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THE HEAT IS ON!

Towards Climate Resilient Education Systems
in South Asia

Cover: Village Dahegaon (Ghonsa), Wani Block, Dist. Yawatmal, Maharashtra, India. School children participate in a "Rally of Children for ending violence and safe villages" during Convention on the Rights of the Child (CRC) Week at their village outside their Zilla Parishad Upper Primary Semi English School. On 20 November 2014, the United Nations Convention on the Rights of the Child (CRC) completed 25 years.

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Foreword

Climate change is a global phenomenon. But South Asia – where one fourth of the world’s population and an estimated 616 million children live – is facing particularly severe consequences.

From the melting glaciers of northern Pakistan and Bhutan, to the heatwaves scorching India’s northern cities and the rising sea levels threatening the very existence of the Maldives, boys and girls are feeling the intensifying effects of the climate crisis firsthand. Images of children wading through waist-high floodwaters and of whole villages swallowed by riverine erosion have become all too familiar.

Tragically, it is the most marginalized boys and girls who are paying the steepest price. High levels of poverty and the absence of effective safety nets have led to climatic shocks having a disproportionate impact on the extreme poor, magnifying the already stark socio-economic vulnerabilities in the region.

But children and young people in South Asia are also powerful agents of change. They have consistently told us they are deeply concerned about the climate crisis, and they want more knowledge and skills to be able to take action.

When children and adolescents tell us about the effect climate change is having on their lives, education shows up as a primary concern. In one survey, 78 per cent said that their studies had been affected by climate change. Most cited either an inability to concentrate during heatwaves, damage to their school buildings, or disruptions to their journey to school.

We already know that education is a force that fosters agency, social mobility and innovation. But in the context of a changing climate, investing in education is doubly important. Providing children with climate education and green skills is critical to not only harnessing their power and aspirations, but also ensuring their adaptation to and preparation for the effects of climate change.

Yet the role of the education systems in climate change national agendas has often been overlooked and not fully analyzed.

That is why this report is so timely. It represents a shift in how the education sector has been analyzed with regards to climate change risks, moving away from a narrow focus on climate impacts on education infrastructure and on student’s attendance, towards a systemic approach on the fundamental role that education systems can – and must – play in the climate change agenda.

We know that children and young people are demanding quality education which is climate resilient, science-driven, and catalytical for new skills and low-carbon industries. In this report, we present specific entry points and recommendations for Ministries of Education in South Asia which respond to these ambitions and needs.

Young people in the region are already ambitious and actively engaged in ideas, enterprises and innovations. We must equip, support and enable them as they prepare to create the future of South Asia.

George Laryea-Adjei
Regional Director



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This regional study was commissioned by UNICEF Regional Office for South Asia (ROSA) and written by Fumiyo Kagawa, PhD, Education and Climate Change consultant and Research Director at Sustainability Frontiers UK. The report was drafted with technical guidance and oversight from ROSA's Climate Change and Education sections – Reis Lopez Rello, Regional Climate Change Advisor, and Jim Ackers, Regional Education Advisor with the support of Frank Van Cappelle, Education Specialist, JiEun Lee, Education Officer and Emma Hamilton Clark, Knowledge Management Consultant. David Selby, Founding Director of Sustainability Frontiers UK, offered valuable comment on the report.

We thank the many government officials and experts in Afghanistan, Bangladesh, Bhutan, India, the Maldives, Nepal, Pakistan and Sri Lanka who made time to participate in the stakeholder survey, offered their invaluable insights and shared helpful country-specific information.

We also extend our heartfelt thanks to all the students and teachers who participated in the focus group discussions. Their active participation, first-hand experiences, concerns and insightful views on climate change and education were invaluable. We would also like to thank the significant number of young people who participated in the U-Report conducted for this study.

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More detailed acknowledgements are found in the respective country reports.



Section 1 Introduction

1.1. Rationale, Aims and Scope of the Study

Climate change is the critical issue of our time. The devastating impacts of climate change have already been felt, disproportionately affecting low-income countries and the most vulnerable, including children, who are becoming its victims despite the fact that they have neither caused nor fuelled the problem. Without urgent and effective action today to tackle the climate crisis and associated critical issues, we are heading towards runaway climate change and facing the diminishing possibility that society and ecosystems can effectively adapt. The very survival of children and their communities are seriously threatened.

While the education sector is itself highly prone to the impacts of climate change, it is also viewed as a sector that can play a critical role in helping realize international and national efforts to accelerate climate change mitigation and adaptation action. Key international agreements such as the United Nations Framework Convention on Climate Change (UNFCCC), the Paris Agreement, and the Sustainable Development Goals commonly highlight the importance of education in enhancing climate action. The Sendai Framework for Disaster Risk

Reduction recognizes children and youth as agents of change who can contribute to disaster risk reduction.

While the body of research on education and climate change in general has grown, detailed understanding of the relationship between climate change and education systems in South Asia has remained very limited. There was little way of knowing what and how each South Asian education system was responding to climate change.

Against this backdrop, the overall aims of the UNICEF Regional Office for South Asia (ROSA) study on the impacts of and responses to climate change across education systems in South Asia are:

- To generate evidence on how education systems in the countries of South Asia (i.e., Afghanistan, Bangladesh, Bhutan, India, the Maldives, Nepal, Pakistan and Sri Lanka) are monitoring, assessing and responding to the impacts of climate change.
- To identify the main educational tools and mechanisms being employed in planning for and addressing climate risks.
- To showcase the perceptions of key education sector stakeholders regarding further embedding climate change considerations and concerns into education tools and mechanisms.



In examining the interface between climate change and education, this study focuses on three areas:

- Direct and indirect climate change impacts on education systems in terms of learning facilities, access to education, student health and wellbeing, education provision (including teacher health and wellbeing) and learning quality, each having significant implications for the quality of education.
- Education system responses to climate change, exploring seven key education system components (i.e., policies, plans and strategies; finance; curriculum, teaching and learning; teacher capacity development; communication, cooperation and partnership; student participation platforms; monitoring, evaluation and accountability).
- Key education sector stakeholder experiences, perceptions and needs concerning climate change education.

This study is primarily focused on the national level. Sub-national level information and analysis have been included selectively within the time available and framework set for this study. In the case of India, attention was given to three Indian states: Bihar, Kerala and Odisha.¹

The study focuses on primary and secondary school education. While pre-service and in-service teacher education have been explored to some degree, tertiary education and technical and vocational education and training (TVET) are outside the scope of this study. Pre-primary education is also excluded from the study. This is not to deny the importance of these sub-sectors, all of which merit further study in the future, but rather to make the scope of this study more manageable.

1.2. A Brief Note on Methodology

The methodology employed is a desk-based documentary review, combined with consultations with, and information gathered from, key stakeholders in each of the eight countries of South Asia:

- **Desk-based Review:** A broad-scoped literature search, collection and review in each of the eight countries was conducted by including the following: climate change, disaster risk reduction (DRR) and environment-related policy and strategy documents; education sector policy, planning, strategy and curriculum documents; academic and professional articles, studies and reports on climate change and education; existing and projected impacts of climate change in relation to children, youth, schools and communities.

- **National-level Stakeholder Surveys:** In each country, national-level stakeholders from Government, UN organizations, international/national NGOs and academic institutions were identified by the UNICEF Country Office according to the criteria set for the study and each was invited to participate in national-level stakeholder surveys conducted via email and online platforms such as Zoom. In total, 88 personnel were invited and 60 survey contributions (including group contributions) were received between 20 June 2020 and 19 July 2021. Email follow-up communications with selected survey respondents took place for further information gathering and clarification.
- **School-level Focus Group Discussions (FGDs):** In total, 15 teacher FGDs and 15 student FGDs² were implemented between 17 September 2020 and 7 September 2021 using Zoom or Google Meet. Before the FGD, student participants were asked to draw two images, i.e., one on 'climate change in my village/locality' and another on 'climate change impacts on my education'. Drawings prepared by the students were presented individually for discussion at each FGD. UNICEF Country Office personnel provided all necessary interpretation support.
- **U-Report³:** Targeting youth from 14 to 24 years old, a U-Report survey was implemented between 7 August and 9 September 2020 in 10 languages⁴ through Facebook Messenger, Viber and WhatsApp.

See *Table 1* for the summary of research participants.



¹ The three states were selected by the UNICEF India Country Office taking into account different geographical regions as well as their recent experience in responding to flooding.

² FGDs in Odisha were organized with pre-service student teachers and teacher educators as continuous school closures made it difficult to involve school students and teachers.

³ U-Report, run by UNICEF and its partners, is a messaging tool that empowers young people around the world to engage with and speak out on issues that matter to them.

⁴ Dari and Pashto (Afghanistan), Bangla (Bangladesh), English (Bhutan), Hindi (India), Dhivehi (the Maldives), Nepali (Nepal), Urdu (Pakistan), Sinhalese and Tamil (Sri Lanka).

Table 1. Summary: Research Participants

COUNTRIES	NATIONAL-LEVEL SURVEYS RETURNED	TEACHER FGD		STUDENT FGD		U-REPORT RESPONDENTS
		NUMBER OF FGD CONDUCTED	TOTAL NUMBER OF FGD PARTICIPANTS	NUMBER OF FGD CONDUCTED	TOTAL NUMBER OF FGD PARTICIPANTS	
Afghanistan	12	1	4 (2 male; 2 female)	1	4 (2 male; 2 female)	5,796
Bangladesh	9	2	15 (8 male; 7 female)	2	19 (8 male; 11 female)	5,586
Bhutan	7	1	6 (4 male; 2 female)	1	7 (3 male; 4 female)	510
India ⁵	6	3	23 (9 male; 14 female) ⁶	3	20 (6 male; 14 female) ⁷	2,818
The Maldives	11	1	8 (4 male; 4 female)	1	8 (4 male; 4 female)	343
Nepal	5	1	5 (4 male; 1 female)	1	7 (2 male; 5 female)	4,197
Pakistan	5 ⁸	3	11 (5 male; 6 female)	3	17 (5 male; 12 female)	5,546
Sri Lanka	5	3	21 (7 male; 14 female)	3	28 (14 male; 14 female)	1,030
Total	60	15	93 (43 male; 50 female)	15	110 (44 male; 64 female)	25,826

The U-Report process was implemented and analyzed by a UNICEF South Asia team leading to the completion of a *Rising to the Challenge* publication series consisting of a regional analysis report and eight country reports. See all the publication titles in *Box 1*.

Overall education system analysis in each country in this study has resulted in a country-specific report, the eight reports constituting *The Heat is On!* series. Again, see all the publication titles in *Box 1*.

Drawing upon all these reports, this regional synthesis report highlights key overall findings focusing on common trends, gaps and noteworthy practice examples, followed by key recommendations for the region. Interested readers can find further country-specific details and examples in respective country reports.



⁵ Including state-level responses.

⁶ Including teacher educators.

⁷ Including pre-service student teachers.

⁸ Including provincial level responses.

BOX 1. UNICEF South Asia Study on the Impacts of and Responses to Climate Change across Education Systems in South Asia: Publication Outputs

The Rising to the Challenge Series

- *Rising to the Challenge: Youth Perspectives on Climate Change and Education in South Asia*
- *Rising to the Challenge: Youth Perspectives on Climate Change and Education in Afghanistan*
- *Rising to the Challenge: Youth Perspectives on Climate Change and Education in Bangladesh*
- *Rising to the Challenge: Youth Perspectives on Climate Change and Education in Bhutan*
- *Rising to the Challenge: Youth Perspectives on Climate Change and Education in India*
- *Rising to the Challenge: Youth Perspectives on Climate Change and Education in Maldives*
- *Rising to the Challenge: Youth Perspectives on Climate Change and Education in Nepal*
- *Rising to the Challenge: Youth Perspectives on Climate Change and Education in Pakistan*
- *Rising to the Challenge: Youth Perspectives on Climate Change and Education in Sri Lanka*

The Heat is On! Series

- *The Heat is On!: Towards a Climate Resilient Education System in Afghanistan*⁹
- *The Heat is On!: Towards a Climate Resilient Education System in Bangladesh*
- *The Heat is On!: Towards a Climate Resilient Education System in Bhutan*
- *The Heat is On!: Towards a Climate Resilient Education System in India*
- *The Heat is On!: Towards a Climate Resilient Education System in the Maldives*
- *The Heat is On!: Towards a Climate Resilient Education System in Nepal*
- *The Heat is On!: Towards a Climate Resilient Education System in Pakistan*
- *The Heat is On!: Towards a Climate Resilient Education System Sri Lanka*

All these publications are available at [UNICEF ROSA website](https://www.unicef.org/rosa).

