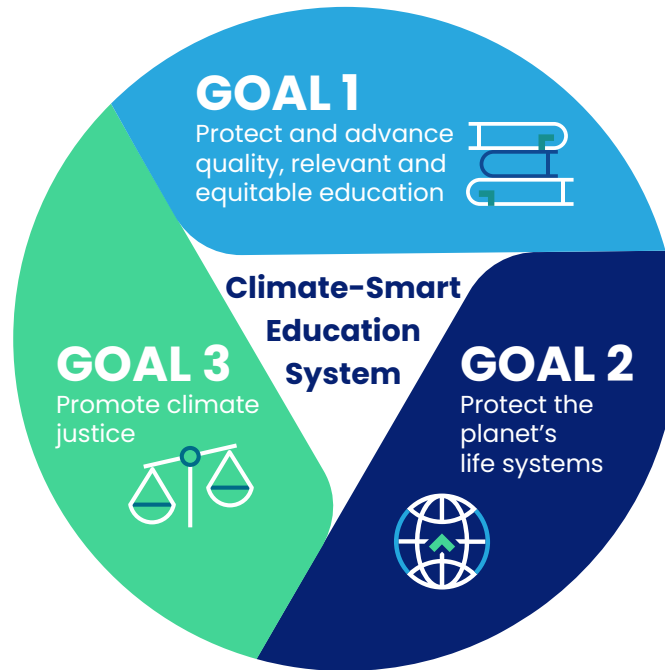
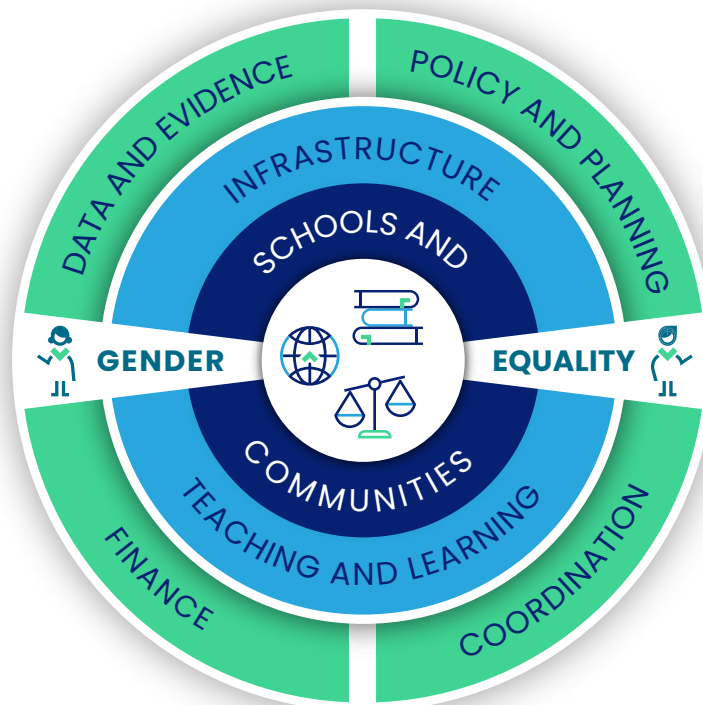


Figure 2. Seven Dimensions of a Climate-Smart Education System Framework



SECTION 1. TOWARD CLIMATE-SMART EDUCATION SYSTEMS

1. Background

Human-induced climate change has already made our planet 1.07 degrees Celsius hotter than pre-industrial times.¹ Over a century of carbon emissions and overexploitation of natural resources has resulted in profound environmental damage. We now face an interconnected planetary crisis of climate change, biodiversity and habitat loss, desertification and pollution on an unprecedented scale. Climate change has already exacerbated the frequency, severity and duration of weather and climate extremes that bring in their wake widespread loss, damage and disruption disproportionately afflicting low-income countries and the most vulnerable members of society.²

1.1. The Interrelationship between Climate Change, Children and Education

Children bear the greatest burden from the adverse impacts of climate change and environmental degradation. They are particularly vulnerable to the impacts of extreme weather, droughts and floods, to toxic environmental hazards and stresses, and to infec-

tious disease.³ One billion children—nearly half of the world’s children—live in “extremely high risk” countries on account of climate and environmental shock and stress.⁴ The interlocking climate and environmental emergency threatens to reverse gains made in fulfilling the rights of children as outlined in the United Nations (UN) Convention on the Rights of the Child. This poses significant barriers to every child’s ability to enjoy many, if not all, of their rights. The climate crisis, according to UNICEF, is fundamentally a child rights’ crisis.⁵

Every child has the right to a quality education that fosters their full cognitive, social, emotional and physical development while equipping them with the capacities and skills for proactive engagement as future adults. Yet the planetary crisis is compounding the existing learning crisis. In low- and middle-income countries, the proportion of children unable to learn basic skills rose from over 50 percent to an anticipated 70 percent following COVID-19-related school closures.⁶ Should effective countermeasures not be put in place, climate change is likely to further exacerbate learning shortfalls. Historically, children have been educated for a future that could largely be predicted—now their future will be radically different from that of the generations that came before.

1. Intergovernmental Panel on Climate Change (IPCC), Summary for Policymakers, in *Climate Change 2021: The Physical Science Base: Contribution of Working Group I to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change*.
2. Intergovernmental Panel on Climate Change (IPCC), Summary for Policymakers, in *Climate Change 2022: Impacts, Adaptation and Vulnerability: Contribution of Working Group II to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change*.
3. UNICEF, *The Climate Crisis Is a Child Rights Crisis*.
4. UNICEF, *The Climate Crisis Is a Child Rights Crisis*.
5. UNICEF, *The Climate Crisis Is a Child Rights Crisis*.
6. World Bank, UNESCO, and UNICEF, *The State of the Global Education Crisis*.

Education systems need to become better prepared to continue services during climate-related disruptions while

also addressing the increasingly complex needs of children and teachers affected by climate change (see box 1.1).

BOX 1. THE MULTIPLE IMPACTS OF CLIMATE CHANGE ON EDUCATION

Climate and environmental crises adversely impact education systems in myriad ways. For instance, weather-related extreme events such as floods, storms and cyclones cause direct and immediate damage and destruction to learning facilities. Rehabilitation costs incurred after climate change-induced natural disasters drain national budgets, diverting resources from the education sector or from education quality improvements. Slow onset events such as ongoing aridification or increasing temperatures can weaken children's ability to attend school or to learn when they are there. Climate change-induced hazards and environmental degradation trigger both internal and external displacement and migration,^a resulting in reduced access to education for displaced and migrant children. Teachers' ability to deliver quality learning is adversely affected. They and their families are also victims of disasters. They are also put under additional pressure given that nonteaching work is often required of them in the aftermath of natural disasters, demands not backed with proper support. Some teachers and education sector staff are displaced and forced to migrate.^b Climate change and environmental degradation also impact learners, with differential effects on children at different stages of their physical, cognitive and social development.^c

Parents struggling with loss of livelihood and reduced income triggered by climate change-induced hazards and environmental degradation often expect their children, especially girls, to supplement family income and/or take on more household duties, thus forfeiting their child's education. Families may resort to child marriage, child labor and child trafficking, leading to school dropout. Student health and well-being is increasingly affected by climate-triggered extreme weather events and diseases, while lack of sufficient and nutritious food at home and/or at school reduces student ability to attend school and learn.^d Children with disabilities and special needs are at greater risk during humanitarian emergencies and more likely to experience discrimination. Girls with disabilities are particularly vulnerable to exploitation and have less access to essential services such as education and health compared with their peers without disabilities.^e

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- a. It should be noted that the distinction between forced and voluntary migration is contested and ambiguous in the context of climate change as there are multiple and intersecting drivers and causal factors. See, for instance, Pye, Seeger, and Ndabananiye, "Understanding the Climate Change-Displacement-Education Nexus for Building Resilient and Equitable Education Systems"; and Cundill et al., "Toward a Climate Mobilities Research Agenda: Intersectionality, Imobility, and Policy Responses."
- b. Godfrey and Tunhuma, *The Climate Crisis: Climate Change Impacts, Trends and Vulnerabilities of Children in Sub Saharan Africa*; Kagawa, *The Heat Is On! Towards Climate Resilient Education Systems in South Asia*; UNICEF East Asia and Pacific Regional Office (UNICEF EAPRO), *It Is Getting Hot*.
- c. Asia-Pacific Regional Network for Early Childhood (ARNEC), *Most Vulnerable to Most Valuable: A Scoping Study to Put Young Children at the Heart of Climate Actions and Environmental Protection*.
- d. Godfrey and Tunhuma, *The Climate Crisis*; Kagawa, *The Heat Is On! Towards Climate Resilient Education Systems in South Asia*; UNICEF EAPRO, *It Is Getting Hot*.
- e. "The Impact of Climate Change on the Rights of Persons with Disabilities," OHCHR and Climate Change, OHCHR, 2020, <https://www.ohchr.org/en/climate-change/impact-climate-change-rights-persons-disabilities>; "Children with Disabilities in Emergencies," UNICEF, undated, <https://www.unicef.org/disabilities/emergencies>.

Education is widely recognized—in theory, if not in practice—as a critical enabler of climate action. Key international agreements such as the United Nations Frame-

work Convention on Climate Change (UNFCCC) and the Paris Agreement recognize the important role of education in accelerating climate action.⁷ UN member states

7. United Nations, Paris Agreement.

are committed to achieving the Sustainable Development Goals (SDGs), which include ensuring inclusive and equitable quality education (SDG 4). In particular, SDG 4.7 lays down that by 2030 “all learners [should] acquire the knowledge and skills needed to promote sustainable development, including among others, through education for sustainable development (ESD) and sustainable lifestyles.”⁸ SDG 13.3 calls for improved education, awareness raising, and human and institutional capacity on climate change mitigation, adaptation, impact reduction and early warning.⁹ The Glasgow Work Programme on Action for Climate Empowerment adopted at the 2021 UN Climate Change Conference (COP 26) underscores the role of education in fostering climate action and acknowledges young people as potential agents and advocates of change directed at mitigating the climate threat.¹⁰

Despite these global commitments, action is lagging to turn them into well-resourced policies and implementation programs at the country level, and education systems continue to be underprepared for the realities and challenges of climate change. Action to reform education provision to better prepare children for the future is increasingly urgent.

Good practices of connecting climate and education, or building more resilient education systems, do exist, but they have not been sufficiently adopted and scaled. In others, the efforts of education and climate sectors are disconnected, and the evidence to support decision making by ministries remains thin. There is a shortfall in implementing meaningful and urgent systemic changes that, together, add up to a fit-for-purpose and duly calibrated response to climate change.¹¹ Anticipating the changes to the global climate that are locked in from historical emissions, education systems need to become more resilient, equitable, effective and responsive than ever before.

Education has a critical role to play in securing a sus-

tainable future for all. Addressing the root causes of the learning, climate and environmental crises calls for an integrated framework that maximizes co-benefits between efforts to build climate resilience, advance environmental sustainability and achieve quality, equitable and inclusive education for all. A climate-smart education system framework recognizes that a stable climate and healthy natural environment are the foundation of all our lives and that the health and well-being of societies and the planet are deeply interconnected.

1.2. Goals of Climate-Smart Education Systems

A climate-smart education system works to achieve three interrelated goals: (1) protect and advance quality, relevant and equitable education, (2) protect the planet’s life systems and (3) promote climate justice.

Goal 1: Protect and advance quality, relevant and equitable education

Governments have a responsibility for ensuring every child fully enjoys their rights to survival, education, participation and protection. Yet climate change is a threat multiplier, driving up the risk that children do not have access to safe and sustained learning opportunities. A climate-smart education system must play a pivotal role in risk prevention, reduction and management, safeguarding children and other education stakeholders, including teachers. It must build the capacity of all actors in the education system to prevent, prepare for, respond to and recover from the risks facing education systems. A climate-smart education system must ensure education continuity, especially for the most marginalized, when climate-related disruptions occur. It must effectively cater to the learning needs of children throughout their developmental stages, recognizing the importance of targeted interventions to support children from early childhood (see box 1.2) through to their

8. UNESCO Institute for Statistics (UIS), *Official List of SDG 4 Indicators* (March 2022).

9. “Goal 13: Take Urgent Action to Combat Climate Change and Its Impacts,” Sustainable Development, United Nations, <https://sdgs.un.org/goals/goal13>.

