

# Climate Change Adaptation and Disaster Risk Reduction in the Education Sector

RESOURCE MANUAL



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# **Climate Change Adaptation and Disaster Risk Reduction in the Education Sector**

**RESOURCE MANUAL**

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# FOREWORD

There is growing consensus that the twenty-first century will be characterized by greater uncertainty and complexity. This is particularly evident in climate change, the increasingly frequent and intense natural hazards it brings and their human and environmental fallout.

Current policies and practices fall short in the face of future environmental challenges. We must strengthen our commitment to the environment. There are implications for all sectors, but education is especially crucial because it can offer children the opportunity to acquire the new skills, attitudes and knowledge they need to survive, develop and thrive. Within a human rights-based approach to education, it is our duty to ensure that all children have this opportunity.

More than a billion children go to school. But far too many fail to begin or complete their education. Numerous barriers impede their access: school fees, poor quality of education, discrimination based on gender or disabilities, disruptions triggered by emergencies, and chronic environmental degradation.

As emphasized in the Rio+20 outcome document, *The Future We Want*, full access to quality education at all levels is an essential condition for achieving sustainable development. Our responsibility lies in ensuring equal access to relevant, quality education for all children in order to create not just the future we want, but the future we need.

UNICEF has developed this resource manual to assist governments and education practitioners in scaling up and mainstreaming climate change adaptation and disaster risk reduction in the education sector. The manual identifies key entry points at the policy, planning and advocacy levels, and it also makes the case for a process based on country-specific evidence and socio-economic analysis. To meet the challenges and seize the opportunities for quality education, multiple stakeholders must participate, collaborate and communicate.

The ultimate goal of this resource manual is to integrate climate change adaptation and disaster risk education into the education sector to provide young people with the knowledge and skills to protect the environment and contribute to sustainable and equitable development.

Environmental challenges do not change the role of education, but they do change what constitutes equitable, quality education. Such an education must be relevant, aligned with children's rights and deeply attuned to the present situation as well as future challenges.

This resource manual provides practical advice to approach this challenging but crucial task.



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# ABBREVIATIONS

<b>AAP</b>	Africa Adaptation Programme
<b>ABC</b>	Albania, Beautiful and Clean
<b>AIDS</b>	acquired immune deficiency syndrome
<b>AOSIS</b>	Alliance of Small Island States
<b>ASPnet</b>	Associated Schools Project Network
<b>BEM</b>	Boy's Education Movement
<b>CCA</b>	climate change adaptation
<b>CCF</b>	Children's Climate Forum
<b>CCM</b>	climate change mitigation
<b>CEDAW</b>	Convention on the Elimination of All Forms of Discrimination against Women
<b>CFE</b>	child friendly education
<b>CFS</b>	child friendly schools
<b>CGEA</b>	General Coordination Organization of Environmental Education (Brazil)
<b>CIESIN EPI</b>	Center for International Earth Science Information Network's Environment Performance Index
<b>CLEEN</b>	Child-Led Environmental Initiative (Albania)
<b>COMBI</b>	Communication for Behaviour Impact (Albania)
<b>COM-VIDAs</b>	Youth-led commissions for promoting the exchange of knowledge and experience between schools and communities (Brazil)
<b>COEs</b>	State Planning Committees (Brazil)
<b>COP-11</b>	11th session of the Conference of the Parties to the UNFCCC
<b>COP-15</b>	15th session of the Conference of the Parties to the UNFCCC
<b>COP-16</b>	16th session of the Conference of the Parties to the UNFCCC
<b>CPIA</b>	Country Policy and Institutional Assessment
<b>CGEA</b>	General Coordination Organization of Environmental Education (Brazil)
<b>CRC</b>	Convention on the Rights of the Child
<b>CSO</b>	civil society organization
<b>DEA</b>	Directorate of Environmental Education (Brazil)
<b>DoE</b>	Directorates of the Education Department (Albania)
<b>DepEd</b>	Department of Education (Philippines)
<b>DENR</b>	Department of Environmental and Natural Resources (Philippines)
<b>DM</b>	Development Marketplace
<b>DRR</b>	disaster risk reduction
<b>ECTQ</b>	Education Center for Training and Qualification (Albania)
<b>EFA</b>	Education for All
<b>EFSES</b>	Enhancing Food Security through the Empowerment of Schools (Zimbabwe)
<b>ESD</b>	education for sustainable development
<b>EU</b>	European Union
<b>ES</b>	Environmental Studies (Maldives)
<b>FAO</b>	Food and Agriculture Organization
<b>GDP</b>	gross domestic product
<b>GEF</b>	Global Environment Facility
<b>GEF RAF</b>	Global Environment Facility Resource Allocation Framework
<b>GFDRR</b>	Global Facility for Disaster Reduction and Recovery
<b>GEM</b>	Girls' Education Movement
<b>GHG</b>	greenhouse gas
<b>HFA</b>	Hyogo Framework for Action
<b>HIV</b>	human immunodeficiency virus
<b>ICT</b>	Institute of Curricula and Training (Albania)
<b>ICT</b>	information and communications technology
<b>IDA</b>	International Development Association
<b>IIEP</b>	Institute for International Economic Policy
<b>INCA</b>	Institute for Nature Conservation in Albania
<b>INEE</b>	Inter-agency Network for Education in Emergencies
<b>IPCC</b>	Intergovernmental Panel on Climate Change
<b>ISDR</b>	International Strategy for Disaster Reduction

<b>LDC</b>	least developed country
<b>LDCF</b>	Least Developed Country Fund
<b>LLEE</b>	Live and Learn Environmental Education (Maldives)
<b>LLL</b>	lifelong learning
<b>MDG</b>	Millennium Development Goal
<b>MEC</b>	Ministry of Education (Brazil)
<b>MMA</b>	Ministry of the Environment (Brazil)
<b>MoE</b>	Ministry of Education (Albania)
<b>MoEFWA</b>	Ministry of Environment, Forestry and Water Administration (Albania)
<b>MoES</b>	Ministry of Education and Science (Albania)
<b>MoESAC</b>	Ministry of Sports, Art and Culture (Zimbabwe)
<b>MRI</b>	Mortality Risk Indicator
<b>NAPA</b>	National Adaptation Programme of Action
<b>NATO</b>	North Atlantic Treaty Organization
<b>NDF</b>	Nordic Development Fund
<b>NDMC</b>	National Disaster Management Center (Maldives)
<b>NES</b>	National Environment Strategy
<b>NGO</b>	non-governmental organization
<b>OECD</b>	Organisation for Economic Co-operation and Development
<b>PAGASA</b>	Philippine Atmospheric, Geophysical and Astronomical Services Administration
<b>PISA</b>	Programme for International Student Assessment (Albania)
<b>PNEA</b>	National Environmental Education Policy (Brazil)
<b>PPCR</b>	Pilot Programme for Climate Change Resilience
<b>PRONEA</b>	National Programme of Environmental Education (Brazil)
<b>PRSPs</b>	Poverty Reduction Strategy Papers
<b>PWG</b>	Project Working Group (Albania)
<b>QBE</b>	quality basic education
<b>RAP</b>	Rapid Assessment of Perceptions (Brazil)
<b>REJUMA</b>	Youth Network for Environment and Sustainability (Brazil)
<b>SCCF</b>	Special Climate Change Fund
<b>SECAD</b>	Secretariat of Continuing Education, Literacy and Diversity (Brazil)
<b>SIDS</b>	small island developing state
<b>SLGGA</b>	Sri Lanka Girl Guide Association
<b>SMART</b>	Smart Communications, Inc.
<b>SMS</b>	short message system
<b>TRC</b>	Teaching Resource Centre (Maldives)
<b>UNCED</b>	United Nations Conference on Environment and Development
<b>UNDP</b>	United Nations Development Programme
<b>UNDRIP</b>	United Nations Declaration on the Rights of Indigenous Peoples
<b>UNECE</b>	United Nations Economic Commission for Europe
<b>UNEP</b>	United Nations Environment Programme
<b>UNESCO</b>	United Nations Educational, Scientific and Cultural Organization
<b>UNFCCC</b>	United Nations Framework Convention on Climate Change
<b>UNGA</b>	United Nations General Assembly
<b>UN-Habitat</b>	United Nations Human Settlements Programme
<b>UNHCR</b>	United Nations High Commissioner for Refugees
<b>UNICEF</b>	United Nations Children's Fund
<b>UNIDO</b>	United Nations Industrial Development Organization
<b>UNISDR</b>	United Nations International Strategy for Disaster Reduction
<b>UNITAR</b>	United Nations Institute for Training and Research
<b>UNOSAT</b>	United Nations Operational Satellite Applications Programme
<b>UNU-EHS</b>	United Nations University Institute for Environment and Human Security
<b>WASH</b>	water, sanitation and hygiene
<b>WEEC</b>	World Environmental Education Congress
<b>WFP</b>	World Food Programme
<b>WHO</b>	World Health Organization
<b>YES</b>	Youth, Entrepreneurship and Sustainability



# Climate Change Adaptation and Disaster Risk Reduction in the Education Sector

## RESOURCE MANUAL

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### MODULE 1

## Purpose and Content

### Key messages

1. The resource manual aims to ensure adherence to child rights principles based on the Convention on the Rights of the Child, focusing on equal opportunities for the most disadvantaged. **The ultimate goal of the resource manual is to ensure that all children may equitably exercise their educational and environmental rights in totality, as described in the Convention.**
2. The resource manual **provides guidance on policy and planning for sustainable development** throughout the education sector in both non-formal and formal learning places at all levels of action, from national to local.
3. The resource manual is primarily intended for use as an **evidence-based policy advocacy and capacity development tool** by ministries of education and their partners, such as education professionals from UNICEF and other development or humanitarian aid agencies, especially planners, curriculum developers and teacher educators.



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This module offers a short introduction to the resource manual *Climate Change Adaptation and Disaster Risk Reduction in the Education Sector*. It gives a quick presentation of the subjects at stake and describes the purpose and scope of the manual. The reader is also encouraged to refer to the module on *Climate Change and Environmental Education*,<sup>1</sup> a companion to the *Child Friendly Schools Manual*.<sup>2</sup>

A glossary of the terms used throughout the modules is available in Annex 1.2 of Module 1.

For more information, contact the Education Section, UNICEF New York, <educationhq@unicef.org>.

## Question to guide your reading

1. How does this resource manual contribute to a country's ability to ensure children's rights to education?

## 1.1 Introduction

*"I am the present and the future. A victim of climate change, I live in a region that is constantly affected by disasters. Hurricanes and floods are my reality."*

—Walter, a 12-year-old boy from Belize<sup>3</sup>

Complex environmental conditions – including the unfolding of diverse and widespread climatic changes, environmental degradation and increasing threats of disasters – pose formidable challenges to present and future generations of children and to the achievement of their rights.<sup>4</sup> According to the United Nations Development Programme's (UNDP's) 2011 *Human Development Report*, "environmental degradation stunts people's capabilities in many ways, going beyond incomes and livelihoods to include impacts on health, education and other dimensions of well-being."<sup>5</sup>

Scientific findings from the Intergovernmental Panel on Climate Change (IPCC) clearly indicate that a changing climate has had and will continue to have a significant impact on human life and natural systems. The evidence suggests that developing countries will be most affected by extreme events and disasters. Although the impact of climate change and natural disasters on children has not been fully researched, the available evidence shows that children constitute one of the most at-risk groups, given their specific vulnerabilities. Nearly 90 per cent of the world's children live in developing countries.<sup>6</sup>

Access to education is every child's right. Education is the one experience most commonly shared by children around the world, and it can be transformative. Education can cultivate and shape values and behaviours. It can contribute to breaking the cycle of poverty and build the resilience of the most vulnerable populations. Quality education is most effective when it starts before school and continues throughout the child's life cycle, leading to life-long learning in adulthood. It must be based on active, inclusive and participatory learning and teaching processes, be supported by qualified teachers, take place in enabling and safe learning environments and be linked to local communities and local issues. In order to be transformative, quality education must demand a shift toward sustainable thinking and action across the entire education sector – and among all stakeholders within the sector, from policy planners to heads of schools to community members and children themselves.

On any given day, more than a billion children go to school. *Formal, non-formal and informal education* are the most common means by which societies prepare their youth for the future. Far too many children fail to complete their education, however, dropping out because of fees, distance to school and poor school quality; because of discrimination based on gender, HIV and AIDS, and disabilities; or because their education is disrupted by emergencies, conflict and chronic environmental degradation. To safeguard access to

**Climate change adaptation** is the adjustment in natural or human systems to actual or expected climatic stimuli or their effects; it moderates harm or exploits beneficial opportunities.

**Climate change mitigation** focuses on interventions and measures that reduce greenhouse gas (GHG) emissions.

**Disaster risk reduction** seeks to minimize vulnerabilities and disaster risks throughout a society in order to prevent, limit, mitigate and prepare for the adverse impacts of natural hazards, and to facilitate sustainable development.

**Informal education:** acquired outside of organized programmes and courses, through daily activities relating to work, family, community, gender relations, leisure, sport or recreation. It is often referred to as experiential, non-intentional or incidental learning.<sup>7</sup>

**Formal education:** acquired through organized and structured programmes delivered via schools and other providers and recognized by means of qualifications.

**Non-formal education:** acquired through organized programmes or courses but not typically recognized by means of qualifications; does not typically lead to certification.

**Sustainable development** is development that meets the needs of the present without compromising the ability of future generations to meet their own needs.

education and to effectively address the challenges of the present and future, education sector planning must take into account the complex environmental conditions and diverse social settings in which children and youth live. An effective way of doing so is to scale up and mainstream climate change adaptation and disaster risk reduction interventions across the education sector.

*Climate change adaptation and disaster risk reduction* seek to manage uncertainty, reduce vulnerabilities and build resilience for communities at risk (see Annex 1.1). Adaptation, by definition, will need to be derived from local solutions. The process can be similar across the education sector,

but the outcomes must be specific, emphasizing an inclusive, bottom-up approach. Adaptation and risk reduction fall within the overall framework of *sustainable development* and should be viewed holistically through that lens. In order to meet the rights of children and achieve sustainable development, we need systems led by young people and adults who think and act sustainably. We need these systems to permeate all levels of policy and planning, not just the national level. For quality education to be transformative, we need to see changes embedded in district, village and school development plans.

The scaling up and mainstreaming of climate change adaptation and disaster

risk reduction needs to be ensured throughout the education sector, including through:

- Sector planning and budgets
- Policies and legislation
- Governance and school leadership
- Learning and teaching processes
- Infrastructure and facilities
- Teacher capacity strengthening and pedagogical training.

The ultimate goal of the resource manual is to ensure that all children

may equitably exercise their educational and environmental rights in totality, as described in the Convention on the Rights of the Child (CRC). This goal includes increasing the number of children who are reached by the education sector and cultivating the knowledge, skills, values and ways of thinking that contribute to more sustainable and equitable development.

This module will lay out the purpose and scope of this resource manual, the target audience and the rationale for approaching the work in this way. This framework will give the reader a clear understanding of the unique contribution of each subsequent module to the ultimate goal.

### Box 1.1 A focus on children and youth

- There are 2.2 billion people under the age of 18.<sup>8</sup> Of these, 637 million are under 5 years old<sup>9</sup> and over 1.2 billion are between 10 and 19 years old.
- An estimated 61 million children of primary school age and 71 million children of lower secondary school age are out of school; 53 per cent of them are girls. In conflict-affected poor countries, 28 million children of primary school age are out of school – 42% of the world's total.<sup>10</sup>
- In the late 1990s, the number of children affected by disasters was estimated at 66.5 million per year; climate change impacts are projected to increase this to as many as 175 million per year in the current decade (2010–2020).<sup>11</sup>
- Trends indicate that many of the world's poorest countries and communities will face the double threat of climate change and violent conflict.<sup>12</sup>
- An estimated 46 developing and transition countries are considered to be at high risk of climate change worsening existing problems and heightening the possibility of conflict; a further 56 countries face a lower but still marked risk of climate-exacerbated strife.<sup>13</sup>

Children and youth represent nearly one third of the world's population. Their vulnerability, experience and capacity are crucial and relevant components of the overall adaptation and mitigation capacity of a particular country or region.

## 1.2 Purpose and scope

This resource manual, *Climate Change Adaptation and Disaster Risk Reduction in the Education Sector*, is primarily a capacity development tool to support governments and their development partners in guaranteeing the right to quality education for all children. This manual builds upon the goals set by the CRC, the Hyogo Framework for Action, the Millennium Development Goals (MDGs) and the Education for All (EFA) movement. Focusing on equity and rights, this resource manual aims to enhance the climate change adaptation, mitigation, resilience and risk reduction capacities of children and their communities in response to changing physical environments.

We chose to highlight *adaptation* to climate change rather than *mitigation* because UNICEF works mainly with vulnerable children in developing countries, where the challenge is to adapt to a changing environment in the face of an uncertain climatic future. This work demands an approach to adaptation that encompasses current

risks and uncertainties, and also fosters the adaptive capacity of the most vulnerable.

However, we recognize that mitigation and adaptation are complementary and often overlapping strategies. As a result, many aspects of this resource manual are relevant to both.

Specifically, the resource manual aims to:

- Support the development and strengthening of capacity within the education sector to scale up and mainstream climate change adaptation and disaster risk reduction in the sector's responses.
- Promote the integration of climate change and disaster risk education into quality learning and teaching in line with *child friendly education approaches*.
- Protect and strengthen learning facilities to meet the worst impacts of climate change and disasters using sustainable design.
- Guide stakeholders in setting and implementing standards to address climate change and disaster risk in a comprehensive and cross-sectoral manner.
- Advocate increasing resources for mainstreaming comprehensive education sector responses to climate change and disaster risks.



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### 1.3 Target audience

This resource manual is primarily for use by anyone engaged in policy advocacy and planning related to the education sector. The target audience of this resource manual includes: ministries of education and environment, as well as their counterparts in other ministries (see Module 8) and civil society; education professionals from UNICEF; development or humanitarian aid agencies; education planners; and curriculum developers and teacher educators. The resource manual is designed to complement the ongoing work of governments and development agencies regarding education sector

responses to climate change and disaster risk as well as broader human resource development strategies.

Quality education is inter-sectoral by nature. To support education sector efforts to scale up and mainstream climate change adaptation and disaster risk reduction, an emphasis is placed on working with other relevant sectors and finding mutually beneficial solutions through education. As a result, professionals in sectors other than education can use components of the resource manual (see Module 8).

### 1.4 Rationale: Equity and child friendly education

Quality education is education that works for every child and enables all children to achieve their full potential.<sup>14</sup>

Access to quality education is a necessary condition for social inclusion, equity and sustainable development. Progress in education has been substantial, reflecting improvements not only in the expansion of educational opportunities, but also in equitable access to education for girls and boys.<sup>15</sup> Yet, such progress has been uneven between and within regions and countries, and often too slow to meet the MDGs and EFA 2015 deadlines. Millions of children remain out of school, enrolment rates are slowing in countries affected by armed conflict and natural hazards, and gender discrimination still

hampers progress for girls.<sup>16</sup> School attendance and completion by children and youth is strongly influenced by such socio-economic factors as age, sex, race, ethnicity, disability, language, poverty, social norms and location. Furthermore, inequalities often combine to exacerbate the risk of being left behind.<sup>17</sup> Many children leave school without acquiring the basic literacy, numeracy and life skills that enable them to continue to learn, grow into healthy adults and lead safe and productive lives.<sup>18</sup>

Access to education and *quality of education* are crucial to reaching the most vulnerable children and achieving the MDGs and EFA goals. As the CRC (article 29) states, education shall aim at the “development of the child’s personality, talents and mental and physical abilities to their fullest potential.”<sup>19</sup>



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While the children’s rights are universal, the social conditions, abilities and potential of each individual child are unique. Therefore, one-size-fits-all education systems are not examples of quality education. Only education that fully recognizes and accommodates differences arising from social inequities or ability – and still enables each child to reach her or his potential – may be called quality education. The notion of equity is therefore embedded within the definition of quality. Almost all national education sectors around the world are striving to achieve equitable quality education. At present, very few can claim to have fully achieved it. Until all societies’ education systems attend to and meet each child’s individual potential and allow each child to overcome social obstacles, equity must be addressed explicitly. UNICEF’s definition

of quality education fully incorporates issues of equity. UNICEF’s model of quality is called ‘child friendly education’ (CFE). In this resource manual, equitable quality education, quality education and CFE are synonymous and used interchangeably.

UNICEF’s **child friendly education** model embraces a multi-dimensional concept of quality and holistically addresses the needs of the child. The foundation of CFE is the child friendly schools (CFS) approach, which is based on the CRC and its human rights principles of child-centredness, inclusion, participation and protection. Child friendly schools act in the interest of the ‘whole’ child and foster respect for the human rights and participation of all children, while offering instructional programmes that promote relevant learning. Child friendly schools



are part and parcel of CFE, operating downstream and entailing:

- Active, inclusive and participatory learning and teaching processes
- Supportive and qualified teachers
- Enabling and safe learning environments
- Inherent links to local communities and local issues.

CFE offers a **systems perspective** on equitable quality education rooted in the CRC. It ensures that the principles of the CRC permeate every aspect of the education system – from planning to costing, strategy development, implementation, monitoring and evaluation. In light of a changing climate and its ensuing challenges, CFE ably integrates climate change adaptation and disaster risk reduction content, as these are fundamental to holistically addressing the needs of the child and her or his community and society.

The connection between the learning environment and the community is central to quality education. Environmental conditions, climate change and disasters influence the well-being of children and communities. Children are particularly affected by the absence or prevalence of clean water, nutritious food, safe energy and housing, and healthy environments. Environmental change, in particular climate change, is progressing at an unprecedented rate and has an increasing impact on the lives and perspectives of children. These are factors that influence both children's access to education and its quality.

UNICEF's education approach to climate change adaptation and disaster risk reduction aims to:

- Promote mainstreaming of climate change adaptation and disaster risk reduction across the education sector to ensure a comprehensive and coordinated approach.
- Promote scaling up and mainstreaming of climate change adaptation and disaster risk reduction through comprehensive models of quality education that cover the learning environment and learning and teaching, in order to:
  - Increase the capacities of all stakeholders involved in children's education.
  - Place children's learning at the centre of the education system by advancing the inclusion of climate change adaptation and disaster risk reduction into formal and non-formal education curricula and assessments.
  - Ensure efficiency by including holistic approaches into teacher training and instruction.
  - Ensure effectiveness of education by providing learning and teaching instruction across a child's life cycle in safe learning environments
- Ensure adherence to child rights principles based on the CRC<sup>20</sup> – including the principles of child-centredness, inclusiveness, democratic participation and protective environments – and place

a particular focus on equal opportunities for those most disadvantaged.

- Recognize gender – the socially constructed and dynamic relationships between male and female members of society – as a distinguishing attribute, since

in many places boys and girls, women and men have different rights, status and responsibilities; these differences inevitably point to different vulnerabilities and capacities of girls and boys in the face of climate change.

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## 1.5 Design approach and annotated table of contents

This resource manual is presented in separate modules for ease of use. The modules are designed to stand alone or to be used together with other modules. The design approach employed in this resource manual is ‘building with the desired goal in mind’. This method is referred to as ‘backwards planning’ and is popular among teaching professionals and other project designers.<sup>22</sup> Anyone or any group that is embarking on a process of change can use backwards design to achieve outcomes more efficiently. The process begins with the conceptual and ‘aspirational’ and moves backwards to the very concrete steps of turning the aspiration into reality. The sequence of modules in this resource manual models that process for readers.

Module 2 provides the human rights-based rationale for creating equitable and just educational systems for all children and young people. The legal documents and international policy frameworks discussed in Module 3 demonstrate the global vision for quality education and sustainable development and the momentum that has been building behind these ideas for decades. Module 4 shifts from the global to the local by posing questions to stakeholders about their

own contexts to assess which strategy for change will work best for them – that is, how to approach mainstreaming and scaling up climate change adaptation and disaster risk reduction within equitable quality education sectors in each particular context. Module 5 outlines the need for involving children and young people in the design and planning of these systems. Involving children and young people, the rights holders themselves, in every stage of the transformation process not only honours our collective commitments to children – it is good business. Working directly with the end users of the system throughout the process can only make the outcomes more accurate and efficient. Modules 6–9 provide guidance on all phases of the actual change process, from situation and risk analyses to standards development, creating monitoring and evaluation frameworks, and actual implementation models.

While the modules in the manual may be used as stand-alone documents during each respective phase of the systems change process, all the modules – and the processes they describe – are interdependent. The Annotated Table of Contents below provides further descriptions of each module.

## ANNOTATED TABLE OF CONTENTS

<b>Module 1</b>	<b>Purpose and content:</b> Describes the purpose, scope, target audience, rationale and outline of the resource manual. Contains a fact sheet and glossary.
<b>Module 2</b>	<b>Making the case:</b> Presents arguments to underline the need for scaling up and mainstreaming climate change adaptation and disaster risk reduction in the education sector from the perspective of child rights, equity, economics and the environment.
<b>Module 3</b>	<b>Legal instruments and international policy frameworks:</b> Provides an overview of relevant international legal instruments that underline the moral and legal obligation to take an equity approach to mainstreaming climate change adaptation and disaster risk reduction in quality education. Includes some illustrative examples of national laws and regulations.
<b>Module 4</b>	<b>Approaches for scaling up and mainstreaming:</b> Introduces a framework for scaling up and mainstreaming climate change adaptation and disaster risk reduction in the education sector. Looks at scaling up and mainstreaming to protect the regular core work of the sector from climate change and disaster risks, as well as to help children become agents of change, reduce risks and enhance their resilience. Also examines education-sector planning processes, funding opportunities and different entry points for scaling up interventions.
<b>Module 5</b>	<b>Child and youth participation:</b> Provides a framework for the important role of complementary education in reaching adolescents and out-of-school youth with learning opportunities and encouraging their participation in child-led adaptation and advocacy efforts.
<b>Module 6</b>	<b>Analysing education and risk and developing standards:</b> Introduces ways to analyse risk and education-sector readiness at the national and local levels in order to develop a better understanding of the specific local contexts of schools and other learning spaces within the surrounding community.
<b>Module 7</b>	<b>Monitoring and evaluation:</b> Examines the importance of process monitoring, assessment of learning outcomes and evaluation of other programme results.
<b>Module 8</b>	<b>Planning across sectors:</b> Encourages cross-sectoral planning and implementation approaches to climate change adaptation and disaster risk reduction in education, and describes potential points of engagement for different sectors.
<b>Module 9</b>	<b>Implementation:</b> Examines a number of relevant education practices and the ways in which climate change adaptation and disaster risk reduction could be mainstreamed therein, including ensuring sufficient capacities, learning and teaching, and creating safe and enabling schools.
<b>Module 10</b>	<b>Case studies:</b> Includes five case studies – Albania, Brazil, Maldives, the Philippines and Zimbabwe – that highlight different aspects of mainstreaming and scaling up climate change adaptation and disaster risk reduction.

### 1.6 Next steps

Building on the foundation of Module 1, Module 2 will make the case for mainstreaming climate change adaptation and disaster risk reduction throughout the

education sector using the CFE approach. Module 2 provides justification on the basis of child rights, equity, economics and the environment.

## Annex 1.1 Fact sheet: Climate change and disaster risk

The intersection of climate change adaptation, disaster risk reduction and sustainable development

### Climate change<sup>22</sup>

Climate is the average weather conditions experienced over a long period. This includes temperature, wind and rainfall patterns.<sup>23</sup> Recent scientific findings clearly point to the very significant impacts of climate change on our planet. In 2007, the IPCC issued its Fourth Assessment Report. The report presented the most convincing assessment to date on the science of climate change and its implications. It concluded that immediate and sustained action is required to stop climate change, if irreversible and potentially catastrophic damage is to be avoided.<sup>24</sup>

Historically, the earth's climate has been very dynamic, and changes followed natural cycles. With the progress of civilization, however, human impact on the earth's climate has become more and more significant. Aside from natural drivers of climate change, such as volcanic eruptions and ocean currents, human industrial activities, land use patterns and deforestation account for much of the change in earth's climate. The energy sector is responsible for about 75 per cent of carbon dioxide emissions, 20 per cent of methane emissions and a large quantity of nitrous oxide. Almost everybody in industrialized countries is contributing to the change in climate through their everyday activities.