Predicated on the entire body of research findings, System-Wide Standards and Progress Indicators for Climate Resilient Education Systems (see *Appendix 1*) have been developed covering the above-mentioned seven key education system components. Adapted to each country context as appropriate, it is anticipated that they can serve as a monitoring and evaluation tool at national (and sub-national) level, and can be utilized periodically to assess if education systems are moving in the direction of increased climate change responsiveness, hence making progressively more robust contributions to climate change mitigation and adaptation goals.



⁹ At the time of this publication, the Afghanistan report remains an unpublished internal report.

Section 2

Climate Vulnerabilities in South Asia

South Asia is on the frontline of the human-induced climate crisis due to its geographical and socioeconomic conditions. Diverse topography and distinct climate zones across the region mean that South Asian countries are highly exposed to diverse climate change-induced hazards and shocks but to varying degrees.

Flooding triggered by intense rainfall is a recurrent hazard across all eight countries. The major river basins in Bangladesh, Bhutan, India, Nepal and Pakistan are prone to riverine flooding. Low-laying coastal regions in Bangladesh, India and Pakistan as well as the island nations of Sri Lanka and the Maldives are susceptible to worsening coastal flooding, coastal erosion, storm surges and saline intrusion due to sea level rise. The coastal regions of Bangladesh, India, Pakistan as well as Sri Lanka are also subject to ever-intensifying impacts of tropical cyclones.

Rapidly melting glaciers and snow in the Karakoram-Hindu Kush-Himalayas mountain range drive up the risk of glacial lake outburst floods (GLOFs) with the potential to cause devastating downstream floods in Afghanistan, Bhutan, India, Nepal and Pakistan. In mountain and hilly regions in Afghanistan, Bhutan, India, Nepal, Pakistan and Sri Lanka, landslides are occurring more frequently due to heavy rains combined with worsening soil erosion and deforestation.

Certain areas in each country are especially susceptible to dry spells and droughts to varying degrees but the arid regions of Afghanistan, Pakistan and India are particularly prone to severe and prolonged droughts and intensifying heat waves. A drier environment with less rain in winter has increased the incidence of forest fires in countries such as Bhutan, Nepal and India.



The impacts of the increasing frequency and magnitude of climate change-induced hazards interact with socioeconomic factors to drive up climate risks. South Asia is home to 1.86 billion people (World Bank Group 2022a), nearly a quarter of the world's total population. Bangladesh, India and Pakistan are among the ten most populous countries in the world. The large populations combined with a high population growth rate significantly impact natural resource and land availability. There are an estimated 523 million people living in acute multidimensional poverty in South Asia (UNDP & OPHI 2021). Climate change hits poor and underprivileged communities and people disproportionately given their lack of capacity, resources and overall resilience in adapting to and recovering from recurring climate change-induced shocks. South Asia's vulnerability to climate change is further aggravated due to its heavy dependency on a climate-sensitive agriculture sector.

More than 600 million children live in the region. According to UNICEF's first *Children's Climate Risk Index (CCRI)*, based on children's exposure to climate change and environmental hazards, shocks and stresses as well as children's vulnerabilities to shock, children in Pakistan, Bangladesh, Afghanistan and India are at very high risk from the adverse impacts of climate change, ranking 14, 15, 15 and 26 respectively out of 163 countries. Nepal and Sri Lanka rank 51 and 61 respectively, while Bhutan ranks 111 indicating relatively lower risk (UNICEF 2021a).¹⁰ The rate of children experiencing high or extremely high water vulnerability is exceedingly high in Afghanistan (93 per cent) (UNICEF 2021b). It is projected that climate change will further decrease water availability across the region.

The degree of vulnerability to climate change is differentiable by gender. Women and girls are more impacted by climate change than men and boys due to limited access to resources, information and lack of voice in decision-making processes, a situation underpinned by prevailing patriarchal cultural norms. Women and girls face more domestic burdens and have a poorer nutrition status. Their vulnerable status intensifies and is more starkly exposed during climate change-induced disasters. Socially disadvantaged groups such as the Dalit in Nepal and the Scheduled Castes and the Scheduled Tribes in India are particularly vulnerable due to historical exclusions, chronic poverty, geographical location (i.e., living in marginal and hazard-prone areas) and lack of access to basic social services, among others.

Environmental degradation, biodiversity loss and environmental pollution further drive up South Asia's vulnerability to climate change. According to the *Environmental Protection Index 2020* which ranks 180 countries on environmental health and ecosystem viability, Pakistan, Nepal, Bangladesh, India and Afghanistan are among the bottom 40 countries with poor environmental performance (Wendling *et al.* 2020).

¹⁰ The first *CCRI* does not include Small Islands States such as the Maldives due to limited data availability.

There is an increasing risk of climate change-induced displacement and migration in the region. In 2020, 9.2 million people were displaced due to fast-onset natural disasters such as cyclones and floods (IDMC 2021). In the same year, it is estimated that 18 million people may have migrated due to slow-onset climate change-induced events such as sea level rise, water stress, crop yield reduction, ecosystem loss and drought in the following five South Asian countries: Bangladesh, India, Nepal, Pakistan and Sri Lanka. This number does not include migration caused by fast-onset disasters such as cyclones. Without decisive and urgent actions to meet the Paris Agreement targets, it is projected that the migration linked to slow-onset climate shocks alone will double by 2030 and increase threefold by 2050, by that date involving a staggering 62.9 million people across these five South Asian countries (Singh *et al.* 2020). Many low-income climate migrants end up in impromptu informal urban settlements or slums. Uncontrolled urbanization and expansion of informal settlements are characterised by inadequate basic service provision, poor living conditions and lack of access to water and sanitation facilities, among others. Children living in slums are at high risk of mortality and injuries from natural disasters and infectious diseases (UNICEF ROSA 2020). South Asia's urban population is projected to grow by almost 250 million by 2030 (Ellis & Roberts 2016). Unplanned and unmanaged urbanization further drives up climate change vulnerabilities in the region.

The latest Intergovernmental Panel on Climate Change (IPCC) report highlights that the planet is now already between 0.8°C and 1.3°C warmer than in pre-industrial times. Human activity is held to 'unequivocally' be the cause of unprecedented warming (IPCC 2021). In Asia, 2020 was the warmest year on record and long-term warming trends in the region are more pronounced than the global average (WMO 2021). Unless there are rapid, drastic and sustained reductions in greenhouse gas emissions in this decade, the 2015 Paris Agreement ambition of limiting global warming to 1.5°C so as to prevent the most deleterious impacts will be beyond reach. The frequency and intensity of climate and temperature extremes such as heat waves, storms and droughts will increase with every fraction of a degree of global warming (IPCC 2021).

It is important to note that the above-mentioned climate change-induced hazards, shocks and vulnerabilities do not occur in isolation. They interact with one another and exacerbate existing social and economic inequalities and vulnerabilities, while feeding from those inequalities in what is a complex web of relationships. Unaddressed, the combined effects of climate change hit marginalized groups in society first, hardest and longest. It is therefore critical to address the multiple risk factors simultaneously (UNICEF 2015, 2021a). Isolated policies and initiatives that drill down on single issues are likely to be ultimately counter-productive, any seeming gains with regard to the one issue being adversely impacted by the dynamic and detrimental convergence of issues.



Climate Change in My Locality

Student FGD participants were asked about climate change impacts they have noticed and experienced in their locality.



In the past, we could cultivate any kinds of plants. We had a lot of beautiful and good trees and green grasses. The place was very beautiful. But we now have very little water and we cannot cultivate everything we like. Heavy rains, floods and storms destroy our houses and places. Effects of climate change. Very sad.

Ali Reza, Grade 11, Afghanistan



Due to climate change the water level in the river is rising and because of that our village is being flooded frequently. People take shelter in higher places such as roofs. Storms damage the houses and trees and endanger lives. We are frustrated and depressed most of the time as we can't find any solutions.

Ridhoy, Grade 7, Bangladesh



Bhutan is a small and mountainous country. We face a lot of problems due to global warming. People in the southern parts of the country cut down a lot of trees. During the monsoon season, people are affected by landslides, heavy rainfalls and floods. Roads are blocked and damaged. Main water sources are washed away, so we face water scarcity. We do not have clean drinking water. Children face a lot of challenges. Sometimes they have to cross the rivers or streams. In summer, children tend to be absent from school due to high rainfalls and floods.

Kinzang Deki Selden, Grade 12, Bhutan



Droughts and floods affect the agriculture sector in my locality and the farmers are economically impacted. They cannot afford food and other essentials for their families. Due to floods, droughts, wildfires and changing habitats in the forest areas, animals like monkeys, wild boars enter villages. These animals destroy agricultural products, pollute water sources and spread diseases. We are facing such problems in the past two or three years.

Saina, Grade 10, India



On the left side of my drawing, people are healthy and kids have a teacher. On the right side many kids don't go to school and don't have anything to eat and anything to wear. They suffer from floods, air pollution and dirty water. Climate change affects student health in many ways. In some islands, people live like on the right side already. It is a huge problem. We have to support the poor and everyone in a situation like this. Due to climate change I am really afraid of the future, which could be like on the right side.

Fahudh Bin Abdul Bari, Grade 9, The Maldives



There are a lot of beautiful trees, birds and greeneries. Due to climate change, my village will be like the right side of the drawing in a few years – all will be brown, dry and damaged. People are cutting a lot of trees. If we do not stop cutting trees and don't plant more trees, we are in the crisis scene in the near future. We cannot get clean air, clean water and fruits. We will die in that crisis. We should make our country beautiful by planting trees. If we plant trees immediately, we can save our country.

Roshani, Grade 8, Nepal



We are facing a big problem in the world. The earth is crying. Due to climate change the weather and seasons have changed. It is not normal anymore... The hot season is getting much hotter and the cold season is getting much colder than in previous years. Everyone here is feeling and observing these changes... Everyone's life has been affected dramatically. In summer we used to use only ceiling fans but it is not possible to live without air conditioning systems now.

Aamir, Grade 10, Pakistan



The dark colours in my drawing symbolize all the difficulties faced by children and their families – most of them are farmers – in my area. When it rains it rains too much. Flooding occurs and harvests are lost. When there is no rain at all, harvests are dried out and lost.

The girl in the drawing has four arms; two hands holding a book representing the importance of education, a third hand with water symbolizes the importance of meeting basic needs, a fourth hand holding an umbrella symbolizes the importance of protecting children from too much heat and rain. The depiction of the girl tied with a chain symbolizes all the difficulties which children face in moving forward and getting education in a changing climate and environment.

I used unorganized colours to depict the unorganized lives of the children due to climate change and other issues.

H.M. Chamodi Kaveesha Nethmini, Grade 11, Sri Lanka

Section 3 Climate Change Impacts on Education Systems

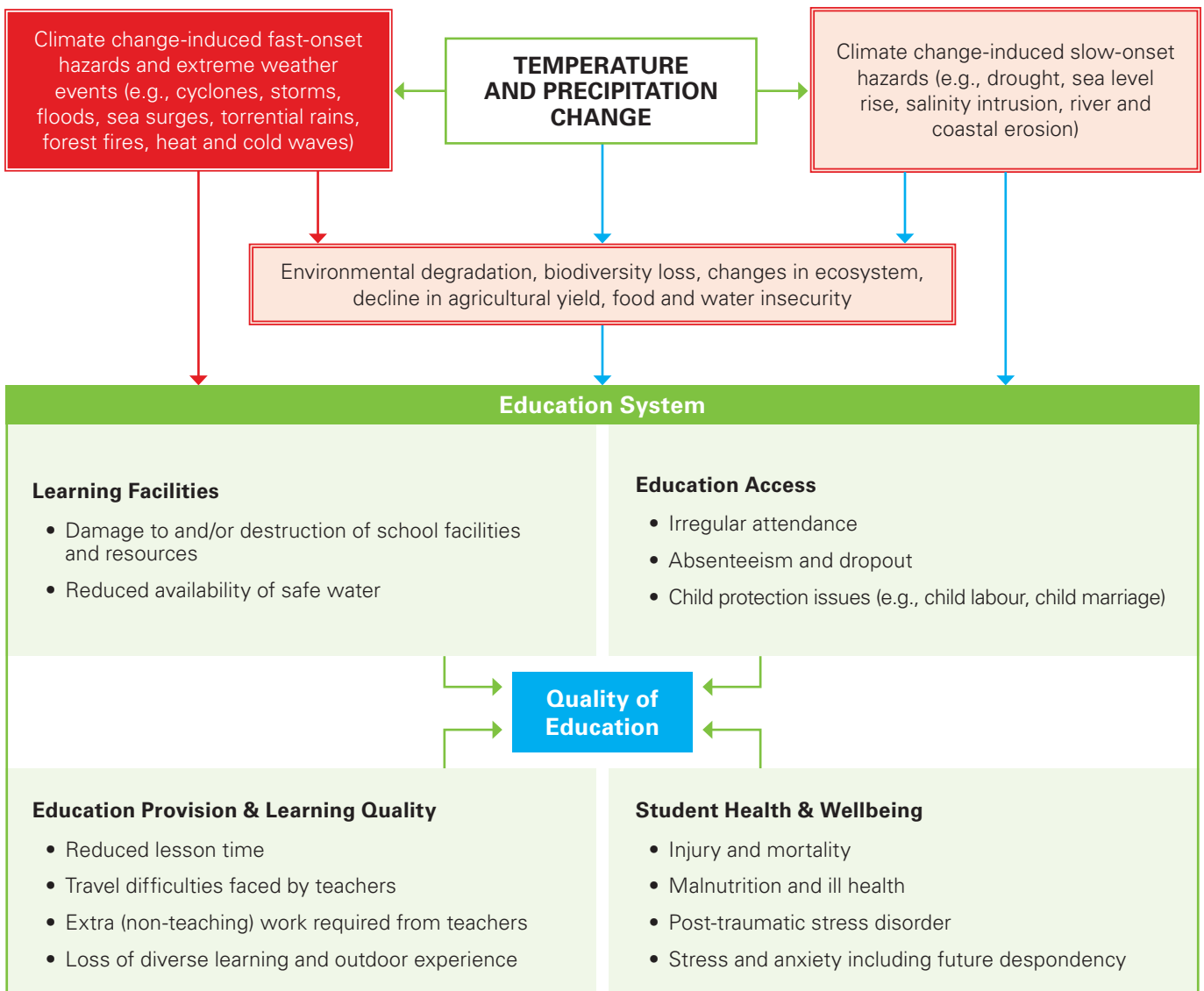
In this study, direct and indirect impacts of climate change on the education system are defined as follows:

- **Direct impacts** of climate change on the education system occur when school facilities and resources are physically damaged, education provision is disrupted and lives, health and wellbeing of students and teachers

are adversely and *immediately* impacted by fast-onset, climate change-induced hazard events or occurrences such as cyclones, floods, storm surges, torrential rains and extreme temperatures.

- **Indirect impacts** of climate change on the education system are ones where the education system and stakeholders are not immediately affected by the climate system but influenced by incremental environmental changes, and delayed climate change impacts through slow-onset events (e.g., drought, sea level rise, salinity intrusion, erosions) and/or via some intermediary (e.g., changes in ecosystems, migration patterns, agriculture, food and water security, diseases).

Figure 1. Direct and Indirect Impacts of Climate Change on the Education System



While the impacts of climate change on the education system in South Asia have not been previously researched in any systematic way, national stakeholders participating in the survey conducted for this study (n=60) consider climate change impacts to be 'serious' or 'extremely serious' in the following areas: clean water availability at school (36 responses, 60 per cent); student access to school (33 responses, 55 per cent); student physical health and safety (29 responses, 48 per cent). According to the U-Report survey conducted for this study, 78 per cent of South Asian youth respondents (n=14,932) report that their education/studies have been affected by climate change.

3.1. Learning Facilities



River erosion is one of the main dangers caused by climate change. In each region of Bangladesh, river erosion is happening. People lose their homes, trees, properties, everything. This has a direct impact on education. This year many schools were destroyed by river erosion. Because of that the number of student dropouts is rising in our country.

Zawadul, Grade 9, Bangladesh

Climate change impacts have manifested themselves in recurrent fast-onset natural disasters such as floods, cyclones and landslides, damaging and destroying school infrastructure including buildings, classrooms, water, sanitation and hygiene (WASH) facilities, teaching and learning resources and materials (e.g., textbooks, computers, lab facilities, sports equipment).

In the multi-sectoral disaster damage and needs assessments conducted after major natural disasters, damage data in the education sector are included (see examples in *Box 2*).

However, more systematic data on education sector infrastructural damage caused by recurrent climate change-induced hazards are unavailable, except for the good progress in this regard made in Bangladesh (see *Section 4.7*).

BOX 2. Education Sector Damages Caused by Climate change-induced Disasters

- **Nepal:** Floods in 2017 damaged or destroyed 1,945 schools in the Terai region, affecting 238,900 children. The total damage to the education sector was estimated at NPR 1,193.8 million.¹¹
- **Odisha, India:** 5,735 elementary and secondary schools (19.2 per cent of total number of elementary and secondary schools) were reported damaged by category 4 Cyclone Fani in 2019. In the Puni district, 86.2 per cent of schools were damaged. The total damage to the education sector was estimated at 814 IND crore.¹²
- **Pakistan:** Floods in 2010 fully destroyed 3,741 education institutions in four provinces (Sindh and Punjab being the worst affected provinces) and partially destroyed 6,666 education institutions, affecting more than one million students. The total damage to the education sector was estimated at PKR 26,463.3 million.¹³
- **Sri Lanka:** Due to floods and landslides in 2016 and 2017, 173 schools in 2016 and 336 schools in 2017 suffered damage varying in extent from substantial to less extensive damage to school infrastructure. The damage to the education sector was estimated at SLR 507 million¹⁴ in 2016 and SLR 1,518 million¹⁵ in 2017.

Climate change-induced slow-onset hazards such as river erosion, waterlogging and salinity intrusion also cause significant destruction and damage to school learning facilities. In Bangladesh, there are yearly and increasing incidents of school buildings being completely washed away by worsening river erosion, hence interrupting education continuity. Water logging and saline intrusion gradually lead to school buildings deteriorating, making them more susceptible to further onsets of hazards.

A number of research participants across the region point out that many schools are situated in disaster-prone locations, including steep terrain and very close proximity to riversides or shorelines. In the Maldives, the world's

¹¹ Approximately USD 11.5 million.

¹² Approximately USD 116 million.

¹³ Approximately USD 311.3 million.

¹⁴ Approximately USD 3,497, 551.

¹⁵ Approximately USD 9,450, 000.

lowest-laying country, a majority of schools are located on the shorelines and are at high risk of inundation. In South Asia, only Bangladesh has gathered data on the number of education institutions located in disaster-prone areas (i.e., storm surge areas, cyclone-affected areas, areas open to flooding, waterlogged areas, salinity-affected areas, areas experiencing river bank erosion), making them available in the annual *Bangladesh Education Statistics*.¹⁶

In countries having national building codes such as the Maldives and Nepal, compliance and reinforcement remain a challenge. Earthquake-prone countries in the region have worked to make school buildings more earthquake-resilient, but climate proofing of school infrastructure significantly lags behind across the region.

In Afghanistan, where only half of the country's schools have basic school buildings, students who learn under the trees or in tents are already highly exposed to rains and winds as well as extremely hot and cold temperatures. Learning conditions are becoming ever more challenging due to intensifying extreme temperatures and weather events. Afghan stakeholders anticipate that outdoor learning spaces will eventually become unavailable especially in very hot and cold regions.

Across the South Asian countries, education stakeholders are very concerned about water availability at school and they commonly report that many schools are already struggling to access water especially during the dry and hot seasons. Both water quantity and water quality are held to be serious issues. Water is contaminated by, for instance, floodwater, waterlogging, saline water intrusion, algae and bacterial growth fuelled by temperature rises, and environmental pollution due to human activity. Teacher and student FGD participants in various countries also report that lack of safe drinking water leads to dehydration and other health problems among students, negatively impacting quality of learning. Insufficient water for WASH facilities at school is one of the key factors negatively affecting the school attendance of adolescent female students during menstruation.



3.2. Education Access



Due to waterlogging, damaged roads, excessive rain, we can't go to school. When strong winds and fallen trees damage our school, we can't go to school. Due to excessive rain we cannot go to school. Students often reach the school facing a lot of troubles and then are sent back to home [as the school is damaged].

Saida, Grade 9, Bangladesh

In the U-Report survey conducted for this study, 19 per cent of South Asian youth respondents (n=14,932) report that climate change has affected their journey to school. Compared to the regional average, a higher percentage of youth respondents in Bhutan (28 per cent), Bangladesh (23 per cent), Afghanistan (20 per cent) and the Maldives (20 per cent) indicate that their journey is negatively impacted by climate change.

Students living in remote areas struggle with travelling long distances in bad road conditions during normal times, but more so under severe weather conditions such as heavy monsoonal rains, strong wind and excessive heat. Some student and teacher FGD participants point out that students' motivation to go to school tends to falter when they have to travel under challenging conditions without any transport support. Some students report feeling worried about going to school as they might encounter life threatening flash flooding, landslides and lightning. Children from economically struggling families often don't have very basic protective equipment such as an umbrella, resulting in skipping school on rainy days. In Pakistan, which has the second highest number of out-of-school children worldwide, natural hazards are identified as one of the key factors further exacerbating already poor education access especially among girls.

Use of school as temporary shelter in times of natural hazard also interrupts education access. When schools are used as

¹⁶ For instance, see *Bangladesh Education Statistics 2019* <<http://data.banbeis.gov.bd/index.php>>

emergency shelters students and teachers not only suffer from loss of lesson time but also from loss of education materials and destruction of classroom furniture and WASH facilities. This happens in part because members of the community use the school carelessly and irresponsibly. Such situations inhibit the smooth resumption of education.

In the U-Report survey, 13 per cent of South Asian youth respondents (n=14,932) agree that climate change has affected their families' ability to afford schooling. Recurring climate change-induced hazards and shocks undermine household livelihoods and income, especially among those who depend on climate-sensitive sectors such as agriculture and fisheries. When families struggle by losing their livelihood and income, children are expected to support their families by being involved in income generation activities, leading to irregular school attendance or dropout. Desperate families are more likely to resort to negative coping strategies for survival, such as child marriage, child labour, child trafficking, to name just a few.

When climate change-affected families internally migrate temporarily or permanently in search of job opportunities, accompanying children are more likely to end up working, often as unskilled day-wage workers, and eventually dropping out of school. Children with family duties to fetch water also fail to attend school regularly as collecting water is becoming much harder nowadays due to decreasing water availability combined with increasing water pollution.

3.3. Student Health and Wellbeing



Due to global warming, deforestation and lack of rainfalls, elephants are coming to human habitation, damaging houses and cultivation. Farmers don't have money to repair the damaged houses. We are sad and emotional because of all the issues. On top of these, due to the coronavirus children now stay inside houses damaged by elephants. Too hot and too uncomfortable to study. Children cannot play outside, either, as it is too hot. An empty pond depicts the emptiness we sometimes feel. All of these cause mental agitation and anger. When it is too hot, I get angry much faster. We can't focus on the lesson after 12 noon in school.

K.A Ohasi Buddhima, Grade 11, Sri Lanka



Climate change-induced fast-onset hazards such as floods and cyclones expose students to elevated risks of death and serious injuries. Rising temperatures, extreme precipitation, flooding and drought conditions are conducive to water-borne diseases such as diarrhoeal disease and cholera due to accelerated pathogen growth and spread. Vector-borne diseases such as malaria, dengue and chikungunya are also exacerbated by climate change. Higher temperatures and changes in precipitation patterns alter the distribution of vector species. They are likely to spread into new areas and move to higher altitude. Seasonal transmission windows for vector-borne diseases are also projected to extend, exposing more people, especially children, to risk. In the Maldives, children living in remote islands are particularly vulnerable to dengue fever due to lack of advanced medical care on their own island, meaning delayed treatment should their condition deteriorate.

Teacher and student FGDs across the South Asian countries have revealed that due to increasing temperatures, students already experience a wide range of conditions such as fatigue, dehydration, dizziness, headaches, fainting, allergies, skin and eye problems, among others. Students who are suffering from malnutrition due to household poverty are less able to cope with the overlaying of additional shocks.

Bangladesh, Pakistan, India and Nepal are ranked, respectively, as the first, second, third and twelfth most air polluted country globally in 2020 (IQAir 2020). Coal-fired power plants and brick kilns, use of vehicles powered by fossil fuels and the burning of biomass are some of the key causes of air pollution, just as they are major drivers of climate change. Polluted air increases the risk of chronic and acute lower respiratory infections, pneumonia and associated mortality among children. Rising global temperatures exacerbate the effects of air pollution through the increasing incidence of forest fires and dust storms and through an increase in allergic air pollutants such as pollens.

Climate change not only affects students' physical health and wellbeing but also may very well be affecting students' psychological wellbeing. In the aftermath of life threatening incidents, students suffer from post-traumatic stress disorder symptoms such as anxiety and insomnia. Asked about how worried they were about climate change and what it means for the future, 69 per cent of South Asian youth U-Report respondents (n=15,064) indicate that they are 'very/extremely worried' (35 per cent) or 'a little worried' (34 per cent). Student FGD participants express climate change anxieties and fears, including worries about unpredictable extreme weather events which may cause harm, worries about their struggling families, peers and communities, concerns about their academic performance and future opportunities, and alarm at the longer-term impacts of climate crisis which their generation and the next two generations will have to deal with. Climate change impact on the mental health of children and young people is a globally under-researched area, deserving future research to pinpoint effective contextually-appropriate and age-appropriate interventions.