10. UNFCCC, Glasgow Work Programme on Action for Climate Empowerment, advance unedited version.

11. Kwauk, *Roadblocks to Quality Education in a Time of Climate Change*.

adolescence and emergence into adulthood. It must also provide an education that enables the realization of other rights. Ultimately, it must provide relevant values, knowledge and skills for the future, enabling learners to make progress amid the planetary, economic and social shifts that the current century brings.

Goal 2: Protect the planet's life systems

Degraded and destroyed natural environments are key drivers of climate-induced risks and disasters. A deteriorating natural environment makes those who depend on it for their livelihood and basic needs—food, water, shelter—more susceptible to climate change-induced hazards and impacts. National education systems reach into every community and can equip people for action to promote solutions that advance environmental sustainability. A climate-smart education system must mobilize actors in that system—children, teachers, communities, education planners—in service to sustainable environmental practices. It should also contribute to curtailing greenhouse gas emissions and removing

carbon from the atmosphere. With the urgency of climate change, education systems have immense potential to contribute to biodiversity protection, restoration efforts and decarbonization, and fuel the shift to greener livelihoods. Teaching and learning as well as school management should incorporate and be informed by diverse sources of cultural knowledge, values and practices associated with caring for the natural environment. For example, Indigenous, nomadic and tribal peoples have deep understandings of human-nature interconnectedness and unique knowledge and skills for adapting to a changing climate and environment.¹²

Goal 3: Promote climate justice

Climate justice proposes the safeguarding of the rights of the most disadvantaged and marginalized—on account of their gender, disability, poverty or other factors—since they face specific vulnerabilities arising from climate and environmental change. In addition to addressing these needs and vulnerabilities, climate justice underlines the importance of building capacities

BOX 1.2. SAFEGUARDING YOUNG CHILDREN IN THE FACE OF CLIMATE CHANGE

Early childhood, in particular the first 1,000 days of a child's life, is critical for development. Climate change, environmental degradation and disasters greatly impact young children and hinder their cognitive and physical development. For example, young children are more susceptible to diseases, like malaria, that spread with climate change.^a A scoping study of the effects of climate change on early childhood development concluded that to respond adequately to the needs of young children, it is necessary to highlight their distinctive needs in relation to climate change and to differentiate developmental stages within the early childhood period starting from conception and pregnancy. The education-specific effects of climate change in each stage of early childhood include reduced access to early education, reduced ability for young children to focus due to heat or hunger, lack of environmental stability needed to foster learning, and increased stress on families. Moreover, quality early childhood programs are critical for climate resilience and climate action. They provide an important basis from which to build resilience and adaptability; support mitigation through environmentally friendly facilities, transportation systems and green play spaces; and help create a new generation to safeguard the environment. A core component of climate-smart education systems is to build the foundation early in life and to assure continuity as children move into school.^b

a. UNICEF, *The Climate Crisis Is a Child Rights Crisis*.

b. Asia-Pacific Regional Network for Early Childhood (ARNEC), *Most Vulnerable to Most Valuable*.

12. WWF, *Living Planet Report 2022*.

of the most marginalized and drawing upon their unique experience, knowledge, insights, perceptions and skills. For example, children can act as agents and advocates of change who contribute to realizing a greener, safer and fairer future, through becoming peer educators and advocates who inspire their cohorts and community members. Climate justice also proposes that the burdens and benefits of climate change be shared equitably and fairly and that decision making processes aimed at realizing justice are participatory, transparent and accountable.¹³ In the education system, prioritizing the needs of the children most vulnerable to climate change and helping them build their capacity to withstand shock and act as peer educators is one way to enhance climate justice. Education also plays an essential role in transforming social structures and norms that have perpetuated gender inequalities and social exclusion.

1.3. The Cross-Cutting Role of Gender in Climate-Smart Education Systems

Climate change poses a growing threat to gender equality in education.¹⁴ However, evidence shows that far from being competing priorities, gender equality in education is a key feature for effective and participatory responses to climate change.¹⁵ Indeed, gender equality is at the center of a climate-smart education system. GPE 2025 commits the partnership to systematically identify and address barriers to education affecting children of all genders, as key for achieving quality education for every child. This commitment extends to mainstreaming gender equality in strategies to address impacts of climate change, including disruptions to

access, increases in gender-based violence and early marriage.

As the following points illustrate, there is a two-way relationship between gender equality in education and climate-smart education.

- **Climate change impacts are not gender neutral.** Women and men experience the consequences of exposure to climate change and environmental degradation differently.¹⁶ From this perspective, climate change appears to exacerbate preexisting gender equity gaps and socially constructed power relations, norms and practices.¹⁷
- **Climate change impacts will vary according to gender as well as other characteristics,** such as socioeconomic status, poverty, age, ethnicity, disability, geographic location and health factors (such as HIV status), which intersect with gender identities. At a global level, some estimates demonstrate the disproportionate effect of the climate crisis on girls' access to education: for example, climate-related events prevent at least 4 million girls in low- and lower-middle-income countries from completing their education.¹⁸
- **Damage to education infrastructure, displacement, increased burden of household chores and a reduction of household income are all effects of climate change with gender-equality implications** that are likely to disproportionately affect girls and young women.¹⁹ On the other hand, loss of household income and the ensuing pressure to abandon school and join the labor market are likely to affect boys and young men disproportionately.²⁰

13. V. Giroto, "Mainstreaming Gender and Inclusion into Climate Action"; Mary Robinson Foundation – Climate Justice, *Principles of Climate Justice*; UN Women, *Leveraging Co-benefits between Gender Equality and Climate Action for Sustainable Development*.

14. Foreign, Commonwealth & Development Office (FCDO), "Addressing the Climate, Environment, and Biodiversity Crises in and through Girls' Education." Note that *gender equality in education* can be understood as gender equality in access to education and within education as well as advancing gender equality in society through education.

15. Inter-agency Network for Education in Emergencies (INEE), *Girls' Education and Climate Change*; Malala Fund, *A Greener, Fairer Future*; Sims, *Education, Girls' Education and Climate Change*.

16. Sims, *Education, Girls' Education and Climate Change*.

17. UNDP, "Gender and Climate Change: Overview of Linkages between Gender and Climate Change"; Roy, "Gender Equity and Climate Change Have More in Common Than You Think."

18. Malala Fund, *A Greener, Fairer Future*.

19. INEE, *Girls' Education and Climate Change*; Sims, *Education, Girls' Education and Climate Change*.

20. Chuang, Pinchoff, and Psaki, "How Natural Disasters Undermine Schooling."

- **Existing evidence points to a positive association between girls' education and better resilience to climate disasters at the country level.** A study of 125 developing countries from 1980 to 2010 emphasized the role of girls' education in reducing the impact of disasters, stating that education was "the single most important social and economic factor associated with a reduction in vulnerability."²¹ Another study also found a positive association between the average number of years of schooling a girl receives and the country's resilience to climate disasters.²²
- **Developing girls' skills through education can accelerate progress in mitigating climate change and adapting to it.** Improving girls' access to the science, technology, engineering and mathematics (STEM) fields as well as technical and vocational education and training will be key to filling the demand for green jobs²³ into the future.²⁴ Furthermore, both gender-transformative education and climate-smart education rely on community engagement, understanding systems and structures of power, political agency, action, activism and leadership.²⁵ This means that climate-smart approaches to curriculum and teaching can advance, and take advantage of, progress toward gender equality.
- **Empowering girls and women leads to more effective climate action.** Environmental programs with women and girls participating have been found to be more effective and to have better environmental outcomes than those with limited participation from women and girls.²⁶ For example, a study of 72 countries found a positive correlation between women's civil society and political participation and beneficial

environmental outcomes, including a reduction in carbon emissions.²⁷ Ensuring access to quality education for girls is also a key pathway for gender parity in climate leadership.²⁸

- **The response to and mitigation of climate change through climate-smart education is an opportunity to advance gender equality in education.** To strengthen gender equality in climate-smart education, responses focus on the following:²⁹
 - Ensuring that a gender analysis informs climate-smart education approaches, from policy to the links between the school and the community
 - Ensuring that women's and girls' voices are meaningfully represented in the design of, and decision making processes of, the seven dimensions of a climate-smart education
 - Investing in education programs that develop girls' leadership skills and support girls to become agents of change in climate justice.

21. Streissnig, Lutz, and Patt, "Effects of Educational Attainment on Climate Risk Vulnerability."

22. Measured through the ND-GAIN index. Kwauk and Braga, *Three Platforms for Girls' Education in Climate Strategies*.

23. Green jobs refers to those associated with renewable energies, green buildings, land management, green products (automotive, sustainable agriculture and green industrial goods, among others), water and waste management.

24. Sqalli et al., "Why Climate Action Needs a Gender Focus"; Malala Fund, *A Greener, Fairer Future*.

25. Kwauk and Wyss, "Gender Equality and Climate Justice Programming for Youth in Low- and Middle-Income Countries: An Analysis of Gaps and Opportunities."

26. Sims, Education, *Girls' Education and Climate Change*.

27. Lv and Deng, "Does Women's Political Empowerment Matter for Improving the Environment? A Heterogeneous Dynamic Panel Analysis."

28. Jeffs, "Why Women's Leadership Is Key to Climate Action."

29. Adaptation of a subset of recommendations from Sims, Education, *Girls' Education and Climate Change*, and Foreign, Commonwealth & Development Office (FCDO), *Learning Climate*.

SECTION 2. SEVEN DIMENSIONS OF A CLIMATE-SMART EDUCATION SYSTEM FRAMEWORK

In the transition toward climate-smart education systems that protect and advance quality education, protect the planet's life systems and promote climate justice, the following framework outlines entry and action points, identifies knowledge gaps, and country examples in each of the seven dimensions.

2.1. Data and Evidence

Data concerning climate and disaster risk and environmental degradation as they implicitly or explicitly relate to the education system should be gathered and systematically analyzed and reported. Education planners should also consider what other evidence, such as targeted qualitative or quantitative research, is available or needed on the impacts of climate change on children, communities and schools. Data emerging should subsequently be made readily available for evidence-based decision making and policy deliberation in aid of building resilience as well as climate and environmental action across the education sector. Facilitating peer learning and cooperation can support a learning-based approach to innovation and inspire stakeholders to act.

2.1.1. Data Collection, Management and Analysis

The ministry of education, working with partners, needs to determine what data are required to support system-wide risk reduction, preparedness and adaptation in the light of climate and environmental change. Ideally, education policy makers and planners would have information on some or all of the following: the main risks that the country and specifically the education sector face; historical and potential future risk locations; potential impacts of risks on education supply, demand, access, equity, quality and sector financing; and existing school capacity levels for protecting students and

teachers from the effects of hazards.¹ Education data should be disaggregated according to age, sex, disabilities, location and other relevant demographic and socioeconomic characteristics to enable targeted interventions that better address specific needs and climate-related vulnerabilities.² As early childhood education services are not always covered by school census data sets, data collection efforts should also ensure that young children under 5 are captured in data sources.

As a first step, planners can examine what information is currently gathered and available in the national (and subnational) education management information

1. IIEP-UNESCO et al., *Education Sector Analysis: Methodological Guidelines, volume 3*.

2. Pegram and Knaute, *Caribbean Children Facing the Climate Crisis*; IIEP-UNESCO et al., *Education Sector Analysis: Methodological Guidelines, volume 3*; UNICEF East Asia and Pacific Regional Office (UNICEF EAPRO), *It Is Getting Hot*.

systems (EMIS). Embedding some climate-related variables in the EMIS is one possible way forward. However, it is not realistic to include all required data in the EMIS. It may therefore be more practical to build stronger links between EMIS and other existing data systems by improving data interoperability.³ Data systems that may allow for a more comprehensive understanding of the impacts of climate change on children and schools include data on disaster, climate change and environment, as well as child-related data on health, nutrition and child protection as managed by relevant line ministries, departments and agencies.⁴ For example, some lower-income countries may have already developed a geographical information system (GIS) database that contains locations of existing schools, natural hazard data, and structural and nonstructural characteristics of schools. Other possible sources of data could be household surveys. School-level monitoring tools can also offer entry points for gathering climate change-related data in relation to quality education provision.⁵

Linking education in emergencies data and EMIS is important for achieving common outcomes and multiyear planning for better humanitarian and development coherence.⁶ To increase better interoperability and compatibility of data sets, developing standardized definitions, indicators and methods for calculating them across different ministries and partners is important.⁷ Data on displaced children in the context of climate change and environmental degradation—in particular, disaggregated data—remain largely insufficient.⁸ It should be noted that in crisis-affected situations some data are highly sensitive because of potential risks to children, so in each context the optimal degree of interoperability should be weighed and data should be

handled according to pre-agreed data-sharing protocols and privacy measures.⁹

In some countries, climate risk data are limited and fragmented. To complement the available country-level climate risk information, education sector planners and policy makers can draw from existing global databases such as *ThinkHazard!*¹⁰ which provides a general view and likelihood of the hazards for a given location, provides guidance on how to reduce the impact of these hazards, and where to find more information. Other relevant sources of information include the international disasters database EM-DAT, which tracks past disasters and cost of damage; Climate Central, which visualizes the influence of climate change on local weather and sea level rise in different locations, among other things; Resource Watch, which includes various climate data sets and geographic visualization; and World Bank's Climate Change Knowledge Portal, which contains country-specific climate data and analysis.¹¹

To better support education planners at the country level, thorough data collection and analysis of the costs associated with interventions that promote climate resilience in education systems and education for climate action are crucial. While effective interventions for climate resilience are relatively well-known¹², the associated costs still need to be collected and analyzed. In parallel, there is a need to better identify effective interventions for climate action and determine their respective unit costs. This underscores the need for various cost data collection and analyses to support decision makers in identifying the most cost-effective interventions based on the specificities of their contexts and climate threats.