According to the Intergovernmental Panel on Climate Change, the impacts of climate change will manifest themselves in various ways. These include:

- **Rising temperatures, droughts and desertification** leading to diminishing water resources, malnutrition and increased levels of waterborne diseases such as diarrhoea and vector-borne diseases such as malaria.
- **Heavy precipitation, flooding and loss of water security**, leading to severe mental and physical trauma and an increase in injuries and deaths by drowning.
- **Extreme weather events** leading to cyclones, floods and droughts.
- **Rising sea levels** that will primarily affect communities living in small island developing states (SIDS), settlements alongside major river deltas and low-lying coastal areas.

### Climate change and disaster risk reduction

**Disaster risk reduction** was placed on the global agenda through the **Hyogo Framework for Action**,<sup>25</sup> launched at the World Conference on Disaster Reduction held in Kobe, Hyogo, Japan. The Hyogo Framework, adopted by 168 governments, is a global blueprint for disaster risk reduction efforts during the next decade. Its goal is to substantially reduce disaster losses by 2015 – to

save not only lives, but also the social, economic and environmental assets of communities and countries.

Disaster risk is the potential loss – expressed in terms of the lives, health status, livelihoods, assets and services – to a particular community or society due to the impact of a natural hazard. Conceptually, disaster risk can be described as a function of the characteristics (e.g., magnitude) and frequency (or probability) of hazards experienced in a specified location, the nature of the elements at risk, their inherent degree of vulnerability or resilience, and the existing capacity to respond to a hazard.

Risks are reduced by diminished exposure to hazards, lessened vulnerability of people and property, judicious management of land and property, and improved preparedness.

Climate change will generally increase disaster risks – not only through the increased frequency and magnitude of extreme weather events and sea-level rise. As water becomes scarcer, agriculture is strained, ecosystems are degraded, and societies will become more vulnerable to hazards.

It is important to keep in mind that other forms of environmental degradation, unrelated to climate change, can also exacerbate or alter existing threats. Climate change adaptation is defined as adjustment in natural or human systems to actual or expected climatic stimuli or their effects, in order to moderate harm or exploit beneficial opportunities.

### Disparity in adaptive capacity

In 2010, both Chile and Haiti were struck by devastating earthquakes. The differences in the impacts of the earthquakes in these two countries highlight how poverty intersects with vulnerability to natural disasters.

Although the quake in Chile was severe and deadly, its long-term effects were significantly less serious because the country was better prepared for such a disaster. Most deaths reported in Chile were due to the tsunami effect of the earthquake.

A major difference between these two countries is the extent of financial and human investment in disaster preparedness at all levels of government and in all sectors of society. Chile has a national emergency office, enforced building codes, disaster risk education for communities and standard safety drills in schools; Haiti does not. Furthermore, the level of poverty of the population itself seems to be a determining factor for the eventual effects of natural disasters.<sup>26</sup>

Disaster risk reduction (DRR) and climate change adaptation share the common goal of managing uncertainty, reducing vulnerability and building resilience for communities at risk. The main overlap between the two is the management of hydro-meteorological hazards, where DRR seeks to take account of changing hazards, and adaptation seeks to build resilience to their impacts. There are two key distinctions between DRR and adaptation. First, DRR tackles the risks of geophysical hazards (like volcanoes and earthquakes), whereas adaptation does not. Second, adaptation considers

the long-term adjustment to changes in mean climatic conditions (e.g., loss of biodiversity, changes in ecosystem services and spread of climate-sensitive disease), whereas DRR predominantly deals with extremes.

Climate change adaptation requires that development, social and economic practices be redesigned to respond effectively to new or anticipated environmental changes. Likewise, DRR seeks to influence development decision-making and protect development aspirations from environment-related risks. The effectiveness of both adaptation and DRR are limited if they are not viewed within the broader context of sustainable development.

Disaster risk reduction has been conceptualized as the first line of

defence against climate change. Its relationship with adaptation, however, is very dynamic. Adaptation policies can benefit from proven DRR frameworks and methodologies. Simultaneously, adaptation can support DRR by reducing long-term vulnerability and influencing development potential. In the face of climate change and variability, DRR programmes need to take a long-term perspective to prepare communities for not only current, but also projected climate-related risks. A good illustration of this is capacity development. 'Traditional knowledge' is an important starting point for developing DRR strategies. However, its effectiveness may be limited when dealing with an exacerbation of existing problems, or with 'non-traditional' problems, such as those experienced for the first time owing to climate change.

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## Annex 1.2 Glossary of key terms<sup>27</sup>

**Benchmarks:** Observable actions or evidence designated as measures of progress towards a goal or standard.

**Climate change adaptation (CCA):** Adjustment in natural or human systems in response to actual or expected climatic stimuli or their effects, in order to moderate harm or exploit beneficial opportunities.<sup>28</sup>

**Climate change mitigation (CCM):** Measures that reduce greenhouse gas (GHG) emissions.

**Child-centredness (a core CFS principle):** The key criterion when making decisions

regarding school governance, curricula, instruction and environment is the well-being and best interests of the child. CFS thus strives to fulfill each child's potential and respect their human rights and fundamental freedoms.

**Child friendly schools (CFS):** The signature approach of UNICEF's global focus on quality education for all children. CFS is grounded in the commitment to address all school-based elements that influence the well-being, rights and learning environment of each child. Three core principles and six dimensions, as defined in this glossary, characterize CFS.

**Democratic participation (a core CFS principle and dimension):** According to the *Child Friendly Schools Manual*, “As rights holders, children should have a say in the form and substance of their education, as should those who facilitate their rights”<sup>29</sup> (i.e., duty bearers). Decisions regarding all aspects of the education environment should consider multiple perspectives, listening to all voices within the school and the community. This is a bottom-up process. Representatives of students, teachers, parents and community are included in a transparent and open decision-making process that fosters learning for all. Families and communities are enabled to fulfill their rightful responsibility as nurturers and role-models.

**Dimensions (of CFS):** Concepts that emanate from CFS principles and serve to organize the standards. CFS dimensions include, but are not limited to, inclusiveness; effectiveness; health, safety, and protection; gender-responsiveness; and participation. Respect for multiculturalism, promotion of child rights, and other contextually appropriate dimensions may be added.

**Disaster risk reduction (DRR):** The endeavour to minimize vulnerabilities and disaster risks throughout a society, in order to prevent, mitigate and prepare for the adverse impacts of natural hazards, and to facilitate sustainable development.

**Domains, components, strands, topics:** Words that are sometimes used interchangeably, or in varying levels of subordination, to describe different categories of content, or to organize or

group standards. For example, ‘language and literacy development’ is a domain of early learning and development.<sup>30</sup>

**Equity-focused approach:** Interventions and approaches to reduce and eliminate unfair and avoidable circumstances that deprive particular groups of children of their rights.

**Formal education:** Education acquired through organized and structured programmes, delivered via schools and other providers, and recognized by means of qualifications.

**Gender-responsiveness (a CFS dimension):** All girls and boys must have equal opportunities to participate fully in a learning environment that meets the basic and unique needs of girls and boys, addresses the power dynamics in female-male relationships and supports the realization of human rights. They must also be provided materials that do not demonstrate gender bias. Gender equality is fundamental to quality basic education.

**Health, safety and protection (a CFS dimension):** The school is a safe place that ensures the physical and emotional well-being of every child. The ‘whole’ child is considered in addressing factors that interfere with a child’s right to learn, such as emotional and physical abuse, poor nutrition and unsafe physical space. Openly addressing such factors improves school attendance, participation and educational performance.

**Inclusiveness (a core CFS principle and dimension):** According to the *Child Friendly Schools Manual*, “Access to education is not a privilege that society

grants to children; it is a duty that society fulfils to all children.”<sup>31</sup> All children have a right to free, compulsory and accessible basic education; protection of their dignity in disciplinary matters; and an educational environment that includes everyone, regardless of gender, physical attributes, intellectual status, social attributes, emotional challenges, linguistic backgrounds or special needs. Inclusive education embraces all those who, historically or otherwise, have been excluded from full participation in learning, for any reason. Children not attending school are sought out and welcomed.

**Indicators:** Observable behaviours, attributes or other evidence that show the presence, state or condition of something related to a standard. Indicators may relate to input (e.g., number of textbooks per child); process (e.g., procedures developed for school site councils); or outcome (e.g., school budget allocations). Indicators may be used to measure progress towards a standard.

**Informal education:** Education acquired outside of organized programmes and courses and picked up through daily activities relating to work, family, community, gender relations, leisure, sport and recreation. It is often referred to as experiential, non-intentional or incidental learning.<sup>32</sup>

**Monitoring:** A mechanism to provide stakeholders at all levels with ongoing information about progress being made. Monitoring involves: (a) establishing indicators or benchmarks; (b) developing procedures, systems and tools to collect, record and analyze information on the

indicators; and (c) using the information to improve planning, performance and outcomes.

**Non-formal education:** Education acquired through organized programmes or courses but not typically recognized by means of qualifications, and not leading to certification.

**Quality basic education (QBE):** Reforms introduced into any level (e.g., national, regional or local) of an education system that have the purpose of improving a specific element, form or substance of a system. The ultimate aim is to increase measurable performance.

**Respect for multiculturalism (a CFS dimension):** Ensures that no child is excluded from the fundamental right to equal educational opportunities because of ethnic origin, tribal identity or membership, cultural practices, language, physical or emotional disability, or economic circumstances. The cultural and linguistic heritage of each child should be valued.

**Standards:** Broad statements that define a goal or set of expectations; a set of statements that define what stakeholders should know and be able to do across an educational system. Most countries have standards of some kind for quality basic education in order to measure progress, improve planning and resource allocation, and evaluate effectiveness. In CFS countries, standards are developed and grouped by CFS dimensions.

**Sustainable development:** Development that meets the needs of the present without compromising the ability of



future generations to meet their own needs.<sup>33</sup>

**Teaching and learning effectiveness (a CFS dimension):** Teaching and learning effectiveness promotes quality learning and teaching; it is child-oriented and customized to individual needs, regardless of whether the needs originate from the developmental level of ability or

from learning styles, language issues or other special needs. Teaching methods are active, cooperative and democratic, and this approach strengthens the capacity and ethics of teachers. In CFS schools, teaching and learning practices centre on what is best for students as they work to master the knowledge, skills and attitudes required by the curriculum.

## Notes

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# Climate Change Adaptation and Disaster Risk Reduction in the Education Sector

## RESOURCE MANUAL

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# 2

## MODULE 2

# Making the Case

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## Key messages

- 1. Scaling up and mainstreaming climate change adaptation and disaster risk reduction in the education sector is a key policy and planning strategy** for increasing children's capacity to become agents of change and enhancing their resilience to climate change and disasters.
- 2. A stronger focus on equity in and through** quality education can play a crucial role in addressing those social disparities that are exacerbated by climate change and disaster risk and in achieving sustainable development.
- 3. Scaling up and mainstreaming climate change adaptation and disaster risk reduction make economic sense and contribute to achieving global Millenium Development Goal targets.** Child friendly education is an ethical and efficient approach to dealing with climate change and disaster risk and advancing sustainable development.



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This is the second module of the guidance on *Climate Change Adaptation and Disaster Risk Reduction in the Education Sector*. This module presents arguments that underline the need to scale up and mainstream climate change adaptation and disaster risk reduction in the education sector from the perspective of child rights and equity, with specific attention to the complementary benefit of sustainable development. The reader is also encouraged to refer to the module on *Climate Change and Environmental Education*,<sup>1</sup> a companion to the *Child Friendly Schools Manual*.<sup>2</sup>

For more information, contact the Education Section, UNICEF New York, <educationhq@unicef.org>.

## Question to guide your reading

1. How does the Convention on the Rights of the Child help to make the case for mainstreaming climate change adaptation and disaster risk reduction through the education sector?

## 2.1 Introduction

The Convention on the Rights of the Child states that a child’s rights to life, survival and development should be protected and that actions should be taken in the best interest of the child, in a non-discriminatory way and with respect for her or his views. Climate change adaptation and disaster risk reduction contribute to this vision by protecting the child from environment-related risks now

and in the future, and preparing the child to effectively and sustainably safeguard the environment upon which her or his well-being depends (see Table 2.1).

This module will cover: 1) the arguments for mainstreaming climate change adaptation (CCA) and disaster risk reduction (DRR) throughout the education sector; 2) why children are

**Table 2.1 – Climate change, disaster risk and the key principles of equity and quality education**

Key principles of quality education	Equity issues raised by climate change and disaster risk
<b>Child-centredness</b>	The principle of child-centredness is hampered when learning, teaching and school infrastructure do not sufficiently address issues of central concern to children, such as climate change and disaster risk. Empowering all children by addressing their physiological and psychosocial needs will increase their capacity to cope and build resilience to climate change and disasters.
<b>Inclusiveness</b>	Inclusion is not only a child rights principle, but also a crucial means of ensuring the effectiveness of education. Children excluded from education or discriminated against – especially girls and those children who are most disadvantaged and socially isolated – are often the same children who are most affected by climate change and disasters. For example, immediately after a natural disaster, children’s schooling can be disrupted for months. Disasters can cause increased school dropout, repetition, underachievement and failure. In some circumstances, children, especially girls, may be more likely to engage in day labour after a disaster <sup>3</sup> or in situations of chronic environmental degradation, <sup>4</sup> even when schools remain open. This has a negative impact on school attendance and undermines the principle of inclusiveness.
<b>Democratic participation</b>	Respecting the views of the child in key decisions that affect her or his well-being is particularly important with regard to children who are most at risk from climate change and disasters. Given that climate change encompasses environmental, political, social and economic factors, the study of it is also an ideal way for young people to learn holistic citizenship and advocacy skills.
<b>Protective environments</b>	Protection can be threatened when children are exposed to environmental hazards at school, such as structurally unsafe buildings, insufficient clean water and sanitation facilities, <sup>5</sup> and other safety concerns on or near the school compound, such as hazardous waste. In addition to breaking down the physical protective environment, disasters also raise psychosocial protection issues. <sup>6</sup> Environmental changes not only threaten children’s access to quality education but can also increase the incidence of violence against children.

especially vulnerable in the face of climate change and disaster; 3) those populations of young people who are most adversely affected by climate change and disaster due to pre-existing

disparities or discrimination; and 4) the cost-effectiveness of a child friendly educational approach as the basis for mainstreaming and scaling up CCA and DRR.

## 2.2 The arguments

Climate change is a global phenomenon. Its effects, however, are more harmful to people living in poverty, especially in developing countries and small island developing states.<sup>7</sup> Children living in regions prone to the impacts of climate change are also more likely to become its casualties.<sup>8</sup> Hardships are more severe for girls, children who live in urban slums and rural areas, children from ethnic minorities and indigenous groups, and children living with disabilities.<sup>9</sup> Children who experience more than one of these compounding factors are even more likely to be harmed.

Extreme weather events are expected to be more frequent and of longer duration in some regions. Educational responses are needed in the immediate, medium and long terms.<sup>10</sup> Education has the potential to transform the lives of children affected by climate change. The children who are most affected by climate change are also those who are most likely to be excluded from school as a result of climate change and environmental degradation.<sup>11</sup>

Child friendly education as a pathway to quality education has evolved from the principle of education as a human right. Child friendly education allows for the inclusion of innovative approaches and relevant interventions in the context of

climate change. Investment in quality education supports efforts to move beyond emergency relief and towards mitigation and adaptation.

All efforts made by governments, international organizations and civil society throughout the Education for All movement, including those specifically designed to promote education for sustainable development,<sup>12</sup> strengthen the resilience of children dealing with the impacts of climate change.

Key arguments for greater investments in climate change adaptation and disaster risk reduction in educational systems are as follows:

- 1. Children are hardest hit by climate change and disasters;<sup>13</sup> their rights need to be protected.** Integrating climate change adaptation and disaster risk reduction in educational systems is a key strategy for increasing the capacity of children to become agents of change, reducing risks and enhancing children's resilience in the face of climate change and disasters.<sup>14</sup>
- 2. The risk and impact of climate change and disasters are higher among the most vulnerable populations owing to disparities and discrimination linked to gender, ethnicity, disability**

**and location.**<sup>15</sup> **Equity needs to be enhanced.** Quality education can play a crucial role in addressing social disparities that are exacerbated by climate change and disaster risk.<sup>16, 17</sup>

**3. Child friendly education is an ethical and cost-effective approach to dealing with climate change and disaster risk and advancing sustainable development. Quality needs to be ensured.** Scaling up and mainstreaming climate change adaptation and disaster risk reduction in education systems makes economic sense and contributes to achieving global Millennium Development Goal (MDG) targets.

### 2.2.1 Protecting the rights of children in climate change and disasters

The Convention on the Rights of the Child calls for a healthy, clean environment as necessary for a child's survival and development. According to the World Health Organization, mitigating environmental risks could save the lives of 4 million children every year.<sup>18</sup> Climate change, disasters and environmental degradation expose families to risks that make them vulnerable to disease, malnutrition and violence. Girls, boys and women are typically the most affected.

Each year, as many as 50 million people are displaced owing to disasters related to natural hazards, and climate change could increase these numbers.<sup>19</sup> Displacement undermines livelihoods and social support mechanisms, which can increase children's vulnerability to discrimination, abuse, violence, poverty and exploitation.<sup>20</sup> Children have a right to the protection and information they need to prepare for, cope with and thrive in such complex environments. Special attention needs to be paid to young children and children already marginalized by poverty, gender, ethnicity, language, disability, location and other factors that often increase vulnerability to climate change and disasters.<sup>21</sup>

Climate change and disasters threaten children's right to life and development:

- Compared with adults, children are more susceptible to the adverse effects of environmental degradation because of their physical, cognitive and physiological immaturity. They are therefore more vulnerable to adverse environmental conditions, such as heat and cold waves, extreme weather events, flooding and lack of clean water, wildfires, storms and sea-level rise.<sup>22</sup> The effects of environmental hazards on agriculture and the environment also affect the food security and safety of the entire population.<sup>23</sup>

#### Box 2.1 Correlation of disasters and poor education<sup>24</sup>

In some countries, children and adolescents faced with ongoing violence or natural disasters often fail or perform poorly on required standardized tests, which can influence their future opportunities. Poor performance is compounded by poor quality of education and interrupted periods of schooling. These factors can affect all children, but they have a greater and more lasting impact on those already facing discrimination and exclusion.

## Box 2.2 Consequences of climate change and disasters for children<sup>25</sup>

- The **exclusion of girls and other marginalized groups** is exacerbated by climate change and disasters.
- **Acute hazards such as earthquakes, volcanic eruptions and extreme weather events** are increasing in intensity owing to climate change. Severe droughts, floods and cyclones put people in danger; often destroy the places where they live, learn and work; and leave behind separated and unemployed families, unusable education materials,<sup>26</sup> damaged crops and contaminated water supplies. Young children are particularly vulnerable to physical injury, drowning and psychological trauma.<sup>27</sup> Schools may remain closed for months, and children may not return when they reopen. Teachers may not move to or remain in areas that are highly vulnerable to disasters.
- **Access to an adequate supply of clean water** is essential for life, health and livelihoods. Climate change is expected to cause droughts, floods and rising sea levels. These hazards will make finding clean water – a task that often falls to women and girls – more difficult. As they must walk farther to gather these resources, girls are less likely to attend school and are more likely to be victims of violent assault, including sexual assault. Droughts and flooding affect water quality by damaging water pipes, causing human waste to leak into water supplies, and increasing the salinity of groundwater. Dirty water and poor sanitation can lead to diarrhoeal disease, which is the second largest killer of children under 5 worldwide.<sup>28</sup> About 4 billion cases of diarrhoea per year cause 1.8 million deaths, more than 90 per cent of them (1.6 million) among children under 5. Repeated episodes of diarrhoeal disease make children more vulnerable to other diseases and malnutrition.<sup>29</sup> If all children had access to clean water and improved sanitation, 272 million school attendance days would be gained each year owing to improved health.<sup>30</sup>
- **Climate change and disasters affect food security.** Droughts, temperature variations, wildfires, severe weather events, pests, diseases and floods can damage food crops. This adds to an already existing global food crisis<sup>31</sup> and can further strain families' livelihoods. Dwindling food supplies can result in malnutrition, undermining children's health and ability to learn.
- **Malnutrition and repeated episodes of diarrhoea can weaken the immune system of those living with HIV, especially children, making them more susceptible to AIDS-associated illnesses.** Women and girls are often the primary caregivers for other family members. The burden of collecting extra clean water and firewood to care for the sick often keeps them from going to school and earning money to live, worsening their living condition. Women and girls lose up to 60 per cent of time available for other housework or cultivation tasks, and some children are forced to drop out of school entirely.<sup>32</sup>
- **The displacement and migration of families is a clear consequence of climate change and disasters.** Migration can be a powerful adaptive tool that can improve the situation of children and their families through livelihood diversification. However, it can also lead to a host of problems for children, including loss of social networks and cultural identity, and disruptions in health care and school attendance.
- **Diseases such as malaria, dengue fever and Lyme disease** are carried by insects and affected by changing temperatures. Pools of stagnant water left by floods and cyclones can become breeding grounds for mosquitoes. Ticks, which can carry Lyme disease, are now found in the forest areas of many northern countries, which used to be too cold for them to breed.<sup>33</sup>



Temperature increases, especially in urban areas, will further **undermine air quality**, compounding risks of respiratory diseases such as asthma and other illnesses to which children are particularly vulnerable and that may reduce their ability to attend school.<sup>34</sup>

Factors that drive climate change, such as deforestation and the burning of fossil fuels and biomass, can also threaten children's right to a healthy environment and education. For example, the smoke from burning wood or coal inside the home doubles a child's risk of getting pneumonia, the number one global cause of child death.<sup>35</sup> Outdoor air pollution has also been shown to cause deaths from respiratory failure, impaired development of lung function, aggravation of asthma, and increased prevalence of cough and bronchitis.<sup>36</sup> Newborns and infants are particularly susceptible.<sup>37</sup> Many climate change mitigation strategies result in both immediate and future benefits to children's health and learning.

The underlying reasons for a child's exclusion from education are complex and interdependent. In the coastal communities of Azerbaijan, for example, the rising level of the Caspian Sea resulted in a very significant drop in school attendance. Focus groups conducted with residents indicated that relocation of schools owing to sea-level rise, deteriorating health among children, and loss of teachers due to financial problems contributed to the decline in attendance.<sup>38</sup>

Diagram 2.1 shows how climate change and related changes in the physical, social and economic environment affect children's well-being and health.

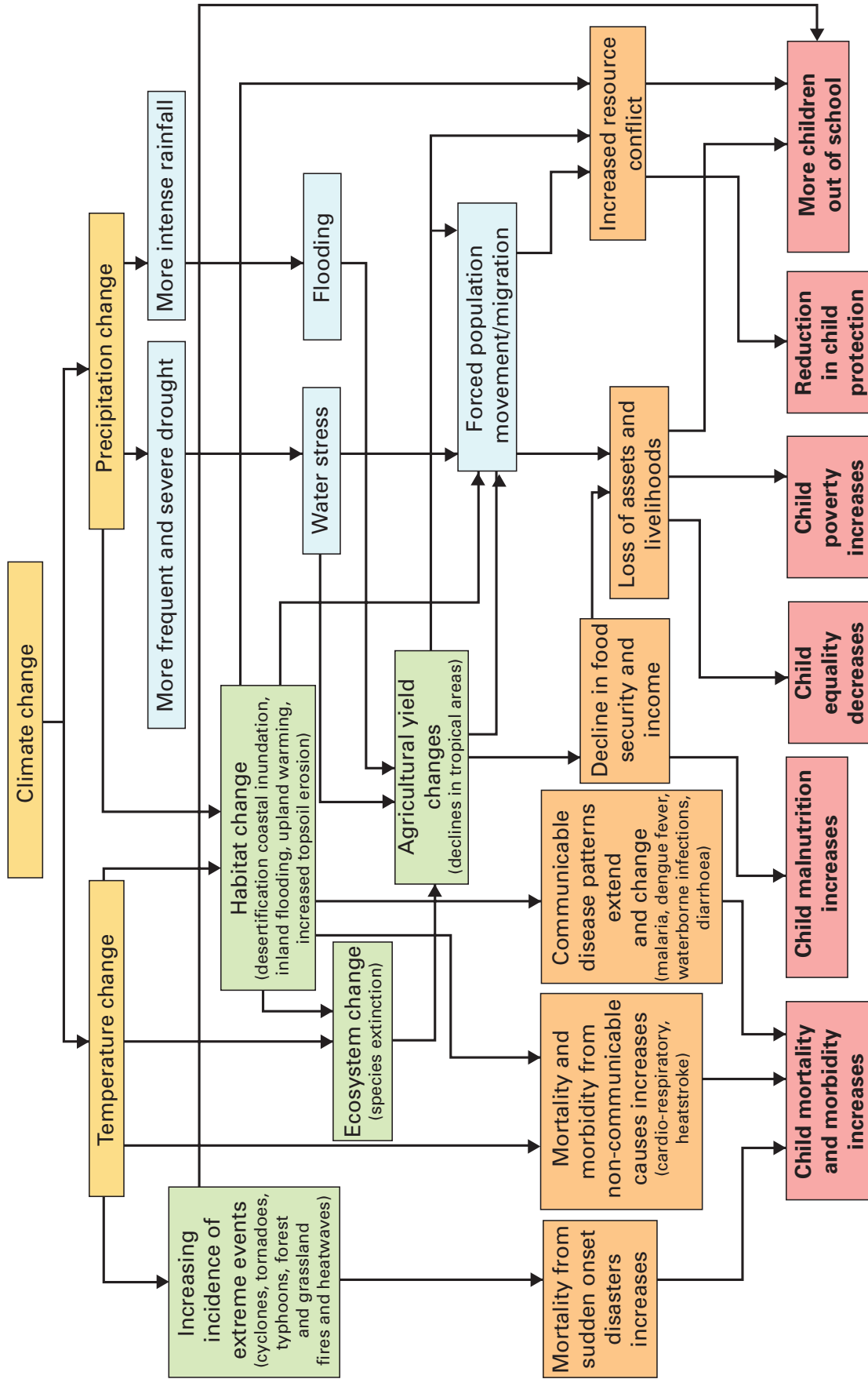
**Scaling up and mainstreaming climate change adaptation and disaster risk reduction in educational systems is a key strategy for increasing children's capacities to become agents of change, reducing risks and enhancing children's resilience. This strategy works because:**

- Protecting business continuity in the education sector in the face of climate change and disaster risk can ensure children's continued and increased access to schooling and learning.
- Structural disaster risk reduction in education – through safe school location, construction and maintenance – can safeguard the lives of children and their communities in times of sudden or slow-onset disasters. DRR can improve children's health status and well-being, for example, by providing safe buildings and shelter and by calling attention to safe drinking water and sanitation, safe



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**Diagram 2.1 – Direct and indirect impacts of climate change on children**



Source: UNICEF UK (2008). *Our climate, our children, our responsibility: The implications of climate change for the world's children*. London: UNICEF. Retrieved from <http://www.crin.org/docs/climate-change.pdf>.

and sustainable energy, and adequate nutrition. The incorporation of universal design strategies should be given priority to guarantee the inclusion of all children and adults, including those living with disabilities.

- Facilitating education sector responses contributes to a comprehensive multi-sectoral response to climate change and disaster risk that uses the added value of each sector's mandates and strengths.
- Learning and teaching about climate change adaptation and disaster risk reduction can empower children with the knowledge, attitudes and skills to deal with environmental challenges and develop and strengthen adaptive

actions. For example, children can learn to use resources responsibly, solve environmental problems, and reduce their risk and vulnerability in the face of environmental hazards. Families and communities will also benefit when children share what they have learned.

### 2.2.2 Enhancing equity for those most vulnerable to the risks and impacts of climate change and disasters

Climate change and disasters affect vulnerable groups differently. Those who have a limited adaptive capacity are particularly threatened. In this context, human security is defined as security of survival, security of livelihood (water, food, energy, housing, income) and human dignity, including respect of human rights.<sup>40</sup> Important determinants of vulnerability to climate change and disasters are poverty, gender, age, location, ethnicity and ability status.<sup>41</sup> These are often the same factors that negatively affect children's access to quality education.<sup>42</sup> The vulnerability of the most marginalized children and communities to climate change and disasters is intensified by their limited access to information. Children who experience more than one of these compounding factors are more likely to be harmed.

**Location** is the most obvious factor that determines children's vulnerability to climate change and disasters. For example, children living near active volcanoes and areas of high seismic risk are more likely to be harmed, and children in dense urban areas are particularly vulnerable to risks from

#### Box 2.3 Building back better in Myanmar

In 2008, cyclone Nargis left 140,000 people dead and 2.4 million affected. More than 4,000 schools in the affected areas – over 50 per cent – were either destroyed or damaged.