3.4. Education Provision and Learning Quality



With our teacher, we went to see our unique natural features as part of our curriculum. We students were asked to observe them. These features were not there so we could not study them. We did not see any birds and animals. Life on the islands is dying... When I was swimming, I found that reefs were bleached and most of the corals were dead. Fish are also dying, as they do not have homes. Mangroves are shelters for a lot of birds and other animals protecting them from the heat caused by global warming. Our mangroves are getting dry and plants are dying day by day. Some trees do not really have green colour anymore. Until recently they were very beautiful. I don't see any people taking any action to protect our mangroves.

*Aishath Alya Binthi Ismail Ahmed, Grade 9,
The Maldives*



While there are no mechanisms in the education sector to systematically monitor lesson time lost and student academic performance in relation to climate change-induced hazards and shocks, national stakeholders across the region commonly point out that before the COVID-19 pandemic lesson time was already on the decline due to the impacts of increasing extreme weather events. In Bangladesh, lesson time loss is felt more severely in the double-shift schools where available lesson time is almost half that of single-shift schools. Similarly, the double-shift and triple-shift schools in Afghanistan are likely to feel more severely the impacts of reduced lesson time as their lesson durations are already much shorter than in single-shift schools. To address the lesson time loss, some education authorities have introduced a flexible school timetable/ calendar. For instance, the Education Department in Bihar, India, has adjusted the school timetable in response to the particular seasonal hazards and temperature conditions experienced in different districts. Bihar has also adjusted school vacation duration to compensate the lesson time lost in some flood-affected districts.

Teachers who have to travel a long distance also face difficulties arising from challenging weather conditions especially during the monsoon season. The late arrival or irregular attendance of teachers clearly impacts the timely delivery of the lessons. In the aftermath of disasters, teachers themselves are also affected and highly stressed. In Bangladesh, a majority of primary school teachers are female and they have to manage both household and school responsibilities putting additional heavy burdens on them in disaster-compromised contexts. Teachers elsewhere in the region are often voluntarily involved in non-academic disaster response and recovery activities, thereby making it difficult for them to concentrate on their main duty, i.e., teaching.

In crowded classrooms lacking functional cooling, ventilation and heating facilities, students struggle to maintain their concentration and motivation when it is unbearably hot or cold. Student FGD participants in most of the countries report that in a very hot and humid classroom they feel 'gloomy', 'tired', 'sluggish', 'lazy', 'sleepy' and even 'irritable'. Although teachers are doing their best to motivate their students under these circumstances, it is increasingly challenging for them to engage with heat-exhausted students when they themselves are suffering from the excessive heat. High temperature combined with high humidity make students sweat excessively, creating an unbearable smell in the classroom, another factor dragging down the quality of learning. Some research participants, especially teacher FGD participants in Afghanistan, Bangladesh, Nepal and Sri Lanka have noticed that excessively hot and uncomfortable classroom conditions have led to lower student academic performance in recent years.

Students are also losing diverse development opportunities at school. Experiential and inquiry-based learning in nature, outdoor sports and recreational activities, field trips and outdoor school assemblies are becoming less practicable in various locations across the region due to increasing health and safety concerns (e.g., excessive heat and strong sunlight, flash flood and landslide risk, insect and snake bites, encounter with wild animals, such as elephants).

Without first-hand nature-based experiences, students are less likely to care for and to take action to protect the natural environment. A Sri Lankan teacher points out that there is a worrying sign that lack of nature-based learning, once common for the teachers' generations, has led to the creation of a generation of Sri Lankan children who do not display any sense or sign of caring for the natural environment. Similar concerns were raised among research participants in the Maldives and Bhutan.



Section 4

Education Sector Responses to Climate Change

4.1. Policies, Plans and Strategies

Each South Asian country has developed national climate change policy and strategy documents. Pakistan is the only South Asian country that also has a *Climate Change Act*. Overall, policy coverage of the potential roles of education sector stakeholders is tokenistic or non-existent (see *Box 3*).



BOX 3. Key National Climate Change Policy, Planning and Strategy Documents and Their References to the Education Sector

	National Climate Change Policy and Strategy Documents	Roles for the Education Sector
Afghanistan	<i>Afghanistan Climate Change Strategy and Action Plan (2019)</i>	No mention.
Bangladesh	<i>Bangladesh Climate Change Strategy and Action Plan (2009)</i>	No mention.
Bhutan	<i>Climate Change Policy of the Kingdom of Bhutan (2020)</i>	Public awareness raising on climate change among different groups of people at all levels through education and outreach programmes.
India	<i>National Action Plan on Climate Change (2008)</i>	Human resource development through curriculum development at school and college levels.
The Maldives	<i>Maldives Climate Change Framework (2015)</i>	Integration of climate change elements in the secondary curriculum.
Nepal	<i>Climate Change Policy (2019)</i>	Incorporation of subject matters related to climate change causes and impacts into formal and non-formal curriculum.
Pakistan	<i>National Climate Change Policy (2012)</i>	Development of climate change curriculum in the formal education system at all levels.
	<i>Climate Change Act (2017)</i>	Implementation of education and awareness campaigns and programmes on climate change and promotion of climate change curricular integration.
Sri Lanka	<i>National Climate Change Policy of Sri Lanka (2012)</i>	Education, awareness and capacity buildings at all levels; Creation of a climate change sensitive generation through school education.
	<i>National Adaptation Plan for Climate Change Impacts on Sri Lanka: 2016-2025 (2016)</i>	Incorporation of climate change knowledge in school and university curricula.

Similarly, in the *Nationally Determined Contributions* (NDCs) to the Paris Agreement representing the commitment of each country to reducing greenhouse gas emissions and adapting to climate change, the education sector is not recognized as a priority sector or key player in NDCs developed by South Asian countries.

Overall, children and youth are not at all mentioned in most of the climate change policy and strategy documents in South Asia, let alone their potential active roles in climate change mitigation and adaptation action. Only Nepal and Sri Lanka’s NDCs documents contain children and young people’s engagement albeit fleetingly. Globally, NDCs documents are largely child-insensitive (Pegram & Colon 2019; UNICEF 2021c).

Each country has developed planning or guidelines documents focusing on school safety or education in emergencies predicated on international frameworks such as the *Comprehensive School Safety Framework* and/or *Inter-agency Network for Education in Emergencies (INEE) Minimum Standards*. While fleeting reference to climate change exists in most of the documents, emergency preparedness and response to fast-onset disasters are the main focus. Substantial and concrete considerations of climate change-induced slow-onset hazards and shocks such as drought, saline intrusion, sea level rise, erosion and environmental degradation are altogether lacking.

Among the education sector policy, planning and strategy documents reviewed for this research, those in Bangladesh, India and the Maldives acknowledge climate change as an issue for the education sector. Most notably, the *2020/2021-2024/25 Education Sector Plan for Bangladesh* highlights climate change as one of the six crosscutting issues that

present sector-wide and longer-term challenges requiring transformative strategies. No education sector policy and planning documents in South Asia refer to the national climate change policy and strategy documents of the country.

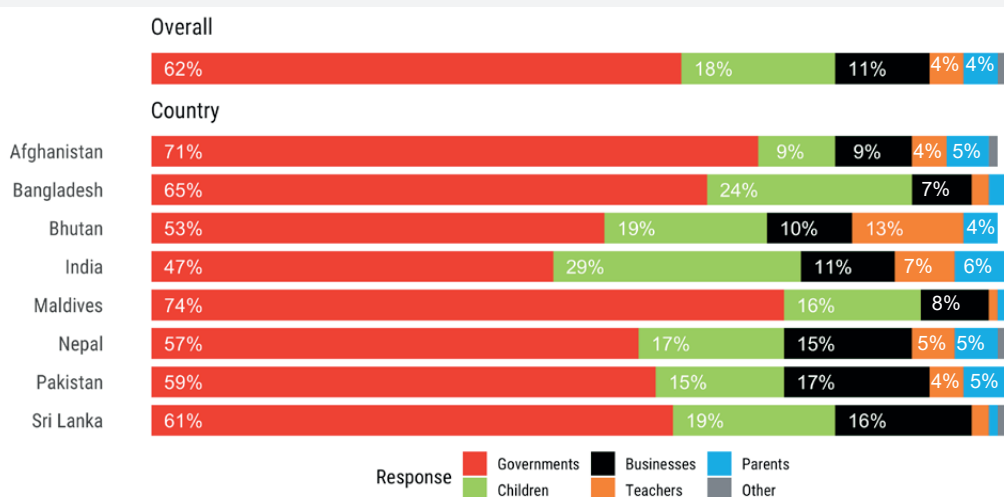
In India, Kerala is uniquely placed to advance climate change mitigation and adaptation action by involving children and young people in local policy making, implementation and monitoring. This is because of Kerala’s long-standing efforts to realize child-friendly local governance across all sectors and its on-going flagship innovation to create a model carbon-neutral panchayat in Wayanad district (see *Box 8*).

According to the U-Report survey conducted for this study, 62 per cent of South Asian youth respondents consider that the government should be taking most action to address climate change, followed by children (18 per cent) (see *Box 4*). Sixty-four per cent of youth respondents (n=12,776) also think that it is at least likely that the government will take action to address climate change in the wake of the COVID-19 pandemic.

4.2. Finance

To better manage and effectively invest in climate-related public finance, the Government of Bangladesh and the Government of Nepal have developed a national climate change financial framework and established an innovative climate change budget tracking system involving a wider range of government Ministries, Departments and Divisions, including those responsible for school education. In the case of Bangladesh, a climate-expenditure tracking framework measures climate change relevance and tags climate expenditure based on the six thematic areas of the *Bangladesh Climate Change Strategy*

BOX 4. UNICEF South Asia U-Report: Who should be taking the most action to address climate change? (n= 13,532)



and Action Plan. As for Nepal, eleven climate change-relevant development activity areas are identified and coded.

Across the region, education authorities do not have resource allocations earmarked for climate change mitigation and adaptation interventions in the education sector. While a disaster or emergency-related allocation is available in some countries such as Bangladesh, Bhutan, the Maldives and Nepal, this research has not been able to obtain further details to examine how the allocation relates to climate change resilience building.

As climate change disproportionately affects those who are experiencing the most severe multiple disparities, equitable resource allocation becomes particularly important. In this regard, the *Consolidated Equity Strategy for the School Education Sector in Nepal* and an accompanying *Equity in Education Index* (or *Equity Index*) are important innovations for ensuring equitable public financing to address existing disparities in the education sector. Sri Lanka's *Education Quality Input Scheme* uses a formula that provides greater weight to smaller schools that tend to be poorly resourced and located in rural and remote locations. The social safety spending measures in Bangladesh's education development budget and Bhutan's free public education provision as well as its School Feeding Programme play a vital role in incentivising and maintaining participation in primary and secondary schooling. These measures are considered to be making an indirect contribution to education sector resilience building in response to multifaceted climate crisis.

4.3. Curriculum, Teaching and Learning

Overall, climate change curriculum integration in South Asia remains very limited and rather peripheral. The eight country studies have come across pockets of climate change, DRR

and environment-related topics in school curricula, syllabuses and textbook chapter titles, but systematic, coherent and cross-curricular integration of knowledge, skills and attitudinal learning outcomes concerning climate change mitigation and adaptation through the grade levels and across subjects is not evident. When climate change-related curriculum topics exist, they are often found at secondary level and are heavily weighted towards knowledge acquisition with very limited skills and dispositional development. Considering the high dropout rate from secondary education across the South Asian countries, many students miss out on what climate change-related learning opportunities there are in secondary curriculum. There are few opportunities to be found at primary level. The *Environmental Science* subject in Bhutan (see Box 5) offers an exemplar curriculum but, as an optional subject, its reach and status are limited.

Despite of these overall limitations, the country studies have come across some curricular innovations (see Box 5).