3. van Wyk and Crouch, *Efficiency and Effectiveness in Choosing and Using an EMIS*; UNESCO, *Strengthening Education Management Information Systems for Increased Resilience to Crises*.

4. UNICEF EAPRO, *It Is Getting Hot*.

5. Kagawa, *The Heat Is On! Towards a Climate Resilient Education System in Sri Lanka*; Kagawa, *The Heat Is On! Towards a Climate Resilient Education System in the Maldives*; Kagawa, *The Heat Is On! Towards a Climate Resilient Education System in Pakistan*.

6. UNESCO, *Strengthening Education Management Information Systems for Increased Resilience to Crises*.

7. UNESCO, *Strengthening Education Management Information Systems for Increased Resilience to Crises*.

8. UNICEF et al., *Guiding Principles for Children on the Move in the Context of Climate Change*.

9. "Local and Indigenous Knowledge Systems (LINKS)," UNESCO, 2021, <https://en.unesco.org/links>.

10. <https://thinkhazard.org/>

11. EM-DAT: <https://www.emdat.be/>; Resource Watch: <https://resourcewatch.org/>; Climate Central: <https://www.climatecentral.org/>; Climate Change Knowledge Portal: <https://climateknowledgeportal.worldbank.org>.

12. See Global Alliance for Disaster Risk Reduction & Resilience in the Education Sector (GADRRRES), *Comprehensive School Safety Framework 2022-2030 for Child Rights and Resilience in the Education Sector*.



COUNTRY EXAMPLES

Bangladesh has taken concrete steps to address critical knowledge gaps in climate change–driven impacts on the education system. In 2015 by the Bangladesh Bureau of Educational Information and Statistics (BANBEIS) of the Ministry of Education with support from UNESCO implemented a pilot study.^a The study systematically gathered and analyzed disaster–related data from 1,800 education institutions, covering different areas representing a distinctive disaster risk. Following on from this, BANBEIS continues to gather climate change and disaster data using secondary data from education subsectors. A chapter on climate change and disaster impacts on education institutions has, since 2017, become part of the annual Bangladesh Education Statistics.^b Data on seven categories have been included in the 2022 edition:

1. Number of institutions affected by each type of disaster
2. Damages/loss that institutions did not recover from after the most recent disaster
3. Details of damage done to the education institutions in the past 10 years, including 2021
4. Number of students dropping out as a consequence of the disaster
5. Curriculum subjects that are exposed to competency loss due to disaster impacts
6. Measures taken to increase disaster response capacity
7. Evaluation reports written and sent by institutions concerning long-term disaster threats and risk they face.

The **Philippines'** Disaster Risk Reduction and Management Information System (DRRMIS) is a comprehensive information management and communication system launched by the Department of Education, in partnership with Save the Children and the Prudence Foundation. It consists of three digital tools:

1. The Rapid Assessment of Damages Report (RADaR) application allows for timely and accurate data gathering, reporting and decision making after a disaster, opening the way for timely interventions by the Department of Education to ensure learning continuity.
2. The School Watching Application (SWApp) is a student–led school hazard mapping checklist.
3. The Comprehensive School Safety (CSS) Monitoring Tool connects schools and education officials with online resources and training.

The Himalayan Environmental Rhythms Observation and Evaluation Systems (HEROES) is a school- and community–based citizen science initiative in **Bhutan** and an innovative example of student participation that benefits the climate data system. Students in participating schools gather data on seasonal appearances and life cycles of chosen plants and wildlife in their school vicinity over 10 months, and the data are fed into the national climate data repository system.^c

a. Ministry of Education, Bangladesh, and UNESCO, *Climate Change Education for Sustainable Development in Bangladesh*.

b. Kagawa, *The Heat Is On! Towards Climate Resilient Education Systems in South Asia*.

c. Kagawa, *The Heat Is On! Towards Climate Resilient Education Systems in Bhutan*.

Young people have the potential to play a key role in data collection and analysis, particularly at decentralized levels. For example, students are capable of conducting school- or community–level risk analysis when the necessary support is provided to them. Students can

also conduct school environmental audits (for example, waste, energy, water) that measure the school's progress in becoming more environmentally sustainable. They may also conduct biodiversity counts/mapping.¹³ Meaningful age- and context–appropriate child participation in data

generation of this kind should be actively promoted in line with the participatory ethos of climate change and citizen science learning. Schools can also conduct a comprehensive annual environmental audit of the school, the school grounds and the immediate locality, covering topics such as air purity, waste management, cleanliness of local water sources, biodiversity health and state of the local ecosystem.

Data need to be analyzed and then disseminated in a user-friendly and accessible manner to inform education policy making and planning, and to generate wider public awareness and interest. Data should be analyzed and consolidated to highlight trends and gaps and therefore assist strategic decision making. To enable this, the ministry of education and its partners should provide necessary support, resources and capacity building training for those involved in the different stages of data production. Verifying the accuracy, validity and usability of the data collected is also essential.¹⁴

2.1.2. Diagnostic Tools

In addition to data, education planners should also consider what other evidence, such as targeted qualitative or quantitative research, is available or needed on the impacts of climate change on children, communities and schools. For example, guidelines for education sector analysis can strengthen national capacities in risk analysis for resilient education systems.¹⁵

Other diagnostic tools relevant to climate-smart education systems include the Safe Schools Context Analysis (SSCA), Rapid Education Risk Assessment (RERA), and RES-360° Tool Kit: Resilience in Education Systems: Rapid Assessment Manual.

Formally known as the Education Sector Snapshot for Comprehensive School Safety and Education in Emergencies, the Safe Schools Context Analysis is a template for

national governments to use to develop a context analysis. The template includes overviews of the education sector, hazards and risks, disaster management, child protection, and comprehensive school safety. There are additional appendixes included, such as Education for All global monitoring statistics and national contingency plans hazard maps. The templates are meant to be populated and kept up-to-date by national and subnational governments in collaboration with education sector development partners, with the aim that “time and effort spent on school safety build[s] on existing policies and capacities.”¹⁶

The USAID Rapid Education Risk Assessment, developed through the Education in Conflict and Crisis Network (ECCN), offers a tool kit to develop a situation analysis that examines the education sector with regard to contextual risks and assets. The assessment involves the collection and analysis of primary and secondary data, and it combines elements of conflict and resilience analysis with disaster risk assessment. The World Bank RES-360° Tool Kit is a tool for ministries of education and schools to use to identify risks facing education stakeholders. The tool kit has guides for focus groups with ministry of education officials as well as for students, teachers, and parents. There are also tools for quantitative data analysis (using SPSS) and knowledge sharing.¹⁷

2.1.3. Peer Learning

It is important to facilitate South-South peer learning and cooperation, even more in the context of climate change as northern solutions may lack contextual relevance in southern contexts. As well as sharing contextually relevant data and evidence, South-South peer learning acknowledges the importance of learning together by exchanging tacit knowledge, or the knowledge gained through experience, addressing common challenges that countries can apply to their own context. The peer-learning process is likely to inspire participants to act by increasing their sense of agency.¹⁸

14. Abdul-Hamid, “What Matters Most for Education Management Information Systems: A Framework Paper.”

15. IIEP-UNESCO et al., *Education Sector Analysis: Methodological Guidelines*, volume 3.

16. “Safe Schools Context Analyses,” Global Alliance for Disaster Risk Reduction and Resilience in the Education Sector (GADRRRES), undated, <https://gadrrres.net/safe-schools-context-analyses/>.

17. World Bank, *RES-360° Tool Kit: Resilience in Education Systems*.

18. GIZ (Deutsche Gesellschaft für Internationale Zusammenarbeit), *Peer Learning for Climate Action*.



COUNTRY EXAMPLES

Launched in 2017 at the first **Caribbean** Ministerial Forum on School Safety, the Caribbean Safe School Initiative (CSSI) aims at advancing school safety and strengthening regional cooperation in the face of increased environmental risks affecting the education sector in the region. The initiative is part of the World Initiative for School Safety (WISS), a government-led global partnership for advancing safe schools at the national level, building on the Comprehensive School Safety Framework.^a The third Ministerial Forum on School Safety took place in 2022, primarily convening the region's ministries of education (in particular, the ministers and the safe school focal points). The forum provided an opportunity for peer-to-peer discussion to reflect on challenges and lessons learned and to consider ways to advance the Caribbean Safe School Initiative in a more collaborative and coordinated manner in the education sector.^b

- a. Global Alliance for Disaster Risk Reduction & Resilience in the Education Sector (GADRRRES), *Comprehensive School Safety Framework 2022–2030 for Child Rights and Resilience in the Education Sector*.
- b. UNDRR, Caribbean Safe School Initiative. *Third Caribbean Ministerial Forum on School Safety*; UNDRR, “19 Countries Now Part of Caribbean Safe School Initiative.”

DATA AND EVIDENCE: ACTION POINTS

- Determine which climate change-related data need to be gathered to inform education planning, as well as the data system(s) that would be used to manage this data.
- Disaggregate data according to age, sex, disabilities, location and other relevant demographic and socioeconomic characteristics to enable targeted interventions that better address specific needs and climate-related vulnerabilities.
- Ensure collaboration between the ministry of education, relevant line ministries and humanitarian and development partners for the gathering, sharing, analyzing and disseminating of climate change, environmental and disaster-related data concerning children and schools.
- Ensure that necessary analysis/diagnostics and information on climate-related risks are used to inform education planning, implementation and monitoring.
- Analyze the data and disseminate the analysis in a user-friendly and accessible manner to inform education policy making and planning and generate wider public awareness.
- Provide necessary support and capacity development training for those involved in data collection, analysis, validation and dissemination.
- Consider what other evidence, such as targeted qualitative or quantitative research, is available or needed on the impacts of climate change on children, communities and schools.
- Support South-South learning opportunities to stimulate and exchange innovative policy and practices.

Recommended focus areas to fill knowledge gaps:

- Map the climate change data sources that are usually available for education planners, including climate change projections, climate hazards mapping and early warning systems.
- Build the evidence base on the effectiveness, cost-effectiveness and impact of interventions on climate adaptation and climate action in education.
- Further develop methodologies and models that can help planners project climate-induced displacement.

2.2. Policy and Planning

National plans and policies for education, climate and environment provide the foundation for better addressing the interlinkages between education and climate change, both in terms of the impacts of climate change on education systems and the role of education in climate adaptation and action. It is therefore critical that education sector plans and policies consider disaster risk, environmental protection and climate change goals. It is equally important that climate and disaster risk plans and strategies such as national disaster risk reduction plans, Nationally Determined Contributions, National Adaptation Plans, National Biodiversity Strategies and Action Plans and other environmental strategies clearly incorporate the roles and contributions of the education sector. Policy alignment across sectors can help ensure that the co-benefits and intersectoral dependencies between education, climate and environment are made explicit in the implementation of national strategies. Monitoring and evaluating the implementation and impact of education sector plans in relation to their effectiveness in advancing climate change adaptation, mitigation and sustainability will help build an understanding about what works in developing a climate-smart education system.