UNICEF advocated the concept of 'building back better' in the construction of new schools. As requested by the Ministry of Education, UNICEF implemented child friendly designs for schools that were adapted to the local context and also incorporated aspects of disaster risk reduction. In 2010, 49 child friendly schools were completed in five cyclone-affected townships. New construction provided room for innovation – introducing technology that suits the local context and reduces costs while maintaining quality. These facilities included adequate toilet facilities, safe water storage, libraries, playgrounds, fences and rooms for the teacher.<sup>39</sup>

debris and fallen power lines. The regions that will be most affected by climate change are the Middle East, North Africa, the Sahel zone, Southern Africa, Central Asia, Asia (major deltas, Bangladesh, China, India, and Pakistan) and the Pacific, Latin America (especially the Andean region and Amazonia), the Caribbean, the Gulf of Mexico and the Arctic.<sup>43</sup> Children living in small island states face some of the highest risks from rising sea levels.<sup>44</sup>

#### Box 2.4 Urban poverty, children and climate change

Without adequate planning and good governance, poor urban areas can be among the world's most life-threatening environments for children. In some informal settlements, one quarter of all children still die before the age of 5. In many urban areas, the risks children face are likely to be intensified by climate change. Most of the people and enterprises who are at the greatest risk from extreme weather events and rising sea levels are located in urban slums in low-income countries, where there is a combination of high exposure to hazards and inadequate protective infrastructure and services.<sup>45</sup>

Another determinant of climate change vulnerability is **age**. Older people and children are at increased risk of heat and cold stress and other health-related effects of climate change (e.g., food and water shortages, and water- and food-borne diseases), because of their physical characteristics and lack of mobility.<sup>46</sup> In two of the world's most drought-prone countries, Ethiopia and Kenya, children under 5 born during a drought are 36 and 50 per cent more likely to be

undernourished, respectively, than children born during non-drought periods.<sup>47</sup>

Two of the greatest challenges facing our interdependent world – **poverty** and climate change – are inextricably linked:

The channels linking climate change to development are numerous: the social impacts of climate change are difficult to assess as interactions are complex and poorly understood. Evidence in a growing number of studies demonstrates that climate change is an exacerbating factor that confines people in so-called poverty traps.<sup>48</sup>

Poverty, itself a manifestation of various socio-economic characteristics, determines to a great extent the adaptive capacity and resilience of children and their families and communities. About three out of four poor people live in rural areas, where they rely on natural resources for their livelihoods. Droughts, floods, storm surges and changes in rainfall patterns affect these natural resources and, in turn, the livelihoods of the poor, their nutrition, their security, their future opportunities and those of their children. Disadvantaged people often do not have adequate resources to recover after a disaster or to sufficiently maintain their livelihoods in the face of diminishing returns due to environmental degradation. Thus climate change and disasters can exacerbate the chronic cycle of poverty.<sup>49</sup>

A growing amount of evidence shows that gender plays a determining role in the level of vulnerability to climatic changes. This becomes particularly evident in the analysis of disasters caused by natural hazards. For example, an oft-cited study from the

London School of Economics,<sup>50</sup> which analysed environment-related disasters in 141 countries over 20 years (1981–2002), showed that disasters lower the life expectancy of women more than that of men, and that the more severe the disaster, the stronger the effect.<sup>51</sup> The often disadvantaged position of girls and women and their disproportionate reliance on natural resources mean that they have greater difficulty in coping with natural hazards.<sup>52</sup> For example, in a country such as Bangladesh, where women are more calorie-deficient than men, women generally have more difficulty in recovering from the negative health effects of flooding.<sup>53</sup>

### Box 2.5 Gender aspects of climate change

In times of climatic change, girls are more likely to drop out of school to save on school fees, to assist the household with tasks such as fetching water, or as a result of pregnancy and child marriage. Violence against women and girls tends to increase in the aftermath of disasters. A 2001 study in Malawi showed that female children were married off in times of drought, usually to older men with numerous sexual partners. Some girls and women were forced to sell sex for gifts or money, which resulted in the accelerated spread of HIV and AIDS in the country.<sup>54</sup> Out-of-school children are disproportionately girls (particularly in Africa and South Asia) from rural or remote areas, urban slums, and from poor households. Despite great strides during the past decade in achieving gender parity in primary education, girls and young women in developing regions remain at a considerable disadvantage in terms of access to education, particularly at the secondary level. Economic and environmental hardships may encourage families to marry off their daughters as children rather than send them to school, and females with little education are more likely to get married as children.

There is little research on the effects of climate change on the disabled, but a number of factors suggest that children living with **disabilities** are also at increased risk from climate change, and particularly disasters. Children with mobility-related disabilities may be at greater physical risk during a disaster if they cannot evacuate in time.<sup>55</sup> Children who rely on electricity for medical support may be negatively affected when the power goes out. In addition, children with intellectual disabilities may have difficulty following evacuation instructions.<sup>56</sup> One in five people living on less than US\$2 per day has a disability.<sup>57</sup> Since poverty correlates with climate change vulnerability, and disability correlates with poverty, children with disabilities are likely to be disproportionately affected by changes in weather patterns.

**Indigenous children** and their families are particularly dependent on natural resources and ecosystems. Their understanding of the local environment provides them with important skills and knowledge that helps them adapt to climate change. However, indigenous children are highly vulnerable owing to discrimination and cultural barriers as well as their dependence on the natural environment. Indigenous children and children from ethnic minorities face an additional disadvantage in school when the language of instruction is not their mother tongue. In the Latin American and Caribbean region, afro-descendant children have many of the same vulnerabilities as children from indigenous populations. Moreover, they often live in coastal areas that are highly vulnerable to climate change and disaster risks.

### **Box 2.6** Anchorage Declaration of the Indigenous Peoples' Global Summit on Climate Change, 2009

"We are deeply alarmed by the accelerating climate devastation brought about by unsustainable development. We are experiencing profound and disproportionate adverse impacts on our cultures, human and environmental health, human rights, wellbeing, traditional livelihoods, food systems and food sovereignty, local infrastructure, economic viability, and our very survival as Indigenous Peoples. Mother Earth is no longer in a period of climate change, but in climate crisis. We therefore insist on an immediate end to the destruction and desecration of the elements of life."

#### **Quality education can play a crucial role in addressing social disparities that are exacerbated by climate change and disasters:**

- Quality education that focuses on climate change adaptation and disaster risk reduction contributes to equity by diminishing disparities – especially through its emphasis on the key child rights-based principles of child-centredness, inclusiveness, democratic participation and protective environments. The mainstreaming of climate change adaptation and disaster risk reduction in the education sector contributes to child-centredness

because these issues are relevant to children's lives, especially for those children, including girls and the rural poor, who are most vulnerable to climatic changes and disasters. Strengthening the resilience of the most vulnerable contributes to their ability to access education, enhances their interest in education and supports inclusiveness. Education provides an ideal platform for the application of active and participatory learning techniques, and it encourages participation of by marginalized people such as indigenous children and girls, who often have special knowledge of the local environment. Finally,



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consideration of risk and sustainability in school buildings and facilities creates a protective environment that is particularly important for those who are disadvantaged by poor livelihoods and poor health. They will benefit most from safe environments, safe water, a clean energy supply and improved nutrition.

- Environmental education that is participatory, democratic and inclusive creates demand for schooling and learning. School attendance is negatively correlated with child labour:<sup>58</sup> Those children most likely to miss school are also likely to be involved in income-generating or subsistence activities.<sup>59</sup> When parents recognize that education is relevant and boosts the family's well-being, they are more likely to make sacrifices to have their children attend school.
- One of the principles of child friendly education is the strong link between schools and learning spaces and the communities they serve. Children share with their families the increased resilience, adaptive capacity and attitudes of stewardship that they gain through quality education. This empowers the whole community and contributes to its ability to reduce risk and to adapt and secure more stable and sustainable livelihood strategies. Ultimately, quality education contributes to reducing the poverty that is linked to environmental degradation and disasters.
- Effective school-community collaboration can also generate knowledge systems in which local

### Box 2.7 'Map Your School' in Bolivia

The 'Map Your School' initiative from UNICEF and the United Nations Institute for Training and Research Operational Satellite Applications Programme (UNITAR/UNOSAT) enables children to locate their schools using a simple online map of environmental vulnerabilities and helps raise communities' awareness of natural hazards. 'Map Your School' is "an online platform allowing children to enter information about hazards and resources in and around their schools and community."<sup>60</sup> This information is then displayed on an overview map to alert everyone about hazards in the neighborhood.<sup>61</sup>

experiences are highly valued and respected.

- The focus of child friendly education on inclusiveness and culturally relevant education benefits children and families from indigenous communities. Exclusion due to cultural barriers is reduced. Child friendly education promotes the use of children's mother tongue as the primary language of instruction. Securing children's right to information in their mother tongue is essential to ensure that the most marginalized also benefit from communication initiatives on climate change adaptation and disaster risk reduction.

All of these factors indicate that integrating climate change adaptation and disaster risk reduction in education has the potential to diminish disparities and can contribute significantly to a more just and equitable world.

### Box 2.8 2012 United Nations Conference on Sustainable Development (Rio+20)

During the United Nations Conference on Sustainable Development (Rio+20) held in June 2012, representatives from 191 United Nations Member States and observers, including 79 Heads of State or Government, addressed the general debate around sustainable development and concluded negotiations on the Rio outcome document, titled 'The Future We Want'.<sup>62</sup>

The agreement adopted in Rio calls for the UN General Assembly, at its next session (September 2012), to take decisions on, *inter alia*: designating a body to operationalize the 10-year framework of programmes on sustainable consumption and production; determining the modalities for the third international conference on small island developing states, which is to convene in 2014; identifying the format and organizational aspects of the high-level forum, which is to replace the Commission on Sustainable Development; strengthening the UN Environment Programme; constituting a working group to develop global sustainable development goals to be agreed by UNGA; and establishing an intergovernmental process under UNGA to prepare a report proposing options on an effective sustainable development financing strategy; considering a set of recommendations from the Secretary-General for a facilitation mechanism that promotes the development, transfer and dissemination of clean and environmentally sound technologies.<sup>63</sup>

Commitments to protecting and promoting the **right to education** were reaffirmed and **full access to quality education** at all levels was recognized as an essential condition for achieving sustainable development and meeting the MDGs. The document also calls for greater promotion and integration of education for sustainable development into the education sector, beyond the United Nations Decade of Education for Sustainable Development.

### 2.2.3 Ensuring quality in child friendly education

With the increasing recognition of the threat that climate change and the intensification of natural hazards pose to the global community, the returns from quality education that incorporates climate change adaptation and disaster risk reduction cannot be over-emphasized. From an economic standpoint, quality education is a cost-effective approach for dealing with climate change and disaster risk. It offers a sustainable source of local capacity and solutions.<sup>64</sup> The knowledge children acquire about climate change and risk reduction will last a lifetime and will be passed on to future generations.

The cost of education – especially education that targets children who are most vulnerable – is almost negligible compared with what is gained in development benefits.<sup>65</sup> For example, evidence shows that girls' education has a multiplier effect on development, where investing in educating a girl improves the lives of future generations. Girls' education has a similar effect on equality, environmental and social justice, and climate change. An analysis of loss of life from floods and droughts between 1960 and 2003 found that countries with higher levels of female education came through climate-related events better than countries of similar economic and weather conditions with lower rates of female education.<sup>66</sup> Similarly,



a comprehensive economic review of climate change<sup>67</sup> concluded that “the benefits of strong, early action on climate change outweigh the costs”,<sup>68</sup> and that education must play an important role in behaviour change. Moreover, every US\$1 invested in disaster risk reduction can reduce disaster response and recovery costs by US\$2 to US\$10.<sup>69</sup>

As argued in *Narrowing the Gaps to Meet the Goals*, a pro-poor, “equity-focused approach to child survival and development has great potential to accelerate progress towards the MDGs and other commitments to children. An equity-focused approach could also bring vastly improved returns on investment,” providing these children with essential services and reducing disparities within nations (see Table 2.2).<sup>70</sup>

**Table 2.2 – Key links between the MDGs, climate change, disasters and education<sup>71</sup>**  
(adapted from *Climate Change and Environmental Education*)

Millennium Development Goals	Link to climate change and disasters	Examples of adaptation and risk reduction solutions through education
<b>Goal 1: Eradicate extreme poverty and hunger</b>	<ul style="list-style-type: none"> <li>Climate change and disasters are projected to reduce poor people’s livelihood assets – for example, health, access to water, homes and infrastructure.</li> <li>Climate change, including chronic disasters, is expected to alter the path and rate of economic growth owing to changes in natural systems and resources, infrastructure and labour productivity. A reduction in economic growth has a direct impact on poverty through reduced income opportunities.</li> <li>Particularly in Africa, food security is expected to decline.</li> </ul>	<ul style="list-style-type: none"> <li>Vocational education to teach out-of-school youth and women about alternative livelihoods – small-scale entrepreneurship and other ‘green’ job skills related to the environment and disaster risks – in order to increase resilience and sustainability, while at the same time increasing their future employability</li> <li>Access and completion of quality education have a direct impact on development and poverty reduction</li> <li>School gardening programmes initiated to support nutrition</li> </ul>
<b>Goal 2: Achieve universal primary education</b>	<ul style="list-style-type: none"> <li>Natural disasters can cause the loss of livelihood assets (social, natural, physical, human and financial capital), including the destruction of school infrastructures. These impacts can reduce opportunities for full-time education in numerous ways. Natural disasters reduce children’s available time, while displacement and migration can reduce access to education.</li> </ul>	<ul style="list-style-type: none"> <li>Hazard-resilient school construction</li> <li>Environmental education</li> <li>Youth-led community mapping of risks and disaster preparedness</li> <li>School-based early warning systems</li> <li>Awareness and advocacy activities</li> </ul>

(continued)

**Table 2.2 – Key links between the MDGs, climate change and disasters and education (continued)**

Millennium Development Goals	Link to climate change and disasters	Examples of adaptation and risk reduction solutions through education
<p><b>Goal 3: Promote gender equality and empower women</b></p>	<ul style="list-style-type: none"> <li>Climate change, including chronic disasters, is expected to exacerbate current gender inequalities. Depletion of natural resources and decreasing agricultural productivity may place additional burdens on women’s and girls’ health and reduce time available to participate in decision-making processes and income-generating activities.</li> <li>Natural disasters have been found to affect female-headed households more severely and result in increased gender-based violence.</li> </ul>	<ul style="list-style-type: none"> <li>Inclusion and participation of women and girls in education on disaster preparedness and risk reduction</li> <li>Gender-sensitive curricula and pedagogy on climate change adaptation and disaster risk reduction</li> <li>Safe school environments that meet the needs of girls, including segregated latrines</li> </ul>
<p><b>Goal 4: Reduce child mortality</b></p>	<ul style="list-style-type: none"> <li>Children are especially vulnerable to physical injury and trauma during natural disasters</li> <li>Direct effects of climate change include increases in heat-related mortality and illness associated with heat waves.</li> <li>Climate change will likely result in declining quantity and quality of drinking water, a prerequisite for good health, and exacerbate undernutrition by reducing natural resource productivity and threatening food security.</li> </ul>	<ul style="list-style-type: none"> <li>Emergency preparedness, evacuation drills, learning about first aid in preschools</li> <li>Evacuation shelters and hazard-resilient school construction</li> <li>Access to health services, clean water, improved sanitation and adequate nutrition at school, especially preschool</li> <li>Improved access to sanitation and hygiene education</li> <li>Awareness-raising about mosquito breeding sites, e.g., eliminating standing water and advocating practices that prevent the formation of mosquito breeding sites.</li> <li>School gardens and school feeding programmes</li> </ul>
<p><b>Goal 5: Improve maternal health</b></p>	<ul style="list-style-type: none"> <li>Children and pregnant women are particularly susceptible to vector- and waterborne diseases that are becoming more prevalent owing to climate change. After a disaster, the threat of waterborne disease is often an important issue.</li> <li>The effect of climate change and disasters on food security is also an issue, as pregnant women require nutritious food</li> </ul>	<ul style="list-style-type: none"> <li>Strengthening of health services and distribution of malaria pills through schools</li> <li>Access to education and nutrition for young mothers through schools</li> </ul>

**Table 2.2 – Key links between the MDGs, climate change and disasters and education (continued)**

Millennium Development Goals	Link to climate change and disasters	Examples of adaptation and risk reduction solutions through education
<b>Goal 6: Combat HIV and AIDS, and malaria and other diseases</b>	<ul style="list-style-type: none"> <li>Climate change and related disasters may increase the prevalence of some vector-borne diseases and vulnerability to water- or food-borne diseases and diseases transmitted from person to person.</li> </ul>	<ul style="list-style-type: none"> <li>Access to health services, clean water, improved sanitation and adequate nutrition at school</li> <li>Improved access to sanitation and hygiene education</li> <li>Awareness-raising about mosquito breeding sites, e.g., eliminating standing water and advocating practices that won't allow mosquito breeding sites.</li> </ul>
<b>Goal 7: Ensure environmental sustainability</b>	<ul style="list-style-type: none"> <li>Climatic change and increasingly chronic disasters will alter the quality and productivity of natural resources and ecosystems, some of which may be irreversibly damaged, and these changes may also decrease biological diversity and compound existing environmental degradation.</li> </ul>	<ul style="list-style-type: none"> <li>Increased access to water, sanitation and hygiene education at school</li> <li>Tree-planting campaigns</li> <li>School garden</li> <li>Environmental education and education for sustainable development</li> </ul>
<b>Goal 8: Develop a global partnership for development</b>	<ul style="list-style-type: none"> <li>Climate change is a global issue, and the response requires cooperation from all countries, especially to help developing countries adapt to its adverse impacts.</li> </ul>	<ul style="list-style-type: none"> <li>Build a global network of experts and stakeholders to support climate change adaptation/disaster risk reduction mainstreaming in education</li> <li>Initiate discussions on the Convention on the Rights of the Child and climate change at all levels</li> <li>Strengthen and support global youth networks and youth movements that fight for climate justice</li> </ul>

### 2.3 Next steps

Building on the content of Modules 1 and 2, Module 3, 'Legal Instruments and International Policy Frameworks', provides an overview of the full spectrum of international covenants, declarations, events and commitments that further

buttress the Convention on the Rights of the Child. Module 3 allows advocates to trace the progression of thought and action over time and to provide precedents for their national counterparts.

## Notes

- 1 For more information on climate change and environmental education, see UNICEF. *Climate change and environmental education: A companion to the Child Friendly Schools Manual*. Retrieved from [http://www.unicef.org/publications/files/CFS\\_Climate\\_E\\_web.pdf](http://www.unicef.org/publications/files/CFS_Climate_E_web.pdf).
- 2 For more information on the *Child Friendly Schools Manual*, visit: [http://www.unicef.org/publications/files/Child\\_Friendly\\_Schools\\_Manual\\_EN\\_040809.pdf](http://www.unicef.org/publications/files/Child_Friendly_Schools_Manual_EN_040809.pdf)
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# Climate Change Adaptation and Disaster Risk Reduction in the Education Sector

## RESOURCE MANUAL

# 3

## MODULE 3

# Legal Instruments and International Policy Frameworks

## Key messages

- 1. The Convention on the Rights of the Child calls for education to be child-centred, inclusive, protective and participatory.** These principles frame the need to scale up and mainstream climate change adaptation and disaster risk reduction in education.
- 2. A human rights-based approach necessitates inclusion of children's rights** in all international and national efforts to address climate change and disaster risk.
- 3. Climate change adaptation and disaster risk reduction through education can help a country meet international and national commitments** pertaining to human rights, education, the environment and sustainable development.
- 4. A strong education sector response to climate change and disaster risk reinforces the goals of Education for All, equity and sustainable development.**

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This is the third module of the resource manual *Climate Change Adaptation and Disaster Risk Reduction in the Education Sector*. This module gives an overview of relevant international legal instruments that underline the moral and legal obligation to mainstream and scale up climate change adaptation and disaster risk reduction in quality education using an equity approach. The reader is also encouraged to refer to the module on *Climate Change and Environmental Education*,<sup>1</sup> a companion to the *Child Friendly Schools Manual*.<sup>2</sup>

For more information, contact the Education Section, UNICEF New York, <educationhq@unicef.org>.

## Questions to guide your reading

1. How does the interrelationship among legal instruments pertaining to human rights, education, equity and the environment help advocates build alliances and create commitment to mainstreaming climate change adaptation and disaster risk reduction throughout the education sector?
2. How can these international policy frameworks inform national planning and policy processes for quality education and climate change adaptation and disaster risk reduction?



### 3.1 Introduction

This module covers the successive international legal instruments related to child rights and education, climate change, disaster risk reduction and education for sustainable development. Through the discussion of these instruments, the module outlines the progression of thought in each field over the last six decades as well as the convergence of these fields, which have resulted in an international

climate conducive to educational and environmental equity and sustainable economic development. The module brings these key fields together to show how they are interrelated and examine their collective role in creating the necessary conditions for the education sector to scale up and mainstream climate change adaptation and disaster risk reduction at the national and local levels.

### 3.2 International agreements and precedents

In 1989, the United Nations General Assembly adopted the Convention on the Rights of the Child (CRC). The resolution contains 54 articles addressing the full range of children's rights, including their educational, environmental and economic rights. States party to the CRC recognize children and young people as rights holders, acknowledging the diverse needs of children. To date, there are 140 signatories and 193 parties to that resolution.<sup>3</sup>

In approving this resolution, the General Assembly also laid the groundwork for a human rights-based approach to

education. By recognizing children's universal needs as human rights and considering the needs of the whole child, the CRC gives rise to the key principles that drive the process of making education systems child friendly.

Box 3.1 highlights those CRC articles associated with education, environment and economic development. Taken together, these articles form the basis for the endeavour to thoroughly mainstream climate change adaptation and disaster risk reduction into child friendly models of quality basic education.

### 3.3 Child rights and education

In the field of education, the CRC is the cornerstone to the human rights-based approach. Three additional events and their products provide further structure to that approach: the Convention on the Elimination of All Forms of Discrimination against Women (CEDAW, 1979), the World

Conference on Education for All and the resulting Jomtien Framework for Action (1990), and the World Education Forum that resulted in the Dakar Framework for Action (2000), which produced the first iteration of the Education for All goals.

### Box 3.1 The Convention on the Rights of the Child<sup>4</sup>

Of the 54 articles in the Convention on the Rights of the Child, several refer to rights that are relevant to the inter-dependent issues of the changing environment, children's education and equity:

- [Ensuring] that the child is protected against all forms of discrimination or punishment on the basis of the status, activities, expressed opinions, or beliefs of the child's parents, legal guardians, or family members. (Article 2, Part 2)
- [That in] all actions concerning children, whether undertaken by public or private social welfare institutions, courts of law, administrative authorities or legislative bodies, the best interests of the child shall be a primary consideration. (Article 3, Part 1)
- [Ensuring] to the maximum extent possible the survival and development of the child. (Article 6, Part 2)
- [Assuring] that the child shall in particular be provided the opportunity to be heard in any judicial and administrative proceedings affecting the child, either directly, or through a representative or an appropriate body in a manner consistent with the procedural rules of national law. (Article 12, Part 2)
- [Recognizing] the right of the child to the enjoyment of the highest attainable standard of health and to facilities for the treatment of illness and rehabilitation of health ... [applying] readily available technology and through the provision of adequate nutritious foods and clean drinking-water, taking into consideration the dangers and risks of environmental pollution ... [ensuring] that all segments of society, in particular parents and children, are informed, have access to education and are supported in the use of basic knowledge of child health and nutrition, the advantages of breastfeeding, hygiene and environmental sanitation and the prevention of accidents. (Article 24, Part 1, 2c and 2e)
- [Recognizing] the right of the child to education, and with a view to achieving this right progressively and on the basis of equal opportunity ... [by] facilitating access to scientific and technical knowledge and modern teaching methods. In this regard, particular account shall be taken of the needs of developing countries. (Article 28, Part 1 and 3)
- [Agreeing] that education of the child shall be directed to: The development of the child's personality, talents and mental and physical abilities to their fullest potential; ... the preparation of the child for responsible life in a free society, in the spirit of understanding, peace, tolerance, equality of sexes, and friendship among all peoples, ethnic, national and religious groups and persons of indigenous origin; [and] the development of respect for the natural environment. (Article 29, Part 1a, d and e)

Education for All (EFA) provides the foundation for building fairer and more equitable societies that promote rights, empowerment and development.<sup>5</sup> The commitment to – and provision of – quality education for all, as embedded in the Jomtien and Dakar Frameworks for Action, are prerequisites to reducing

poverty, improving health and securing more sustainable livelihoods, which are the main tenets of the Millennium Development Goals (MDGs).

The universal human right to education is an entry point for scaling up and mainstreaming climate change adaptation

### Box 3.2 Disasters threaten children's right to education

Countries that have already achieved universal primary education, such as Maldives, could lose that status because of the threats posed by disasters. Disasters can undermine children's abilities to participate in full-time education when they result in destruction of infrastructure, such as schools, houses and roads; loss of livelihood assets, which increases the need for children to engage in production and income-earning activities; and the displacement and migration of families. Disaster therefore threatens the achievement of MDG 2.

and disaster risk reduction in educational systems. Quality schooling is based on the concrete application of child rights principles such as child-centredness, democratic participation, inclusiveness and protective environments. The holistic framework of quality schooling operates under the assumption that cross-sector approaches to education lead to sustainable development and rights-promoting outcomes for children of all ages and for their communities. That is, a quality learning environment that is child friendly incorporates child protection, equity, health, nutrition, sanitation, community participation and emergency preparedness directly into the education sector through a life-cycle approach.

Though climate change and disaster risk reduction are not explicitly included in the definition of quality education above or in the EFA goals; more and more countries will suffer from climate-related hazards. Governments and partners will therefore only be able to provide quality education and reach the EFA goals with an adequate education-sector response to climate change and disaster risk in place. A sector-wide response reinforces the EFA goals as well as equity and sustainable development, as discussed in Module 2.

Consistent with a human-rights based approach, all children have the right to knowledge about the causes and impacts of climate change and the changing environmental conditions around them. This approach proceeds from the premise that governments and partners are duty bound to empower young people with skills and values to help them think and act effectively and to strengthen their individual resilience and adaptive capacity, especially in places that are more immediately vulnerable to the effects of climate change and face a higher risk of disaster. A human-rights based approach entrusts families, communities, teachers, national leaders and international partners with the responsibility to support these attempts.



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### Box 3.3 Overview of relevant international agreements and declarations

- **The United Nations Charter (1945)** – Aims to maintain international peace and security; reaffirms faith in fundamental human rights; seeks “to promote social progress and better standards of life in larger freedom”;<sup>6</sup> the first global treaty to call for equality between women and men.
- **The Universal Declaration of Human Rights (1948)** – Asserts that “everyone has a right to education”;<sup>7</sup> strengthens the Charter’s call for equality between women and men; articles applicable to gender aspects of climate change include the right to own property, freedom of movement and equal protection before the law.
- **International Covenant on Civil and Political Rights (1966)** – Aims to promote universal respect for and observance of human rights and freedoms.
- **International Covenant on Economic, Social and Cultural Rights (1966)** – Focuses on economic, social and cultural rights, including the rights to work, organization and social security.
- **Declaration of the United Nations Conference on the Human Environment (1972)** – “Man’s environment, the natural and the man-made, are essential to his well being and the enjoyment of basic human rights – even the right to life itself.”<sup>8</sup>
- **Convention on the Elimination of all forms of Discrimination Against Women (CEDAW) (1979)** – Underlines the need for women’s empowerment and the promotion of gender equality.
- **World Summit for Children (1990)** – Adopted a Declaration on the Survival, Protection and Development of Children and a Plan of Action for implementing the Declaration in the 1990s.
- **World Conference on Education for All (1990)** – Adopted the World Declaration on Education for All, with the understanding that “education can help ensure a safer, healthier, more prosperous and environmentally sound world.”<sup>9</sup>
- **United Nations Conference on Environment and Development (UNCED) (1992)** – Produced the Rio Declaration and Agenda 21, as well as the following multilateral environmental agreements: the United Nations Framework Convention on Climate Change, the United Nations Convention on Biological Diversity and the United Nations Convention on the Combat of Desertification.
- **World Conference on Human Rights (1993)** – Produced the Vienna Declaration and Programme of Action, which aimed to reaffirm and strengthen human rights, including the right to development.
- **International Conference on Population and Development (1994)** – Stands out as a pivotal moment in the history of rights-based development, asserting that individual and human rights are at the centre of population and development concerns.
- **Fourth World Conference on Women and the Beijing Declaration and Platform for Action (1995)** – Produced action plan to enhance gender mainstreaming and improve the position of women.