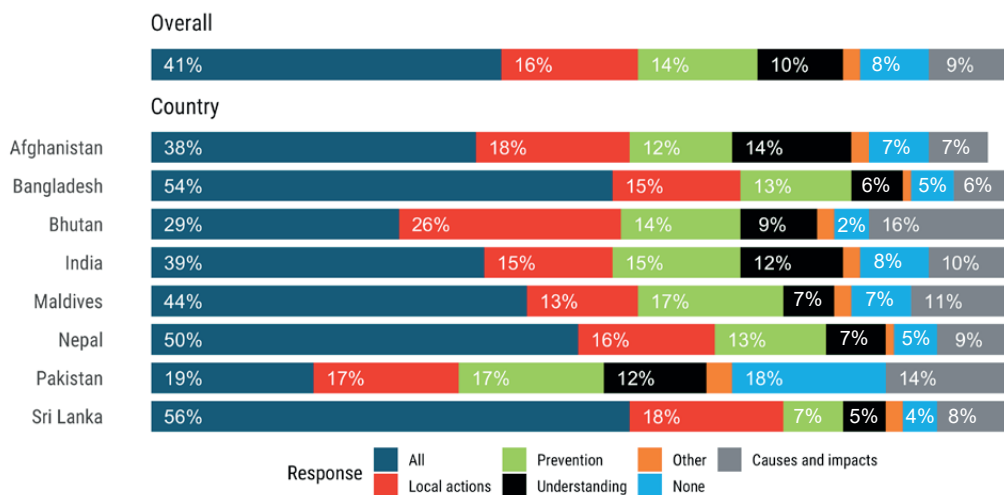
According to the U-Report survey conducted for this research, more than 90 per cent of South Asian youth respondents demonstrate their strong interest in learning about climate change. Forty-one per cent of youth participants indicate that they would like to learn of all aspects of climate change, followed by wanting to learn about local actions (16 per cent) and wanting to learn about climate change prevention measures (14 per cent). Only 8 per cent indicate no interest in learning about climate change (see Box 6).

Likewise, student FGD participants demonstrate keen interest in learning about climate change, above all, practical actions for making a positive difference (e.g., sustainable farming, waste management, environmentally friendly individual behaviours). Developing change agency and

BOX 5. Curriculum Innovation Examples

- **The Maldives:** The *National Curriculum Framework (NCF)* specifies eight interrelated and crosscutting key competencies, each consisting of a set of skills, knowledge, values, attitudinal and other social and behavioural components. It is carefully developed to cumulatively and holistically develop student competencies. The Using Sustainable Practices competency is most relevant to climate change mitigation and adaptation learning and action. This competency aims at raising student environmental awareness and promoting pro-environmental behaviours across learning areas and through the different grade levels. In the new national curriculum, climate change-related topics appear mainly in the following learning areas through the grade levels: *Health & Physical Education*, *Science* and *Social Science*.
- **Bhutan:** *Environmental Science* is an optional secondary-level subject. Taking an interdisciplinary approach, *Environmental Science* helps students develop their understanding of the multifaceted human causes of climate change as well as human agency at the individual and collective levels to tackle the climate crisis.
- **Bihar, India:** The Safe Saturday Programme is one of the key components of the state-wide Chief Minister School Safety Programme (CMSSP) in Bihar. It is a compulsory programme taking place during the second half of every Saturday. It offers practical and action-oriented learning opportunities for all schools - more than 80,000 schools and approximately 30 million students - across the state in order to address various climate change and disaster-related challenges by building student knowledge, life skills and confidence. The programme follows weekly topics covering a wide range of locally relevant and interrelated safety issues such as natural hazards, hygiene and cleanliness, diseases and child marriage.

BOX 6. UNICEF South Asia U-Report: What do you most want to learn about climate change? (n=18,266)



advocacy skills to influence others is another area of interest highlighted by a number of student FGD participants in various countries. Asked to imagine they were the Minister of Education in their own country and what they would like to do to help children and young people to contribute to positive actions aimed at tackling climate change challenges, student participants were keen to share their creative visions. See *Box 7* for some examples of student remarks.

Helping students become change agents who can proactively contribute to the mitigation and adaptation of climate change requires not only developing a critical understanding of causes and effects of climate change but also acquiring a wide range of skills to reduce multiple risks posed by the climate crisis. Knowledge and skills need to be underpinned by a framework of attitudes, dispositions and values that enable young people to act pro-environmentally and responsibly. Bringing knowledge to life, practising skills and scrutinizing attitudes and values require a pedagogy that is active, interactive, experiential and participatory (Selby & Kagawa 2012). From this perspective, lecture-oriented, teacher-centred and exam-focused teaching and rote learning widely practiced in South Asian classrooms are highly problematic as they are often inhibitive of skills development while impeding attitudinal and behavioural shift. National education authorities' intentions to shift from passive to active pedagogies as articulated in respective national education policy and strategy documents provide a springboard for realizing action-oriented climate change teaching and learning.

4.4. Teacher Capacity Development

Systematic climate change-related pre-service and in-service teacher training provision is absent in South Asia. There has been teacher capacity building training focused

on climate change and DRR but it tends to be short-term, ad hoc and of a one-off nature, lacking follow-up and aftercare, and reinforcement support.

A notable exception exists in Bihar where DRR and climate change components have been integrated in existing teacher training programmes. In addition, under the above-mentioned Chief Minister School Safety Programme (see *Box 5*), a cascade mode of teacher training programme has been developed and implemented at state, district, block and cluster/school levels. Another promising example is emerging in Khyber Pakhtunkhwa province, Pakistan. There are on-going efforts to develop and implement teacher-training programmes on DRR and school safety coordinated by the School Safety Cell established within the Directorate of Elementary and Secondary Education Khyber Pakhtunkhwa and supported by UNICEF.

In terms of potential content of teacher capacity development programmes, commonly suggested topics by teacher FGD participants include: understanding climate change causes and local impacts; skills for facilitating climate action at school and in community; how to enhance student health and wellbeing in the context of a changing climate; how to create and support student clubs working on climate change mitigation and adaptation. A number of teachers also call for an online platform and exchange visits where teachers and students can share their own climate change-related experiences, ideas and good practice examples with their peers. Teacher FGD participants in Afghanistan who have been working with their students and a local authority on school greening initiatives would like to have more resources (e.g., trees, plants and gardening equipment) so that they can expand greening activities at school and in community.

Box 7. If I were the Minister of Education in My Country ...

I want to change the mind of students. Climate is ourselves, everything humans do relates to their mind. Students should know their responsibilities for the environment. They should do good things for the environment (Marifa, Grade 12, Afghanistan).

I would make student groups in urban areas. We know what climate change is but people in the rural areas in our country don't. Have a group of 3 to 5 students go to the rural areas to make the people aware of climate change (Tasnia, Grade 10, Bangladesh).

I would like to include more climate change-related curriculum content in all the school subjects – climate change impacts and solutions. When students learn about specific subject knowledge, they should also learn a little bit about climate change (Wanchen, Grade 10, Bhutan).

I would like to implement a massive tree planting initiative involving children and make my state known as a green state. I will promote creativity among children through painting, drawing, or other events so that more and more people are engaged in learning about climate change in a creative way (Lakshmi, Grade 8, India).

I would like to set a budget which can be spent on student climate change actions. There are a lot of skilled students and they have lots of new good ideas but they cannot do much due to the financial problems. I believe that having financial sources is a good thing if you want students to be more involved in the activities to reduce climate change impacts ... Many of our friends are very interested in solving the climate change problems. In our island, financial support is really, really low (Saajiu, Grade 9, the Maldives).

I would encourage students to conduct special awareness raising initiatives for illiterate people in the village using dramas and local languages (Abishek, Grade 7, Nepal).

I would make sure that students have a more practical curriculum to learn about climate change. The current curriculum is not sufficient. Learning only theories is not sufficient. I would like to help students, teachers, parents and the entire society to take effective climate actions. Our world could be better safeguarded if we take collective action right now (Rashvila, Grade 11, Sri Lanka).

4.5. Communication, Coordination and Partnership

Lack of sufficient inter-ministerial collaboration and coordination between those with responsibilities for education and those authorities responsible for climate change and the environment is a recurring feature across country studies. When collaboration and coordination do exist, they are very much limited to a particular initiative. For instance, in Pakistan, education authorities and the Ministry of Environment collaborate on annual tree planting activities involving schools. In the case of Sri Lanka, the Climate Secretariat of the Ministry of Mahaweli Development and Environment and the Ministry of Education collaborate on a scout environmental education programme. The above-mentioned lack of consideration of the education sector in the national climate change policy agenda can probably be attributed to on-going low levels of interaction between the education and environment ministries.

At the national level, each country has set up a cross-sectoral decision making and coordination platform for climate change, but the education sector is either not represented or this research could not find any details. No country has education sector coordination mechanisms for climate change resilience building. In contrast, cross-sectoral disaster management coordination mechanisms involving the education sector have been established in a few countries. Whether and to what extent disaster management coordination bodies address climate change-induced hazards, shocks and vulnerabilities is a moot point and requires further research.

Box 8 highlights successful collaboration and partnership examples involving multiple partners including those in the education sector.



BOX 8. Climate Actions through Collaborations and Partnerships

- Kerala, India:** The Carbon Neutral Panchayat Project in the Meenangadi panchayat of Wayanad district is the Kerala state's flagship innovation to create a model carbon-neutral panchayat so that other panchayats in the district and rest of the country could follow. The project is a collective effort involving local self-government, youth clubs, students from various education institutions, women's self-help groups (*Kudanbashree*), research institutions, various experts and volunteers with the support of District Administration and Government of Kerala. Further to detailed greenhouse gas emission and carbon sequestration analysis, various projects have been undertaken including waste management, water resource preservation and tree planting.
- Nepal:** The school committee in the Himalayan Sherpa Buddhist Lower Secondary School came up with the idea of building a school-owned micro hydropower plant. With financial and technical support from foreign aid and private partners and labour provided by local villagers, the plant was successfully built. As the plant provides electricity to the school and neighbouring villages, consumption of firewood by the school and villagers was significantly reduced, hence contributing to forest conservation and reduction of CO₂ emissions.
- The Maldives:** Bringing together a wealth of expertise from participating UN organizations such as UNDP, UNICEF, UNFPA, UN WOMEN, WHO, FAO and UNOPS, the Low Emission Climate Resilient Development One-UN joint programme supported 11 islands in the Laamu atoll in mainstreaming climate change-related issues into local level development planning and service delivery. As part of the programme, solar panels were installed in 11 schools to reduce fossil fuel dependency and provide affordable, reliable and clean energy solutions.

4.6. School/Community Student Participation Platforms

Country studies have commonly found that climate change and pro-environmental learning and action opportunities outside of the classroom for school children very much depend on the enthusiasm of individual teachers and resource availability in particular schools. Tree planting, community clean-up campaigns, school competitions and exhibitions on environmental themes are common examples found across the country studies.

There are a number of innovative examples of student engagement opportunities led by national or sub-national governments often supported by development partners (see *Box 9*). Common types of non-formal education platforms/opportunities identified are: school/child clubs; nature observation and immersion programmes; child/youth networks and advocacy groups; peer-to-peer approach; green skills development programmes; symposia, summits and competitions; environmental audits at school and home. These modalities sometimes overlap and intersect.



BOX 9. Child and Youth Engagement and Action

School/Child Clubs

- **Bhutan:** School nature clubs or other environmentally-oriented school clubs conduct activities such as tree planting, cleaning and beautification campaigns at school and in the community, competitions on environment-related topics and awareness raising campaigns, among others.
- **India:** Through the National Green Corps 'Ecoclub' Programme of the Ministry of Environment, Forest and Climate Change, approximately one million ecoclubs have been created across India since 2001. Ecoclub members are engaged in activities such as solid waste management, tree plantation, cleaning of the local environment and celebration of important international environmental days at schools (e.g., World Environment Day and Earth Day).
- **Pakistan:** The clean green clubs established by the government's Clean Green School Programme provide a platform for government school students to take positive pro-environmental actions as 'clean and green champions.' The programme launched in 2019, initially involving 423 government schools in Islamabad, is to be rolled out to 30,000 more schools across the country in the next phase.
- **Sri Lanka and Nepal:** As part of child-centred disaster risk reduction (CCDRR) programmes implemented by the governments of Sri Lanka and Nepal supported by UNICEF, community-based and school-based clubs were created to facilitate active child participation. Child club members were trained to conduct risk assessment, to communicate identified risks and to influence local development planning processes.

Nature Observation and Immersion Programmes

- **Bhutan:** Through the Himalayan Environmental Rhythms Observation and Evaluation System (HEROES) project, students in the participating 21 schools representing different ecological zones in Bhutan gather phenological data on seasonal life cycles of chosen plants and wildlife in their school vicinity over ten months per year as a means of monitoring the effects of climate change.
- **The Maldives:** The Ministry of Education's *Farukoe* programme in 2018 was an ocean exploration programme involving schools across the whole country. Students explored the realities of local reef health through snorkelling and engaged in pre- and post-snorkelling activities. Pro-environmental school actions often followed.

Child/Youth Networks and Advocacy Groups

- **India, Nepal and Bhutan:** Both the India Youth Climate Network (IYCN) and the Nepalese Youth for Climate Action (NYCA) are youth-led national networks aiming at empowering young people to bring about positive change in the face of climate crisis. The Youth Advocacy Network in Bhutan (YAN Bhutan) is a youth-led group that addresses present and future environmental issues among other issues.
- **India and Pakistan:** Fridays for Future India and Fridays for Future Pakistan are national chapters of the global campaign, Fridays for Future.¹⁷ In each country they raise awareness of the climate crisis among young generations and organize climate strikes and marches.