2.2.1. Strengthening Climate Change, Disaster Risk and Environmental Considerations in Education Policies and Plans

In the context of the increasing humanitarian crises exacerbated by climate change and environmental degradation, it is essential that national and subnational education sector planning be crisis sensitive. According to a comprehensive school safety survey in 2017 covering 68 high-disaster risk countries, nearly 60 percent of countries surveyed have either disaster risk reduction or disaster response components in their education sector plan, but the detail tends to be limited.¹⁹ Furthermore, detailed consideration of climate-induced slow-onset hazards and shocks (for example, drought, salinization, sea level rise) and environmental degradation is yet to be fully integrated into education planning.²⁰

Crisis-sensitive education planning involves analysis of

the different risks facing the system to understand and reduce the impacts and occurrence of these risks.²¹ These risks are then considered at every step of the sector planning process—including policy formulation, costing and monitoring—to mitigate the impact on children and prevent and prepare for crises to the extent possible.²² Global frameworks and standards such as the [Comprehensive School Safety Framework \(CSSF\) 2022–2030](#) and [INEE Minimum Standards Handbook](#) can support in planning that promotes safe and continuous education opportunities and enhances preparedness, response and recovery.²³ The CSSF describes the enabling systems and policies needed to strengthen system-level resilience and outlines three intersecting pillars focused on (1) safer learning facilities, (2) school safety and education continuity management, and (3) risk reduction and resilience education.²⁴ The INEE handbook contains 19 standards, categorized into five domains (foundational, access and learning environment, teaching and learning, teachers

19. Paci-Green et al., “Comprehensive School Safety Policy: A Global Baseline Survey.”

20. Kagawa, *The Heat Is On! Towards Climate Resilient Education Systems in South Asia*.

21. “Crisis-Sensitive Educational Planning,” Thematic Priorities, IIEP-UNESCO, <https://www.iiep.unesco.org/en/our-expertise/crisis-sensitive-educational-planning>.

22. “Preparation of Strategic Plans,” Our Expertise, IIEP-UNESCO, undated, <https://www.iiep.unesco.org/en/our-expertise/preparation-strategic-plans>; IIEP-UNESCO, *Conflict-Sensitive and Risk-Informed Planning in Education*.

23. Global Alliance for Disaster Risk Reduction & Resilience in the Education Sector (GADRRRES), *Comprehensive School Safety Framework 2022–2030 for Child Rights and Resilience in the Education Sector*; Inter-agency Network for Education in Emergencies (INEE), *Minimum Standards for Education: Preparedness, Response, Recovery*.

24. GADRRRES, *Comprehensive School Safety Framework 2022–2030 for Child Rights and Resilience in the Education Sector*.



COUNTRY EXAMPLES

After creating risk profiles and hazard maps for 10 regions and the capital of **Guyana**, the Ministry of Education analyzed risks comprehensively as well as existing capacities, developing the National Risk Management Policy for the Education Sector with technical support from IIEP-UNESCO and UNICEF. The policy aims at building education sector resilience, saving lives and protecting rights to education. It involves a number of disaster management and protection measures, such as proper maintenance of schools, up-to-date teacher rosters, and hazard-resilient storage equipment for teaching and learning materials. The policy also pays specific attention to the most vulnerable learners: for example, the teacher training curriculum will incorporate Indigenous and foreign languages to support students from Indigenous, refugee or migratory backgrounds.^a

After analyzing both conflict and disaster risk in the education sector, **Burkina Faso's** Ministry of National Education and Literacy developed the National Education in Emergencies Strategy, including risk reduction measures as part of its 10-year Programme for the Strategic Development of Basic Education.^b

Nepal has developed a set of implementation guidelines for a comprehensive school safety policy, including more than 30 planning and implementation tools and guides to build education sector resilience in the face of multiple hazards. The guide to making school emergency evacuation plans outlines a 12-step process, including drawing or acquiring floor plans, and identifying and mapping evacuation routes, assembly points and safe places. There is also a dedicated guide with considerations for safely evacuating people with disabilities, including wheelchair users, students with visual or hearing impairments, and students with intellectual disabilities.^c

- a. Ministry of Education, Guyana, *National Risk Management Policy for the Education Sector in Guyana*; Education4Resilience, "Managing Risks in Guyana's Education Sector."
- b. MacEwen and Chimier, *Burkina Faso: Integrating Conflict and Disaster Risk Reduction into an Education Sector Plan*; IIEP-UNESCO, *Conflict-Sensitive and Risk-Informed Planning in Education*.
- c. Ministry of Education, Science and Technology, Nepal, *Comprehensive School Safety Implementation Guidelines 2075*.

and other education personnel, and education policy), each with guidance notes and lists of key actions. It is also important that national education plans and policies reflect education's role in climate action. According to a 2021 UNESCO study of a geographically diverse group of 46 countries, 92 percent of the education sector plans and national curriculum frameworks included at least one reference to environment-related keywords (for example, *environmental, ecosystem, biodiversity, climate change, sustainable development*) but the "depth of inclusion was very low on average."²⁵ Glob-

al frameworks such as [Education for Sustainable Development \(ESD\) for 2030](#) can inform efforts to strengthen education's contribution to climate action. ESD covers interlinked aspects of the climate crisis across three pillars of sustainable development—social, economic and environmental. It aims to empower "learners with knowledge, skills, values and attitudes to take informed decisions and make responsible actions for environmental integrity, economic viability and a just society empowering people of all genders, for present and future generations, while respecting cultural diversity."²⁶

25. UNESCO, *Learn for Our Planet*.

26. UNESCO, *Education for Sustainable Development*.



COUNTRY EXAMPLES

A climate change–focused curriculum policy is emerging through a UN CC:Learn partnership in **13 countries** (Benin, Burkina Faso, Dominican Republic, Ethiopia, Ghana, Indonesia, Kenya, Kyrgyz Republic, Malawi, Niger, Uganda, Zambia and Zimbabwe).^a Each country has developed national climate change learning strategies that identify strategic priorities and actions for improving climate–related learning and developing skills for climate change.^b For example, the Climate Change Education Strategy of Ethiopia 2017–2030 includes two priority actions: (1) raising awareness of climate change education and (2) facilitating the integration of climate change education in the curriculum at all levels of formal education. Interventions to achieve this goal range from the development of climate change–specific teaching and learning materials that best fit local contexts to capacity building and training for teachers and access to school environmental clubs.^c

Namibia has developed a national policy to support environmental education and education for sustainable development in formal, nonformal and informal education processes across all sectors in the country. The National Environmental Education and Education for Sustainable Development Policy, which envisions “an educated and empowered Namibia with environmentally literate people taking responsibility and action for a sustainable future,” details 11 concrete strategies ranging from responsible citizenship action and curriculum development to pedagogical innovations and establishment of centers of expertise in environmental education.^d

a. Started in 2009, UN CC:Learn (formally, The One UN Climate Change Learning Partnership) is a collaborative initiative of UN agencies working to support countries in building capacities of learning to address climate change and related development challenges.

b. “Country Projects,” UN CC:Learn (One UN Climate Change Learning Partnership), undated, <https://www.uncclearn.org/country-projects/>.

c. Ethiopia, *Ethiopia’s Climate Resilient Green Economy*.

d. Ministry of Environment, Forestry and Tourism, Namibia, *National Environmental Education and Education for Sustainable Development Policy*.

2.2.2. Strengthening the Role of Education in Climate Change, Disaster Risk and Environmental Policies and Strategies

National planning documents on climate and disasters, such as national disaster risk reduction plans, as well as Nationally Determined Contributions (NDCs), National Adaptation Plans (NAPs), National Biodiversity Strategies and Action Plans (NBSAPs) and other national environmental strategies provide a platform to better incorporate the roles and contributions of the education sector. Education should be recognized as a priority sector in climate change–related efforts and key documents should specify the role and contribution of the ministry of education and the education sector.

National disaster management and environmental plans and policies are generally prepared by a ministry in charge of environment or climate, or a national disaster risk/management authority. These typically reflect guidance provided in the [Sendai Framework for Disaster Risk Reduction](#), which focuses on understanding disaster risk, strengthening disaster risk governance, investing in disaster risk reduction and enhancing preparedness.²⁷ While more than 70 percent of surveyed disaster management policies refer to the education sector, the reference is usually a passing one.²⁸ Given the role of education in disaster risk reduction and preparedness—for example, through school safety planning—the link between these planning frameworks and education’s role should be strengthened. Systematic research focusing on how the education sector is considered in

27. UNDRR, *Sendai Framework for Disaster Risk Reduction 2015–2030*.

28. Paci-Green et al., “Comprehensive School Safety Policy: A Global Baseline Survey.”

national environmental plans is lacking in low-income countries despite these plans offering another entry point for making the interconnectedness of education and environment explicit.

NDCs represent country commitments to reducing greenhouse gas emissions and adapting to climate change, ensuring high-level commitment and implementation at all levels, local to national. Each government specifies their contribution and priorities based on local climate risks and impacts, livelihoods and economies, critical public infrastructure, laws and strategies, and other key contextual factors. One or more national ministries will generally lead the development of their NDC, but many governments invite different constituencies to take part in defining priorities (for example, the private sector, civil society, academia). However, the role and contribution of the education sector remain largely unrecognized in the NDCs,²⁹ despite the important role education could play in decarbonization efforts.

NAPs consist of each country's strategies and programs to address their medium- and long-term climate adaptation needs and to enhance adaptive capacity and

resilience. However, there is little consistency in NAPs in referencing education.³⁰ This is notable given the education sector's vulnerability to climate change impacts, and that the sector also plays an important social protection role and touches nearly all communities in any country. Despite similarities, interconnections and overlapping concerns between climate change adaptation and disaster risk reduction, policy alignment of these two fields is often lacking. This is due to differences arising from separate international and national institutional structures and parallel funding lines, among other factors.³¹ The ministry of education needs to engage with relevant line ministries to better harmonize education-related policies arising from overall national development goals.

Gender equality is an important consideration for policies and plans on climate change and disaster risk, including regarding the role of education in advancing gender equality. Different guidance tools exist to strengthen the analysis and inclusion of gender equality in NDCs and NAPs, including providing recommendations on gender-responsive policy alignment.³² A stronger emphasis on the role of gender-transformative education could positively contribute to mitigation and adaptation goals.

29. Kwauk, *The Climate Change Education Ambition Report Card*; Pegram and Colon, *Are Climate Change Policies Child-Sensitive? A Guide for Action*; UNICEF, "Making Climate and Environment Policies for & with Children and Young People."

30. Among the 13 NAPs available online in August 2022, 10 documents available in English were reviewed (see "National Reports with Adaptation Information," UNFCCC, <https://www4.unfccc.int/sites/NAPC/Pages/NationalReports1.aspx>).

31. International Federation of Red Cross and Red Crescent Societies (IFRC), *Literature Review on Aligning Climate Change Adaptation (CCA) and Disaster Risk Reduction (DRR)*.

32. See, for example, UNDP, *Gender Analysis and Nationally Determined Contributions (NDCs)*; and UNDP, *Gender Equality in National Climate Action*.



COUNTRY EXAMPLES

Cambodia's updated Nationally Determined Contribution strategy is a model of excellence in that it clearly articulates education's contributions to climate action under the leadership of the Ministry of Education, Youth and Sports. Education-specific actions include climate change integration into primary school and nonformal education curricula, developing climate-resilient school infrastructure and mainstreaming climate change into the Education Strategic Plan 2019–2023 and the SDG 4 Roadmap for Education 2030. It also recognizes the active role of young people in climate action.^a

In **Suriname**'s National Adaptation Plan 2019–2029, education and health are referred to as “foundational” sectors that are considered to be crucial for building resilience in other sectors. Proposed adaptation measures for the education sector include incorporating climate change into primary, secondary, tertiary and vocational education curricula as well as making school infrastructure climate resilient by addressing climate change impacts such as flooding, drought and extreme weather events.^b

In the **Philippines**, the Graduation Legacy for the Environmental Act went into effect in May 2019, aiming to ensure a healthy ecosystem and cultivate socially responsible and conscious citizenship among young people. All graduating primary, secondary and tertiary students must plant at least 10 trees each to graduate. The Ministry of Education is responsible for implementing this new measure, working closely with other ministries such as the Department of Environment and Natural Resources.^c

- a. General Secretariat of the National Council for Sustainable Development/Ministry of Environment, Cambodia, *Cambodia's Updated Nationally Determined Contribution* (Phnom Penh, 2020), https://unfccc.int/sites/default/files/NDC/2022-06/20201231_NDC_Update_Cambodia.pdf.
- b. Suriname, *Suriname National Adaptation Plan (NAP) 2019–2029* (Paramaribo, 2019), https://www4.unfccc.int/sites/NAPC/Documents/Parties/Suriname%20Final%20NAP_apr%202020.pdf.
- c. House of Representatives, Philippines, “House Green-lights Bill Requiring All Graduating Students to Plant 10 Trees Each.”