*(continued)*

**Box 3.3** (continued)

- **World Programme of Action for Youth to the Year 2000 and Beyond** (1995) – On the tenth anniversary of International Youth Year, strengthened the United Nations’ commitment to young people by directing the international community to address the challenges facing youth into the next millennium.
- **World Summit for Social Development** (1995) – Reached a new consensus on the need to put people at the centre of development and pledged to make overcoming poverty, ensuring full employment and fostering social integration overriding objectives of development.
- **Millennium Summit** (2000) – Produced the United Nations Millennium Declaration and MDGs, signed by nearly all countries. Almost all MDGs incorporate a child rights’, equity and sustainability perspective.
- **World Education Forum** (2000) – Reaffirmed the EFA commitments made in 1990; called for “education geared to tapping each individual’s talents and potential, and developing learners’ personalities, so that they can improve their lives and transform their societies.”<sup>10</sup>
- **United Nations General Assembly Special Session on Children** (2002) – Adopted the ‘A World Fit for Children’ declaration, which promises to “protect the Earth for children.”<sup>11</sup>
- **World Summit on Sustainable Development** (2002) – Resulted in a plan to implement sustainable development.
- **World Conference on Disaster Reduction** (2005) – Produced the Hyogo Framework for Action (2005–2015), adopted by 168 governments, on reducing the impacts of disasters. Led to the establishment of the Global Facility for Disaster Reduction and Recovery (2006), a partnership of 35 countries and 6 international organizations to help developing countries reduce vulnerability and adapt to natural hazards.
- **Decade on Education for Sustainable Development** (2005–2014) – “Seeks to integrate the principles, values and practices of sustainable development into all aspects of education and learning,”<sup>12</sup> in order to address the social, economic, cultural and environmental problems of the twenty-first century.
- **United Nations Convention on the Rights of Persons with Disabilities** (2006) – Intended to protect the rights and dignity of persons with disabilities.
- **United Nations Declaration on the Rights of Indigenous Peoples** (2007) – Non-binding statement; recognizes indigenous rights and “encourages better understanding of traditional land tenure and the need to recognize its validity for women and vulnerable groups in the face of climate change.”<sup>13</sup>
- **United Nations Human Rights Council** (2008/2009) – Produced Resolution 7/23 on Human Rights and Climate Change and follow-up report.
- **United Nations Conference on Sustainable Development (Rio+20)** (2012) – Produced the report ‘The Future We Want’ and influenced the post-2015 agenda.

The following sections examine the key documents on climate change adaptation and disaster risk reduction. What follows provides the rationale for scaling up and

mainstreaming climate change adaptation and disaster risk reduction throughout the education sector in order to contribute to sustainable development.

### 3.4 Sustainable development and climate change

Agenda 21, the United Nations Framework Convention on Climate Change (UNFCCC) and four subsequent agreements form the core references and mechanisms for the field of sustainable development and climate change.

The UNFCCC focuses on the scientific principles of climate change. Article 2 of the UNFCCC describes the aim of the agreement, outlining the parameters of action:

The ultimate objective of this Convention and any related legal instruments that the Conference of the Parties may adopt is to achieve, in accordance with the relevant provisions of the Convention, stabilization of greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system. Such a level should be achieved within a time frame sufficient to allow ecosystems to adapt naturally to climate change, to ensure that food production is not threatened and to enable economic development to proceed in a sustainable manner.<sup>14</sup>

Article 3 of the UNFCCC makes an explicit connection among human rights, equity and the UNFCCC's relevance to education, stating that "[t]he Parties should protect the climate system for the benefit of present and future generations

#### Box 3.4 The Global Environment Facility

According to the Global Environment Facility website, "The GEF unites 182 countries in partnership with international institutions, civil society organizations (CSOs), and the private sector to address global environmental issues while supporting national sustainable development initiatives. Today the GEF is the largest public funder of projects to improve the global environment. An independently operating financial organization, the GEF provides grants for projects related to biodiversity, climate change, international waters, land degradation, the ozone layer, and persistent organic pollutants."<sup>15</sup>

of humankind, on the basis of equity and in accordance with their common but differentiated responsibilities and respective capabilities."<sup>16</sup>

Where the UNFCCC outlines the scientific impact of human interaction with the natural environment, Agenda 21 emphasizes the social and economic outcomes of an unbalanced relationship and sets out a "wide-ranging blueprint for action":<sup>17</sup>

Humanity stands at a defining moment in history. We are confronted with a perpetuation of disparities between and within nations, a worsening of poverty, hunger, ill health and illiteracy,

and the continuing deterioration of the ecosystems on which we depend for our well being. However, integration of environment and development concerns and greater attention to them will lead to the fulfilment of basic needs, improved living standards for all, better protected and managed ecosystems and a safer, more prosperous future. No nation can achieve this on its own; but together we can – in a global partnership for sustainable development.<sup>18</sup>

Chapter 1.3 explains the origin of the document's name: "Agenda 21 addresses the pressing problems of today and also aims at preparing the world for the challenges of the next century" and calls for action at all levels, beginning with national governments.<sup>19</sup> Agenda 21 is to the field of climate change and sustainable development what the CRC is to children's rights, and the Dakar Framework for Action is to education.

The Kyoto Protocol of 1997 descends from the UNFCCC. In this key and controversial protocol, States parties commit to reducing emissions through 2012.

Since the initiation of the first UNFCCC, regular sessions have been held to advance work related to climate change. The Nairobi Work Programme was adopted at the eleventh session of the Convention of the Parties (COP-11). The objective of this work programme, designed by the Subsidiary Body for Scientific and Technical Advice, is to:

- **"Improve their understanding and assessment** of impacts, vulnerability and adaptation to climate change; and

- **Make informed decisions on practical adaptation actions and measures** to respond to climate change on a sound scientific, technical and socio-economic basis, taking into account current and future climate change and variability."<sup>20</sup>

Quality education, delivered within the framework of child rights principles, is uniquely positioned to contribute to these themes of the Nairobi Work Programme.

At the 16th Conference of the Parties to the UNFCCC (COP-16), held in Cancun, Mexico, in 2010, the importance of Article 6 (see box 3.5) was underlined, and Parties were invited to enhance the implementation of the New Delhi Work Programme by enhancing the involvement of groups with key roles in climate change communication and education (including journalists,

### Box 3.5 Update on UNFCCC

In May 2012, the UNFCCC Secretariat released a report on the progress and effectiveness of the implementation of the amended New Delhi Work Programme on UNFCCC Article 6.

The report highlights progress in the implementation of activities referred to in the work programme; other activities on education, training, public awareness, public participation and public access to information on climate change; and international cooperation in this context. This report further summarizes needs, gaps and barriers relating to the implementation of the work programme. The objective of this report is to support the review of the implementation of the amended New Delhi Work Programme.<sup>21</sup>

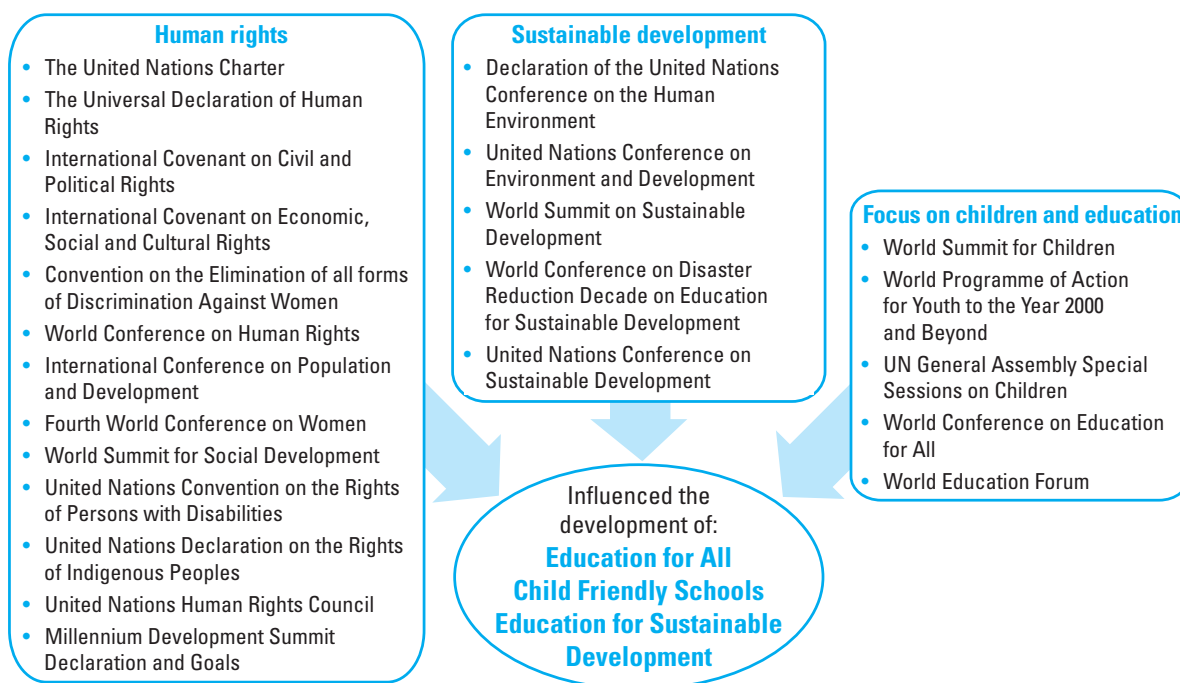
teachers, youth, children and community leaders) and fostering participation of women, indigenous peoples, civil society groups and other relevant stakeholders. Furthermore, the conference encouraged support for formal climate change education in schools and institutions, at all levels and in both non-formal and informal education.<sup>22</sup>

In developing national adaptation plans addressing both the UNFCCC and Agenda 21, countries identify activities central to their own national climate change adaptation needs. Each country's plan is intended to recognize the importance of mainstreaming adaptation into macro policies, as well as into policies across all sectors affected by climate change. In this respect, education should also be part of national adaptation plans. Guidelines state that adaptation plans

### Box 3.6 Climate change in Maldives

In Maldives, the national plans and strategies for climate change adaptation developed during the past decade – in particular the first national communication to the UNFCCC in 2001 – emphasize inclusion of climate change and environmental education in the national curriculum. The environmental education syllabus introduced into the national curriculum in 1984 had been revised, and the new textbooks and teacher guides for grades 3–7 include climate change education. With assistance from UNICEF, a child-centred environmental resource pack and teacher training on participatory and inclusive learning and teaching methods were developed in 2007 to supplement the environmental education syllabus. These materials form a comprehensive set of tools to enable children and teachers to tackle the challenges faced by this small island developing state as a result of the fragility of its ecosystem.

**Diagram 3.1 – The links between climate change, sustainable development and environmental rights**





should be participatory and involve both women and men at the grassroots level, recognizing that the impacts of climate change are often gender-specific.

Understanding the interconnection between climate change, sustainable development, environmental rights

and their respective and collective connections to the education sector is essential to reducing the risk of disaster. Diagram 3.1 illustrates these connections. The next section discusses instruments and agreements pivotal to the disaster risk reduction, ensuring educational rights and achieving sustainable development.

### 3.5 Sustainable development and disaster risk reduction

Disaster risk reduction refers to “the concept and practice of reducing disaster risks through systematic efforts to analyse and manage the causal factors of disasters, including through reduced exposure to hazards, lessened vulnerability of people and property, wise management of land and the environment, and improved preparedness for adverse events.”<sup>23</sup>

Like education and climate change adaptation, disaster risk reduction assumed its place on the global agenda in 2005 at the World Conference on Disaster Reduction held in Kobe, Hyogo, Japan. The Hyogo Framework for Action<sup>24</sup> was launched there and is considered “a global blueprint for disaster risk reduction efforts during that decade. The goal of the Hyogo Framework is to substantially reduce disaster losses by 2015 – not only in lives, but also in the social, economic and environmental assets of communities and countries.”<sup>25</sup> It offers guiding principles, priorities for action and practical means for achieving disaster resilience for vulnerable communities.”<sup>26</sup> It is based on the premise that disasters affect everyone, but not in the same way or to the same extent: the poorest and most disadvantaged, including women

and children, are often hardest hit. The Safe at School campaign study shows that more than 50 per cent of children who lose their lives in earthquakes each year die because of poorly constructed schools.<sup>27</sup>

The education sector is obligated to ensure children’s right to a safe and protective learning environment through emergency preparedness measures, including the construction and retrofitting

#### Box 3.7 Hyogo Framework for Action in Maldives

The Government of Maldives responded to the recommendations of the Hyogo Framework for Action by producing textbooks and teacher guides about disaster risk reduction in Maldives. The books have been produced by the Education Development Center of Maldives, in partnership with UNDP and with financial support from the International Strategy for Disaster Reduction, with wide stakeholder participation from various sectors. The documents have been developed with the aim of enabling teachers to fully integrate the learning materials into the national curriculum, contributing to the fulfilment of children’s rights relating to safety and protection.

of disaster-resilient school buildings, the development of school drills and evacuation plans, and learning and teaching activities that increase the capacity of children and staff to reduce risks.

The focus of many of the relevant agreements and mechanisms is to directly respond to climate change and disaster risk. In most of the documents, quality education is implicitly or explicitly stated as a potential site of impact of climate change and disaster. Many of them imply that education is also a response in itself.

Advances in human responses to climate change and disaster risk rely on increased capacity and behaviour change at all levels (from individual to government) and in all countries. Successes in these areas depend in part on universal



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quality education with a focus on sustainable development. Education for sustainable development results from the convergence of all of these fields and is discussed in the next section.

### 3.6 Education for sustainable development

In non-legal terms, the Earth Summit of 1992 transmitted the message “that nothing less than a transformation of our attitudes and behaviour would bring about the necessary changes....The message reflected the complexity of the problems facing us: that poverty as well as excessive consumption by affluent populations place damaging stress on the environment.”<sup>28</sup>

Education facilitates the formation and transformation of attitudes and behaviours. To bring about the necessary changes in understanding the relationship of social systems, economic systems and natural systems, the education sector

should be involved. The intersection between climate change and education is highlighted in Article 36 of Agenda 21. As shown in the box on page 13, the role of education in this transformation has been explicit since 1992. As seen in the overarching human and educational rights frameworks highlighted in each of the sections above, the interrelationship among general human rights, educational rights and environmental rights – and the unique role of education as an end in itself as well as a means of ensuring other rights – is becoming clearer. The international climate is supportive of change, and momentum for action is building.

### Box 3.8 Education in the United Nations Framework Convention on Climate Change

#### Article 4 COMMITMENTS

1. All Parties, taking into account their common but differentiated responsibilities and their specific national and regional development priorities, objectives and circumstances, shall: ...

- (i) Promote and cooperate in education, training and public awareness related to climate change and encourage the widest participation in this process, including that of non-governmental organizations;

#### Article 6 EDUCATION, TRAINING AND PUBLIC AWARENESS

In carrying out their commitments under article 4, paragraph 1 (i), the Parties shall:

- (a) Promote and facilitate at the national and, as appropriate, sub regional and regional levels, and in accordance with national laws and regulations, and within their respective capacities:
  - (i) the development and implementation of educational and public awareness programmes on climate change and its effects;
  - (ii) public access to information on climate change and its effects;
  - (iii) public participation in addressing climate change and its effects and developing adequate responses; and
  - (iv) training of scientific, technical and managerial personnel;
- (b) Cooperate in and promote, at the international level, and, where appropriate, using existing bodies:
  - (i) for the development and exchange of educational and public awareness material on climate change and its effects; and
  - (ii) for the development and implementation of education and training programmes, including the strengthening of national institutions and the exchange or secondment of personnel to train experts in this field, in particular for developing countries.

## 3.7 Next steps

As detailed in module 4, 'Approaches for Scaling Up and Mainstreaming', there are two general ways to approach the transformation of the education sector. Module 4 discusses the benefits and limitations of each and provides

questions for consideration as national planners, policymakers and other stakeholders decide what approach is best given their particular context. Every context is different and will require a tailored response.

## Notes

- 1 For more information on climate change and environmental education, see UNICEF. *Climate change and environmental education: A companion to the Child Friendly Schools Manual*. Retrieved from [http://www.unicef.org/cfs/index\\_121.htm](http://www.unicef.org/cfs/index_121.htm).
- 2 For more information on the *Child Friendly Schools Manual*, visit: [http://www.unicef.org/publications/files/Child\\_Friendly\\_Schools\\_Manual\\_EN\\_040809.pdf](http://www.unicef.org/publications/files/Child_Friendly_Schools_Manual_EN_040809.pdf).
- 3 Office of the United Nations High Commissioner for Human Rights (1989). *Convention on the Rights of the Child*. United Nations Treaty Collection. New York: United Nations. Retrieved from <http://www2.ohchr.org/english/law/crc.htm>.
- 4 Ibid.
- 5 UNESCO & UNICEF (2007). *A human rights-based approach to education*. New York: UNICEF & UNESCO. Retrieved from [http://www.unicef.org/publications/files/A\\_Human\\_Rights\\_Based\\_Approach\\_to\\_Education\\_for\\_All.pdf](http://www.unicef.org/publications/files/A_Human_Rights_Based_Approach_to_Education_for_All.pdf).
- 6 United Nations Charter, Preamble.
- 7 Universal Declaration of Human Rights, Article 26.
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- 9 World Declaration on Education for All. Retrieved from <http://www.unesco.org/education/wef/en-conf/Jomtien%20Declaration%20eng.shtm>.
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- 15 Global Environment Facility. What Is the GEF? Retrieved from <http://www.thegef.org>.
- 16 Ibid.
- 17 United Nations Conference on Environment and Development. Retrieved from <http://www.un.org/geninfo/bp/enviro.html>.
- 18 Ibid.
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- 20 United Nations Framework Convention on Climate Change (2009). *The Nairobi Work Programme on impacts, vulnerability and adaptation to climate change (NWP): Understanding vulnerability, fostering adaptation*. Bonn: UNFCCC. Retrieved from [http://unfccc.int/adaptation/nairobi\\_work\\_programme/items/3633.php](http://unfccc.int/adaptation/nairobi_work_programme/items/3633.php).
- 21 UNFCCC (2012). *Report on progress made in, and the effectiveness of, the implementation of the amended New Delhi Work Programme on Article 6 of the Convention*. Bonn: UNFCCC. Retrieved from <http://unfccc.int/resource/docs/2012/sbi/eng/03.pdf>.
- 22 For more information on the UNFCCC Cancun Conference on Climate Change, visit [http://unfccc.int/meetings/cancun\\_nov\\_2010/meeting/6266.php](http://unfccc.int/meetings/cancun_nov_2010/meeting/6266.php).
- 23 United Nations Office for Disaster Risk Reduction (2009). *UNISDR Terminology and Disaster Risk Reduction*. Geneva, UNISDR. Retrieved from <http://www.unisdr.org/we/inform/terminology>.
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- 25 United Nations (2005). *Hyogo Framework for Action 2005–2015: Building the resilience of nations and communities to disasters*. Geneva: International Strategy for Disaster Reduction.
- 26 Prevention Web. Hyogo Framework. Retrieved from <http://www.preventionweb.net/english/hyogo>.
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# Climate Change Adaptation and Disaster Risk Reduction in the Education Sector

## RESOURCE MANUAL

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# 4

## MODULE 4

# Approaches for Scaling Up and Mainstreaming

## Key messages

- 1. Climate change adaptation and disaster risk reduction interventions in education may be scaled up using either 'roll-out' or 'big bang' approaches.** The particular situation and context will always determine the best immediate approach.
- 2. Build on existing structures.** Mainstreaming climate change adaptation and disaster risk reduction in education should take advantage of existing structures, processes and procedures.
- 3. Sustainable funding is critical.** Ideally, national budgets will provide a sustainable source of funding for climate change adaptation and disaster risk reduction interventions in education. Other funding opportunities are becoming increasingly available, such as the Global Partnership for Education.

Photo credit: © UNICEF/NYHQ2011-1585/Bell



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This is the fourth module of the resource manual *Climate Change Adaptation and Disaster Risk Reduction in the Education Sector*. This module introduces a framework for scaling up and mainstreaming climate change adaptation and disaster risk reduction in the education system. It looks at ways to protect the core work of the education sector from climate change and disaster risks and to help children become environmental stewards, reduce risks and enhance their resilience. This module also examines education sector planning processes, which are entry points for scaling up interventions and funding opportunities. The reader is also encouraged to refer to *Climate Change and Environmental Education*,<sup>1</sup> a companion to the *Child Friendly Schools Manual*.<sup>2</sup>

For more information, contact the Education Section, UNICEF New York, <educationhq@unicef.org>.

## Questions to guide your reading

1. What are the alternatives for scaling up and mainstreaming, and what works best in a particular context?
2. How are policy, planning, scaling up and mainstreaming iterative, interdependent processes? What implications do the methods have on policy and planning?
3. How does mainstreaming and scaling up at the system level affect learning at the classroom level?

## 4.1 Introduction

Module 4 is designed to support the process of thoroughly mainstreaming climate change adaptation and disaster risk reduction into relevant education policies, plans and programmes. No two places will have exactly the same inputs, resources or needs. Therefore, effective, relevant education strategies must reflect consideration of the unique and dynamic features of a given context. Planning strategically towards agreed-upon standards begins with education sector situation and risk analyses (Module 6), from which a framework for scaling up and mainstreaming can be created. The objective of scaling up and mainstreaming is to mitigate and adapt to climate change, to reduce disaster risk and to contribute to positive values related to environmental stewardship,

while ensuring equitable access to education opportunities for all children.

This module examines the processes involved in education planning and describes options for different contexts. It then discusses the potential of mainstreaming climate change adaptation and disaster risk reduction interventions to strengthen the whole system. Since the countries most affected by climate change and at highest risk for disaster are often the least developed, Module 4 also focuses on the practical realities of budgeting for change. The module highlights an array of organizations and mechanisms that assist with the costs of implementing these life-changing interventions.

## 4.2 Education sector planning processes<sup>3</sup>

To make progress in education and sustainable development, countries must have a clear vision of their priorities and how to achieve them. To reflect this vision and help mobilize people and resources, many ministries prepare strategic plans for mainstreaming and/or scaling up interventions. The recommendation is to mainstream climate change adaptation and disaster risk reduction strategies into existing education sector planning processes, not develop separate strategic plans to address these issues.

A strategic plan is, by definition, context-specific and will reflect particular local needs. Every planning process is

influenced by multiple variables, including local history, organization of the state, and available resources, any of which may intersect with site-specific challenges such as natural hazards and events or armed conflict. For a rights-based approach to education, the plan must create conditions that enable children to realize their educational and environmental rights. Therefore, all processes are guided by the responsibility of duty bearers to ensure the safety and well-being of all children and young people – both boys and girls, particularly those who are most disadvantaged or marginalized. UNESCO's International Institute for Educational Planning authored a series of Education

Sector Planning Working Papers to guide stakeholders in the development of comprehensive and thorough strategic plans. Although the documents target national strategic planning, the guiding questions and steps could be applied at the state, provincial or municipal levels.<sup>4</sup> Box 4.1 provides the basic guiding questions to consider when undertaking any education sector strategic plan. It is excerpted from the Institute for International Economic Policy's (IIEP's) Working Paper series, Working Paper 2, *Strategic Planning: Organizational Arrangements*, page 7. Box 4.2, also taken from *Working Paper 2*, page 8, elaborates on the steps of a participatory planning process.

#### Box 4.1 Basic issues to be addressed

1. How to mobilize the technical expertise required for plan preparation
2. How to involve the whole education ministry in the planning process
3. How to ensure the participation of partners and stakeholders
4. How to organize coordination and monitoring of different activities
5. How to develop a work plan for the different activities to be carried out

#### Box 4.2 Organizational arrangements to maximize efficiency and buy-ins<sup>5</sup>

1. **Mobilize technical expertise.** Any planning, whether participatory or not, is in the first instance a technical undertaking and therefore needs a strong national expert team. This Strategic Planning Team should be the technical driving force behind the plan preparation.
2. **Involve the whole Ministry.** A strategic plan should not be prepared by an expert team in isolation, but with the full participation of the various departments of the Ministry. Their active involvement in the plan preparation should allow the whole planning process to fully benefit from the experience and knowledge accumulated in the different departments." The same logic could be extended to other Ministries whose work impacts or is impacted by the education sector.
3. **Ensure the participation of stakeholders.** A classification of the main stakeholders can be made by using the following broad categories: development partners including aid agencies, international and (large) national NGOs; civil society organizations and representatives, including religious, socio-cultural and economic representatives; professional education associations, including teacher trade unions, parent/teacher associations, etc.; the private education sector; decentralized levels of the education administration; other Ministries affecting or affected by the education plan: the Ministries of Finance and of Planning, but also Ministries of Labour, of Social Affairs, of Health, etc.
4. **Ensure proper coordination and monitoring.** Coordination and monitoring of the planning process have to take place both at the technical and the policy level.
5. **Prepare a work schedule.** Preparing a strategic sector plan for the first time, in a participatory way and with an integrated capacity-building component, is a process that takes time (easily between 8 to 12 months) and which mobilizes considerable resources. The different activities involved therefore have to be properly planned and budgeted.



### 4.3 Scaling up effective interventions

In conjunction with planning, scaling up involves a systematic and rapid application of the child friendly education approach within a given period to ensure that all schools and learning spaces can be identified as implementing climate change adaptation and disaster risk reduction. This can be done either through the big bang approach or the roll-out approach.

The big bang approach uses major investments over a short period of time throughout the education sector to address issues related to climate change and disaster risk reduction. This approach works best when there are sufficient funds. Specifically, this could be a large-scale initiative to develop capacity of teacher training institutions and in-service courses for teachers on child-centred methods regarding climate change adaptation and disaster risk reduction, as well as provision of training for school leadership and boards on emergency preparedness and response. Box 4.3 provides an example of how the big bang approach was used in Indonesia.

The big bang approach:

- Includes a replication model with consistent structure and principles that vary minimally from one situation to another.
- Can work well in a child friendly school because it draws on existing facilities and services. For example, water and sanitation facilities can provide a foundation for the development of

#### Box 4.3 Taking a big bang approach in Indonesia after the 2004 tsunami<sup>6</sup>

After the 2004 tsunami in Banda Aceh, Indonesia, the international community pledged an unprecedented US\$14 billion for the relief and recovery of tsunami-affected countries. Early in its response, UNICEF, working with the Government of Indonesia, took advantage of the opportunity to 'build back better' by incorporating child friendly schooling standards into the education sector response. Within five years after the tsunami, 291 permanent schools were built to higher standards than before the tsunami, benefitting 59,000 children, and 9,000 educators were trained in child-centred learning approaches. All new schools in the affected areas are incorporating child friendly standards that include stronger foundations to protect against earthquakes, separate water and sanitation facilities for girls and boys, improved access for disabled students and better classrooms and playgrounds. Despite some costly errors in the construction process owing to the quick scale-up, the Government of Indonesia decided to further expand child friendly schooling standards to regions beyond the affected areas.

school gardens, water harvesting and other climate change adaptation or disaster risk reduction interventions.

This approach can also have disadvantages, such as:<sup>7</sup>

- Limited flexibility.
- Costly errors if the replicated features do not work for some schools.

- Limited impact on learning outcomes and improved education delivery owing to a focus on in-service teacher development.

The roll-out approach is most appropriate where financing is limited. The process gradually applies aspects of climate change adaptation and disaster risk reduction from one location to other locations until the whole country is covered. It is particularly applicable if there is uncertainty about what works best, and if piloting approaches are preferred.

Advantages of the roll-out approach include:<sup>8</sup>

- Flexibility to apply lessons learned and adjust accordingly.
- Cost-effectiveness by avoiding costly errors.

The roll-out approach may not be appropriate, however, if the funding is only available for a short period of time or if the funding does not provide enough flexibility to allow for a gradual approach.

#### 4.4 Mainstreaming as systems strengthening

Mainstreaming aims to ensure that the challenges presented by climate change and disasters are directly addressed within ongoing education sector work, so that the educational and environmental rights of children and young people are protected.

Mainstreaming entails a deliberative exercise that integrates key climate change adaptation and disaster risk reduction issues into the process of planning for and investing in the education system as a whole. To mainstream thoroughly is to embed climate change adaptation and disaster risk reduction into sector processes and systems, policies, planning mechanisms, strategies and practices at each level, including:

- Sector planning and budgets
- Policies and legislation
- Governance and school leadership
- Learning and teaching

- Infrastructure and facilities.