Peer-to-Peer Approach

- **Bihar, India:** The above-mentioned Safe Saturday Programme of the Chief Minister School Safety Programme (see Box 5) employs a peer-to-peer learning approach. In every class two students with good communication skills are chosen and trained by the programme focal teacher. Trained students, in turn, train other students as 'peer educators.'

Green Skills Development Programmes

- **India:** The Green Skills Development Programme (GSDP) launched by the Ministry of Environment, Forest and Climate Change in 2018 is a skills development programme for India's youth in the environmental and forestry sectors. Over the three years, it aims at skilling approximately 560,000 youth so that they will become 'green skilled workers' with technical knowledge and commitment to creating a more sustainable and greener future.
- **Pakistan:** The Green Youth Movement (GYM) scheme, to be launched soon, is one of the flagship initiatives of Prime Minister's *Kamyab Jawan* (Youth Entrepreneurship) programme. Through the GYM scheme, youth participants will be offered small grants to come up with innovative solutions for tackling the climate crisis and environmental problems. A nationwide network of GYM clubs is to be established to support youth 'eco-innovators.'

¹⁷ Fridays For Future is a global movement started in 2018 after a young Swedish activist, Greta Thunberg, sat every Friday in front of the Swedish parliament protesting against the lack of action on climate crisis. For more information go to: <<https://fridaysforfuture.org>>

BOX 9. Child and Youth Engagement and Action (continued)

Symposia, Summits and Competitions

- Bangladesh:** On World Children's Day, 20 November 2020, the virtual Children's Climate Summit hosted by UNICEF brought together 300 'children parliamentarians' representing all constituencies in Bangladesh to debate climate issues, policies and actions to safeguard their future. Over one million children were involved in preparation for the summit as part of the Generation Parliament, a joint initiative of UNICEF and Bangladesh Debate Federation connecting children to policies that have direct impact on their present and future wellbeing. The Summit adopted a *Children's Climate Declaration*,¹⁸ which was presented to national policy makers.
- Bhutan:** The National STEM (Science Technology Engineering Mathematics) Olympiad is an annual competition organized by the Ministry of Education in collaboration with the Royal Education Council to encourage scientific innovation and creativity among middle and higher secondary school students. Each year it has a specific focus. The theme for 2020 was 'Science and Technology for Sustainable Waste Management'. After schools submit their proposals, the 30 best proposals are selected and the initiators of the 30 proposals receive a small amount of seed funding to develop their innovation. Then the 15 best innovations are selected to exhibit their innovative work in the national STEM Olympiad. Cash prizes and certificates are awarded according to the competition results.
- The Maldives:** Since 2015 three Student National Symposia on Environment have been jointly organized by the Ministry of Environment and Energy and the Ministry of Education. Targeting students from 12 to 18 years old across the country, the Symposia aim at raising student awareness of environmental changes and the importance of nature conservation and protection. During the second Symposium in 2018, schools submitted project proposals for locally specific environmental projects (including climate change-focused projects). Ten schools were selected and given grants to support project implementation.

Environmental Audits

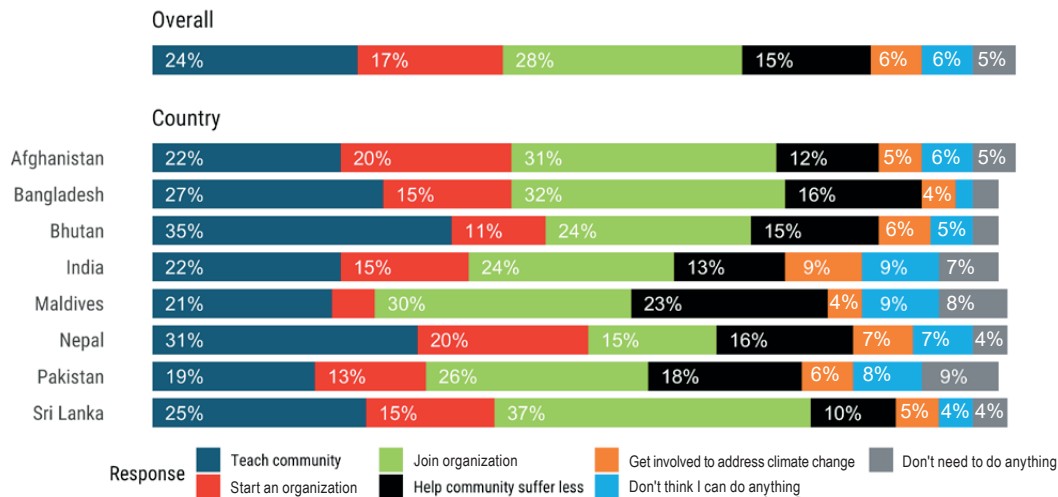
- India:** The Green School Programme run by a New Delhi-based CSO, Centre for Science and Environment, is an environmental education programme focused on a rigorous annual school environmental audit exercise. Participating students collect a wide range of information under six categories: air, energy, food, land, water and waste to gain a holistic picture of resource consumption and efficiency at school. This audit exercise helps the participating schools minimize the resource footprint of the school community and its premises.
- The Maldives:** With a grant from the UN's Global Environmental Facility Small Grants Programme (GEF SGP), a national NGO, VESHI (Volunteers for Environment, Social Harmony and Improvement), installed 2.8kW solar PV in Addu High School as part of a renewable energy demonstration project in 2014. VESHI provided a series of practical workshops to students on low-emission climate resilient development, including conducting energy audits at home and school and designing and executing a complete solar energy system capable of powering one classroom. As a result of the initial project, Addu High School won the Abu Dhabi-based Zayed Future Energy Prize in 2015 to install additional solar panels to increase its solar power production from 2.8kW to 45kW, which led the school to become carbon neutral by providing 100 per cent of the school's energy needs.

Notwithstanding these important examples, a key gap is the lack of synergies between these non-formal climate change learning and action opportunities within formal learning. In the U-Report survey, 90 per cent of South Asian youth respondents signal their keen interest in taking action to tackle climate change if they are given the necessary support. Bangladeshi, Sri Lankan and Bhutanese respondents exhibit a higher interest rate (94 per cent, 92 per cent, 91 per cent, respectively) than the regional average. 'Joining an organization that addresses climate change' was the most frequently expressed and favoured action (28 per cent), followed by 'teaching own community the impact of climate change' (24 per cent) (see Box 10).



¹⁸ For the Declaration, go to: <https://www.unicef.org/bangladesh/en/media/4706/file>

BOX 10. UNICEF South Asia U-Report: If you had the necessary support, what would you like to do to address climate change in the future? (n=11,607)



4.7. Monitoring, Evaluation and Accountability

The lack of data concerning climate change impacts and vulnerability in the education sector is a common and critical gap among the South Asian countries. This gap stands in the way of designing effective, timely and forward-looking interventions for mitigating and adapting to climate change impacts in the education sector. Country studies have revealed that mechanisms and tools to systematically assess and monitor climate change impacts on school infrastructure, access to education, student and teacher health and wellbeing, education provision and learning quality are overall lacking at both national and sub-national levels. Education Management Information Systems (EMIS) are not designed to capture climate change and disaster impact data in the system.

Recognizing the information gap concerning climate change and the education sector as an obstacle for education planning, Bangladesh has taken concrete steps to gather and disseminate key climate change and disaster impact data in the sector. A pilot study titled Climate Change Education for Sustainable Development conducted by the Bangladesh Bureau of Educational Information and Statistics (BANBEIS) and UNESCO gathered and analyzed disaster-related impact data from 1,800 education institutions covering 12 disaster-affected areas. Further to this path-finding pilot study, BANBEIS continues to gather climate change and disaster vulnerability data according to the 11 categories (see Box 11) using secondary data from education sub-sectors. A chapter on 'climate change and disaster impacts on education

institution' has featured in the annual *Bangladesh Education Statistics* since 2017. In the case of India, the country's robust education sector online data collection system called the United District Information System for Education Plus (UDISE+) includes some indicators which can be used as proxy indicators to monitor climate change impacts and/or school actions to address climate change impacts (see Box 11). In these two countries, it is not clear if and how the data gathered has actually helped inform education sector policy making and planning.



BOX 11. Climate Change and Disaster Data in the Education Sector

Bangladesh: 11 Categories Employed by BANBEIS

1. Number of institutions affected by types of disaster
2. Damage/loss from which the institution did not recover after last disaster
3. Reasons for irregular attendance of students in the institution affected by disaster
4. Reasons for irregular attendance of teachers in the institution affected by disaster
5. Loss and damage assessment of education materials after last disaster
6. Subjects that are subject to competency loss due to disaster impacts
7. Measures taken by the institution for recovering affected subject
8. Teacher training on disaster management
9. Discussion of disaster impacts with stakeholders
10. Initiatives taken by institutions for increasing disaster recovery capacities
11. Evaluation report concerning disaster threats/risk

India: Climate Change-Relevant Indicators in UDISE+

Section/Information	Indicators
Section 1: School Profile	<ul style="list-style-type: none"> • Availability of all-weather roads to school
Section 2: Physical Facilities and Equipment	<ul style="list-style-type: none"> • Availability of hand washing facilities with soap • Availability and functionality of drinking water (also information on main source of drinking water; availability of water purifier, the existence of water quality test) • Availability and functionality of rainwater harvesting facilities • Availability and functionality of solar panel(s) • Availability of a kitchen garden
Section 10: Performance Grading Index (PGI) and Other Indicators	<ul style="list-style-type: none"> • Constitution of youth club(s) at school • Constitution of eco club(s) at school
Section 11: School Safety	<ul style="list-style-type: none"> • Development of the School Disaster Management Plan • Implementation of structural and non-structural safety audit • Existence of a nodal teacher for school safety • Regular student and teacher training for school safety and disaster preparedness • Availability of disaster management teaching through the curriculum • Implementation of the following: sensitizing parents; generating awareness for students and community; installing safety suggestion/complaint box in the school; providing copies of safety guidelines to the students

In the Maldives, Pakistan and Sri Lanka, there are comprehensive school-level monitoring guidelines and/or tools aimed at ensuring quality education provision. They are: the *School Improvement, Quality Assurance & Accountability (SIQAA) Framework* and the *Baraabaru School Indicators* in the Maldives; the *Minimum Standards for Quality Education in Pakistan*; the *Process of Evaluation for Assuring the Quality in Education* in Sri Lanka. However, these unique avenues are not so far utilized for capturing climate change impact data and addressing the climate change issues present in the respective countries.



Section 5

Recommendations

The recommendations put forward in this section are primarily for the Ministries of Education and their partners in South Asia. For the countries with devolved systems, these recommendations are also applicable to relevant sub-national education authorities and their partners.

This research has identified a number of innovative examples that are conducive to building climate change resilience in the education sector. However, considering the scale and urgency of the climate crisis we face, the education sector needs to be more ambitious, innovative and forward looking to ensure quality education provision for all children, protecting students' safety, health and wellbeing so enabling them to realize their full potentials, and, importantly, empowering them to become agents of change in addressing the multiple challenges posed by climate change.

Recommendation 1: Develop monitoring and assessment mechanisms and tools to systematically gather climate change impact data on the education sector for evidence-based planning and policymaking.

As each country study has revealed, climate change has been adversely affecting school facilities, student access to education, student and teacher health and wellbeing, education provision and quality learning in varying degrees. However, the evidence remains patchy and anecdotal. Except for the exemplar progress made by Bangladesh, efforts to systematically gather climate change impact data in the education sector are yet to begin.

The Ministry of Education in each country, working closely with relevant sub-national level authorities, should consider developing contextually appropriate climate change impact and vulnerability indicators for the education sector and subsequently integrate them into the existing data collection mechanisms/tools (e.g., EMIS, school-level assessment tools) and/or develop supplementary tools as appropriate. It is important that such indicators cover both fast-onset hazards (e.g., flooding and storms) as well as slow-onset events (e.g., saline intrusion, sea level rise, erosion). It is also important that the education authorities collaborate with relevant government ministries/agencies and in particular those with responsibility for climate change and environment, disaster management, health, water, youth, and child protection in the gathering, sharing and analyzing of climate change impact data as it concerns children and schools, thus avoiding duplication of efforts.

Data gathered need to be analyzed and disseminated for evidence-based planning and policymaking. This calls for capacity building among those who are tasked with gathering, analyzing, validating and disseminating data.

Recommendation 2: Incorporate climate change adaptation and mitigation considerations in key education sector policies, plans and strategy documents in line with national climate change policy, planning and strategy documents; also incorporate education sector needs, roles and necessary contributions in national climate change policy and strategy documents.