2.2.3. Assessing Progress

Monitoring and evaluating the implementation and impact of education sector plans in relation to their effectiveness in advancing climate change adaptation, mitigation and sustainability will help build an understanding about what works in developing a climate-smart education system. To assess progress toward climate-smart education systems, criteria-

ria-based progress assessment tools could be developed and embedded in education sector monitoring. The recent UNICEF South Asia climate change and education study includes such a tool, outlining system-wide standards and progress indicators to help ministries of education and their partners assess whether the education system is moving toward increased climate change responsiveness.³³

33. Kagawa, *Towards Climate Resilient Education Systems*.

POLICY AND PLANNING: ACTION POINTS

- Build capacities of education planners at central and subnational levels on climate-sensitive education analysis, planning, management and monitoring.
- Integrate climate change, disaster risk and environmental considerations and goals in education sector plans, policies and strategies.
- Make education a priority sector in climate change efforts and specify the role and contribution of the ministry of education and the education sector in key national climate change policy and strategy documents (for example, NDCs, NAPs).
- Recognize the disproportionate impacts of climate-driven crises on the most vulnerable, including girls. Ensure that policy making processes are responsive to these impacts and give voice to both girls and boys, women, Indigenous and minority communities, and those with special needs.
- Monitor and evaluate the implementation and impact of education sector plans in relation to their effectiveness in advancing climate change adaptation, mitigation and sustainability.

Recommended focus areas to fill knowledge gaps:

- Strengthen the evidence base on how and to what extent education for sustainable development has been integrated into education sector plans and policies in lower-income countries.
- Elaborate on the articulation of education sector plans and policies with climate and disaster risk plans and strategies such as national disaster risk reduction plans, NDCs, NAPs, National Biodiversity Strategies and Action Plans (NBSAPs) and other environmental strategies.
- Support the development of education-specific modules in the methodologies that support climate sector assessment and planning exercises.
- Examine how national environmental policies of lower-income countries consider education.

2.3. Coordination

To strengthen education sector leadership in climate and environmental action, ministries of education should proactively participate in national climate change decision making and coordination platforms while enhancing their cross-sectoral collaboration and partnerships. Existing education sector coordination mechanisms also need to be enhanced to better address the needs and rights of crisis-affected children. Different stakeholders and initiatives at different levels should be connected in a synergistic and purposeful way. Strong accountability mechanisms enacted in national systems and embedded in implementation approaches are critical in the success of policies and programs to ensure safety, sustainability and the realization of basic rights such as education, particularly for the most vulnerable.

2.3.1. Interministerial and Cross-Sectoral Coordination and Collaboration

There should be enhanced interministerial collaboration and coordination to support better planning, implementation and data management across the education sector in response to the interconnected climate and environmental impacts. This should involve the education ministry and the ministries responsible for climate change, environment and disaster management as well as other relevant ministries (for example, health, social protection, women, agriculture, water, energy). A number of countries have established

interministerial commissions and/or inter-institutional coordination mechanisms on climate action at a high level.³⁴ Many countries have also established national disaster management coordination mechanisms. It is important that the ministry of education is represented in such decision making and coordination platforms so that education needs, priorities and contributions are represented and shared, and so that sector views inform overall national plans and actions on climate change and disaster management. This engagement will in turn help alert the ministry of education to the latest national contexts and developments concerning climate change and disaster management.



COUNTRY EXAMPLE

In the **Kyrgyz Republic**, which is highly vulnerable to climate change risk, the Coordination Commission of Climate Change Problems ensures multisector coordination. Convening ministries, agencies and organizations, the commission ensures mainstreaming of climate change considerations in national, social, economic and environmental policies, and coordinates all related actions (for example, legislation, strategic documents and projects, capacity development, awareness raising). This has generated plans and programs in several vulnerable sectors, including education, agriculture, energy, water, public health, forestry and biodiversity.^a In addition, the Ministry of Education and Science collaborated with the Ministry of Emergency Situations and jointly approved the Roadmap on Scaling Up DRR in Educational Institutions and an action plan for the period 2021–25. The government and development partners are using data from the assessment by engineers of more than 3,000 schools and preschools on risk vulnerability and safety to mobilize resources in support of school and preschool rehabilitation and reinforcement. Children, teachers and parents are trained to understand and manage risks and learn how to respond in case of emergencies like floods, landslides or earthquakes.^b

- a. Kyrgyz Republic, *Climate Investment Programme: Operational Framework for Managing and Accessing Climate Finance in the Kyrgyz Republic*.
- b. For more information on the Disaster Risk Reduction Program, see UNICEF Kyrgyz Republic, <https://www.unicef.org/kyrgyzstan/disaster-risk-reduction>.

34. UNFCCC, *Climate Action and Support Trends*.

2.3.2. Education Sector Coordination and Collaboration

In the face of climate-induced crises, especially when these happen in countries affected by fragility and conflict, a more coherent, joined-up approach between humanitarian and development coordination mechanisms is critical.³⁵ Humanitarian and development coordination mechanisms within the education sector include the education cluster, focused on humanitarian responses; refugee education working groups, coordinating education of refugee children and youth; and

government-led local education groups,³⁶ focused on broader education sector development. Harmonized humanitarian and development coordination in the education sector not only helps strengthen the quality of education in emergencies response, but also makes the national education system more crisis sensitive by integrating considerations of crisis-affected children and youth in national education planning and monitoring. In some countries, this is facilitated through a dedicated unit to increase greater coordination to address overlapping issues of climate change, disaster risk, education in emergencies and environmental degradation.



COUNTRY EXAMPLES

Niger is considered the country most vulnerable to climate change, and it is highly exposed to droughts and floods as well as conflict.^a The education cluster fulfills an important coordination role in responding to acute needs and in leading the country's emergency response strategy,^b which calls for specific interventions such as a safe school campaign and resilience program. The education cluster is also a member of the local education group, which enables complementarities between sector development and emergency response strategies. The local education group has, for instance, facilitated inclusive multi-stakeholder dialogue for the development of the transitional education plan,^c which acknowledges climate change risks and aligns with a national strategy for reducing vulnerabilities in the education system.^d The local education group has also benefited from Education Cannot Wait funding,^e linking it with existing national policies.

In **Pakistan's** Khyber Pakhtunkhwa province, a dedicated unit established within the Directorate of Elementary and Secondary Education—the School Safety Cell—plays a pivotal role in coordinating, facilitating and strengthening school safety, disaster risk reduction and climate change resilience building across the province. The School Safety Cell also served as the focal unit for COVID-19 pandemic response in the province.^f

a. "Country Rankings, scores for 2020," ND-GAIN Country Index (database), Notre Dame Global Adaptive Initiative, <https://gain.nd.edu/our-work/country-index/rankings/>.

b. Education Cluster, Niger, *Stratégie du cluster éducation du Niger sur l'éducation en situations d'urgence, 2021–2023*.

c. Niger, *Plan de transition du secteur de l'éducation et de la formation 2020–2022*.

d. Ministry of Primary Education, Literacy, Promotion of National Languages, and Civic Education, Niger, *Stratégie nationale de réduction de la vulnérabilité du système éducatif aux risques de conflits et de catastrophes naturelles au Niger*.

e. Education Cannot Wait (ECW), *ECW Multi-Year Resilience Programme: Niger*.

f. Kagawa, *The Heat Is On! Towards a Climate Resilient Education System in Pakistan*.

35. Global Education Cluster, INEE (Inter-agency Network for Education in Emergencies), and UNHCR (United Nations High Commissioner for Refugees), *Education in Emergencies Coordination*; Nicolai et al., *Strengthening Coordinated Education Planning and Response in Crisis*.

36. Alternative names are also used, for instance, education sector development committee, joint education sector working group, education technical working group, education sector plan consortium.

2.3.3. Accountability

Without strong accountability mechanisms, policies and programs to address climate and education needs will continue to fall short. It is critical to establish effective feedback loops between affected populations and those authorities and institutions tasked with ensuring safety, sustainability and the realization of basic rights such as education. Underpinning efforts to ensure accountability for commitments to climate-smart education is the need for transparency, civic participation and social mobiliza-

tion, articulated with accountability mechanisms embedded in national public systems. Civil society organizations can play a strong role in monitoring policy implementation, service delivery and threats to their local natural environments. They can help amplify the voices of vulnerable populations, parents, teachers, children and youth to ensure that their needs are surfaced and addressed. At an institutional level, grievance redress mechanisms can be used to ensure violations of environmental and social safeguards are reported and dealt with.

COORDINATION: ACTION POINTS

- Ensure that the ministry of education actively engages in high-level multisectoral platforms on climate, disaster risk and environmental action.
- Develop clear and functional communication and coordination mechanisms between education authorities, authorities responsible for climate change, environment and disaster management as well as other relevant ministries and agencies.
- Ensure joined-up coordination between education sector humanitarian and development coordination mechanisms.
- Encourage civil society to monitor policy implementation, service delivery and threats to local natural environments to boost accountability.

Recommended focus areas to fill knowledge gaps:

- Explore education system benefits and lessons from interministerial and cross-sectoral coordination practices around climate change mitigation and resilience strategies to create awareness and more examples of good practice in support of peer learning across countries.
- Gather and share country cases of collaboration at the humanitarian-development nexus in the context of climate-induced disasters and displacement.

2.4. Finance

Given the co-benefits of investing in education and climate, international climate financing may help advance objectives across both areas by targeting resources to finance climate adaptation and sustainability in the education sector. Domestic financing can be mobilized to support the education system to be more climate responsive and to also contribute to climate development goals. To mainstream climate actions across education spending, the education community needs to strengthen the case for and ensure the efficiency of climate-related spend in the sector. Given disproportionate impacts of climate change on the most vulnerable, equitable financing mechanisms are necessary, targeting the children, schools and regions most affected by the climate crisis.

2.4.1. Financial Resource Mobilization

Investment in the national education system is a critical condition for providing quality education for all. However, in lower-income countries the current levels of government spending for education fall short of the level required to achieve existing education targets.³⁷ This means that securing finance to make the education system more climate responsive is a challenging task for education authorities. In low- and lower-middle-income countries, about two-thirds of resources for education are financed from domestic public sources.³⁸ This highlights the vital importance of galvanizing domestic finance in a sustainable manner in support of efforts to make the education system more climate change responsive. Improving the tax base and reforming overall financial governance and public finance management are important ways forward that can unlock additional public funding for both education and climate.

There is a growing interest in investing in climate action in the education sector from multilateral and bilateral donors and international financial institutions, as well as the private sector, foundations, philanthropies and nongovernmental organizations.³⁹ However, bilateral official development assistance (ODA) at the intersec-

tion of education and climate change overall seems to be a small fraction of total education spending.⁴⁰ There is also the potential to unlock international climate funding, thus enabling education to deliver sustainable development outcomes and advance climate adaptation. While climate-related ODA increased from 21.7 percent in 2013 to 33.4 percent in 2020, education makes up less than 1.3 percent of this amount.⁴¹ Key multilateral public climate finance mechanisms aligned with the United Nations Framework Convention on Climate Change (UNFCCC) processes and its Kyoto Protocol are the Green Climate Fund, the Adaptation Fund and funds administered by the Global Environmental Facility. These present an opportunity for cofinancing by education, climate, humanitarian and development funds to support national education system responses to climate change and environmental degradation.

Disaster risk financing could be another potential avenue for helping education systems be equipped with financial instruments to respond to climate change-induced disruptions in a timely manner and to safeguard education continuity. Risk financing involves insurance markets quantifying a particular risk and insuring the loss based on pre-agreed data and payout amounts tied to the severity or magnitude of the particular risk

37. World Bank and UNESCO, *Education Finance Watch 2021*; World Bank and UNESCO, *Education Finance Watch 2022*; United Nations, "Thematic Action Track 5: Financing of Education."

38. "Domestic Financing," What We Do, Global Partnership for Education, 2022, <https://www.globalpartnership.org/what-we-do/domestic-financing>.