Further, it is important to take advantage of opportunities provided by existing structures, initiatives, processes and procedures, such as poverty reduction strategies and sector-wide approaches. The more vertical and lateral the connections can be within the sector and across sectors, the better; the more whole systems change at once, the greater the potential for durable change.<sup>10</sup>

National level action is essential, but attention also needs to be given to policy and practice at subnational levels. Regulations designed at the national level need to be implemented and monitored at the local level, which may have limited resources. Central and provincial administration can provide technical assistance and other support to local communities to carry out various tasks, such as vulnerability assessments and participatory planning processes.

#### **Box 4.5** Scaling up and mainstreaming climate change adaptation and disaster risk reduction in Maldives

Maldives is one of the small island developing states in danger of disappearing owing to rising sea level. At the global forefront of this issue for over two decades at the presidential level, Maldives was urging action to combat climate change as early as 1987. In 2009, the Government formed a Climate Change Advisory Council to help realize its pledge to become a climate-neutral country.

Immediately after the tsunami of December 2004, Maldives established a temporary National Disaster Management Centre, which became a permanent institution after the country endorsed the Hyogo Framework for Action in 2005.

Highlighting the importance of strengthening and mainstreaming climate change adaptation, resilience and disaster risk reduction through inter-sectoral means, Maldives enacted the National Adaptation Plan of Action in 2007, the National Sustainable Development Strategy in 2009, the Third National Environmental Action Plan in 2009, and the Strategic National Action Plan for Disaster Reduction and Climate Change Adaptation in 2010.<sup>9</sup>

Different sectoral initiatives have been undertaken in concert, with increasing focus on climate change and disaster risk reduction. These include the education sector policy guidelines on safety for children – aligning with the child friendly schools principle of protective environments – and efforts to strengthen existing environmental education in national curricula by including climate change and active learning techniques, thereby aligning with the child friendly schools principles of child-centredness and participation.

#### **Box 4.6** Entry points and opportunities for mainstreaming and scaling up

Certain conditions are especially favourable for mainstreaming and scaling up of climate change adaptation and disaster risk reduction in the education sector. Such opportunities include:

- Reconstruction of education systems and schools after disasters.
- Review of education sector plans or specific reviews of curriculum and school standards.
- Re-allocation of national or district budgets and shifting priorities owing to a change of government or a disaster.
- Integration into already established child friendly schooling programmes.
- Integration into existing cross-sectoral collaboration mechanisms, such as between ministries of education and ministries of water or environment.
- Advocacy at global and regional events, bringing together education ministers and ministers from other key sectors.
- Processes to include and expand participation of the most excluded groups, such as indigenous children, girls and children with disabilities.

## 4.5 Mainstreaming into education budgets

Standards-based system change often requires reallocation of existing resources. If the standards imply completely new structures, policies, training or materials, change is likely to give rise to new costs. Since climate change adaptation and disaster risk reduction involve capital investments to improve infrastructure, it is probable that new spending will be required to achieve those standards system-wide. Therefore, cost projections and sources of revenue should be considered simultaneously with the development of a new strategic plan in the education sector. When initiating the costing phase of the strategic planning process, it is helpful to consider the following:

**“Every single dollar of aid spent on preventing and mitigating disasters saves an average of seven dollars in humanitarian disaster response.”**

— United Nations Development Programme’s  
Act Now, Save Later Campaign

- Funding for climate change, disaster risk reduction and environmental education should be integrated within the country’s recurrent budget.
- Strategies often fail if they are only funded by governments as a one-time project or if funding comes solely from donors such as development agencies.

- Initial funding by climate change adaptation financing mechanisms or other sources of development financing may be used to start the process of mainstreaming. If the process is started in this way, strong advocacy for integration into recurrent budgets is imperative. For example, in Maldives, a climate change trust was established in 2010 to assist with priority projects on adaptation and mitigation in order to build the country’s resilience.
- Specific training for planners and finance specialists will be needed in developing, costing and budgeting for quality education that incorporates climate change adaptation and disaster risk reduction.
- Indicators measuring improved health of children as a result of environmental improvements (e.g., clean energy, water, sanitation, hygiene and nutritious food) can be used to quantify cost savings over time, as linked with school enrolment, future employability and health-care savings in the long term.<sup>11</sup>

Essential to the process of mainstreaming climate change adaptation and disaster risk reduction in budgets is the costing of outcomes. Costing will be informed by the results of the sector-wide and disaster risk analyses (Module 6) and the process of planning and standard setting. The costs of different activities will have an effect on the strategies chosen for the scaling up of climate change adaptation and disaster risk reduction in the sector.

Simulation modelling can be used as a tool for deciding between various options. There are various simulation models available for planning purposes and, in general, they are used to help planners better understand how a system behaves as several variables are changed. In this way, simulation models can be used to try out various trade-offs between key factors in order to prescribe appropriate national standards for quality education, given cost and context.<sup>12</sup>

An increasing amount of funding is available for planning and programming related to climate change adaptation and disaster risk reduction. Quality education is a key strategy for adaptation, risk reduction and resilience-building and would be eligible to receive these funds through targeted proposals. Innovative financing mechanisms to fund climate change and risk education

should be actively sought. For example, education on climate change adaptation and disaster risk reduction could take advantage of funding from the Fast Track Initiative, which targets the strengthening of overall educational systems. The websites immediately below provide the most comprehensive and up-to-date information on adaptation and risk reduction funding opportunities.

#### Climate Finance Options

<[www.climatefinanceoptions.org/cfo/Funding%20Sources](http://www.climatefinanceoptions.org/cfo/Funding%20Sources)> (search 'Capacity Development')

#### (UNFCCC) Adaptation Funding

<[http://unfccc.int/adaptation/implementing\\_adaptation/adaptation\\_funding\\_interface/items/4638.php](http://unfccc.int/adaptation/implementing_adaptation/adaptation_funding_interface/items/4638.php)>

#### Climate Funds Update

<[www.climatefundsupdate.org](http://www.climatefundsupdate.org)>

## 4.6 Next steps

Module 5 focuses on children and young people themselves and all the modes in which they engage and can influence the education sector. Module 5 builds on the preceding modules and explores how children and young people are agents of change and partners in the work of scaling up and mainstreaming climate change adaptation and disaster

risk reduction throughout the education sector.

In Module 10 of this volume, five country case studies document experiences with mainstreaming and scaling up interventions for climate change adaptation and disaster risk reduction.

#### Box 4.7 A sample of relevant funds

*Excerpted from 'DRR CCA Donor Mapping', which is being developed by UNICEF's Office of Emergency Programmes. The full document includes more extensive information on each fund and how it can be accessed.*

**The Global Partnership:** "Our goal is to ensure that all developing countries committed to education should have sufficient and sustainable resources to successfully deliver education results." The Global Partnership provides grants in the following three areas: education plan development, programme development and programme implementation. The direct link to the relevant page of their website is <[www.globalpartnership.org/our-work/financing-education](http://www.globalpartnership.org/our-work/financing-education)>.

**Nordic Development Fund:** "The Nordic Development Fund (NDF) provides grant financing for climate change interventions in low-income countries. NDF is the joint development finance institution of the Nordic countries Denmark, Finland, Iceland, Norway and Sweden and finances projects in cooperation with other development institutions." The direct link to their financing page is <<http://www.ndf.fi>>.

**Development Marketplace:** "The Development Marketplace provides early stage grant funding to support testing and development of innovative initiatives. To date, out of 20,000+ entrants, the Development Marketplace has selected over 1,000 finalists to participate in its global competitions. Ultimately 220 winners were selected for funding. An additional 1,000+ winners have been supported under national level competitions." The 2009 competition had a climate change adaptation focus. Monitor the website for future competitions at <<http://wbi.worldbank.org/developmentmarketplace/competition>>.

**Global Facility for Disaster Reduction and Recovery:** "A partnership of 41 countries and 8 international organizations committed to helping developing countries reduce their vulnerability to natural hazards and adapt to climate change. The partnership's mission is to mainstream disaster risk reduction (DRR) and climate change adaptation (CCA) in country development strategies by supporting a country-led and managed implementation of the Hyogo Framework for Action (HFA)." The organization has seven initiatives to support these efforts. More information about these initiatives is available at <[www.gfdr.org/gfdr/node/1](http://www.gfdr.org/gfdr/node/1)>.

**International Development Association:** This is the part of the World Bank that focuses on the world's poorest countries by providing interest-free credits and grants for programmes that boost economic growth, reduce inequalities and improve people's living conditions, including primary education. Support for climate change adaptation is a main pillar of the World Bank's Clean Energy Investment Framework. The direct link to the relevant page is <[www.worldbank.org/ida/theme-climate.html](http://www.worldbank.org/ida/theme-climate.html)>.

**Pilot Programme for Climate Resilience:** This is the first pilot programme under the Strategic Climate Fund of the World Bank's Climate Investment Funds. It supports projects led by selected countries to carry out climate-resilient development planning. The direct link to their page is <[www.climateinvestmentfunds.org/cif/ppcr](http://www.climateinvestmentfunds.org/cif/ppcr)>.

*(continued)*

**Box 4.7** A sample of relevant funds *(continued)*

**Global Environment Facility Trust Fund:** This fund “unites 182 countries in partnership with international institutions, civil society organizations (COSs) and the private sector to address global environmental issues while supporting national sustainable development initiatives ... the GEF provides grants for projects related to biodiversity, climate change, international waters, land degradation, the ozone layer, and persistent organic pollutants.” The direct link to the related page is <[www.thegef.org/gef/whatisgef](http://www.thegef.org/gef/whatisgef)>. The GEF also administers the UNFCCC funds; see below.

**United Nations Framework Convention on Climate Change:** The contribution of countries to climate change and their capacity to prevent and cope with its consequences vary enormously. The Convention and the associated Protocol therefore foresee financial assistance from Parties with more resources to those less endowed and more vulnerable. Developed country Parties (Annex II Parties) shall provide financial resources to assist developing country Parties in implementing the Convention. To facilitate this, the Convention established a financial mechanism to provide funds to developing country Parties. Parties have established four special funds:

**Special Climate Change Fund:** “The Special Climate Change Fund (SCCF) was established under the Convention in 2001 to finance projects relating to: adaptation; technology transfer and capacity building; energy, transport, industry, agriculture, forestry and waste management; and economic diversification. This fund should complement other funding mechanisms for the implementation of the Convention.” The link to this page is <[http://unfccc.int/cooperation\\_and\\_support/financial\\_mechanism/special\\_climate\\_change\\_fund/items/3657.php](http://unfccc.int/cooperation_and_support/financial_mechanism/special_climate_change_fund/items/3657.php)>.

**Least Developed Countries Fund:** “The Least Developed Countries Fund (LDCF) was established to support a work programme to assist Least Developed Country Parties (LDCs) carry out, inter alia, the preparation and implementation of national adaptation programmes of action (NAPAs).” For more information, go to <[http://unfccc.int/cooperation\\_support/least\\_developed\\_countries\\_portal/ldc\\_fund/items/4723.php](http://unfccc.int/cooperation_support/least_developed_countries_portal/ldc_fund/items/4723.php)>.

**Green Climate Fund:** “The purpose of the Green Climate Fund is to make a significant and ambitious contribution to the global efforts towards attaining the goals set by the international community to combat climate change.” For more information, go to <<http://gcfund.net/home.html>>.

**Climate Change Adaptation Fund:** “The Adaptation Fund finances projects and programmes to help developing countries adapt to the negative effects of climate change.” To find out more about what they do, and about funding opportunities, go to <[http://unfccc.int/cooperation\\_and\\_support/financial\\_mechanism/adaptation\\_fund/items/3659.php](http://unfccc.int/cooperation_and_support/financial_mechanism/adaptation_fund/items/3659.php)>.

**The Africa Adaptation Programme:** “The Africa Adaptation Programme was launched in 2008 by the United Nations Development Programme in partnership with the United Nations Industrial Development Organization (UNIDO), the United Nations Children’s Fund (UNICEF) and the World Food Programme (WFP) and with US\$92.1 million support from the Government of Japan... The AAP is not a traditional climate change adaptation programme – it has a more strategic focus aimed at creating the environment in which more informed and appropriate adaptation decisions and practices can be undertaken within the context of sustainable development.” To learn about their financing approach, go to <[www.undp-aap.org](http://www.undp-aap.org)>.

## Notes

- 1 For more information on climate change and environmental education, see: UNICEF. *Climate change and environmental education: A companion to the Child Friendly Schools Manual*. Retrieved from [http://www.unicef.org/publications/files/CFS\\_Climate\\_E\\_web.pdf](http://www.unicef.org/publications/files/CFS_Climate_E_web.pdf).
- 2 For more information on the *Child Friendly Schools Manual*, visit [http://www.unicef.org/publications/files/Child\\_Friendly\\_Schools\\_Manual\\_EN\\_040809.pdf](http://www.unicef.org/publications/files/Child_Friendly_Schools_Manual_EN_040809.pdf).
- 3 International Institute for Education Planning. (2010). *Strategic planning: Organizational arrangements* (Education Sector Planning Working Papers, Working Paper 2). Paris: UNESCO. Retrieved from <http://www.iiep.unesco.org/en/capacity-development/sector-planning-support/strategic-planning-working-papers.html>.
- 4 Ibid.
- 5 Ibid.
- 6 United Nations Children's Fund (2009). *Tsunami report five-year anniversary*. Geneva: UNICEF.
- 7 UNICEF (2009). *Child Friendly Schools Manual*. New York: UNICEF.
- 8 Ibid.
- 9 The Republic of the Maldives (2010). *The Republic of Maldives Strategic National Action Plan for Disaster Risk Reduction and Climate Change Adaptation 2010–2020*. Male: National Disaster Management Center. Retrieved from <http://www.unisdr-apps.net/confluence/download/attachments/9110285/snap-Maldives.pdf?version=1>.
- 10 Senge, P. (2006). *The fifth discipline: The art and practice of the learning organization*. New York: Doubleday.
- 11 *Child Friendly Schools Manual*.
- 12 Ibid.



# Climate Change Adaptation and Disaster Risk Reduction in the Education Sector

## RESOURCE MANUAL

# 5

## MODULE 5

# Child and Youth Participation

## Key messages

- 1. Include young people as stakeholders in policy advocacy and planning for climate change adaptation and disaster risk reduction in the education sector.** This experience can provide young people with ideal opportunities to learn holistic citizenship and advocacy skills.
- 2. Non-formal and formal education systems must be complementary, working as one holistic system** to provide quality education that meets the rights of all learners.
- 3. Non-formal education as an alternative pathway to learning provides flexibility** in partnerships, location, timing and programming, and can help fill gaps in access to and quality of formal education systems.
- 4. Community-based pilot projects** involving youth and schools are important for demonstrating cost-effective solutions for climate change adaptation.
- 5. There are multiple and flexible pathways to learning.** These include non-formal education, supplementary extracurricular education for youths in formal education programmes, livelihoods and resilience education, as well as alternative education supporting vulnerable adolescents outside the formal school system.

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This is the fifth module of the resource manual *Climate Change Adaptation and Disaster Risk Reduction in the Education Sector*. It provides an overall conceptual framework describing how non-formal education can complement formal schooling systems and play a key – and sometimes primary – role in the overall education of children, especially adolescents and out-of-school youth. The module provides stories of child-led advocacy and adaptation efforts. It uses examples from three categories of non-formal education: extra-curricular education, livelihoods and resilience education, and alternative education. The reader is also encouraged to refer to *Climate Change and Environmental Education*,<sup>1</sup> a companion to the *Child Friendly Schools Manual*.<sup>2</sup>

For more information, contact the Education Section, UNICEF New York, <educationhq@unicef.org>.

### Questions to guide your reading

1. How will policy and planning processes change (at the national, district, local and school levels) to enable children and youth to claim their rights in the education sector?
2. How will planning and policy change as a result of children’s engagement?

## 5.1 Introduction

Non-formal education provides flexibility in location, timing and programming. A lack of flexibility contributes to the exclusion of disadvantaged children from the formal education system. Even when children can access the formal school system, they often do not graduate with sufficient preparation for life and employment. Non-formal methods can help fill these gaps in access to, and quality of, formal education systems. Alternative approaches to basic education are also critical for making learning relevant to the diverse needs and circumstances of marginalized groups. Alternative pathways that provide young people with relevant learning opportunities honour those articles in the Convention on the Rights of the Child (CRC) that are directly and indirectly related to education. Ideally, non-formal and formal education systems will be complementary, working as one holistic system to provide quality education that meets the rights of all learners.

Not only does non-formal education enable young people to participate, it also engages youth who may otherwise be excluded. Non-formal education grants young people opportunities to participate in planning and policymaking on key issues.

Non-formal education strategies focused on the environment, climate change and risk education are appropriate for empowering youth and communities to participate in addressing environmental threats, develop skills with lifesaving implications, and create strategies for adapting to climate change and natural disasters. Non-formal education

“In an era characterized by increasing debate on ‘lifelong learning’ (LLL) as a key imperative for human development, attention needs to focus on the futility and increasing redundancy of the very idea of compartmentalizing different approaches and delivery modes that should form part of a holistic education system. In a context of greater recognition of multiple and diverse learning needs, multiple arrangements and technologies for ‘creating learning experiences’ ought to be harnessed to create a more flexible and open regime for education.

“This, together with a system-wide framework for accreditation of learning outcomes, should make the usual boundaries between formal and non-formal education, contact and distance education, in-school and out-of-school education, increasingly obsolete.”<sup>3</sup>

— C. Mannathoko, A. Osman, & C. Wright,  
*The Dynamics of Non-Formal Education*, p. 1

programmes must be flexible, with context-based design. This module focuses on out-of-school youth and adolescents and provides examples from three overlapping categories of non-formal education: extra-curricular education, livelihood skills and vocational education, and alternative education.

This module specifically addresses the life cycle of a child, supplementary extra-curricular education for youths in formal education programmes, livelihood and resilience skills, and support for vulnerable adolescents to enter or return to school. The last section of the module describes the role of youth themselves as change agents in sustainable development.

### Box 5.1 Key points of consideration relating to gender<sup>4</sup>

As mentioned in earlier modules, the roles and expectations of girls in developing countries can differ greatly from those of boys, with implications for access to education, opportunities and information. Girls' and boys' expectations and desires can also vary by community and culture.

An initial assessment of the social, political and economic climate and its impact on adolescents is critical. Programme design and implementation must include gender aspects based on relevant context:

- Are boys and girls valued differently?
- How does this affect their access to health, education, economic opportunities, natural resources, etc.?
- Do morbidity and mortality vary by gender?
- Do risk factors for negative climate change outcomes vary by gender?
- Does risk-taking behaviour vary by gender?
- Does climate change resilience vary by gender?
- Do consumption patterns and ecological footprints vary by gender?
- Do boys and girls participate equally in climate change plans and actions?

## 5.2 Evolving capacities of children and youth

The evolving capacities of the child need to be understood and examined through three conceptual frameworks:<sup>5</sup>

1. In a **developmental** framework, recognizing the extent to which children's development, competence and emerging personal autonomy are promoted through the realization of the rights guaranteed by the CRC. This framework imposes obligations on States parties to *fulfil* these rights.
2. In a **participatory or emancipatory** framework, denoting respect for children's capacities and shifting responsibility for the exercise of rights from adults to children in accordance with children's levels of competence. This framework imposes obligations on States parties to *respect* these rights.

3. In a **protective** framework, acknowledging that since children's capacities are still evolving, they have rights to protection on the part of both parents and the State from exposure to activities likely to cause them harm. This framework imposes obligations on States parties to *protect* these rights.

Current thinking in developmental psychology indicates the following assessments of children's evolving capacities:<sup>6</sup>

- Children up to 3 years old are not able to really understand the perspective of others and lack any significant decision-making capacity.
- From ages 3 to 11, children are increasingly able to recognize that



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people have different perspectives; during this period they gradually acquire the ability to see another's point of view.

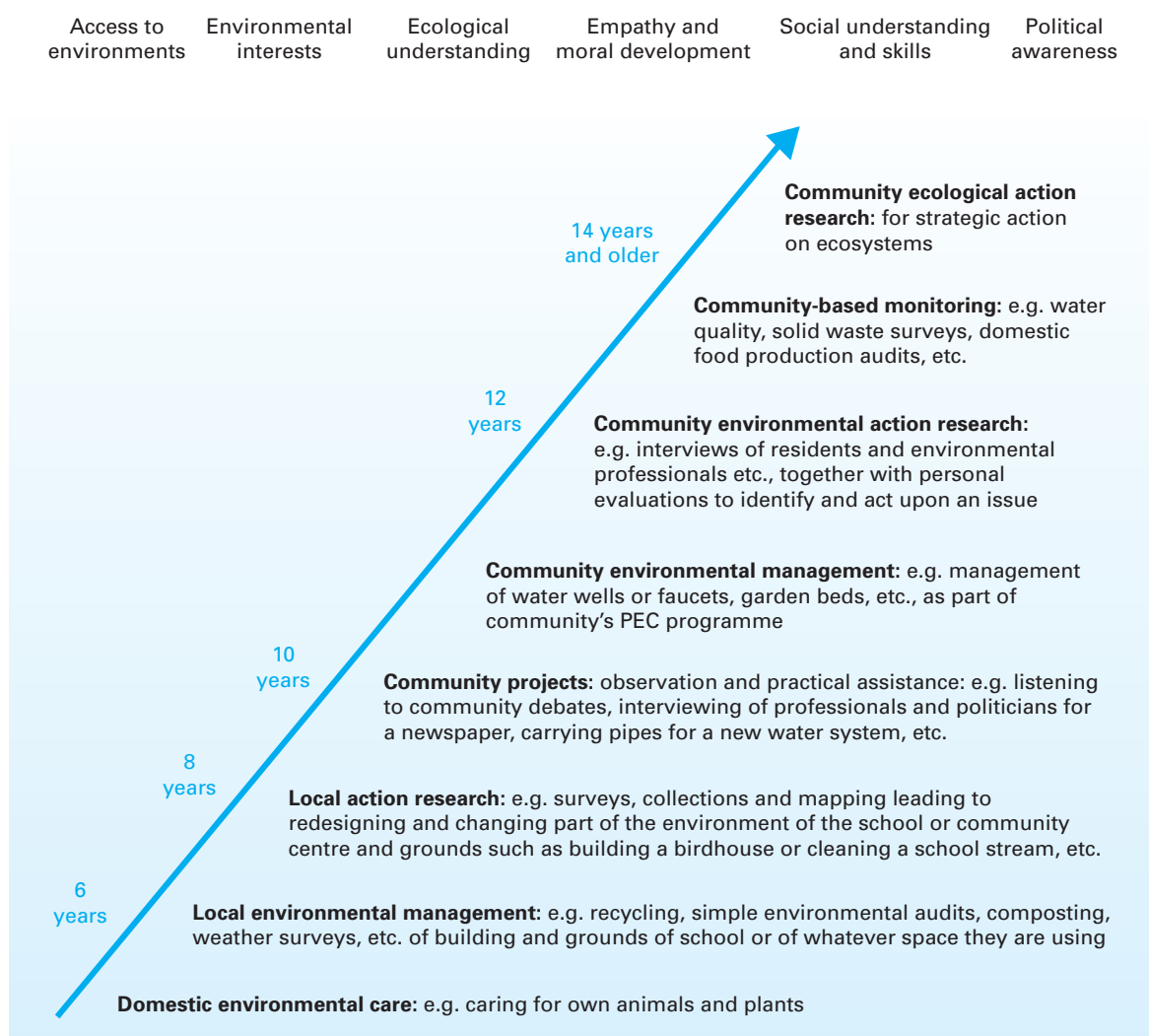
- By age 11, children begin to be able to understand a third-person perspective and appreciate that people may have mixed feelings about something.
- Adolescents are able to reflect on what is good for society and develop a legal or moral perspective.

As in all areas of study, the evolving and differing capacities of the child should be a central consideration in mainstreaming and scaling up climate change adaptation and disaster risk reduction in any form of education.

Figure 5.1 illustrates children's developing capacities to participate in management of the environment.

Figure 5.1 demonstrates that from the age of 6 (or even earlier), children have an interest in caring for animals or plants as well as the capacity to do so. As the child gets older, her or his interest and involvement could be broadened to include helping with local environmental management and working on local action research and monitoring. The figure also illustrates how the child's ecological understanding develops over time, especially in the crucial area of the interfaces between the environment, environmental changes (including climate change), society, equity and sustainable development.

**Figure 5.1 – Children’s developing capacities to manage the environment<sup>7</sup>**



### 5.3 Non-formal education

Non-formal education provides young people with opportunities to interact with their environment through field trips, research, and action projects, as well as to put what they have learned in the classroom into practice. Experience and skills gained through these activities can link to adaptation and livelihood skills as well as future job skills. Hands-on activities facilitate learning and also allow for the

adaptation of difficult subjects to different learning styles and interests. Non-formal education activities usually have fewer students than traditional classrooms, making more individualized attention possible. The emphasis on practical skills and actions also offers the potential for young people to join together outside the classroom, often leading to the formation of environmental clubs.

After-school programmes on climate change adaptation and disaster risk reduction increase environmental awareness and values and prepare students to make decisions and solve

problems. These programmes give students the opportunity for civic participation, empowering them with leadership and citizenship skills.

### Box 5.2 Prerana Shakya, girl guide from Nepal<sup>8</sup>

“Girls are more involved in climate change projects. They are more interested in these things than boys. While I was working in my village with a youth club there were more girls than boys involved. In one place I saw, young women were renovating old buildings with help from the municipality. They were creating such good changes, and keeping the village clean. But women are not recognized. I don’t know why. Maybe because our society treats boys better, but girls do the work.

“Girls are the ones who look after the homes, and often don’t get sent to school. In my community, there are NGOs that run youth clubs that these girls can get involved in, but that is their only chance to get non-formal education and to get involved in activities. This is why, in my community girls are more involved in climate change projects. But I know that in areas where there aren’t such NGOs, girls don’t have these opportunities.”



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**Table 5.1 – Sample steps for taking action on adaptation with a youth group<sup>9</sup>**

<b>Step 1: Get started: find out more about climate change and natural hazards</b>	<ul style="list-style-type: none"> <li>Identify how climate change, environmental degradation and natural hazards affect or are linked with food supplies, water supplies, disease, social and health services, homes and businesses, deforestation, and problems faced by women.</li> </ul>
<b>Step 2: Identify the problem</b>	<ul style="list-style-type: none"> <li>Choose a single problem and carry out a more detailed analysis</li> </ul>
<b>Step 3: Plan your activity</b>	<ul style="list-style-type: none"> <li>Make sure the activity is developed, implemented and ‘owned’ by young people in partnership with adults in the community</li> <li>Choose an action to address the problem identified that takes into account your group’s strengths and weaknesses</li> <li>Identify key people, resources and skills needed, get others involved and enthused, and set a time frame</li> </ul>
<b>Step 4: Take action (some ideas)</b>	<ul style="list-style-type: none"> <li>Raise awareness</li> <li>Actions to reduce carbon dioxide emissions</li> <li>Act to prepare for the impacts of climate change</li> <li>Persuade those in power to make a change (lobby)</li> </ul>
<b>Step 5: Spread the word</b>	<ul style="list-style-type: none"> <li>Get the media interested</li> </ul>
<b>Step 6: How did we do?</b>	<ul style="list-style-type: none"> <li>Reflect on the success of an action to allow more effective action in the future</li> <li>In a longer-term project, monitor progress so that you can constantly improve your action</li> </ul>
<b>Step 7: Next steps</b>	<ul style="list-style-type: none"> <li>Follow through and build on your project</li> <li>Tackle another issue</li> <li>Inspire others</li> </ul>

**Box 5.3 Project example: Communal gardens**

Designating some urban areas for communal gardening increases food stability in the community and gives local residents an incentive to take better care of their neighbourhood. The fruits and vegetables planted should be chosen according to their climatic properties, such as selecting water-resistant plants in areas prone to rainstorms. Other climate-proofing techniques may be tried in urban areas, too, such as raised homestead gardens and aquaculture.

Children from different schools and clubs can take care of specific cultivated plots and use the products for their school canteen. Every child can be assigned a specific plant or vegetable to grow during the year.



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### Box 5.4 Project example: Youth-led disaster risk reduction and preparedness

There is increasing recognition that a well-established early warning system is crucial to enhance community resilience. As emphasized by the United Nations Office for Disaster Risk Reduction's *Annual Report 2007*,<sup>10</sup> integrating children and young people in disaster management has positive impacts both on the protection of children and in the creative design and planning of disaster risk reduction strategies such as early warning systems. When these systems are in place, a population is better equipped for the outbreak of an emergency.