In all South Asian countries, national policy, planning and strategy documents concerning climate change exist in parallel with but detached from those in the education



sector. Climate change policy documents fail to recognize the critical roles that the Ministry of Education and school level education can potentially play in accelerating climate change mitigation and adaptation efforts. Active roles of children and youth in expanding, accelerating and intensifying climate actions are yet to be formally recognized.

In the education sector, climate change considerations are largely absent in key sector policy and planning documents. While all countries in the region have developed school safety or education in emergencies planning and guidelines documents, consideration of multifaceted climate change-induced safety issues (e.g., health and child protection issues) and prolonged emergency situations triggered by slow-onset climate shocks (e.g., drought, sea level rise) are noticeably lacking. To be effective, multiple risk factors need to be addressed simultaneously, comprehensively and inter-relatedly.

Ministries of Education as well as sub-national education authorities in devolved contexts should consider integrating climate change mitigation and adaptation in key education policy, planning and strategy documents more concretely following consultation with key stakeholders and partners, especially the government ministries/agencies responsible for climate change and the environment. Some of the key areas to be considered include:

- Concretize what 'climate proofed' schooling should look like in the short, mid- and long-term. Making school infrastructure more climate resilient, improving energy and water efficiency and using renewable energy should all be integral aspects of the concretization.
- Ensure more convergence between education, health and nutrition, child protection and WASH sector interventions at school due to multifaceted and mutually exacerbating climate change impacts on children and schools.
- Address the interconnected impact of climate change and COVID-19 emergencies, both sharing a root cause in the human destruction of the natural environment. Unless we act to protect natural habitat and biodiversity, the education sector will be impacted by both worsening climate crisis and recurrent zoonotic disease pandemics such as COVID-19.
- Purposefully integrate alternative learning pathways developed during the COVID-19 school closure period into the national education system as standard operating procedures for education in emergencies and as a means of reaching out-of-school children.
- Consider introducing a flexible school timetable/schedule to avoid seasonal extreme weather events to ensure student safety and quality learning.
- Plan ahead for education continuity in the likely future scenario of large-scale migration and displacement due to climate change-induced shocks.

Integrating child and youth voice in policymaking is vital. Learning from Kerala, countries especially at sub-national level should create a mechanism to integrate child and youth voice and participation in local policy planning, implementation and monitoring.

Some of the countries in South Asia are at the very early stage of conceptualizing a 21st century skills agenda in the education sector. Skills concerning climate change mitigation and adaptation, environmental protection, disaster risk reduction and sustainable consumption must be a central part of such an agenda.

Recommendation 3: Ensure education sector funding for climate change mitigation and adaptation; also ensure equity-based resource allocation to support children and schools most vulnerable to climate change impacts.

In each South Asian country, the Ministry of Education has no dedicated resource allocation for climate change mitigation and adaptation activities. This can be attributed to insufficient climate change impact and vulnerability data, low level of budget allocation in the education sector and conflicting education sector priorities, among others.

It is vital to raise awareness among national government officials, especially those who are in the ministries responsible for education, finance and planning regarding the benefits of financing climate change mitigation and adaptation activities in the education sector. Awareness raising among relevant sub-national government personnel is also vital especially in devolved countries such as Nepal, India and Pakistan.

Among education policy makers and key stakeholders, there should be consensus around what constitutes a 'climate action' budget in the education sector. It will also be important to create a financial tracking system for a 'climate action' budget in the education sector to better monitor budget allocation and utilization. Such a system should be part of the wider government climate budget tracking mechanism wherever it exists.

Education sector investment in South Asia as a proportion of GDP ranges from the highest in Bhutan (6.9 per cent in 2018) to the lowest in Bangladesh (1.3 per cent in 2019) (World Bank Group 2022b). The bulk of the education budget is used for recurrent heads, leaving only a small portion of the budget for maintenance and development of the education system. Considering the current resource gap in the sector, each government should expand financial sources by tapping into international climate funding opportunities such as the Green Climate Fund, the Adaptation Fund and the Global Environment Facility

(GEF).¹⁹ The climate finance mechanisms of the UNFCCC, however, currently do not prioritise the education sector in their investment criteria. Considering the pivotal and multiplier role that the education sector potentially plays in climate change mitigation and adaptation efforts, the UNFCCC could consider including the education sector in the criteria. In the meantime, at the national level when the ministry responsible for climate change and the environment and/or their partners work on applications for climate funding, they should closely liaise with the Ministry of Education so that the education sector's needs become embedded in the climate finance application proposal.

In efforts to diversify climate funding to support education sector resilience building, it is also important to creatively mobilize and share resources among relevant government ministries, departments and agencies at different levels and other partners including NGOs/CSOs, the private sector and communities.

Innovative equity-focused resource allocation models identified in this research are not developed because of climate change concerns but such mechanisms make important contributions to education sector resilience building as climate change impacts are disproportionately affecting those who are experiencing the most severe multiple disparities. The existing equity-based mechanisms should be further strengthened by explicitly targeting the most vulnerable children, their families and schools that suffer most severely from recurrent impacts of climate change. The countries without such a mechanism should consider developing equity-focused budgeting in the education sector.

Recommendation 4: Integrate knowledge, skills and dispositional learning outcomes for climate change mitigation and adaptation more comprehensively and systematically in school curricula.

While there exist pockets of climate change-related topics and themes in school curricula and textbooks in each country, curricular opportunities tend to be sporadic and practical knowledge and skills required for positive climate actions are largely limited. Existing climate change-related curricular opportunities should be considerably strengthened by ensuring systematic curriculum integration vertically through the curriculum with learning outcome progression from primary to secondary level and by building in horizontal, cross-curricular reinforcement through each of the subjects at each grade level. There should be a greater emphasis on skills and attitudinal development employing a wide range of learner-centred and action-oriented pedagogies. As part of the formal curriculum learning, students should be given opportunities to take concrete actions and play change agent and change advocacy roles in mitigating climate risks and building resilience at school and in their local community.

In line with respective government's climate change mitigation and adaptation vision, students should develop new skills and competencies necessary for contributing to a low-carbon economy and sustainable livelihoods and living. Working with relevant partners, education authorities responsible for developing the school curriculum should identify contextually appropriate green skills for a low-carbon economy and climate resilient society and subsequently integrate them into the curriculum.

To better deal with multidimensional climate crises, it is also vital to integrate a broad range of life skills to address mutually reinforcing issues related to child protection, WASH, health and nutrition and safety and disaster more holistically. Students need to develop and hone critical and creative thinking skills, problem solving skills, self-management skills and coping skills to better deal with difficult emotions and uncertainties, advocacy and leadership skills, to facilitate and effect positive change. Skills and attitudes disposing them to live within the earth's ecological capacity are particularly vital. By employing a broad view on what safety means for children, the Safe Saturday Programme in Bihar opens up opportunities to better address inter-related risks whether they be disaster, climate and/or health-related. Bihar's innovative life skills-based programme combined with its peer-to-peer learning approach is a low-cost replicable model to better manage risks by enhancing contextually relevant knowledge, confidence and change agency capacities among students.

Education authorities responsible for curriculum development should also ensure curriculum contextualization by working closely with regional or local stakeholders to better address locally-specific climate risks and vulnerabilities. Nepal's localized curriculum presents an ideal opportunity to develop and implement contextualized climate change teaching and learning if necessary support is given to the local government.

Recommendation 5: Enable teachers to provide action-oriented climate change teaching and learning and to support student health and wellbeing.

Lack of systematic teacher capacity development opportunities focused on climate change is another gap in the region. Climate change-related teacher training programmes implemented before were short-lived and sporadic with no reinforcement.

Relevant education authorities in each country should conduct a thorough teacher education curriculum audit for both pre-service and in-service training programmes to identify existing opportunities and gaps concerning climate change mitigation and adaptation. In countries such as Pakistan and Nepal, climate change mitigation and

¹⁹ GEF administers three funds that can be used to support climate change adaptation, i.e., the Least Developed Countries Fund; the Special Climate Change Fund and the GEF Trust Fund.

adaptation components can be integrated into existing or emerging WASH, DRR, and school safety teacher capacity building programmes as appropriate.

Teachers should be supported so that they can also play the role of change agents who raise awareness and promote pro-environmental action at school and in the community. Locally appropriate practices might include conserving water, developing school gardens, planting and looking after trees, using renewable energy technology, and generally raising school and community awareness.

Heavily didactic pedagogical practice is a huge obstacle standing in the way of implementing action-oriented climate change learning. It is vital to help teachers to employ a wide range of active, participatory and learner-centred pedagogies. Lessons learned from previous and on-going pedagogical renewal efforts in the region (e.g., the child-centred Multi-Level Pedagogical Approach in Sri Lanka and activity-based learning in India, both supported by UNICEF) should inform further innovation in this regard.

When student physical and mental health and wellbeing are adversely affected, a timely intervention is required. For the countries with an established school counsellor system (e.g., Bhutan, the Maldives), their operational capacity should be enhanced to meet the increasing needs in the context of a deepening climate crisis. While teachers should not be expected to provide professional medical and psychological support, they should be able to provide basic first aid, recognize symptoms of trauma and psychological distress for timely referral to professional support and provide pastoral care for distressed students; for instance, by creating safe opportunities where students can express their feelings and concerns about difficult experiences, anxieties and fears about the present and the future.

Recommendation 6: Improve coordination within the education sector, and also enhance cross-sectoral coordination to ensure effective education system response to multi-faceted climate change impacts.

Within the education sector, climate change considerations are not part of existing coordination mechanisms. To close this gap, the education sector in each country should consider creating a national platform/mechanism focused on climate change resilience building or, perhaps more practically, integrate such considerations in the existing mechanism/platform concerning school safety, disaster risk reduction and/or education in emergencies as appropriate.

Lack of cross-sectoral coordination is another gap to be filled. Engagement between Ministries of Education and ministries responsible for climate change are currently very

much limited in all countries. This situation may well explain the above-mentioned policy gaps – lack of climate change considerations in education policies and lack of education considerations in climate change policies.

To address direct and indirect climate change impacts on the education sector to the scale and at the speed required, a multi-sectoral partnership approach at different levels is of vital importance in pooling and sharing expertise, information and resources.

Recommendation 7: Make school/community-based student participation platforms for climate change learning and action available to a greater number of students.

Country studies have identified a wide range of innovative child/youth participation platforms/opportunities for climate change learning and action (see *Box 9*). However, voluntary participative nature of most of the opportunities indicates that only a limited number of schools and students benefit from them. Drawing from the *Farukoe* programme in the Maldives and the Safe Saturday Programme in Bihar, both being implemented in all the schools that are within the jurisdiction of the government, each jurisdiction should consider creating mechanisms and platforms allowing greater number of students to participate. In each country, well-established (or emerging) school-based or community-based platforms or programmes can be galvanized behind climate change action involving children and youth so as to build school and community resilience.

Some potential entry points include:

- School cabinet/council/parliament (Afghanistan, Bangladesh, India, Sri Lanka)
- School-based WASH programmes such as the *Swachh Vidyalaya Puraskar* (India)
- Health programmes such as the Little Doctors Programme (Bangladesh), the National Adolescent Health Programmes (India) and the School Health Programme (Sri Lanka)
- Scouting activities (Bangladesh, Bhutan, Sri Lanka)
- Youth programmes such as the National Service Schemes and *Nehru Yuva Kendra Sangathan* (India) and the Youth Volunteer Committees for climate change-induced disaster management (Nepal)

The countries with school environmental/disaster management committees can also use them as potential entry points for student climate change mitigation and adaptation action.

It is also vital to make the student participation platforms child/youth-led in an age-appropriate manner as a means of building their leadership capacities and confidence. The

peer-to-peer learning approach employed in Bihar's Safe Saturday Programme has been instrumental in developing knowledge, confidence and change agency capacities among students. To expand, accelerate and intensify climate change mindfulness and climate change action, it is crucial for schools to reach out into their community, a key approach also employed by the Bihar's Safe Saturday Programme. Schools should be a community hub to better accelerate, intensify, consolidate, multiply and sustain climate change resilience building.

All countries can consider creating a 'green star' recognition scheme for individuals and schools making a unique contribution to mitigating and adapting to climate change.

Recommendation 8: Create regional platforms/mechanisms for mutual learning, information sharing and cross-border collaborations among education sector key stakeholders at different levels to accelerate climate action in the region.

Climate change does not respect national boundaries. Climate change challenges in South Asian countries are deeply intertwined due to shared geographical features and natural resources such as air, water and biodiversity. In climate change mitigation and adaptation efforts, more can be achieved faster together than as one country.