39. UNESCO and UNFCCC, Action for Climate Empowerment; Foreign, Commonwealth & Development Office (FCDO), Learning Climate.

40. Donor Tracker, *Funding Climate Change Adaptation: Tools for Advocates on the Road to COP26*; The Baseline, DT Toolkit.

41. The year 2020 is the latest for which the Organisation for Economic Co-operation and Development (OECD) [Creditor Reporting System database](#) has full data. All numbers are based on data on bilateral ODA from Development Assistance Committee (DAC) countries.



COUNTRY EXAMPLE

The Adaptation Fund, established in 2010 to finance adaptation projects in developing countries that are parties to the Kyoto Protocol and are particularly vulnerable to the adverse effects of climate change, is supporting a school facilities project in **Haiti**. Approved in early 2022, this project aims at improving national knowledge concerning the exposure and vulnerability of school facilities, retrofitting selected schools, and enhancing capacities and levels of awareness of local populations and civil protection stakeholders on risk management, among other things.

Source: Adaptation Fund, *Implementing Measures for Climate Change Adaptation and Disaster Risk Reduction Mitigation of School Facilities in Haiti*.

event. Examples of risk financing from other sectors include the Disaster Risk Financing and Insurance Program, a joint initiative of the World Bank and the Global Facility for Disaster Reduction and Recovery, which supports governments to implement financial protection strategies and brings together sovereign disaster risk financing, agricultural insurance, property catastrophe risk insurance, and scalable social protection programs.

2.4.2. Equitable and Efficient Finance

As climate change disproportionately impacts those who are most marginalized and is likely to exacerbate existing disparities, equitable finance in education becomes even more salient. For example, declining household income because of climate change impacts becomes a disincentive for economically struggling families to send their children, especially girls, to school.⁴² Climate-driven displacement calls for mobilizing resources to meet the particular education needs of displaced children, refugee children and children in host communities.⁴³ Approaches such as in-kind transfers targeting the most disadvantaged students and their families can make an important contribution to ensuring quality education provision for all in the face of crises. School-feeding programs as well as conditional or unconditional cash transfers through social programs with an educational

component are promising interventions for incentivizing and maintaining children's participation in schooling.⁴⁴ Current education sector policy thinking and practice in lower-income countries are yet to intentionally link equitable finance mechanisms in education with climate and environmental considerations.

Agreement is needed on what falls under climate financing in the education sector, in line with national climate change policies and strategies, and similarly for education-related activities in climate budgets. Clear definitions allow policy makers to estimate, allocate and monitor the proportion of allocations in education budgets that are climate change responsive. Furthermore, green or sustainable procurement is an area with potential: public purchases of goods and services can be oriented in a way that achieves value for money and promotes positive outcomes for the environment.

Acting in a climate-smart way has the potential to improve the value for money of education interventions. For example, constructing or retrofitting schools to be resilient to known climate shocks can prevent the need for rebuilding them down the line, thus providing potential cost savings in the medium term. However, this needs further analysis as more becomes known about the cost of different interventions and their relative benefits in the longer term.

42. Chigwanda, *A Framework for Building Resilience to Climate Change through Girls' Education Programming*; World Bank and UNESCO, *Education Finance Watch 2021*; World Bank and UNESCO, *Education Finance Watch 2022*.

43. United Nations, *Global Compact on Refugees*; United Nations, "Thematic Action Track 5: Financing of Education."

44. Global Education Monitoring Report Team, "How Committed? Unlocking Financing for Equity in Education."



COUNTRY EXAMPLE

In **Bangladesh**, following the establishment in 2009 of a comprehensive national climate change mitigation and adaptation strategy, the Bangladesh Climate Change Strategy and Action Plan (BCCSAP), the government created the Climate Change Trust Fund sourced by its own revenues to finance programs falling within the scope of the BCCSAP. The Climate Fiscal Framework, adopted in 2014 and updated in 2020, helps to embed climate change considerations in the country's fiscal management systems and proposes a climate-expenditure tracing framework. Supported by the UNDP's Inclusive Budgeting and Financing for Climate Resilience Project, the Ministry of Finance has so far published five annual climate change budget reports, with the last three reports covering analysis of the financial resource allocations and expenditures of 25 ministries and divisions, including the Ministry of Primary and Mass Education and the Secondary and Higher Education Division. A reader-friendly version of the climate budget report, Citizen's Budget Report, is also available.

Source: Ministry of Environment and Forests, Bangladesh, *Bangladesh Climate Change Strategy and Action Plan 2009*; Ministry of Finance, Bangladesh, *Climate Financing for Sustainable Development: Budget Report 2021–22*; "Inclusive Budgeting and Financing for Climate Resilience (IBFCR)," Projects, UNDP Bangladesh, 2022, <https://www.undp.org/bangladesh/projects/inclusive-budgeting-and-financing-climate-resilience-ibfcr>.

FINANCE: ACTION POINTS

- Mobilize domestic finance in a sustainable manner in support of efforts to make the education system more climate change responsive—for example, improving the tax base and reforming overall financial governance and public finance management for both education and climate benefits.
- Draw in international climate funding to the education sector and make greater use of disaster risk financing in the sector.
- Make the case for and raise awareness among key government personnel at both national and subnational levels about the benefits of financing climate change mitigation and adaptation activities in the education sector, including increasing education's share in the NDCs.
- Develop or strengthen existing equity-based financing mechanisms.
- Have a clear definition of climate-related financing in education budgets and education-related financing in climate budgets, which is crucial for policy makers to estimate, allocate, and monitor budget spending and analyze efficiencies.

Recommended focus areas to fill knowledge gaps:

- Identify win-wins for financing climate adaptation, environmental health and learning outcomes—for example, building the evidence base on how climate-smart approaches can improve value for money of education investments.
- Clarify trade-offs and prioritization between investments in light of availability of resources.

2.5. Infrastructure

Both new and existing school infrastructure should integrate climate change adaptation and sustainability considerations into planning, design, construction and maintenance, ensuring a protective, healthy and inclusive learning environment for all students while minimizing the environmental footprint of infrastructure. School and community stakeholders should play an active role in making decisions about and maintaining the school infrastructure to ensure it becomes safer and greener.

2.5.1. School Location, Design and Construction

Schools are normally built to last for several decades. It is imperative that new school buildings are planned, designed, constructed and maintained taking into consideration known hazards and projected climate change trends. With respect to existing school buildings, it is important to take proactive measures to reduce vulnerability to hazards and adapt to the changing climate.

There should be an up-to-date regulatory framework

including building codes, local building bylaws and other legally binding stipulations as well as minimum performance standards and guidance for public buildings, including schools, to ensure safe, healthy, inclusive and environmentally sustainable living and learning environments. The regulatory framework and guidance documents need to enshrine the latest understandings of hazard and risk and include monitoring and enforcement mechanisms.⁴⁵ Infrastructure also needs to meet gender-responsive and disability-inclusive guidelines for school infrastructure.



COUNTRY EXAMPLES

The Decree of Resilience Building Standards of Schools launched by the government of **Mozambique** in 2022 recognizes repeated and serious destruction wrought on school buildings by increasingly frequent and intense climatic events. The decree insists on compliance with climate resilience standards for all new and existing schools in the country, and it is to be integrated into national frameworks on public social infrastructures with enforcement mechanisms.^a

In **Bangladesh**, through the Climate Resilient Infrastructure Mainstreaming Project supported by the Green Climate Fund, 45 new cyclone shelters are currently under construction and 20 existing shelters are being renovated in the country's most vulnerable coastal districts. These shelters are used as primary schools in normal times, offering 45 additional schools and supporting the education of 18,590 children.^b

a. UN HABITAT, "Mozambique Launches Decree to Enforce School Buildings Be Climate Resilient."

b. "FP004: Climate Resilient Infrastructure Mainstreaming (CRIM)," Projects & Programmes, Green Climate Fund, undated, <https://www.greenclimate.fund/project/fp004#overview>.

45. GADRRRES, *Comprehensive School Safety Framework 2022–2030 for Child Rights and Resilience in the Education Sector*; UNEP, *A Practical Guide to Climate-Resilient Building & Communities*.

School location is one of the key factors in determining school safety. Advances in technology such as geographical information systems have improved selection of school locations by helping maximize equitable education access. These systems can be purposefully extended to climate-smart site selection to minimize climate risks to education and conversely to protect the environment.⁴⁶ The use of technology for school site selection should be complemented by detailed on-site assessment involving students, teachers, community members/leaders and relevant government authorities.

Often the strongest infrastructure in a community, school buildings commonly serve as shelters immediately following, and sometimes long after, disasters. Schools should only be used as temporary shelters when there are no suitable alternatives.⁴⁷ Prior identification of non-school locations for shelters increase the likelihood that schools remain solely as educational institutions.⁴⁸ In hazard-prone areas where schools have been identified as the only possible location for shelters, they should be designed, built or retrofitted for both educational and shelter functions, considering the emergency profile of a given location and the minimum structural performance standards for immediate occupancy.⁴⁹

In instances where schools are planned for and designed or retrofitted as shelters, continuity of edu-

cation and child safety should be maintained. Ideally, in-person schooling should not coincide with using the building as a shelter. If this can't be avoided, there should be physical separation between the places used as shelter and where children are in the school building as learners. Within the planning for the dual use of schools for education and shelter functions, the safety of the educational community—particularly children—should be prioritized. Adequate risk management must be exercised to prevent any new and serious threats to the educational community that may arise from shelter activities.⁵⁰

There should be a clear plan for when the school building will be returned to a solely educational establishment, including refurbishment of the infrastructure so it is in an acceptable state for in-person schooling.⁵¹

The built school environment can play an important role in strengthening sustainability. The use of renewable and clean energy (for example, solar) in tandem with energy efficiency and conservation is a key climate change mitigation measure that schools can take up. Many schools in sub-Saharan Africa and southern Asia rely on firewood and charcoal for cooking school meals. This practice contributes to deforestation, greenhouse gas emission and air pollution. Modern and clean cooking solutions include using solar-powered electric cookers.

46. Kazemi et al., "A Guidance Note on Climate-Smart School Construction Planning."

47. GADRRRES, *Comprehensive School Safety Framework 2022–2030 for Child Rights and Resilience in the Education Sector*.

48. Central American Educational and Cultural Coordinator (CECC), *Safe Schools in Safe Territories*.

49. UNICEF, *Child Friendly Schools Manual*; GADRRRES, *Comprehensive School Safety Framework 2022–2030 for Child Rights and Resilience in the Education Sector*.

50. CECC, *Safe Schools in Safe Territories*.

51. CECC, *Safe Schools in Safe Territories*.



COUNTRY EXAMPLES

In **Pakistan**, more than 12,000 government schools in Punjab and Khyber Pakhtunkhwa provinces now enjoy clean and reliable electricity thanks to rooftop solar panel installation with support from the Access to Clean Energy Investment Program. The improved learning environment has led to increased school enrollment as well as significant savings on utility bills.^a

Since 2017, working closely with the government of **Malawi**, UNICEF has constructed or rehabilitated 64 solar-powered water systems to provide safe and sustainable piped water for 40 schools, 24 health care facilities and 64 communities in 11 districts. Each water system serves a community and either a school or health care facility, or both. The design of the water systems factored in climate and disaster risk (for example, choosing sites with minimal flood risk, protecting the water source from being flooded). These systems have significantly increased the availability and reliability of water supply, improved hygiene conditions both at home and school, and increased student attendance, especially girls. Compared with diesel-powered water systems, the solar-powered water systems are more cost effective over the estimated life cycle of 25 years and have no carbon emissions.^b

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- a. Asian Development Bank (ADB), *Powering Pakistan's Schools through Solar Energy*.
 b. UNICEF, *Scaling-Up Climate Resilient Sustainable Solar-Powered Systems for Institutions and Communities in Rural Malawi*; UNICEF, *Global Annual Results Report: Goal Area 4*.

Sourcing school construction materials locally has a number of advantages, including reduction in transportation energy and costs as well as easier access to the materials for necessary repairs and maintenance after construction. Priority should be given to sustainably produced or locally sourced materials, ensuring that the extraction of materials does not contribute to the

deterioration of local ecosystems.⁵² To reduce teacher and student exposure to excessive heat while at school, measures taken to passively cool school buildings can include painting building facades in white or light colors, providing adequate ventilation (natural ventilation, ceiling fans), planting trees for shade and installing green or living roofs.