**Project: SMS alert.** A second, very important step for the realization of a complete early warning system is the establishment of a communication network capable of spreading the message across the community. Communities on China's southeast coast react to the arrival of typhoons through an SMS alert system. In August 2009, some 8 million SMS alerts were sent as part of the early warning strategy. A recent initiative with UNICEF, in partnership with Columbia University, has developed a Rapid SMS system that is being applied to nutrition in Malawi.<sup>11</sup> It is essential that children and the elderly are not excluded from these networks because they do not possess mobile phones or because their numbers are not collected.

**Role of children.** Children should be involved in setting up SMS networks. They can organize number collections in schools and also teach older people how to use the technology.

## 5.4 Livelihood skills and vocational education

Learning about the environment and disaster risks provides an opportunity for children and youth to develop important skills for future employability. Many adolescents who have been to school emerge with insufficient skills for employment in the modern globalized economy. Skills related to the environment and to resilience to natural disasters can counter this trend. Complementary education focusing on green jobs and disaster risk reduction could provide young people with a chance to develop their creativity and engage in productive work and livelihoods. Skills are needed to help protect the environment and equip youth with life skills and, especially,

the skills they need to enter the workforce.

Livelihood skills and vocational education can provide opportunities to develop environmental awareness and increase knowledge, change attitudes and develop marketable skills in renewable energy technologies, green construction, masonry, eco-sanitation, efficient irrigation and other related trades, while providing a quality learning space where youth can access further opportunities for education in numeracy, literacy and life skills.

Many institutions around the world are committed to capacity building and skills

development. Some countries, such as Togo, have built 'green' vocational training opportunities into national sector development plans.<sup>12</sup> Others work with organizations (NGOs, universities and the private sector) that support capacity development for adolescents and youth by teaching them skills for employability. The Youth, Entrepreneurship and Sustainability (YES) campaign offers an inspiring example. According to their website, it is important to:

- Develop capacity of youth to lead in-country youth employment initiatives.
- Promote youth employment to address key development challenges.
- Build in-country coalitions to develop national strategies addressing youth unemployment.

YES<sup>13</sup> “strives to build the individual capacity of youth to create sustainable livelihoods and establish an entrepreneurial culture where young people move towards formal employment. The 83 YES country networks create a unique platform for accomplishing this goal, spanning many cultures, contexts and geographies. To date, 1 million youth have been involved in YES programming, and there has been extensive community reinvestment. With the support of diverse stakeholders, networks organize and facilitate customized programming that relies on youth to drive the implementation process. Since its launch in 2002, the campaign has validated the concept that young people, if given access to the right resources, can effectively craft their own advancement opportunities.”

#### **Box 5.5** Youth Environment Corps, Lesotho

Poverty in Lesotho is closely related to environmental degradation, especially in rural areas. The Youth Environment Corps, supported by the United Nations Development Programme in Lesotho, is a national mechanism to enable youths to participate directly in promoting a healthy environment, while contributing to the development of young adults at perhaps the most critical juncture in their lives. The Corps works with existing governmental and non-governmental entities on priority environment initiatives to mitigate environmental degradation, reduce unemployment and significantly contribute to youth development.<sup>14</sup>

The project targets unemployed school dropouts to promote environmental awareness. Young people are taught how to prevent land degradation, as well as how to rehabilitate and reclaim already degraded soil. The project also addresses poverty alleviation by engaging youth in income-generating activities such as the production and sale of tree seedlings, recycling and off-farm activities.

### Box 5.6 Talking about drip irrigation with Daniel Weizman, 17 (United States)

Daniel lives in Kentfield, California, where he is completing his high school education. He is also a very young entrepreneur, as CEO of DripKing, a company specializing in drip irrigation for households. Daniel learned about irrigation from his family and developed simple kits for gardens. He has become popular in the field for his innovative way of teaching people how to assemble and use the instruments he sells. His knowledge is very precious for the developing world, too, where water needs to be managed carefully. For this reason, Daniel was invited to conduct workshops on drip irrigation at the Children's Climate Forum in Copenhagen in December 2009. He addressed an audience of 164 young people from 44 countries who came to Denmark as Climate Ambassadors and delivered their message of action.

## 5.5 Alternative education

Alternative education promotes inclusion by supporting vulnerable adolescents who have not been able to access or complete formal schooling. Catch-up education is provided to children in refugee camps and alternative education systems that essentially substitute for formal schooling.

The aim of re-entry, or catch-up, education is to give learners who are outside the formal school system a non-threatening environment that is learner-centred. Re-entry education is commonly used after natural disasters before formal schools reopen. Non-formal education is linked, as much as possible, with themes in the formal curricula.

Locally appropriate climate adaptation and risk reduction education is vital. Climate-related hazards<sup>15</sup> are now documented to account for 70 per cent of all disasters, up from about 50 per cent two decades ago. Integrating risk reduction into education programmes can enable children and young people to understand their local environments



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and increase their resilience to future risks. One case in point is the widespread diarrhoea that often occurs after a flood emergency but can be prevented through education on water, sanitation and hygiene.

**Box 5.7** Children back in school in Ampara to do catch-up education  
by Harasha Gunewardene<sup>16</sup>

Like other children in his village, 12-year-old A. R. Fahim, Grade 6, had many obstacles standing in the path of regular schooling. “My father is dead and I have two sisters and five brothers. For all of us to attend school was impossible. We had no money for school uniforms or schoolbooks. Life was so difficult for my family that I had no choice but to assist my brother in his daily work in a stone quarry, since he now had to provide for the family. So what could I do? I had stopped going to school for one whole year...”

For children such as Fahim, who were unable to complete their basic education, catch-up education **is the best solution to help bring students up to speed in their basic education**. Today, thanks to catch-up education, Fahim is happily reintegrated in the school process once again.

Catch-up education campaigns in Sri Lanka saw 61,700 students enrol in primary schools in 2004, up from 44,200 students in the previous year.

Talent academies represent another innovative alternative education model. Recently piloted by UNICEF in sub-Saharan Africa, talent academies introduce three innovative principles, as described in *Education in Emergencies and Post-Crisis Transition*:

- First is the **selection** principle, by which young people are selected for the academy based on their talents, not years of schooling or certificates.
- Second is the principle of **aspiration**, by which young people are empowered to be ambitious in their field of talent, rather than to simply see their education as a means for small-scale self-employment.
- Third is the **compensation** principle, through which young people receive remedial education to make up for the formal education they missed out on.<sup>17</sup>

### Box 5.8 Talent academies

In 2007, in the Mano River region of West Africa, UNICEF began supporting the development of a programme called Talent Academies to address perceived threats to the tenuous peace in Côte d'Ivoire, Guinea, Liberia and Sierra Leone. During the consultation process, different groups consistently identified the problem of youth who had missed out on education during the conflict years and were now unemployed and marginalized.

“The main thrust of the initiative has been to establish Talent Academies to provide education and training in a specific field to young people selected on the basis of their talent.” This approach is “a radical departure from traditional vocational training or remedial adult education” approaches, where selection is based on participants’ lack of formal qualifications for the job market or their status as school dropouts.<sup>18</sup>

In consultation with youth, governments are determining areas of concentration for these Talent Academies. Suggestions have included climate change adaptation and disaster risk reduction, sports, fashion, food production and preparation, music, drama and other performing arts, as well as information and communication technologies. The goal of the Talent Academies initiative is to address the perceived threat of conflict posed by aggrieved youths by helping them harness their talents towards enhanced livelihoods and improved self-image. This also strengthens their contribution to economic growth and national development.

## 5.6 Adolescents as climate change agents

As climate change and natural disasters increasingly affect children and young people, it is important to consistently engage them in local climate adaptation and disaster risk reduction actions. Child-led adaptation ensures the active participation of children and young people in adaptation activities in areas most vulnerable to climate change impacts, while child-led disaster risk reduction engages children and young people located in disaster-prone areas to assess risks and develop disaster risk reduction skills that effectively protect their development and livelihoods.

Given that climate change encompasses environmental, political, social and economic factors, it is also an ideal platform for young people to learn holistic citizenship and advocacy skills. UNICEF advocates that young people participate in climate change forums and adaptation initiatives to gain skills from development professionals and leaders that they can apply and implement in their communities.

### **Box 5.9** Skills-based advocacy

The Children's Climate Forum (CCF) and the engagement of children in the Secretary-General's High Level Summit on Climate Change on 22 September 2009 helped launch UNICEF's broader youth engagement on climate change. At the CCF, 164 children from 44 countries gathered together in Copenhagen the week before the United Nations Climate Change Conference (COP-15). The forum focused on skills-based trainings in advocacy and lobbying, social media campaigning, small-scale energy technology construction, programme management and low-cost strategies to adapt to climate change (e.g., drip irrigation). In the forum's final declaration, the delegates emphasized the importance of community-based action and declared that industrialized countries should ramp up adaptation spending; cities should be well planned and sustainable; and safety standards, regulations and emergency protocols should be established to prepare for climate-induced disasters.

At the country level, UNICEF highlights the importance of child and youth participation in climate change. An example of this is the recent replication of the CCF model in South Africa and Zambia. Meanwhile, the Adolescent Citizenship Programme in Brazil empowers indigenous youth and women to participate in policy formulation in their territories in order to promote environmental preservation and reforestation.

### **Box 5.10** Climate Ambassador Programme

Since the CCF, UNICEF has empowered young people to engage around climate action at the national level via the Climate Ambassador Programme. The programme has begun to enhance links between concerned young people in industrialized and developing countries, bridging a critical gap between two oft-polarized sides of the global climate change debate and bringing together young people from divergent backgrounds. Through in-person government forums, online and SMS engagement, and community-level adaptation initiatives, the Climate Ambassador Programme aims to use climate change as an overarching theme to engage children and young people in the organization's core areas of work: water and sanitation; emergency response; nutrition and education; collaborating with existing local and regional organizations, networks and meetings; and strengthening connections and communications between young people in industrialized countries and in vulnerable communities in the developing world.

Multiple climate change initiatives have been developed since the CCF and COP-15 took place. Many of these initiatives highlight the CCF's focus on local-level action, innovation via multimedia platforms and relationship-building across borders.

### Box 5.11 William Kamkwamba, the boy who harnessed the wind

The story of William Kamkwamba is a powerful example of how young people can make use of local resources to find solutions to climate change. William became famous in his home city of Masitala, Malawi, because of a creative and groundbreaking invention he came up with at the age of 14. Using blue gum trees, bicycle parts and materials collected in the local scrap yard, he managed to build a wind turbine to power some electrical devices in his house, including a radio. Despite not being able to attend school because of high tuition fees, he spent some afternoons in his local library and was inspired by the books he found there. His next project was a solar-powered water pump to obtain drinking water in his village, along with more wind turbines. The more he saw the benefits of these simple technologies, the more William engaged in practical actions.

His story captured the attention of journalist Bryan Mealer, who supported him by writing *The Boy Who Harnessed the Wind: Creating currents of electricity and hope*, published in 2009. In 2010, William was awarded the GO Ingenuity Award, a prize offered by the GO Campaign, a Santa Monica NGO that helps youth in developing countries share their ideas and inventions with other young people.

William has been using his grant to hold workshops for young people in Malawi on how to construct simple wind turbines and water pumps. His efforts to disseminate knowledge in his home country have been rewarded by a TED scholarship to complete his higher education. He has also been able to tell his story of change through American media such as the *Wall Street Journal* and *The Daily Show*.

Creativity, action and knowledge-sharing have characterized William's life. His achievements as a young boy make him an example for children all over the world, whatever their background or education.

## 5.7 Next steps

Module 6, 'Analysing Education and Risk and Developing Standards', completes the transition from abstract to concrete begun in this module. Module 6 outlines the first step in the process of bringing an existing national education sector (and local partners) into line with a given

country's visions of educational policy and programming that are grounded in the Convention on the Rights of the Child and have thoroughly mainstreamed climate change adaptation and disaster risk reduction throughout the sector.

## Notes

- 1 For more information on climate change and environmental education, see UNICEF. *Climate change and environmental education: A companion to the Child Friendly Schools Manual*. Retrieved from [http://www.unicef.org/publications/files/CFS\\_Climate\\_E\\_web.pdf](http://www.unicef.org/publications/files/CFS_Climate_E_web.pdf).
- 2 For more information on the *Child Friendly Schools Manual*, visit [http://www.unicef.org/publications/files/Child\\_Friendly\\_Schools\\_Manual\\_EN\\_040809.pdf](http://www.unicef.org/publications/files/Child_Friendly_Schools_Manual_EN_040809.pdf).
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- 7 Hart, R. (1996). *Children's participation in sustainable development: The theory and practice of involving young citizens in community development and environmental care*. London: Earthscan.
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- 12 Togo Ministry of Education (2010). *Education sector plan 2010–2020: Subsection 6.1*. Lome: Ministry of Education. Retrieved from [http://www.educationfasttrack.org/media/library/Country\\_Documents/Togo/PSE\\_TOGO.pdf](http://www.educationfasttrack.org/media/library/Country_Documents/Togo/PSE_TOGO.pdf).
- 13 Youth Entrepreneurship and Sustainability (YES) Inc. About the campaign. Retrieved from <http://www.yesweb.org/aboutus.htm>.
- 14 UNDP (2006). *Youth and violent conflict: Society and development in crisis*. New York: UNDP Bureau for Crisis Prevention and Recovery. Retrieved from [http://www.undp.org/cpr/whats\\_new/UNDP\\_Youth\\_PN.pdf](http://www.undp.org/cpr/whats_new/UNDP_Youth_PN.pdf).
- 15 These include the meteorological (for example, storms), the hydrological (for example, floods, which are the most reported natural disaster events in Africa, Asia and Europe and affect more people across the globe than any kind of disaster), and the climatological (for example, drought).
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# Climate Change Adaptation and Disaster Risk Reduction in the Education Sector

## RESOURCE MANUAL

# 6

## MODULE 6

# Analysing Education and Risk and Developing Standards

## Key messages

- 1. Children and communities should be active participants.** Children and local communities should be involved in the analysis and standards development process as much as possible.
- 2. Know where you are to know how to get where you want to go.** A country, ministry or municipality should start the process of mainstreaming climate change adaptation (CCA) and disaster risk reduction (DRR) throughout the education sector by simultaneously conducting analyses of the education sector and overall risk. Education sector analysis focuses on overall quality of the sector, while risk analysis examines particular vulnerability to hazards and threats related to climate change and disaster.
- 3. Education sector and risk analyses should be based on child rights principles** in the context of climate change and environment-related risk, and must take into account the vulnerabilities of different groups based on characteristics such as age, gender, location, wealth, ethnicity and ability status.
- 4. The findings form the baseline and inform the standards development process.** The analysis process and the standards development process are interlocking parts that contribute to a country's ability to move toward the desired outcome of education for sustainable development.

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This is the sixth module of the resource manual *Climate Change Adaptation and Disaster Risk Reduction in the Education Sector*. This module introduces ways to analyse both risks and education sector readiness at the national and local levels to develop a better understanding of schools' and surrounding communities' local contexts. The reader is also encouraged to refer to *Climate Change and Environmental Education*,<sup>1</sup> a companion to the *Child Friendly Schools Manual*.<sup>2</sup>

For more information, contact the Education Section, UNICEF New York,  
<educationhq@unicef.org>.

## Questions to guide your reading

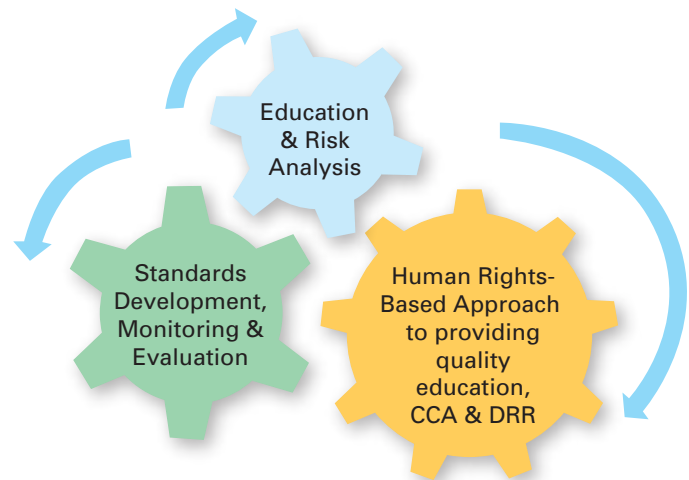
1. How are policy and planning related to the analysis and standards development in the context of climate change adaptation and disaster risk reduction?
2. How does the process change depending on what level you are analysing and planning for?
3. How are education sector and risk analysis connected to standards development?
4. What can analysis and standards development at the institutional level do to create the conditions for students to achieve the desired learning outcomes at the classroom level?

## 6.1 Introduction

Building an educational sector that honours the Convention on the Rights of the Child (CRC) and prepares all children for climate change adaptation and disaster risk reduction depends on many constituent processes. Like gears in a machine, the education sector analysis, risk analysis, standards development, and sector-wide monitoring and evaluation all contribute to the desired outcome of education for sustainable development.

Education sector analysis and risk analysis have two interdependent objectives. The first is to identify general gaps and vulnerabilities in the education sector and those that are specifically related to climate change or hazards. The second is to identify capacities and opportunities within the education sector and surrounding communities for thoroughly mainstreaming climate change adaptation and disaster risk reduction strategies.

No two places are exactly alike. For education to be high quality and relevant to all children and young people, stakeholders in a given place will pose the universal questions and apply the standard processes and tools to find the unique entry points in their location. Likewise, depending on each stakeholder's position in the system – be they national-level ministry of education planners, district inspectors, parents or young people – what they see and what they contribute to the process will be unique. These differences are valuable: the greater the diversity, the higher



the potential for achieving the desired outcome. These analyses provide critical insight into the local situation and ensure that subsequent standards development, policy and programming efforts target identified needs. Achieving these goals contributes to the possibility that all children might exercise their rights to a quality education that prepares them for the next century.

This module specifically addresses the initial stages in the analysis process. It first describes how each type of analysis gauges the existing education sector's ability to provide equitable quality education for all children and protect against climate change and disaster. Section 6.4 outlines how to use the findings to set up standards for quality education within a human rights-based framework that thoroughly address climate change and disaster.

## 6.2 Important issues for education situation analysis

As a recurring and systematic education policy and planning exercise, the education sector situation analysis identifies gaps and opportunities concerning the overall quality of education, and should include an exploration of the extent to which climate change adaptation and disaster risk reduction have been thoroughly mainstreamed throughout the sector.

Under ideal conditions, education sector analysis and risk analysis would be approached holistically. A combined analysis tool would reflect an understanding, consistent with a rights-based approach to education, that

quality education cannot be attained while risks, threats and vulnerabilities of any kind, including those posed by climate change, natural hazards and disaster, disproportionately hinder access to schooling. Quality basic education by definition addresses those risks while providing children and young people with the knowledge, skills, attitudes and ways of thinking necessary to thrive.

Consistent with theories of systems and change, the ideal sequence of activities involved in developing and undertaking an education sector analysis is demonstrated in the diagram below. Explanations of each phase follow.



1. **Establish a participatory vision of quality education.** Engage all relevant stakeholders in order to determine their vision for quality education. Establishing this vision is the first step in the overall process of continuous monitoring, evaluation and improvement. Using the basic criteria of child friendly schools, children should be central to all phases of the process, as should other stakeholders. In order to get a vision of quality education that accurately reflects the needs of the community, the perspectives of multiple stakeholders in the community must be included.
2. **Determine associated standards and indicators.** Establish a preliminary set of standards and indicators that characterize child friendly schools in the given context. Indicators should be developed for each of the standards. All aspects of mainstreaming climate change adaptation and disaster risk reduction would be explicitly included in these standards and indicators. The standards, indicators and elements of sector analysis should identify all the places to intervene in the education sector, including formal, non-formal and informal education settings. (This process is described at length in section 6.4 of this module.)
3. **Cover multiple sector topics.** A beneficial strategy for the analysis is to cover a broad range of standard education sector topics (see Module 8) and select only a few issues for initial intervention based on factors such as urgency, number or specific group of children affected, climate change and risk reduction priorities, or availability of funds. This planning strategy will be covered extensively in Module 8.
4. **Disaggregate for disparities.** The analysis should be disaggregated by characteristics that often lead to disparity in education access and quality, including children's age, gender, wealth, location, ethnicity, language and ability status. Likewise, disparities should be reflected in the standards and indicators developed from the baseline. In the monitoring and evaluation phases, methodologies should be developed to allow maximum inclusion.
5. **Use findings from sector-wide analysis as a baseline.** Establishing a baseline is the first step in the ongoing process of continuous improvement towards the desired goal. The indicators developed for the standards become the basis for all monitoring and evaluation.
6. **Revise standards and indicators.** Once the analyses have been conducted and findings emerge, stakeholders revisit the standards and indicators to ensure that gaps are covered. This is the point at which the draft standards and indicators have been tested and revised in order to become the universal reference point for measurement of the education sector.
7. **Monitor and evaluate to measure progress towards goals.** Relevant stakeholders regularly and formally conduct sector-wide analyses using the standards and indicators developed, in order to measure progress towards the vision of quality education.



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Locations experiencing chronic poverty, disaster risk or vulnerability to the effects of climate change can be very dynamic and unpredictable. In reality, conditions may not allow for adherence to this sequence of activities. Therefore, the local context and needs will define what is possible. In theories of systems and change, because everything is interconnected and interdependent, there is no single right way. Instead, stakeholders find the right entry point for them at the given time and proceed from there, eventually working their way through all parts of the sector.<sup>3</sup>

Table 6.1 provides the basis for all sector and risk analyses, standards development, and monitoring and evaluation efforts. The table shows

examples of issues that should be addressed in an education sector situation analysis and illustrates the potential learning outcomes related to learning and teaching processes. The table helps generate the questions asked in the initial stages of analysis. In the subsequent stages of the scaling-up and mainstreaming process, the table guides the development of the standards and indicators used within the education sector for monitoring and evaluation purposes. Table 6.1 is a critical and relevant resource, which could also be adapted for use in the seven-step education sector analysis sequence described above. All stakeholders should familiarize themselves with this table and refer to it on a regular basis.

**Table 6.1 – Conceptual framework for scaling up and mainstreaming climate change adaptation and environmental education**

SCALING UP AND MAINSTREAMING CLIMATE CHANGE ADAPTATION AND ENVIRONMENTAL EDUCATION INTO EDUCATION SECTOR WORK					
Contributes to CFS principles	Child-centredness, democratic participation, inclusion, protection				
Education sector components	Education planning, policy, legislation and budget	Governance and school leadership	Learning environment	Teachers and other education personnel	Learning and teaching
Mainstreaming in learning and teaching					
Learning outcomes in curricula and assessments – as illustrated by examples of potential learning outcomes at the end of primary education					
Competencies The learner will be able to...	Knowledge The learner will know and understand...	Attitudes The learner will be someone who demonstrates...	Skills The learner will be able to...		
<ul style="list-style-type: none"> <li>• Employ a holistic approach, which seeks integrative thinking and practice</li> <li>• Envision change, which explores alternative futures, learns from the past and inspires engagement in the present</li> <li>• Achieve transformation, which serves to change the way people learn and the systems that support learning</li> </ul>	<ul style="list-style-type: none"> <li>• The importance of using relevant information and sources of information</li> <li>• Basic concepts of climate change</li> <li>• Basic concepts of environmental stewardship</li> <li>• The importance of natural resources for daily life</li> <li>• Basic ecological cycles (i.e., water cycle and life cycle)</li> <li>• The relationship between risks, threats and vulnerabilities</li> <li>• How to detect and avoid risks in his/her daily environment</li> <li>• Basic disaster preparedness in his/her daily environment</li> <li>• Historical factors and future consequences of present actions for self, others and their local environment</li> <li>• That social norms (and collective behaviour) can be both a risk factor and a protective factor</li> </ul>	<ul style="list-style-type: none"> <li>• Concern and appreciation regarding the local environment</li> <li>• Respect and empathy for people in different circumstances and with different opinions</li> <li>• Appreciation of local (i.e., indigenous) knowledge of the environment</li> <li>• Awareness of his/her own and others' rights and responsibilities in protecting the environment and</li> <li>• Responsibility with regard to use of environmental resources</li> <li>• Ways to recognize and deal with fear, grief and loss</li> </ul>	<ul style="list-style-type: none"> <li>• Communicate openly and respectfully about living in harmony with the local environment and reducing risk</li> <li>• Identify local natural resources (i.e., plants and animals) commonly used</li> <li>• Review his/her daily practices and implement changes to become a better environmental steward</li> <li>• Seek help when needed</li> </ul>		
Measured by standards	Standards identified through the education and risk analyses ( <i>Module 6</i> ) and elaborated in a monitoring and evaluation plan	Contribution of education sector to climate change adaptation and disaster risk reduction through: <ul style="list-style-type: none"> <li>• <b>Methods</b> – measured per integration in teacher training</li> <li>• <b>Implementation</b> – measured per observation of classroom instruction and child and community</li> </ul>	Contribution of education sector to climate change adaptation and disaster risk reduction through: <ul style="list-style-type: none"> <li>• <b>Content</b> – measured per integration in school curricula</li> <li>• <b>Results</b> – measured per integration in assessment and the results therein</li> </ul>		

### Box 6.1 Girl Guides in Sri Lanka raise awareness about global warming

The Sri Lanka Girl Guide Association (SLGGA) and the Ministry of Education have introduced an island-wide compulsory environmental star-rating for government and semi-private schools. They hope the project will raise awareness among school-aged children of the impact and consequences of climate change, as well as encourage the next generation to take responsibility for the environment.

The project is the brainchild of Shaleeka Abeygunasekera, the Director of Communications of SLGGA, which is currently heading the initiative.

She explained that the girl guides or prefects from schools are first put through a workshop conducted by SLGGA.

Students are taught to reduce the impact of global warming. Key focus areas include reduction of energy consumption, conservation of water, planting trees and recycling. Practical, simple actions are taught, such as switching to energy-saving lightbulbs, switching off computers and other electronic equipment when leaving the room, using both sides of paper and using recycling bins. Students who attend the workshop share what they have learned with their peers, and together they carry out the simple activities and measures to ensure their school is environmentally friendly.

Abeygunasekera explained, "Schools that are a part of the star-rating project will be paid an unannounced visit sometime during the second term by independent inspection panels made up of three SLGGA commissioners and a representative from the ministry."

The star-rating initiative was started in October 2008, and by July 2009 28 schools within the Colombo district completed the first round of assessments.

For a school to achieve a five-star environmental rating, all of the actions detailed at the workshops must be carried out regularly within the school. Points are awarded based on the degree to which each of the specified actions has been carried out.

The star-rating project has proved successful. Many schools are trying harder to meet the standards set by SLGGA and the Ministry of Education, and other schools are eager to be part of the project.

Source: Tegal, Megara. Guiding schools on global warming. *The Sunday Times*. Retrieved from [http://sundaytimes.lk/090913/Magazine/sundaytimesmirror\\_01.html](http://sundaytimes.lk/090913/Magazine/sundaytimesmirror_01.html).



### 6.3 Analysing risk for children in relation to climate change and the environmental context: Threats, vulnerabilities and capacities

According to the Inter-agency Task Force on Climate Change and Disaster Risk Reduction, “As climate change begins to manifest itself – in the form of increased frequency and intensity of hazards such as floods, storms, heat waves, and drought – the need for communities to address climate risks is becoming urgent. The coming decades are likely to bring, among other changes, altered precipitation patterns so that many areas will experience more frequent floods and landslides, while others will experience prolonged drought and wildfires.”<sup>4</sup>

Climate change manifests itself differently depending on geography as well as pre-existing social, political and economic conditions in a given place. As a result, risk analyses have to be tailored to each location. As noted in the previous section, consistent with a rights-based approach, the risk analysis and the sector-wide analysis should be conducted in the most integrated way possible. Each has a complementary advantage and makes a unique contribution to the whole. The findings from a risk analysis augment the general data collected in the education sector analysis because a risk analysis seeks unique and particular information in relation to specific hazards and vulnerable populations.

Multiple risk analysis tools exist. Some will be more applicable to a specific context than others. All, however, are trying to gather three pieces of information:

#### 1. Who or what will be affected? How?

Conducting a risk analysis involves a systematic assessment of current and potential threats to all children regardless of background, ability or gender, as well as all teachers and other education staff within and outside the school or other learning space.