At the regional level, there should be platforms/mechanisms through which education sector stakeholders at different levels (e.g., students, teachers, schools and education policy makers) can share their ideas, good practice examples and collaborate to address common challenges. Such platforms might be organized according to unique geographical features such as mountain/hill communities, coastal communities, riverine communities or island communities. Sharing and mutual learning platforms could be online or face-to-face as appropriate. Schools working on the similar themes/projects can be linked.

The regional platforms/mechanisms should also be linked to international platforms/mechanisms.

Recommendation 9: Conduct discussions and determine concrete climate actions in education sector with all due expedition.

Declaring a 'Planetary Emergency', the Bangladesh Parliament has urged the world to take ambitious and decisive actions to combat climate change, working on a war footing. In its climate emergency declaration, the Maldivian Parliament emphasizes that the best chance of survival for small-island nations such as the Maldives rests on the successful curbing of greenhouse gas emissions by the international community with the utmost urgency. Youth in

South Asia are also calling for climate action. Over 60 per cent of South Asian U-Report respondents believe that their governments should take the swiftest action to address climate change and a significant majority of youth respondents demonstrate their keen interest in learning about climate change and their willingness to take climate action when given the necessary support.

There should be discussions among education policy makers and key stakeholders to identify immediate, mid-term and longer-term actions that need to be put in place, never forgetting that we have very little time left to roll back climate breakdown and maintain a liveable planet. It is imperative that national and sub-national governments take decisive action without delay.



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Appendix 1 – System-Wide Standards and Progress Indicators for Climate Resilient Education Systems

Policies, Plans and Strategies

Standard: Key education policy, planning and strategy documents are well aligned with nationally defined climate change mitigation and adaptation goals; National climate change policy and planning documents recognize needs, roles and responsibilities of the education sector.

Climate Change Response			
Gap	Latent	Emerging	Established/Implemented
<ul style="list-style-type: none"> □ Climate change risks in the education sector are not recognized in key education policy, planning and strategy documents. □ Education sector’s needs and potential roles are not recognized in the national climate change policy and planning documents, including the country’s <i>Nationally Determined Contributions</i> (NDCs) and the <i>National Adaptation Plan</i> (NAP). 	<ul style="list-style-type: none"> □ While climate change risks in the education sector are generally recognized, the education sector policy, planning and strategy documents are narrowly focused on preparedness and responses to climate change-induced fast-onset disasters, with no elaborations on climate change-induced slow-onset events. □ National climate change policy and planning documents make only brief reference to the education sector with very little detail added. Education is not recognized as a priority sector. 	<ul style="list-style-type: none"> □ Climate change goals in the national climate change policy, planning and strategy documents are well-aligned with those of education. □ Education policy, planning and strategy documents articulate the active roles of school communities (including students) in climate action. □ Education policy, planning and strategy documents articulate what climate proofed schooling should look like. □ National climate change policy, planning and strategy documents recognize education among the main priority sectors. 	<ul style="list-style-type: none"> □ Education policy, planning and strategy documents (aligned with climate change mitigation and adaptation priorities) have clear and transparent implementation mechanisms, together with necessary resource allocations. □ National climate change policy and planning documents (recognizing education among the main priority sectors) have clear and transparent implementation mechanisms, together with necessary resource allocations. □ Both education and climate change policy documents are reviewed periodically for necessary refinement and update, reflecting on the implementation experiences and latest climate change risk landscape.



Finance

Standard: Ministry of Education has equity-based resource allocations for climate change mitigation and adaptation actions, and is supported by adequate financing mechanisms.

Climate Change Response			
Gap	Latent	Emerging	Established/Implemented
<ul style="list-style-type: none"> □ There is no or very little funding allocation for climate change mitigation and adaptation activities in the education sector. 	<ul style="list-style-type: none"> □ There are some education sector funding allocations for disaster preparedness, education in emergencies and/or school safety focused on climate change-induced fast-onset disasters. 	<ul style="list-style-type: none"> □ Key personnel in the ministries of education, finance and planning are aware of the importance and benefits of education sector financing on climate change mitigation and adaptation activities. □ There is a clear MoE funding framework for what constitutes a climate action budget in the education sector. □ MoE funding allocations for climate action are equitable so that the most vulnerable schools and students with least capacities are prioritized to effect a levelling upwards. Funding formula include climate change risks and vulnerabilities. □ There exist continuous efforts to diversify education sector financing mechanisms to support climate action through bilateral and multilateral funding options (e.g., Green Climate Fund, Adaptation Fund, Global Environment Facility), private sectors, NGO/CSO partners, local governments. 	<ul style="list-style-type: none"> □ MoE allocates annual/ periodic budget for climate change mitigation and adaptation activities. □ A financial tracking system/ budget coding system is established to monitor education sector budget allocation and utilization to support climate change mitigation and adaptation activities. □ There exist continuous and concerted efforts to identify and close education sector funding gaps leading to mobilization of support that draws on bilateral and multilateral funding options (e.g., Green Climate Fund Adaptation Fund, Global Environment Facility), private sectors, NGO/CSO partners, local governments.



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Curriculum, Teaching and Learning

Standard: Knowledge, skills and dispositional learning outcomes for climate change mitigation and adaptation are systematically integrated in the national curriculum.

Climate Change Response			
Gap	Latent	Emerging	Established/Implemented
<ul style="list-style-type: none"> □ Climate change-related components exist very sporadically and non-coherently in the national curriculum. 	<ul style="list-style-type: none"> □ Some climate change-related components exist but in limited subjects and at limited grade levels (and mainly at secondary level). □ Climate change-related learning outcomes are heavily knowledge-focused. □ The importance of learner-centered and action-oriented pedagogies is generally recognized in the curriculum documents, but their relevance to climate change learning is not articulated. 	<ul style="list-style-type: none"> □ Climate change-related themes and topics exist quite frequently in multiple subjects at both primary and secondary grade levels, but systematic integration is still lacking. □ Contextually appropriate green skills and broader life skills for climate change resilience building are identified and integrated in the curriculum. □ Curriculum documents articulate the importance of learner-centered and action-oriented pedagogies for climate change learning and elaborate key pedagogical modalities/ approaches. □ Curriculum documents also elaborate formative student assessment modalities for climate change learning. 	<ul style="list-style-type: none"> □ Knowledge, skills and dispositional learning outcomes for climate change mitigation and adaptation are systematically integrated in the primary and secondary curriculum through-the-grades and across-the-subjects in an interdisciplinary manner. □ Climate change teaching and learning support materials are also available in an accessible manner (e.g., in local languages). □ Teachers have the capacity to deliver climate change curriculum components by employing a range of learner-centered and action-oriented pedagogies. □ Teachers also have the capacity to employ a range of student assessment modalities.



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Teacher Capacity Building

Standard: Continuous teacher capacity building opportunities for climate change mitigation and adaptation are available for both pre-service and in-service teachers.

Climate Change Response			
Gap	Latent	Emerging	Established/Implemented
<ul style="list-style-type: none"> <input type="checkbox"/> Teacher education programmes, pre-service and in-service, have no or few components on climate change mitigation and adaptation. <input type="checkbox"/> No resource and support materials on climate change are available for pre-service and in-service teacher capacity building. 	<ul style="list-style-type: none"> <input type="checkbox"/> Ad-hoc climate change-focused teacher education programmes (for both pre-service and in-service) exist, with no follow-up support. <input type="checkbox"/> There exist some climate change-focused resource/support materials for teachers, but they do not consider locally specific climate change risks and vulnerabilities. 	<ul style="list-style-type: none"> <input type="checkbox"/> Teacher training programmes, pre-service and in-service, include some components on basic knowledge and skills concerning climate change mitigation and adaptation, but they are available to only a limited number of teachers. <input type="checkbox"/> There are some climate change-related resource/support materials for teachers that address locally specific climate change risks and vulnerabilities to some degree. 	<ul style="list-style-type: none"> <input type="checkbox"/> Systematic and continuous teacher capacity building (for both pre-service and in-service) are widely available covering the following areas: <ul style="list-style-type: none"> • Delivering climate change mitigation and adaptation components in the formal curriculum • Facilitating student climate change learning and action at school and in the community • Facilitation skills for learner-centered and action-oriented pedagogies • Employing a range of assessment modalities (formative assessment modalities in particular) for climate change learning • Helping students to address climate change-induced issues relating to health and wellbeing, child protection, Water, Sanitation and Hygiene. <input type="checkbox"/> Follow-up support and reinforcement of teacher training is in place. <input type="checkbox"/> Contextualized resource/support materials on climate change are widely available for pre-service and in-service teachers.



Communication, Coordination and Partnership

Standard: Multi-sectoral, multi-level and partnership approaches are in place for developing and delivering education sector climate change mitigation and adaptation action.

Climate Change Response			
Gap	Latent	Emerging	Established/Implemented
<ul style="list-style-type: none"> □ There is no coordination platform/mechanism for climate change-related concerns in the education sector. □ No or very little communication and coordination exists between MoE and the ministry responsible for climate change. 	<ul style="list-style-type: none"> □ Ad-hoc climate change-focused teacher education programmes (for both pre-service and in-service) exist, with no follow-up support. □ There exist some climate change-focused resource/support materials for teachers, but they do not consider locally specific climate change risks and vulnerabilities. 	<ul style="list-style-type: none"> □ The education sector coordination platform/mechanism for school safety/DRR/Education in Emergencies focuses on reduction of multiple climate risks, including risks associated with both fast-onset and slow-onset events. □ MoE and the ministry responsible for climate change have established clear and regular communication channels and coordination mechanisms with dedicated focal personnel in both ministries. 	<ul style="list-style-type: none"> □ At national level, a multi-sectoral coordination platform/mechanism for education sector climate change resilience building exists with clear roles and responsibilities laid out for identified key stakeholders. □ Key stakeholders actively participate in the multi-level coordination platform/mechanism established for education sector climate change resilience building. □ MoE coordinates and collaborates with the ministry responsible for climate change and also with other relevant authorities and partners for developing education sector policies/plans, formal and non-formal education programmes, teacher capacity development programmes for climate change mitigation and adaptation and overall resilience building in the education sector.



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School/Community Student Participation Platforms

Standard: A greater number of students have school- and community-based participation opportunities where they can exercise and develop their change agency, advocacy and leadership capacities to accelerate climate action.

Climate Change Response			
Gap	Latent	Emerging	Established/Implemented
<p><input type="checkbox"/> There are no extra-curricular and non-formal education programmes and opportunities allowing students to obtain and apply their climate change knowledge and gain practice in exercising their skills for climate action.</p>	<p><input type="checkbox"/> Existing extra-curricular and non-formal climate change programmes/ opportunities are largely dependent on voluntary efforts of enthusiastic teachers and schools.</p>	<p><input type="checkbox"/> There are government-led student participation programmes for climate change learning and action, but the number of students/schools benefiting from them are limited and such opportunities are not linked to formal curriculum.</p>	<p><input type="checkbox"/> Government-led programmes for climate change learning and action are available for all students - or a majority of students - in the jurisdiction. Such programmes are linked to formal curriculum and anchored in the education sector policy.</p> <p><input type="checkbox"/> School and community-based platforms are led by students themselves in an age-appropriate manner, with peer-to-peer approaches widely employed.</p>



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Monitoring, Evaluation and Accountability

Standard: Climate change impact data in the education system are systematically gathered; the data gathered are analyzed and used for evidence-based education sector policy making and planning.

Climate Change Response			
Gap	Latent	Emerging	Established/Implemented
<ul style="list-style-type: none"> <input type="checkbox"/> Climate change impact data in the education sector are largely absent. <input type="checkbox"/> No mechanisms/tools are available to gather climate change impact data in the education sector. 	<ul style="list-style-type: none"> <input type="checkbox"/> Some climate change-induced disaster damage data in the education sector are available but primarily for times of large-scale natural disaster. <input type="checkbox"/> There exist no mechanisms/tools for gathering climate change impact data on a routine basis. 	<ul style="list-style-type: none"> <input type="checkbox"/> Country-specific indicators to gather climate change impacts in the education sector are developed. <input type="checkbox"/> MoE and non-education authorities collaborate to gather and share climate change impact data concerning schools and children. 	<ul style="list-style-type: none"> <input type="checkbox"/> Country-specific climate change impact indicators are integrated into the existing monitoring mechanisms/tools (e.g., Education Management Information Systems or school-level monitoring tools) and/or supplementary mechanisms/tools. <input type="checkbox"/> Data gathered are analyzed and disseminated in easily assimilated fashion to inform evidence-based policy making and planning. <input type="checkbox"/> Students have opportunities to contribute to data collection and analysis in an age-appropriate manner. <input type="checkbox"/> Established data collection mechanisms are reviewed periodically for further refinement and updating.



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THE HEAT IS ON!

Towards Climate Resilient Education Systems in South Asia



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