COUNTRY EXAMPLES

In **Côte d'Ivoire**, more than 260 new classrooms have been built using plastic bricks—helping to address educational, environmental and social challenges simultaneously. Through this innovative initiative, UNICEF Côte d'Ivoire in partnership with Colombian social enterprise Plásticos is tackling the lack of classrooms, plastic pollution and poverty by building new and clean classrooms using bricks made of recycled plastic waste collected from highly polluted areas in and around Abidjan by vulnerable local women. It takes only a few weeks to construct a classroom, and the temperature in the plastic brick-built classrooms is lower than that of classrooms built with conventional building materials. These classrooms are also designed to ensure natural air flow.

Source: "A Future for Every Child by Beating Plastic Pollution: The Côte d'Ivoire Project; Turning Plastic Waste into Materials for Building Classrooms," UNICEF Côte d'Ivoire, undated, <https://www.unicef.org/cotedivoire/en/future-every-child-beating-plastic-pollution>; United Nations, "Easing 'Classroom Crisis' in Côte d'Ivoire, Brick by (Plastic) Brick."

52. UNEP, *A Practical Guide to Climate-Resilient Building & Communities*.

2.5.2. School and Community Engagement in School Infrastructure

It is important to engage local communities in the different stages and aspects of school infrastructure development. Their engagement promotes a sense of community ownership of the school and provides opportunities for capacity building and awareness

raising for safety, disaster risk reduction and ecological sustainability. The built school environment also offers learning opportunities for students. For instance, through engaging with school gardens, students can learn and practice environmental conservation and sustainable agriculture techniques. School gardens can also provide nutritious food for the students.



COUNTRY EXAMPLES

Slow Food launched the 10,000 Gardens in Africa project in 2011, aiming to create “good, clean and fair” food gardens in **African schools and communities**, to teach youth about importance of food biodiversity and to ensure community access to healthy and fresh food. Slow Food gardens are designed, created and run by the local communities. They offer “open-air classrooms” where children can learn in an interactive and entertaining way about traditional varieties of plant species, sustainable soil management, seed saving and judicious use of water resources. Students are encouraged to teach their parents about what they have learned, thereby spreading sustainable cultivation techniques to the community. The harvest from school gardens is used to supplement school meals and is sometimes sold, with the income helping schools to buy school materials or garden equipment. As of September 2022, more than 3,500 Slow Food gardens were active across Africa.

Source: “Slow Food Gardens in Africa,” What We Do, Slow Food Foundation for Biodiversity, undated, <https://www.fondazione Slow Food.com/en/what-we-do/10-000-gardens-in-africa-2/>.

INFRASTRUCTURE: ACTION POINTS

- Establish an up-to-date regulatory framework for school infrastructure together with dissemination, training and enforcement mechanisms.
- Ensure that infrastructure considerations meet the gender-responsive and disability-inclusive guidelines for school infrastructure.
- Choose school locations for new buildings that are safe from natural hazards and protect the environment.
- Consider using renewable and clean energy (for example, solar) solutions, where possible, to increase energy efficiency and conservation.
- Priority should be given to sustainably produced or locally sourced materials, ensuring that the extraction of the materials does not contribute to the deterioration of local ecosystems.
- Ensure school and community stakeholder participation in the different stages and aspects of school infrastructural development and also consider the availability of learning opportunities that use the built school environment (for example, food gardens).

Recommended focus areas to fill knowledge gaps:

- Learn lessons from countries where planned school relocations due to climate and disaster risks have been implemented.
- Catalogue what climate-resilient school infrastructure and facilities should look like in the short, mid and long term set against a projected range of climate change scenarios, and investigate the most cost-effective options according to specific hazard exposures.

2.6. Teaching and Learning

The formal curriculum—delivered through the grade levels and across all subjects—is an entry point to empower students as change agents and advocates who can critically and constructively engage with issues of climate change and environment. Teachers likewise need to be supported in their role to apply quality pedagogies and standards to enable relevant, engaging and inspiring climate education and climate-sensitive student behaviors and practices.

2.6.1. Curriculum Content and Learning Outcomes

Facing the deepening climate crisis calls for learning that addresses the multifaceted and dynamic nature

of climate and environmental change, that covers its social, political, economic, environmental, cultural and ethical dimensions. A UNESCO study reveals that nearly half (47 percent) of 100 countries' national curriculum

frameworks reviewed made no reference to climate change.⁵³ Historically, student exposure to issues of climate change and disaster risk reduction has tended to be located in science and geography curricula mainly at the secondary school level. It is now widely appreciated that scientific knowledge alone does not bring about necessary attitudinal and behavioral change and resultant readiness for collective action.⁵⁴ There is a growing realization that all subjects have a contribution to make in developing critical understanding of the root causes, effects and solutions to the global climate crisis, and therefore integration needs to be reinforced across the curriculum in an interdisciplinary manner.⁵⁵

Some broad themes that the curriculum could cover, at age-appropriate points and through different subjects,

include natural and anthropogenic causes of climate change and environmental issues; direct and indirect impacts of climate change, environmental degradation and natural disasters; and solutions and actions, such as sustainable natural resource management, biodiversity protection and restoration, clean and renewable energy, and disaster risk reduction and management.

A complementary approach to thinking about relevant curriculum content can be found in the [green skills framework](#), which proposes three areas of skills needed to catalyze technical and social transformation in the face of climate change: (1) skills that promote the transition to a greener economy, (2) skills that promote individual behavioral change and (3) skills that promote social/systemic change.⁵⁶



COUNTRY EXAMPLES

In **Ethiopia**, the Ministry of Education, the Ministry of Forestry and Climate Change, and UN CC:Learn have worked collaboratively to identify climate change learning opportunities in the existing national curriculum. Guidelines were developed to enhance the systematic integration of climate change into the curriculum, calibrating appropriate depth and coverage according to learners' level.^a

In 2019–20, the Ministry of Education in **St. Vincent and the Grenadines** developed a systematic and integrated climate change mitigation and adaptation and disaster risk reduction curriculum for lower-secondary level. The new curriculum comprises three modules, one for each of the three lower secondary grades. These modules cover 10 common themes: hazards and disasters, climate change, climatological hazards, geological hazards, human-made hazards and epidemics, planning for disasters, marine environment, land environment, ecosystem and biodiversity threats, and water and solid waste. Each unit dovetails with existing subject and syllabus content. The curriculum employs a wide and varied range of interactive, participatory and experiential learning modalities, linking student learning in the classroom to learning in the wider school context and in the community. Support materials for teachers have also been developed (namely, a resource manual, learning facilitation guide and post-trauma teaching and learning guide).^b

- a. Environment, Forest and Climate Change Commission, Ethiopia, *Integrating Climate Change into the Ethiopian Curriculum*; Ministry of Environment, Forests and Climate Change and Ministry of Education, Ethiopia, *Climate Change Education Strategy of Ethiopia 2017–2030*.
b. Selby, Kagawa, and Oberman, "Along the Cays and Bays: Climate Change Learning in a Small Island Developing State."

53. UNESCO, *Getting every school climate-ready: how countries are integrating climate change issues in education* (Paris: UNESCO, 2021), <https://unesdoc.unesco.org/ark:/48223/pf0000379591>.
54. Roussell and Cutter-Mackenzie-Knowles, "A Systematic Review of Climate Change Education: Giving Children and Young People a 'Voice' and a 'Hand' in Redressing Climate Change."
55. Selby and Kagawa, *Disaster Risk Reduction in School Curricula*; UNESCO, *Learn for Our Planet*; UNESCO and UNEP, *Climate Change Starter's Guidebook*.
56. Kwauk and Casey, *A New Green Learning Agenda*.

A recent review analyzed 64 climate change and 16 gender-transformative curricular materials to understand the extent to which each covered the other thematic area.⁵⁷ The analysis found that climate change curricular materials were often discussed within the context of specific subject areas, such as environmental studies, geography, health, history, and social studies. Both gender equality and climate change curricular materials were focused on contextualizing the issues to the learners' experiences and discussing the effects in a specific geographical setting, with an emphasis on community engagement, leadership, power structures, inequality and social justice. However, only two of the climate change curricular materials referred to the gendered dynamics of climate change, and there was a lack of mention of climate change in gender-transformative curricular materials. This missed opportunity is significant given the important overlaps in curricular objectives.

Furthermore, considering the gendered impacts of climate change and disaster, developing resilience and leadership skills for girls should be particularly important in places where they face socioeconomic disadvantages. Supporting girls to study science, technology, engineering and mathematics (STEM) on equal terms with boys is also critical preparation for their active participation in protecting the environment and contributing to a low-carbon economy using green and clean technology.⁵⁸

Curricular delivery of knowledge and skills also needs to be informed by considerations of respect for nature, commitment to fairness, justice and solidarity in forging a sustainable future, respect for cultural diversity, and appreciation of interconnectedness of humans and the planet's life systems.

2.6.2. Pedagogies and Learning Assessment

The complexity and uncertainty of climate change requires learning and teaching processes that empower

learners as agents and advocates of change. For this to happen, considerable weighting should be placed on action-oriented and experiential pedagogies encouraging the learner to practice active citizenship and climate leadership skills within the school, local community and society at large. Evidence suggests that active forms of pedagogy have had significantly positive impacts on attitudes and actions of children and young people in relation to climate change.⁵⁹ However, top-down and heavily didactic pedagogies remain common practice in many classrooms in lower-income countries.

To foster personal resilience in the face of the adverse and traumatic impacts of climate change, teachers need to help students maintain their emotional well-being and develop emotional fortitude. Teachers can provide psychosocial support to disaster-affected students by, for instance, establishing a safe and welcoming learning environment for all students, establishing a sense of normalcy by reestablishing daily routines, and creating structured opportunities for students to express emotions and experiences.⁶⁰ Social and emotional learning, overlapping with psychosocial support to some degree, aims at helping students identify and manage their emotions, establish caring and empathetic relations with others and effectively handle challenging situations.⁶¹

Student assessment is a further area of climate change-related curricular content, teaching and learning. Student assessment concerning action-oriented climate change learning should not be limited to knowledge acquisition; it should also include monitoring and assessment of practical skills development and behavioral and attitudinal shifts. An age-appropriate and diverse set of assessment tools should include both formative and summative modalities. Overall, student assessment needs to be aligned with and informed by the specific knowledge, skills and learning outcomes laid out in climate change and environmental curricular

57. Kwauk and Wyss, "Gender Equality and Climate Justice Programming for Youth in Low- and Middle-Income Countries: An Analysis of Gaps and Opportunities."

58. Malala Fund, *A Greener, Fairer Future*; UNICEF and International Telecommunication Union, *Towards an Equal Future*.

59. Roussel and Cutter-Mackenzie-Knowles, "A Systematic Review of Climate Change Education: Giving Children and Young People a 'Voice' and a 'Hand' in Redressing Climate Change."

60. Inter-Agency Standing Committee (IASC), *IASC Guidelines on Mental Health and Psychological Support in Emergency Settings*.

61. Inter-agency Network for Education in Emergencies (INEE), "Psychosocial Support and Social and Emotional Learning for Children and Youth in Emergency Settings."



COUNTRY EXAMPLES

The Pre-primary Year Curriculum Framework in the **Solomon Islands** describes the “development of positive attitudes and values toward the preservation and conservation of the environment and the adaptation and management of the effects of climate change” as a specific learning outcome.^a This outcome also includes an understanding of hazards, and planning and management of the impact of disasters. The framework employs a play-based approach whereby children learn through hands-on activities designed to actively explore the environment. Inquiry and curiosity are promoted through open-ended questioning, experimentation and cooperation in discovering answers to the problem.

In the **Maldives**, the Ministry of Education’s Farukoe program was a nationwide ocean exploration program implemented in 2018 in which all students had a chance to explore local reefs through snorkeling. The program was based on the Ministry of Education’s belief that direct student exposure to reefs helps them develop a commitment to protect the ocean. Before snorkeling, teachers facilitated awareness-raising sessions, often involving local fishermen and elders. Teachers also facilitated post-snorkeling debriefing and reflection sessions that included a sharing of student experiences and discussions on pro-environmental projects students could take up. The Farukoe program triggered school-level actions such as beach cleaning, school gardens, tree planting, banning plastics and awareness-raising campaigns. Teachers and students testify that the program was a catalyst for deepening student understanding of the local environment and recognizing individual and collective responsibility and agency. The program has since ended, but during stakeholder surveys in 2021 there were strong calls to revive it.^b

- a. Ministry of Education and Human Resource Development, Solomon Islands, *Pre-primary Year Curriculum Framework*.
 b. Kagawa, *The Heat Is On! Towards a Climate Resilient Education System in the Maldives*.

content. It is important for assessment tools and processes to be empowering to students as well as relevant and meaningful.