As with the education sector situation analysis, the risk analysis should take into account the characteristics of children and educational staff that may lead to different degrees of vulnerability to risk, including age, gender, wealth, location, ethnicity and ability status. Potential effects may relate to these people’s health and physical and psychological well-being.

**“The need for communities to address climate risks is becoming urgent.”**

— Inter-agency Task Force on Climate Change and Disaster Risk Reduction

In addition to an analysis of the vulnerability of children and education staff, the risk analysis should also assess the vulnerability of all buildings and grounds associated with the education sector, such as school infrastructure, facilities, ministry buildings and the environment surrounding schools and other learning spaces.

**2. To what hazards or threats are they vulnerable?** There may be several answers to this question, depending on the variety of populations potentially affected.

Vulnerability has been defined as “a set of conditions and processes resulting from physical, social, economical, and environmental factors, which increase the susceptibility of a community to the impact of disasters.”<sup>5</sup> Therefore, the risk analysis should take into account not only the potential hazard alone, but its interaction with these other variables. Linking it with the assessment framework of the Child Friendly Cities Initiative may

reinforce the analysis of threats and hazards within and around the school environment.<sup>6</sup>

**3. What are their existing capacities to address those hazards?** Capacity or preparedness in the education sector often refers to a measure that addresses a prior vulnerability. In the process of conducting a risk analysis, different hazards necessarily call for different responses.<sup>7</sup>

To thoroughly assess capacities, this chart would further disaggregate the data according to the different populations affected and their degree of vulnerability.

Hazard	Capacity
Seismic hazards	Earthquake-resistant school buildings and learning spaces
Flooding	Curriculum on the prevention of waterborne diseases
Soil degradation and food security	Curriculum on conservation agriculture practices

### Box 6.2 National adaptation plans as a starting point for risk analysis

A number of developing countries have drawn up adaptation plans or are in the process of finalizing them. This includes the National Adaptation Programmes of Action (NAPAs) of least developed countries (LDCs). The NAPAs allow identification of priority activities that respond to immediate needs and concerns for adaptation to climate change. They build upon existing coping strategies at the grassroots level and promote the use of relevant traditional knowledge and practice.

NAPAs are not funded programmes for action; they are a one-time mapping of issues at the country level in least developed countries, providing an overview for forthcoming adaptation planning for funding. At this time, nearly all LDCs have completed their NAPAs and submitted them to the Secretariat of the United Nations Framework Convention on Climate Change for publication. Given that NAPAs look at priority areas, it is instructive to examine the extent to which they refer to children, education and disadvantaged groups.

To review the NAPA of your country (if drafted), please visit [http://unfccc.int/cooperation\\_support/least\\_developed\\_countries\\_portal/submitted\\_napas/items/4585.php](http://unfccc.int/cooperation_support/least_developed_countries_portal/submitted_napas/items/4585.php).

Capacities go beyond infrastructure and curriculum, however. Capacities include human resources – community groups to inform and warn – and policy and advocacy measures, such as conservation policies and school governance and management. Capacities can also include hybrid responses where social systems support the inherent capacity of natural systems, for example by creating environmental laws and regulations to strengthen mangrove forests that protect coastal schools or other learning spaces from storm surge.

Risk analyses can be done at the national level or the level of the child, and various levels in between. At the national level,

the situation of environmental risk can be extracted from existing government plans (e.g., national adaptation plans, disaster planning strategies or similar policies or programmes). At the level of a child, a risk analysis would focus directly on the child's immediate surroundings (e.g., school and community). Stakeholders involved in the risk analysis process (and throughout the standards development, monitoring and evaluation phases as well) should be as diverse as possible. Diversity can lend itself to more appropriate responses and capacity identification and development because of the differential nature of vulnerability and types of hazards.



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**Table 6.2 – Example of potential environment-related threats and hazards to children, and related education sector capacities**

Threat or hazard	Capacities of the education sector
<b>Physical hazards:</b> What are the threats to the safety and security of girls and boys on school grounds and as they travel to and from school or other learning spaces? Could climate change and disasters increase the occurrence or amplitude of these threats? Are these threats greater for young children or children marginalized by disparities linked to gender, wealth, location, ethnicity or ability status? How can interventions be designed to ensure universal benefit to all children and adults, including young children and children with disabilities?	
<b>Hazardous waste</b>	<ul style="list-style-type: none"> <li>• Mapping of hazardous sites in the school or other learning space, on school grounds and on the way to and from school</li> <li>• Maintenance of clean learning spaces, paying special attention to hazards such as broken glass, needles and blades</li> <li>• Availability of first aid in schools and other learning spaces (teachers trained in basic response)</li> </ul>
<b>Localized and seasonal floods and landslides, cyclones, tsunamis and other water-related threats</b>	<ul style="list-style-type: none"> <li>• School buildings and facilities resilient to flooding and high winds</li> <li>• Stocked and accessible emergency shelters</li> <li>• Functioning emergency warning systems</li> <li>• School drills and preparedness plans</li> <li>• Children encouraged to prepare emergency plans with families</li> <li>• Education on disaster preparedness</li> <li>• Children taught swimming and ‘water safety’ with consideration for flood-related drowning</li> <li>• Ditches or bodies of water near the learning space that are deeper than 10 cm closely supervised or fenced off</li> <li>• Properly covered wells</li> </ul>
<b>Environmental degradation and loss of biodiversity</b>	<ul style="list-style-type: none"> <li>• Learning outcomes based on locally relevant issues that promote environmental stewardship, sustainable development, resilience and innovation in curriculum and teacher education</li> <li>• Working across sectors to provide access to health services, clean water, improved sanitation and adequate nutrition throughout the education sector</li> <li>• Alternative learning programmes for those pushed out of school</li> </ul>
<b>Volcanic and seismic hazards</b>	<ul style="list-style-type: none"> <li>• School buildings and facilities resilient to earthquakes</li> <li>• Functioning emergency warning systems</li> <li>• Mapping of volcanic threats relative to school</li> <li>• School drills and preparedness plans</li> <li>• Children encouraged to prepare emergency plans with families</li> <li>• Education on disaster preparedness</li> <li>• Non-formal learning centres and catch-up classes</li> </ul>
<b>Psychosocial hazards:</b> Do children spend their time involved in activities that put them at greater risk of exploitation or harm? Is the environment in which children live and go to school violent? Are some children – such as young children, girls or children from marginalized social groups – more susceptible to psychosocial hazards than others? How could climate change and disasters contribute to violence and conflict?	
<b>Violence</b>	<ul style="list-style-type: none"> <li>• Culture of transparency and physical environment with transparency (children visible in classrooms, etc.)</li> <li>• All children, but especially girls and other disadvantaged groups, empowered to identify and reduce risks and report incidents</li> <li>• Evaluation of whether distance or remoteness of school facilities or situation at home (water, gardens, latrines) may put children, especially girls, at risk</li> <li>• Learning and teaching conflict mitigation, peaceful coexistence and psycho-social skills</li> </ul>

**Table 6.2 – Example of potential environment-related threats and hazards to children, and related education sector capacities** *(continued)*

Threat or hazard	Capacities of the education sector
<b>Trauma</b>	<ul style="list-style-type: none"> <li>• Systematic assessments of children of all ages for effects of causal event (such as loss of concentration, change in achievement levels, frequent distracting thoughts, etc.)</li> <li>• Children’s risks reduced and their sense of security in their environment promoted</li> <li>• Availability of counselling programmes with professional counsellors</li> <li>• Teachers trained to identify and support children at risk</li> </ul>
<b>Discrimination</b>	<ul style="list-style-type: none"> <li>• Assessments of issues of social exclusion, most notably in remote, rural indigenous communities</li> <li>• Specific attention to the situation of girls, children with disabilities and those living in (extreme) poverty</li> <li>• Ethos of inclusion and respect supported</li> <li>• Dialogue regarding differences and their understanding is encouraged</li> <li>• Teachers trained to identify equity issues</li> <li>• Active participation of all children in the assessment process ensured</li> </ul>
<p><b>Biological hazards:</b> What are the health threats that may affect children’s lives and learning capacities? How could climate change and disasters affect the health of children and cause or add to problems with food and water supplies? Young children are usually more vulnerable to health risks, and children from marginalized groups may also be at increased risk – so how can interventions take different levels of vulnerability into account?</p>	
<b>Non-communicable diseases such as malaria and dengue</b>	<ul style="list-style-type: none"> <li>• Elimination of standing water on school grounds, other learning spaces and surrounding areas – preferably with the active participation of children so that they learn by doing and become mindful of standing water in their homes or other places</li> <li>• Learning and teaching malaria and dengue prevention, such as use of bed nets (in collaboration with public health officials)</li> <li>• Training of children and teachers to recognize symptoms and seek treatment early</li> <li>• Engagement of children in community education to reduce standing water, increase net use, use mosquito repellents,<sup>8</sup> etc.</li> </ul>
<b>Hunger and malnutrition</b>	<ul style="list-style-type: none"> <li>• Monitoring of children at risk, especially young children, girls, migrant and other disadvantaged children</li> <li>• Establishment of school feeding programmes; if possible, organization of regular malnutrition checks by health workers</li> <li>• School gardens supported</li> </ul>
<b>Worms, diarrhoea, cholera (diseases transmitted through faecal-oral transmission)</b>	<ul style="list-style-type: none"> <li>• Available sources of clean drinking water</li> <li>• Sex-segregated latrines</li> <li>• Learning and teaching good handwashing practices, hygiene and disease prevention</li> <li>• Water for washing available near the latrines</li> <li>• Sanitary locations used for food preparation and distribution</li> </ul>
<b>Acute respiratory illness</b>	<ul style="list-style-type: none"> <li>• Providing access to clean energy for cooking and heating in schools and other learning spaces (smokeless or solar stoves)</li> </ul>
<b>Dehydration</b>	<ul style="list-style-type: none"> <li>• Available sources of clean drinking water</li> <li>• Learning and teaching water hygiene</li> <li>• Teachers trained in how to identify symptoms early and how to respond to fainting, seizures, etc.</li> </ul>

## 6.4 Setting standards for quality education, climate change adaptation and disaster risk reduction based on child rights principles

Establishing national sector-level quality standards is pivotal to a nation's ability to achieve the goal of universal provision of quality basic education. Simultaneously establishing standards for learning outcomes at the individual level is crucial to the ability of children and young people to acquire the knowledge, skills and attitudes required to free themselves from poverty, build sustainable communities and create equitable livelihoods. In the words of a UNESCO report on teacher education, "Education and learning are part of an iterative dynamic of social change: in order to change society, we need to change the way we learn and educate, and in order to change the way we learn and educate, we need to change society."<sup>9</sup>

The human rights-based approach to quality basic education uses the Convention on the Rights of the Child as its point of reference for establishing standards for the education sector, drawing on articles in the Convention that refer to education. In order to allow all children to fulfil their right to a quality basic education, national standards need to establish precisely what quality education looks like. In contexts where environmental conditions undermine a child's ability to access quality education, issues of climate change and disaster risk reduction must be directly and holistically integrated into national standards. That is, in these contexts, quality cannot be considered in isolation

from the overarching environmental context.

Standards for climate change adaptation and disaster risk reduction in the education sector should be adapted to the local context and based on the child rights principles of child-centredness, inclusiveness, democratic participation and protective environments (for full details, refer to Table 2.1 in Module 2).

For example, developing standards for ethical and meaningful climate change adaptation and disaster risk reduction in education can ensure that curricular and pedagogical standards are in line with standards set for school facilities. Irrespective of the quality of hygiene or health education in a school, if the student does not have access to water for washing or latrines for practical application of the behaviours promoted, behaviour change will not take place. Similarly, planning for and installing environmentally conscious school facilities will not adequately reduce vulnerability or increase adaptive capacity. To ensure sustainability, a combination of participatory curricular resources and capacity development for teachers and other adult decision-makers is needed to engage teachers and children with the facilities.

Table 6.1 presents a conceptual framework for scaling up and mainstreaming climate change adaptation and environmental education that can

significantly inform the process of strategic planning and standards development. The table highlights areas in which standards must be set to make sure the process is comprehensive across the entire education sector.

Systemic mainstreaming is assessed based on standards identified through education and risk analyses. Examples of areas in which measurable standards might be set include: inclusion of vulnerable groups, funding, staffing, policies, inspections, infrastructure (staffing, units and buildings), early warning systems, preparedness plans and school drills. For example, standards set based on the principle of 'protective environments' could include schools and other education facilities resistant to natural hazards. Indicators for assessment might include legislation on construction standards, oversight during construction and adequate allocation in budgets.

Standards set regarding the **mainstreaming of learning and teaching** can be based on the contribution of the education sector to climate change adaptation and disaster risk reduction. For individuals and communities, this means enhancing:

- **Knowledge:** Relevant knowledge is provided to aid in understanding of concepts pertaining to environmental stewardship and risk reduction.
- **Attitudes:** Children learn to respect each other and their environment.
- **Skills:** Children drive action and activities to protect the environment, adapt to and mitigate climate change, reduce risk in case of disasters,

and promote overall sustainable development. They are thereby empowered to become active and participating members of society.

**Priority should be given to those most vulnerable to the impacts of climate change, disasters and environmental degradation – namely the poorest, youngest and most marginalized children and their families.**

Learning standards could be measured through their integration into school and teacher training curricula, classroom inspections and learning assessments and examinations:

- **Content:** Measured per integration in school curricula.
- **Methods:** Measured per integration in teacher training.
- **Implementation:** Measured per inspection of classroom instruction.
- **Results:** Measured per integration in assessment and its results.

Standard setting is an opportunity to address harmful social norms and collective behaviours. In many places, discrimination, inequality, and inhibiting social roles increase the vulnerability of women and girls and other disadvantaged social groups during natural disasters.<sup>10</sup> Ultimately, gender inequality and similar inequities are counterproductive to sustainability and should be addressed through the process of standard setting.

### **Box 6.3** Mainstreaming gender equity in climate change adaptation and disaster risk reduction

Particularly since the Rio Summit on Environment and Development in 1992, basic understanding of the need for gender mainstreaming in environmental and sustainable development policies and practices at all levels has emerged.<sup>11</sup> The need for a gender mainstreaming approach was underlined at the Beijing Fourth Conference on Women in 1995 and is reflected in the Beijing Declaration and Platform for Action. Only recently has it been recognized that for climate change regimes, strategies, programmes and projects to be sustainable and efficient, gender has to be mainstreamed in international policy instruments, national and local political action, financial mechanisms and instruments, and technological developments.<sup>12</sup> This includes strategic steps such as: more holistic approaches, gender and power analysis, enhancement of capacity, increased understanding of gender and climate change, and promotion of participation and access to information on the part of all women. Other important steps in mainstreaming gender aspects include strengthening women's and girls' resilience and adaptation capacities, promoting gender-responsive mitigation, encouraging gender-sensitive financial mechanisms and instruments, and promoting the empowerment and organization of women and girls.<sup>13</sup>

## **6.5** The results

The results of an education sector and risk analysis can be used by relevant stakeholders to establish a profile for climate change adaptation and disaster risk reduction mainstreaming in the education sector or in schools. The analysis and related profile serves to provide a baseline assessment of the education sector and an assessment of the current and anticipated impacts of climate change, disasters and environmental degradation on children, educational staff and physical facilities within the education sector.

Every year since its establishment in 2006, the Global Facility for Disaster Reduction and Recovery publishes a report dedicated to examining the intersections between vulnerability to disaster risk and poverty. Each year that report reasserts that natural events “cause tremendous damages especially to vulnerable countries

including the least developed countries.”<sup>14</sup> Therefore, when translating the results of education sector and risk analyses into plans for action, priority should be given to those most vulnerable to the impacts of climate change, disasters and environmental degradation – namely the poorest, youngest and most marginalized children and their families.

Generalized and chronic poverty is not conducive to learning, and manifestations of climate change – droughts, floods and other disasters – further undermine learning. In 2010, 67 million primary-school-aged children around the world did not attend school.<sup>15</sup> It is likely that the non-attendance of some of those students was a direct result of acute disaster or effects of climate change. Baseline data collection and accurate situation analysis of schools, other learning spaces and their facilities from a child rights perspective, as



described above, will identify present and future vulnerabilities, enable planning for action and contribute to getting all children into quality schools.

In order to plan a comprehensive and coordinated national vision of climate change adaptation and disaster risk reduction within the education sector, education sector leaders must assess the current situation in schools and develop a single set of standards and indicators based on existing vulnerabilities, development priorities and curricular objectives that are in line with the local context.

Strategic multilateral partnerships, with goals mutually beneficial to local government, universities and other sectors, can maximize cooperation and results for children. Consistent with a rights-based approach, well-grounded education sector and risk analyses undertaken concurrently at the national, subnational and municipal levels can efficiently identify strategic entry points and opportunities to intervene in order to facilitate children's access to and participation in quality education.

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## 6.6 Next steps

Module 7 focuses on the details of constructing a monitoring and evaluation framework. All of the stages in this process are completely interdependent and play a critical role in enabling the education

sector to thoroughly mainstream climate change adaptation and disaster risk reduction within a human rights-based approach to quality education.

## Notes

- 1 For more information on climate change and environmental education, see UNICEF. *Climate change and environmental education: A companion to the Child Friendly Schools Manual*. Retrieved from [http://www.unicef.org/publications/files/CFS\\_Climate\\_E\\_web.pdf](http://www.unicef.org/publications/files/CFS_Climate_E_web.pdf).
- 2 For more information on the *Child Friendly Schools Manual*, visit [http://www.unicef.org/publications/files/Child\\_Friendly\\_Schools\\_Manual\\_EN\\_040809.pdf](http://www.unicef.org/publications/files/Child_Friendly_Schools_Manual_EN_040809.pdf).
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- 4 Inter-Agency Task Force on Climate Change and Disaster Risk Reduction (2004). *Disaster risk reduction tools and methods for climate change adaptation*. Retrieved from [http://www.unisdr.org/files/5654\\_DRRtoolsCCAUNFCC.pdf](http://www.unisdr.org/files/5654_DRRtoolsCCAUNFCC.pdf).
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- 6 For more information on child friendly cities, visit <http://www.childfriendlycities.org>.
- 7 For example, in the Solomon Islands, the National Disaster Management Office and the Ministry of Education and Human Resource Development are introducing School Hazard Management Plans, which call for multiple situations.
- 8 For example, in some countries, traditional medicines made from native plants are known as good mosquito repellents. This may be a good opportunity to revive the use of traditional medicine and encourage children to plant indigenous species that are diminishing.
- 9 UNESCO (2011). *Reorienting teacher education to address sustainability: Centred on the five cluster countries of UNESCO office, Jakarta – Brunei Darussalam, Indonesia, Malaysia, Philippines and Timor-Leste* (3rd Int. Policy Dialogue Forum) (p. 6). Jakarta: UNESCO. Retrieved from <http://www.teachersforefa.unesco.org/Resources/All/Meeyoung%20Choi-UNESCO%20Jakarta%20Office.pdf>.
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- 11 Dankelman, I. (2010). *Gender and climate change: An introduction*. London: Earthscan.
- 12 Aguilar, L. (2010). Establishing the linkages between gender and climate change adaptation and mitigation. In I. Dankelman (Ed.), *Gender and climate change: An introduction* (pp. 173–193). London: Earthscan.
- 13 Ibid.
- 14 Global Facility for Disaster Reduction and Recovery (2010). *Integrating disaster risk reduction and climate adaptation into the fight against poverty*. Washington, DC: GFDRR. Retrieved from [http://www.gfdr.org/gfdr/sites/gfdr.org/files/publication/GFDRR\\_annual\\_report\\_2010.pdf](http://www.gfdr.org/gfdr/sites/gfdr.org/files/publication/GFDRR_annual_report_2010.pdf).
- 15 UNESCO (2011). *EFA Global Monitoring Report 2011: The hidden crisis: Armed conflict and education*. Paris: UNESCO. Retrieved from <http://www.unesco.org/new/en/education/themes/leading-the-international-agenda/efareport/reports/2011-conflict/>

# Climate Change Adaptation and Disaster Risk Reduction in the Education Sector

## RESOURCE MANUAL

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### MODULE 7

# Monitoring and Evaluation

## Key messages

- 1. Monitoring and evaluation are vital** to make the process as effective and efficient as possible.
- 2. Monitoring and evaluation should take place at the national and school levels.** In each, assess both institutional and individual competences.
- 3. Indicators used in monitoring and evaluation are the same ones established during the standards development process** and are based on child rights principles.
- 4. The best monitoring and evaluation involves stakeholders who are directly affected.** Children, youth and communities should participate in monitoring and evaluation through self-assessment methodologies and other participatory approaches.



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This is the seventh module of the resource manual *Climate Change Adaptation and Disaster Risk Reduction in the Education Sector*. This module looks at monitoring and evaluation: the importance of process monitoring, assessment of learning outcomes and evaluation of other programme results. The reader is also encouraged to refer to *Climate Change and Environmental Education*,<sup>1</sup> a companion to the *Child Friendly Schools Manual*.<sup>2</sup>

For more information, contact the Education Section, UNICEF New York, [educationhq@unicef.org](mailto:educationhq@unicef.org).

### Questions to guide your reading

1. How do monitoring and evaluation connect with sector and risk analyses and standards development?
2. How are monitoring and evaluation and policy and planning interdependent? What implications do monitoring and evaluation have for policy and planning?
3. What can monitoring and evaluation on the institutional level do to create the conditions for students to achieve the desired learning outcomes at the classroom level?

## 7.1 Introduction

Within a human rights-based approach, monitoring and evaluation support progress towards the goal of helping all children fulfil their educational and environmental rights. Monitoring and evaluation, seen in this way, have multiple layers, are the responsibility of education planners and all duty bearers, and have built-in mechanisms for youth to participate in all stages of the process. This module follows Module 6 because monitoring and evaluation are part of the overall sector and risk analyses and use the standards and indicators developed from those analyses as the basis for measurement of progress.

This module builds on Chapter 8 of the *Child Friendly Schools Manual*, which describes monitoring and evaluation processes from a child friendly education (CFE) perspective<sup>3</sup> and focuses specifically on mainstreaming and scaling up climate change adaptation and disaster risk reduction into the educational system.

Monitoring and evaluation of the educational system should be a sector-wide priority in order to assess the effectiveness, efficiency and quality of implementation. Climate change adaptation and disaster risk reduction should be written into the single set of standards and indicators that measure overall educational quality. As noted in the previous module, instituting a monitoring and evaluation framework based on the system's standards and indicators serves the key functions of:

- Establishing a baseline measurement of the system standards and indicators in

order to observe and measure changes over time.

- Identifying the contribution of given practices towards achieving the system standards.
- Providing stakeholders with information about the impact of their actions in order to increase accountability.<sup>4</sup>

### Participation and inclusion guide all phases of CFS design and implementation.

In the context of a human rights-based approach, monitoring and evaluation should take place at two levels:

1. At the national level, focus on the process of mainstreaming and scaling up climate change adaptation and disaster risk reduction in the national educational system.
2. At the school level, measure and assess individual knowledge, attitudes and skills.

The remainder of this module lays out the monitoring and evaluation process and emphasizes the role of participatory approaches. Module 7 moves the discussion of standards development ahead by describing the need for having measurable and observable criteria to assess progress towards the overall goal.

## 7.2 Who should monitor and evaluate?

Consistent with the child friendly schools approach, democratic participation and inclusion guide all phases of design and implementation. The monitoring and evaluation phase is not different. At the national level, mainstreaming of climate change adaptation and disaster risk reduction should be integrated into overall ministry of education monitoring and evaluation efforts. At the school level, just as all stakeholders were involved in the education sector and risk analyses

in the initial phases, a broad diversity of stakeholders should be involved in selecting the criteria for assessing the education system's progress towards its goals. Stakeholders include students, parents and caregivers; school heads and teachers; government officials at all levels and from all relevant sectors; development and environmental partners; and civil society organizations. Each group has a role in the monitoring and evaluation process.<sup>5</sup>

## 7.3 Criteria and indicators

The effects of climate change and vulnerability to disaster are highly context-dependent. Likewise, the aims and objectives in responding to those threats within the education sector are largely unique to that sector. The standards and indicators established following the analysis phase (outlined in Module 6) should serve as the core criteria for the monitoring and evaluation system. A standard is a goal; indicators are measures of concrete and observable progress towards those goals. 'Criterion' is simply another word for 'indicator'. Table 6.1 presents the conceptual framework for mainstreaming and scaling up of climate change adaptation and disaster risk reduction in education, which serves as the reference point in all phases of design and implementation. The standards and indicators related to system quality, mainstreaming and scaling up are informed by that framework and are used in the monitoring and evaluation stages.



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## 7.4 Evaluation design considerations

Evaluation methods and techniques depend on many variables. Three variables that shape the design are the questions raised, the scope of the programme or system, and the resources available for evaluation. Credible monitoring and evaluation involve in-depth probing at the national, school, community and local levels to tease out the variables that affect and are affected by the mainstreaming process. The kinds of data to be collected and the number of sites involved have implications for the resources needed to carry out a reliable evaluation and should be considered at the outset of the evaluation design process.

The question of whether an evacuation plan exists on premises is different in nature from a question of students'

attitudes about their efficacy in the face of climate change. Answering each question requires a different methodology and a different amount and type of resources. Methods may be qualitative or quantitative. There will probably be a combination of quantitative and qualitative instruments, which may include surveys, questionnaires, checklists, rating scales, interviews, observations, focus groups, diaries and process reports. The standards and indicators developed based on the sector and risk analyses drive decisions about evaluation design.

Ideally, standards-based monitoring and evaluation are integrated with existing information systems, processes and databases. For example, at the national level, evaluation should align with the

### Box 7.1 Process of monitoring and evaluation

Develop a clear statement of aims for the mainstreaming of climate change adaptation and disaster risk reduction:

- For each element in your plan for action, decide on the desired outcomes or standards.
- For each outcome or standard, develop several indicators that are observable and measurable.
- Collect baseline data (prior to the project) for each indicator.
- Use focus groups, surveys, questionnaires, checklists, rating scales, interviews, observations and reviews of relevant records to collect data. To show the significance of the results, show what the situation was like before the mainstreaming and/or scaling up started (baseline data).
- Collect data on each indicator during and after the implementation process. Compare this with the baseline data.

Education Management Information System, building codes and policies, and accreditation processes. In addition to quantitative data from the educational system and other sources, there should

be extensive use of an assortment of qualitative data from a variety of sources. In general, there needs to be a judicious balance of quantitative and qualitative data.

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## 7.5 Participatory approaches

Child friendly education requires all stakeholders to be involved in the formal evaluation process as well as in interim monitoring of progress. Whether qualitative or quantitative, participatory approaches are a critical component of monitoring and evaluation. An orientation towards an inclusive methodology begins in the sector-wide and risk analysis phase (described in Module 6) and should continue throughout the monitoring process.

A human rights-based approach to education demands that monitoring and evaluation be multi-layered in order to gather data from all stakeholders. Participatory approaches involve groups of children, teachers and parents to discuss and vote on different dimensions of climate change and disaster risk that affect them, and then feed those into the development of standards that define quality education.

In addition, monitoring and evaluation systems at the national and community or school levels are more effective when they are participatory and context-specific. Such aspects are in line with the CFE principles of democratic participation and inclusiveness, and ensure sustainability. For evaluation of

the impact of mainstreaming and scaling up, data must be collected from those people directly affected and must consider how representative these groups are as well as the sampling methods that will be used.

Monitoring and evaluation at the school level is more than an opportunity for child participation, it is a mandate of the human rights-based approach and a CFE principle. Using the basic criteria of CFE, children should be central in: (a) identifying the dimensions of the evaluation, (b) collecting data and (c) interpreting data. Children's clubs can take on the task of monitoring and evaluation and carry it out for extended periods of time. Similarly, children's governments are a good way to ensure children's participation. National ministries of environment and education can collaborate with children's governments so that they play a meaningful role in this area. More information on participatory self-assessment approaches is available in *Climate Change and Environmental Education*. Likewise, various assessment tools have been developed for child friendly education. In the context of climate change adaptation and disaster risk reduction, community participation, awareness and advocacy are particularly important.



## 7.6 Documenting experiences and case studies<sup>6</sup>

Regular documentation can ensure that experiences gathered in the course of the work are collected to assess their contribution to national priorities for both quality rights-based education (e.g., impact of improved health on enrolment, measurement of applied knowledge and behaviour change) and climate change adaptation and disaster risk reduction (e.g., increased resilience to natural disasters, access to clean energy for development) – as well as their contribution to the children and communities served. Documentation also aids in refining and redesigning approaches and tools, sharing good practices and lessons learned, and advocacy.