2.6.3. Teacher Capacity Building

Most teachers recognize the importance of climate education, but few teach it in their classrooms, partly because of a lack of confidence. Education systems need to put in place capacity building opportunities for pre- and in-service teachers. This should focus on environmental and climate change-related curriculum content, as well as on practical knowledge and skills building for effectively facilitating and managing interactive,

experiential and participatory pedagogies that are also gender responsive and inclusive. Enhancing student health and well-being in situations of a changing climate and environmental degradation is another area in which teachers need capacity development support. In addition, teachers need teaching and learning resources and tools that are up-to-date, gender responsive, contextually and culturally appropriate, sensitive to the needs of both teachers and students, and in local languages.⁶² Finally, systems should seek to enable mutual support and knowledge exchange between teachers through appropriate avenues, such as platforms and forums.

62. Education International, “Education International Manifesto on Quality Climate Change Education for All”; Education International Asia-Pacific Regional Office, *Teach for Climate Action*.



COUNTRY EXAMPLES

The UNESCO–LINKS (Local and Indigenous Knowledge Systems) program is an initiative in **Vanuatu** and the **Solomon Islands** that promotes local and Indigenous knowledge as a foundation for locally appropriate and sustainable decision making and practices. As part of the program, Vanuatu and the Solomon Islands developed innovative resources for schools. In Vanuatu, the Vanuatu National Cultural Council developed a series of teacher guides for grades 1 to 6. Each guide provides advice on how teachers can embed Indigenous knowledge within the school environmental science curriculum. For example, students learn about the names of local plants and animals, traditional beliefs and rituals attached to them, and seasonal shifts, to foster a deep connection to their island environment. In the Solomon Islands, Indigenous communities in the Marovo Lagoon collaborated with the Ministry of Education and UNESCO to develop an environmental encyclopedia in the local Marovo language and in English, along with an online version. The encyclopedia describes the fauna, flora and topographical features making up the lagoon environment as well as the lives and livelihoods of the people living there.

Sources: Hviding, Reef and Rainforest: *An Environmental Encyclopedia of Marovo Lagoon, Solomon Islands*; D. Selby and F. Kagawa, "Archipelagos of Learning: Environmental Education on Islands," *Environmental Conservation* 45, no. 20 (2018): 137–146; UNESCO, "Building Resilient Small Island Developing States: The Marovo Project"; UNESCO, undated, <https://en.unesco.org/links>.

TEACHING AND LEARNING: ACTION POINTS

- Across subjects and through the grades, systematically integrate a wide range of curriculum topics and associated learning outcomes with respect to climate change, sustainability, disaster risk reduction and environmental conservation through a gender equality lens.
- The curriculum development process should involve relevant partners from the ministry of education as well as other government ministries, departments and agencies responsible for natural environment, climate change, and disaster management coordination. It is also important to include teachers as appropriate in the process.
- Ensure a wide variety of active and experiential forms of pedagogy that empower students as agents and advocates of environmental change and climate adaptation and mitigation.
- Integrate the role of gender and gender norms in climate change–related curricular content and learning outcomes.
- Provide psychosocial support and social and emotional learning to take care of student emotional well-being in the face of natural disasters, environmental loss and the climate crisis.
- Employ a range of student assessment modalities that assess not only knowledge acquisition but also skills, and attitudinal and behavioral shifts.
- Ensure capacity building opportunities and resources for pre- and in-service teachers in support of the delivery of climate education, disaster risk reduction education and environmental education.
- Establish in-person and virtual platforms and forums for teachers to enable mutual support and knowledge exchange.

Recommended focus areas to fill knowledge gaps:

- Build the evidence base on the impact of climate-related curriculum content on behavior and attitude changes toward climate action and the planet's protection.

2.7. Schools and Communities

Schools should serve as community hubs in the enhancement of local safety and resilience, by promoting environmentally sustainable practices; drawing community members into the climate change, disaster risk management and environmental conservation initiatives of the school; and tapping into their wealth of knowledge. There should be school- and community-based engagement platforms for children and young people, enabling them to exercise and hone their change agency, advocacy and climate leadership capacities as they help take climate and environmental action forward.

2.7.1. Linking Learning in Classroom, School and Community

Schools are an integral part of a community and a strong school–community link is a defining factor in quality education provision. Linking schools and communities has a clear pedagogical dimension. For instance, schools can invite parents, community adults and elders to the classroom to share their knowledge, lived experiences and practical coping strategies in relation to past hazards and the changing climate. Indigenous peoples in particular can share their wisdom and reflections on living in harmony with nature.

While students can take newly obtained knowledge and practices back home and share them with family and community members, they can also bring ideas and practices from home and share and discuss them at school.⁶³

A whole–school approach to education for sustainable development and environmental education aims to make schools safe, environmentally sustainable and climate resilient. It encourages schools to rethink and integrate sustainability considerations into all aspects of school, including curriculum, learning and teaching that advances climate action.



COUNTRY EXAMPLES

Unite4Climate was a nationwide child-led advocacy and action program in **Zambia**, implemented from 2010 to 2015 by the Ministry of Education, the Wildlife and Environmental Conservation Society of Zambia and UNICEF Zambia. Its aim was to empower 11- to 17-year-old children across Zambia to become climate ambassadors who go on to inspire other children. During the five-year program, 1,325 children received training on climate change and conservation issues as well as leadership, communication and action planning. Trained climate ambassadors reached more than 1 million children, youth and community members through peer-to-peer outreach and education, media programs, theater performances, debates, and implementation of low-cost community projects on climate change mitigation and adaptation. Their advocacy efforts led to concrete actions such as the planting of 30,000 trees in school grounds and communities in 2015 alone, child-led radio shows on climate change and action, and constructing a floating school in an area highly susceptible to flooding. Climate ambassadors also engaged in national-level decision making processes. For example, 350 climate ambassadors provided inputs to the Zambian government's position paper for the 21st Conference of the Parties meeting in Paris in 2015.

Sources: UNICEF, "UNICEF's Written Submission to the Study of the United Nations Office of the High Commissioner for Human Rights on Climate Change and the Full and Effective Enjoyment of the Rights of the Child"; UNICEF, *Empowering Children in Climate Action*; "Unite 4 Climate & Conservation," What We Do, Wildlife and Environmental Conservation Society of Zambia, undated, <https://conservationzambia.org/u4cc/>.

63. UNICEF, *Child Friendly Schools Manual*; UNICEF, *Climate Change and Environmental Education: A Companion to the Child Friendly Schools Manual*.

2.7.2. School Risk Assessment and Disaster Management

Schools should establish clear procedures and mechanisms for effectively anticipating and managing any emergency and disaster event in line with those in place at national and subnational levels. School safety needs to employ an all-hazards approach that encompasses natural, technological, biological and health-related hazards as well as human-induced hazards such as conflict, violence and everyday dangers, including road traffic accidents and behaviors arising from alcohol and substance abuse. It is critical to understand and address the multiplicity of risks.⁶⁴

One of the key tasks of school disaster management is to conduct school risk assessment with the aim of identifying and collecting information on hazards, vulnerabilities and capacities that exist in and around the school. School risk assessment is a consultative and participatory process and therefore the partici-

pation of diverse school stakeholder groups, including student groups, is vital, and not least for the process of systematic data collection and analysis. By including multiple stakeholder groups, schools are also more likely to gather diverse views and perspectives. Risk mapping—including analysis of historical timelines/profiles, physical and social vulnerability assessments and participatory, guided school-community walks—is key school risk assessment activities.⁶⁵ The results of the assessment should then inform the development of a school disaster management plan or contingency plan. The plan typically identifies actions and responsibilities of different stakeholder groups for disaster mitigation, preparedness, response and recovery.

When necessary training and support are provided in an age- and context-appropriate manner, school-age children are capable of conducting risk assessments in their locality, coming up with actions that contribute to reduced disaster risk and increased resilience in the school and community.



COUNTRY EXAMPLE

Child-centered disaster risk reduction promotes “working for and with children for disaster risk reduction to ensure participation/view of children during risk assessment, preparedness planning, emergency response and recovery actions.”^a The UNICEF-supported child-centered disaster risk reduction program in **Nepal** was implemented from 2013 to 2019 in eight districts. The program involved setting up child clubs and children’s networks consisting of representatives from each club at the municipal level. Community- and school-based clubs and networks were important vehicles through which children conducted risk assessment, communicated identified risk for action and influenced local-level decision making processes and resource allocation for risk mitigation. At the ward level, child clubs were closely coordinated with the community disaster management committee, with one or two child club representatives engaged in consultation and decision making processes on matters concerning disaster risk reduction and children. At the school level, school safety club members were actively involved in school risk assessments and engaged with the school management committees for school safety improvement.^b

- a. Pfefferbaum, Pfefferbaum, and Van Horn, “Involving Children in Disaster Risk Reduction: The Importance of Participation.”
 b. UNICEF Nepal, *Child-Centred Disaster Risk Reduction Programme*.

64. GADRRRES, *Comprehensive School Safety Framework 2022–2030 for Child Rights and Resilience in the Education Sector*.

65. Plan International, *Child-Centred Multi-Risk Assessments*; UNESCO Office in Hanoi and Vietnam Ministry of Education and Training, *Assessment and Preparedness Toolkit for Safe and Sustainable Schools Prepared for Natural Hazards, Climate Change, Biodiversity Loss, Safety Threats and Other Risks*.

2.7.3. School and Community Participation Platforms

Outside of the classroom, platforms through which students engage with climate change-related issues often include school clubs or other extracurricular and nonformal education activities organized by enthusiastic teachers and schools. Common activities include tree planting, school gardening, cleaning up the local environment, and projects, campaigns and exhibitions on climate and environmental themes. The varying

range of resource capacities across different schools and the voluntary nature of these platforms mean that not all students have opportunities for engaging with climate change-related activities outside of the classroom. When the national and subnational education systems have established student and youth participation platforms and programs (for example, school cabinet/council/parliament, scouting activities, school health programs), climate change components can be integrated as part of their remit.

SCHOOLS AND COMMUNITIES: ACTION POINTS

- ▶ Establish a process that links climate change, disaster risk and environmental action learning across classroom, school and community on a regular basis.
- ▶ Work closely with members of the local community—including Indigenous and religious leaders—to promote resilience building and environmental learning and action in school and community.
- ▶ Ensure the engagement of a wide range of stakeholder groups—including students and women—in a multi-hazard risk assessment and disaster management activities at school.
- ▶ Develop a school disaster management or contingency plan with a focus on localized climate change threats, based on risk assessment and wider consultations with relevant school and community members.
- ▶ Create and support a range of school- and community-based platforms for student climate change, disaster risk and environmental action and learning, employing the peer-to-peer approach and allocating necessary resources.
- ▶ Support the development of girls' and boys' leadership skills in education and the development of school-community platforms that empower students to engage in politics relating to their environment and participate in decision making.
- ▶ Create and support mechanisms for school and community deliberation on climate change issues and impacts. Mechanisms should include female-only groups to ensure that gender-specific concerns and proposals are fully expressed and taken into account in school and community decision making.

CONCLUSION

Education must play a critical role in securing a sustainable future for all amid the unprecedented planetary crisis of climate change and environmental degradation. However, to truly maximize education's impact in building green and fair societies, all actors must coalesce around the development of climate-smart education systems. Integrating climate change and environmental considerations into education systems is also about improving learning outcomes, preparing future generations to tackle the complex challenges of the 21st century.

To support complementarity between presently siloed approaches, the proposed seven-dimension framework aims to identify entry points and gaps within national education systems to strengthen their resilience and relevance to climate change. The framework ultimately encompasses the broader goals of advancing equitable quality education, protecting the planet's life systems and promoting climate justice, and situates education systems within the planetary boundaries of the earth's ecosystems, building upon GPE's contextualized approach to system transformation.

Collaborative efforts are needed from climate and education policy makers, educators, environmental activists, researchers and communities themselves to integrate climate change and environmental considerations into the fabric of education systems. As the earth's climate changes and grows more unstable, there is no time to lose to ensure that all education systems are climate-smart – ready to support resilience and build a sustainable future for generations to come.

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