Documented action can make it possible for the sector to promote its own successes through case studies, international knowledge-sharing and other forums. Forms of documentation can include meetings, activities at schools, financial reports, media releases, case studies, publications, electronic knowledge databases and video documentation.

During and after the implementation of climate change adaptation and disaster risk reduction in the educational sector, it is useful to collect information that could be used to write case studies on the mainstreaming and scaling-up process. Case studies are short stories describing what happened before, during and after the process. They are often a way of bringing data to life and giving it a human face.

Results of the assessments, monitoring and evaluation should feed into the revision of programme activities and approaches, and can be helpful in reproduction and scaling up of climate change adaptation and disaster risk reduction education processes and programmes. In this way, the quality and outreach of the climate change adaptation and disaster risk reduction programmes may increase, and more people can benefit from them. This approach also allows stakeholders to keep track of progress.

## 7.7 Next steps

Module 8 of this resource manual describes the process of cross-sector planning. Specifically, the module shows how the education sector can replicate many of the planning elements it used internally – to build ownership among stakeholders and increase accuracy and efficiency of all phases of the design – in

its interactions with ministries or partners who also have education-contingent outcomes. In most countries, almost every sector experiences some impact of climate change and disaster. In all of these cases, a solution can be found by partnering with the education sector.

## Notes

- 1 For more information on climate change and environmental education, see UNICEF. *Climate change and environmental education: A companion to the Child Friendly Schools Manual*. Retrieved from [http://www.unicef.org/publications/files/CFS\\_Climate\\_E\\_web.pdf](http://www.unicef.org/publications/files/CFS_Climate_E_web.pdf).
- 2 For more information on the *Child Friendly Schools Manual*, visit [http://www.unicef.org/publications/files/Child\\_Friendly\\_Schools\\_Manual\\_EN\\_040809.pdf](http://www.unicef.org/publications/files/Child_Friendly_Schools_Manual_EN_040809.pdf).
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- 6 UNICEF (1999). *Peace education in UNICEF* (UNICEF Working Paper). New York: UNICEF. Retrieved from <http://www.unicef.org/education/files/PeaceEducation.pdf>.

# Climate Change Adaptation and Disaster Risk Reduction in the Education Sector

## RESOURCE MANUAL

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# 8

## MODULE 8

# Planning across Sectors

## Key messages

1. **Almost every sector facing a climate change or disaster-related setback can find a solution by partnering with the education sector.**
2. **Equity-focused quality education requires a multi-factor and cross-sectoral approach to sustainable development.**
3. **Consideration for the rights of the most marginalized children must be integrated** into all international, national and subnational climate change adaptation and disaster risk reduction policies and programmes.
4. **Cross-sectoral problems require comprehensive solutions with win-win outcomes.**
5. **Ministries of education should play a fundamental role** in all planning and change processes in climate change adaptation and disaster risk reduction.

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This is the eighth module of the resource manual *Climate Change Adaptation and Disaster Risk Reduction in the Education Sector*. This module encourages multi-sectoral and cross-sectoral approaches to planning and implementation of climate change adaptation and disaster risk reduction in education, and describes potential points of engagement for different sectors. The reader is also encouraged to refer to *Climate Change and Environmental Education*,<sup>1</sup> a companion to the *Child Friendly Schools Manual*.<sup>2</sup>

For more information, contact the Education Section, UNICEF New York, <educationhq@unicef.org>.

### Questions to guide your reading

1. What benefits are there for cross-sectoral planning?
2. How does cross-sectoral planning affect achievement of desired learning outcomes at the classroom level with students?

## 8.1 Introduction

Climate change, disasters and environmental degradation threaten the world's inhabitants – especially children – in myriad ways, and they affect nearly every social and economic sector. Farms, fisheries and forests shrink, resulting in food insecurity, undernutrition and lost economic opportunities. Environmental degradation contaminates the air and water, leading to an increase in respiratory and diarrhoeal diseases and higher mortality rates among children.<sup>3</sup> When natural hazards impact the most vulnerable, they spur migration, destroy income-producing opportunities and force governments to increase financial outlays as they attempt to rescue affected communities.

From the perspective of the education sector, multi-sector approaches ensure high-quality education. The inter-sectoral nature of quality education begins with child-centredness – with health care, water, sanitation, nutrition, protection and education, from early childhood through secondary school and beyond.

Promoting children's learning and development requires exceptional cooperation and strong partnerships in order to respond effectively to climate change, increasing disaster risk and changing environmental conditions. Civil society organizations can play a special role as advocates as well as implementers. From an equity perspective, mainstreaming and scaling up climate change adaptation and disaster risk reduction in quality education for sustainable development is a collective and evolving process of learning, engagement, action, experimentation and reflection.

Every context has unique environmental conditions, cultural practices and social norms, and the intervention process for each context is complex and customized. Therefore, effective climate change adaptation and disaster risk reduction require action across all sectors; key among them is the education sector. For almost every sector that is experiencing a setback related to climate change or disaster, a solution can be found by partnering with education, while no sector can solve its own challenges without including an educational component. Education, through formal and non-formal venues, can be both responsive and preventive. Education inspires immediate behaviour change to solve short-term needs while cultivating new ways of thinking that inspire creative responses and avert similar future crises.

Table 8.1 illustrates the interconnections among the education sector and other sectors dealing with climate change and disaster.

The remainder of this module covers the intersection between sector mainstreaming and national development, demonstrating how the quality education framework can be used as a cross-sectoral approach. The module also shows that multiple sectors have overlapping interests related to climate change and disaster risk, and explains how these sectors may work together to address them effectively. At the end of the module, there is a list of global networks that provide tools for national-level coordination.

**Table 8.1 – Interconnections between education and other sectors, as relates to climate change and disaster risk**

Sector	Issues	Solutions through education
<b>Agriculture, fisheries and forestry</b>	Lower yields from unsustainable farming or harvesting practices, changing climate and disasters; impacts on food security and malnutrition	School gardens and school feeding programmes to increase food security; tree nurseries or other relevant facilities; participatory learning and teaching with the community to promote sustainable practices and innovation
<b>Environment and energy</b>	Environmental degradation, climate change	Learning outcomes on environmental stewardship, sustainable living, awareness and innovation; sustainable construction methods at schools, using renewable energy, green spaces and grey water, clean and sustainable energy production
<b>Health</b>	Diarrhoeal disease, respiratory disease, undernutrition	Adequate sanitation and handwashing facilities in schools for girls and boys; school feeding and gardens; life skills-based education; increasing awareness of alternatives to indoor cooking fires
<b>Finance and economy</b>	Reduced income from lower yields of natural resources and higher costs of disaster effects	Learning outcomes focused on sustainable livelihoods, innovation, adaptation to climate change and reduction of disaster risk
<b>Urban</b>	Heat waves, poor air quality, inadequate sanitation in slums; risk of earthquakes, hazardous waste spills and other disasters	Green spaces around schools; adequate sanitation facilities in schools; school drills and evacuation plans; life skills-based education to reduce vulnerabilities

## 8.2 Sector mainstreaming and national development processes

The relationship between mainstreaming in national development processes and sector mainstreaming (as addressed in Module 4) is represented in Figure 8.1 below. The two processes usually involve interaction among the same national actors, planning authorities and development partners. As a way to reduce vulnerability and risk to sudden and chronic environmental change, countries can undertake mainstreaming at the sectoral level as a way of establishing a multi-sectoral, multi-level response that ultimately serves larger development goals.

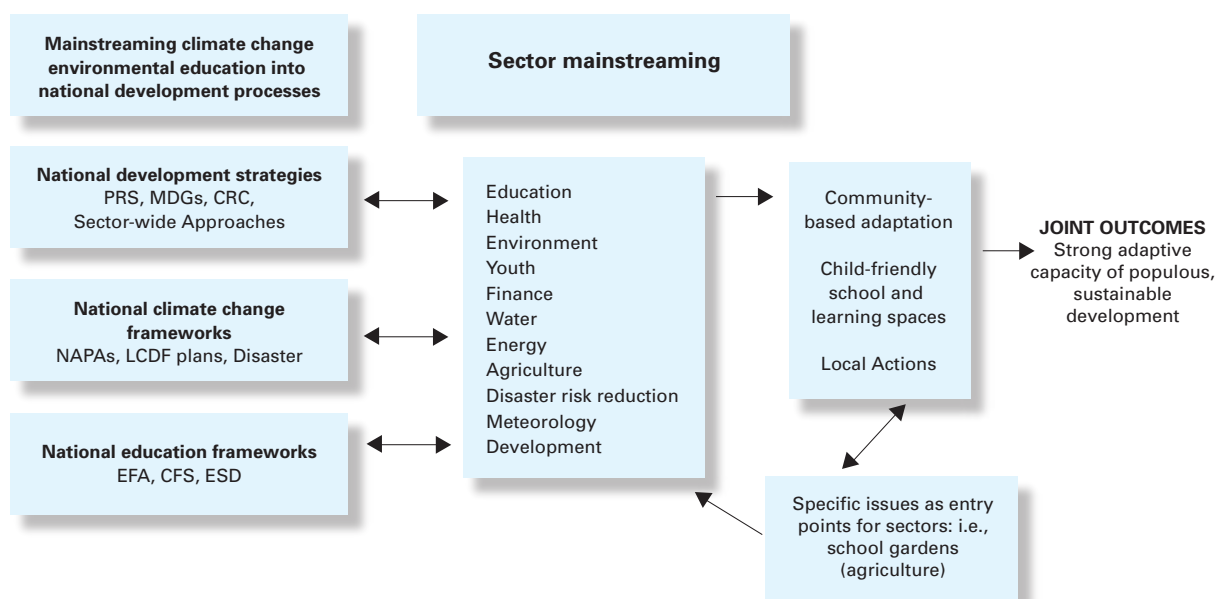
Climate change and disaster response is an increasingly relevant component of a country's national development strategy. To achieve joint outcomes, all stakeholders must work collaboratively towards climate change adaptation and disaster risk reduction in education. A sample process for joint programming is introduced in Module 4. The education ministry plays a fundamental role in addressing the global and local challenges associated with climate change and disaster risk through ongoing collaboration with the environment or health ministries.

**Box 8.1 Human development strategy in the Dominican Republic**

In 2012, the Dominican Republic launched its National Strategy to Strengthen Human Resources and Skills to Advance Green, Low Emissions and Climate Resilient Development. The goal of the strategy is to create a national framework to educate about green, low-emission and climate-resilient development in the Dominican Republic. By 2030, their vision is that “the Dominican society has an education system and implements public policies that generate institutional capacities and human resources to address the challenges of climate change adaptation and mitigation.”<sup>4</sup> The strategy identifies immediate programming opportunities:

- Skills development for national negotiators to effectively take part in international climate change negotiations.
- Training of media professionals on the dissemination of climate change information.
- Strengthening capacities to access international climate change funding.
- Strengthening institutional capacities to include the integration of climate change issues within sectoral learning strategies of the energy, tourism, water, agriculture and forestry sectors.
- Strengthening capacities of the national education and training system to deliver learning to meet individual and sectoral needs.

**Figure 8.1 - The interrelationship between mainstreaming climate change adaptation and disaster risk reduction and national development processes**



The key, however, is to understand cross-sectoral mainstreaming as active implementation. Single sectors and institutions actively commit to specific activities in order to achieve joint outcomes that benefit all children and promote a quality education approach at the community level. In this way, each sector plays a meaningful role in contributing to quality education on climate change, disaster risk and the environment. All international, national and subnational climate change adaptation and disaster risk reduction policies must seek to integrate the most marginalized children.

In addition to education sector mainstreaming, there are other policy vehicles for integrating climate change adaptation and disaster risk reduction in education: national adaptation plans, Least Developed Country Fund (LDCF) programmes; national Poverty Reduction Strategy Papers (PRSPs); and state and municipal development. Complementary activities are coordinated by sectors of environment, health, water, agriculture, energy, tourism, fisheries, finance, youth and social services. The objective of this module is to identify synergies for partnering across sectors.

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### 8.3 The child friendly education framework as a cross-sectoral approach

UNICEF is committed to the whole child and to an inter-sectoral approach to programming. Today, UNICEF works holistically to improve access to sustainable water and sanitation facilities in schools and communities, promote good hygiene practices, address nutritional needs through school-based interventions, and ensure preparedness and response to climate change and disaster risk. UNICEF also uses school-based interventions to address protection issues such as child labour and child trafficking. These non-curricular but school-based interventions are essential components of overall quality of education. In fact, studies show that these interventions have an impact on access, retention and completion of schooling in their own right. For example, links between availability of water and sanitation in schools and

access and retention for girls is well documented, as is the impact of school meals on access and attendance for children in disadvantaged communities. This multi-sectoral approach considers entire systems, examines the dynamic relationships among many variables, and seeks holistic, mutually beneficial solutions.

Box 8.2 describes how UNICEF's approach has evolved from a single-factor strategy towards a more interconnected, multi-sectoral approach. This approach combines the expertise of several sectors to achieve outcomes in all sectors through the education sector.

UNICEF's cross-sectoral approach to quality education benefits multiple areas simultaneously: including previously excluded children,



### Box 8.2 UNICEF programme example: Child friendly education as a model for a multi-sectoral approach

Like many other agencies, UNICEF provides support to countries to improve the quality of education. Twenty years ago, this mainly involved interventions to address pedagogical factors such as teacher education, supply of learning materials and teaching methodology. This type of approach to school quality produced limited improvements. The gains were often compromised by other factors in the education setting. For example, introduction of life skills content on good hygiene practices into the curriculum was often compromised in reality because many schools did not have adequate toilets or water supply facilities. The same holds true for education on climate change adaptation and disaster risk reduction.

The child friendly education (CFE) model involves a holistic, child-centred and cross-sectoral approach as the standard of quality in UNICEF's work in education. CFE implements climate change adaptation and disaster risk reduction programming through a protective learning environment and practical life skills development, which keep children safe in school and empower them throughout their lives.<sup>5</sup>

expanding health interventions for at-risk children, promoting a more integrated approach to including children with disabilities, addressing violence that affects children and

adolescents, and strengthening an integrated life-cycle approach. Its effectiveness relies on cooperation among multiple sectors.

## 8.4 One sector leads

While the most effective approaches involve more than one sector, a single ministry is responsible for leading the whole process. The leading sector needs strong backing at senior government levels, including sufficient funding and legislative power, to ensure that related sectors engage and follow through. Support is stronger when climate change and disaster risk issues are national priorities. Often, a country's priorities are expressed in a national education framework or sector-wide approach. In many cases, the ministry of education, the ministry of environment or a specialized ministry dealing with climate change or disasters convenes the mainstreaming or scaling-up initiative.

The ministry of the environment may be responsible for mainstreaming climate change adaptation and disaster risk reduction in policies, while the education ministry may be responsible for implementing them.

At the beginning of the planning process, it is important for the leading sector to set goals and make an institutional commitment to addressing climate change and disaster risk reduction through appropriate sector mainstreaming. Throughout the planning and implementation process, the leading sector's vision and commitment serves as a reference point for actions and decisions and helps identify emerging opportunities.

The process of mainstreaming may vary depending on a country's unique institutional arrangement related to climate change and disaster preparedness. Based on a 2010 survey of national institutional arrangements for climate change in 45 countries,<sup>6</sup> very few had established national institutions fully dedicated to addressing climate change. The Climate Change Inter-Ministerial Commission in Mexico coordinates the formulation and implementation of federal national strategies on adaptation to and mitigation of climate change. India established the Prime Minister's Council on Climate Change, which includes representatives from government, the private sector and civil society. In China, the National Leading Group on Climate Change includes representation from ministries and government sectors.

In many countries, instead of a fully dedicated institution on climate change, the ministry of the environment manages climate change-related activities.<sup>7</sup> For example, in El Salvador, the Climate Change Unit manages climate change negotiations, the national climate change plan, adaptation and mitigation projects,

and mobilizing resources. In Sri Lanka, the Climate Change Secretariat in the Ministry of the Environment serves as a dedicated focal point for climate change work.

### **Steering committee**

The leading sector needs to establish a steering committee or equivalent forum for inter-sectoral planning. The steering committee is responsible for key decisions, including:

- Defining a common goal.
- Developing standards, indicators and assessment tools.
- Formulating the strategy for mainstreaming and scaling up.
- Advocating for the strategy in political circles and among stakeholders.
- Monitoring the development, implementation and impacts of the mainstreaming process.
- Providing a reporting mechanism to implementing agencies.

### **Box 8.3 Maldives Ministry of the Environment mainstreaming climate change adaptation and disaster risk reduction**

In Maldives, the Ministry of Environment has been the leading sector for mainstreaming climate change adaptation. Incorporating climate change education in the national curriculum was proposed as an adaptation strategy in the country's First National Communication to the United Nations Framework Convention on Climate Change (UNFCCC) in 2001. Following this communication, in 2002 the Ministry of Education revised its long-standing environmental education curricula for primary schools and incorporated climate change issues in textbooks and teachers' guides for grades 3–5. In 2008, UNICEF funded the development of a supplementary environmental education kit encouraging critical thinking and active learning. (See Module 10 for a Maldives case study).

- Securing funding.

The following should be taken into consideration:

- Ideally, all relevant ministries should participate in the steering committee because successful mainstreaming and scaling up requires inter-sectoral commitment.
- At the beginning, the ministries should discuss and formally agree upon different levels of ownership, commitment and responsibilities for various aspects of the process.
- To maintain interest and commitment, regular meetings should be convened.
- As experience has shown, it is easiest to promote and sustain systematic inter-sectoral coordination at the level

closest to the priority population. This is especially important in decentralized systems.

Line ministries can respond to a series of items associated with goals identified by the inter-sectoral steering committee, thereby adding value to the existing initiatives of each sector and enhancing existing programmes and policies rather than restructuring.

Section 8.5 of this module examines direct and indirect impacts of climate change and disasters on children and offers possible (cross-) sectoral responses for quality education that reduce risk while increasing adaptive capacity and strengthening resilience. The section outlines cross-sectoral responses that are 'win-win' and mutually beneficial to children and young people, to the line ministries and to the ministry of education.

## 8.5 Identifying links between education and other sectors

The process of identifying links and interdependencies across sectors should be approached and executed with the same thoroughness as the education sector and risk analysis (outlined in Module 6). The inquiry-based process of identifying needs and filling gaps across sectors at the policy level supports mainstreaming of climate change adaptation and disaster risk reduction in education.

Some entry points are easier to identify than others. For the practical purposes of mainstreaming, we consider three categories:

- 1. Existing processes** include the regular planning processes within government ministries to address climate change, disaster risk and environmental sustainability. These can be used as a starting point.
- 2. Thematic issues** are those that also take a cross-sectoral approach, such as poverty reduction, gender equality, inclusion of people with disabilities, HIV and AIDS, conflict and population movement.

**3. Specific vulnerabilities affecting the lives of children,** especially young children, such as access to safe water, sanitation, nutritious food and clean energy. Adaptation to climate change and reducing disaster risk can significantly mitigate existing vulnerabilities by providing resources through the education sector.

Once links and entry points are identified, the process of mainstreaming may be similar to that explained in Module 4. The sections below show potential entry points in different sectors.

### 8.5.1 Agricultural issues

**Environmental degradation.** Climate change, disaster and environmental degradation take many forms, such as dwindling forests, depletion of natural resources, desertification, drought, flooding, salinization, water logging and soil erosion. All of these environmental problems compromise water and food security. A decreasing local natural resource base affects the diet and income of the rural poor because they rely almost exclusively on food from local ecosystems. In rural areas, a degraded environment threatens food

security and increases women's and children's (especially girls') workload. In urban areas, food prices increase and access to alternative food sources decreases.

Environmental degradation also contributes to malnutrition. Malnutrition is a key underlying cause of morbidity and mortality among children under 5. Some evidence suggests that climate change and its accompanying phenomena undermine child nutrition. As food sources are affected by climate change, governments and their partners must actively include nutrition status as one of the core adaptation indicators for community-level food security. For example, a study from the desert area of India on the impact of drought on the nutritional status of children 0–5 years old<sup>8</sup> revealed stunting, wasting and other signs of malnutrition of both long and short durations.<sup>9</sup>

#### *What can the education sector do?*

- Lead efforts to support school gardens and improve food security. By cooperating with the ministry of education, the sector can strengthen the impact of its efforts through curricular

#### **Box 8.4** School gardens support inclusiveness and food security in Zimbabwe

Established within the CFE initiative and involving the Ministry of Education, Sport, Arts and Culture; UNICEF; and the Food and Agriculture Organization of the United Nations, the Enhancing Food Security through the Empowerment of Schools project established school gardens in five drought-susceptible regions. The proceeds generated by sales of the garden produce were used to assist local orphans and vulnerable children in purchasing school supplies, food and uniforms. As a result, there was a reduction in school dropouts and an increase in school enrolment.

links, teacher education and student participation in all aspects of gardening (e.g., selecting crops, tending the garden and harvesting). These activities build capacity and understanding of the natural world and promote community-based food security. They also provide a life-skills component that strengthens the schoolchildren's resilience. (More information can be found in the Food and Agriculture Organization of the United Nations (FAO) school gardens manual.)

- Implement school feeding programmes in order to simultaneously address child malnutrition, promote local agriculture and promote the well being and livelihoods of the women who are responsible for them.
- Implement school programmes that are platforms for community engagement on local agricultural issues and reform.

### 8.5.2 Child protection and social affairs issues

#### **Environmentally induced migration.**

According to the United Nations High Commissioner for Refugees (UNHCR), "the impact of climate change adds to the scale and complexity of human mobility and displacement. It contributes to conflict and intensifies competition for scarce resources."<sup>10</sup> In 2005, the United Nations University's (UNU-EHS) Institute for Environment and Human Security reported that more than 20 million people around the world have fled their countries because of floods, famine and other environmental factors – more people than were displaced by war or political repression. It is estimated that by 2050,

there will be approximately 160 million refugees.<sup>11</sup> Although migration can be a powerful adaptive tool with the potential to improve the situation of children, it can also expose children to increased risks, including disruptions in health care and school attendance.

**Conflict.** Children are often most victimized by conflict. Conflicts compound existing challenges related to unsafe and inadequate water, sanitation and food security in resource-poor countries. As noted by the Feinstein Center at Tufts University (2008), "a community that is already under economic and political stress may tip from survival to collapse under the impact of extreme weather events and the increasing vulnerability of its population."<sup>12</sup> Further, many of the world's poorest countries are increasingly challenged by both disasters and violent conflict. Research shows that climate change increases the risk of conflict in volatile regions, rendering communities less able to cope with the consequences of either problem.

#### **Inequitable access to resources.**

Women, girls, migrants, and indigenous and Afro-descendant people are often marginalized. Climatic and environmental changes and disasters make the situation worse for everyone, especially young children and children with disabilities, who are more vulnerable to begin with.

The protection of children's rights often falls under ministries of social affairs or children and families and covers a wide range of issues. While issues such as child abuse, violence and sexual exploitation receive regular attention, the concept of child protection overall has not explicitly

included a notion of environmental safety, which should be considered an aspect of children protection.

Promoting children's right to participation (Article 12 of the Convention on the Rights of the Child) may also fall under this ministry. Children and young people are vulnerable to and concerned about the impacts of climate change and recurring disasters, and they also have the creativity and energy to do something about them. Throughout the world, regardless of gender, race and cultural background, children have already shown that their grassroots efforts can significantly contribute to sustainable community development. Programmes and policies that take children's perspectives into account from the outset can produce better results for everyone concerned.

### **What can the education sector do?**

- Identify, monitor and support the most vulnerable children at school and in other learning spaces.
- Create an environment of safety and respect for all girls and boys at school and in other learning spaces, and promote learning and teaching on conflict mitigation.
- Promote dialogue and advocacy at all levels to address barriers to climate change adaptation and mitigation that arise from social norms.
- Promote child-led research and innovation as well as children's participation in local environmental initiatives – e.g., strengthening child and

youth clubs and networks and providing a voice for children in local, national and global development processes.

## **8.5.3 Energy issues**

**Access to sustainable energy.** Worldwide, 1.6 billion people do not have access to electricity. Hundreds of millions of people – mainly women and children, especially in remote areas – spend several hours daily gathering fuel wood and water for household needs. These demands on women's, girls' and boys' time and energy limit opportunities for education. This, in turn, keeps them in poverty, constrains the delivery of social services and erodes environmental sustainability at the local, national and global levels.

**Poor air quality.** Approximately 2.4 billion people rely on traditional biomass – which includes fuel wood, charcoal, agricultural residues and animal dung – for cooking.<sup>13</sup> Solid fuel use pollutes the air in homes as well as schools and other learning spaces. In developing

### **Box 8.5 China promotes smokeless stoves**

UNICEF China has engaged 80,000 schoolchildren in Guizhou province in a campaign to promote smokeless stoves and discourage the burning of arsenic-contaminated coal in cooking, drying foods and warming homes in winter. The coal in Guizhou contains high levels of arsenic and fluoride and can cause chronic arsenic-fluoride poisoning, arsenicosis and fluorosis. The Government of China is promoting the use of improved and ventilating stoves in the province.

countries and countries in transition, non-electrical household energy poses a serious threat to children's health. Cooking and heating with biomass fuels and coal produces high levels of small particles, carbon monoxide and hundreds of other pollutants.<sup>14</sup> Newborns and infants carried on their mothers' backs during cooking, or kept close to the warm hearth, spend many hours breathing polluted air during their first years of life, when their immature immune systems make them particularly vulnerable.<sup>15</sup>

Easing the task of cooking through use of more efficient stoves can free women's time for productive endeavours, education, child care and relaxation. With less time wasted on being ill, children have more time to attend school, do their homework and enjoy childhood.<sup>16</sup>

Electricity in schools and homes helps create an enabling environment for children's learning. With adequate lighting at home, children can complete their homework at the end of the day.

Sustainably sourced energy for the household and for transportation and industry is crucial for limiting greenhouse gas emissions and mitigating climate change.

Schools and children can play a crucial role in disseminating the understanding of the relationship between energy use and climate change, and they can stimulate mitigation by promoting the use of sustainable and renewable energy.

#### **What can the education sector do?**

- Support and implement education programmes that promote values

of sustainable consumption and production.

- Support and implement school and community programmes to improve indoor and outdoor air quality and mitigate climate change (e.g., riding bicycles instead of using motorized transportation, making and using solar cookers at school and planting trees around the school).
- Support programmes to bring sustainably sourced electricity and lighting to schools, for example through installation of solar panels.
- Support teaching and learning on how to minimize health risks from air pollution for students, parents of young children, and other vulnerable groups.
- Provide clean cooking devices for school feeding programmes and develop capacity for their use, in order to reduce carbon emissions while improving child health.
- Support non-formal educational and vocational opportunities for adolescents and youth that provide training in installation and service of clean energy devices – such as solar panels, micro-hydro energy, wind energy and biogas – to create jobs, reduce carbon emissions and improve air quality.

#### **8.5.4 Environmental and forestry issues**

**Deforestation.** Forests cover about 30 per cent of the world's land area; about two thirds of the earth's forests are concentrated in just ten countries.



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Forests play a critical role in regulating the world's climate, filtering and maintaining water supplies, protecting against soil erosion and preventing natural disasters. Millions of people depend on forest products and services for food, medicine, building materials and livelihoods, and forests and biodiversity also contribute to children's health. Deforestation reduces the abundance and diversity of resources and causes approximately 20 per cent of all carbon

emissions. Reversing deforestation can significantly curb global temperature increases.

Forests are under increasing pressure as a result of high population growth, rising consumption rates, unsustainable harvesting, and economic development policies that expand agriculture into marginal lands. As a result, deforestation is occurring at a rate of 13 million hectares per year.<sup>17</sup>

In many households, women and children, especially girls, are responsible for gathering fuel and fodder. The scarcer wood becomes, the farther people have to walk to collect it. Given current trends, the time females devote to gathering fuel will increase relative to other daily, weekly and annual tasks, and the opportunity costs will rise. On average, a woman in Africa or Asia walks 6 kilometers to collect water.<sup>18</sup>

Because children and youth will bear the consequences of today's decisions, they should have a voice in matters concerning the future. Education-sector planning in cooperation with environment ministries is essential to identifying curricula and participatory tools that include children in public decision-making about sustainability, adaptation and local ecosystems. The Convention on the Rights of the Child recognizes the importance of the natural environment for the well-being of children (Preamble) and requires States parties to take account of the risks of environmental pollution (Article 24) and to educate children to respect nature (Article 29).



### Box 8.6 Environmental education in Albania

With national aspirations to join the European Community, Albania's Ministry of Environment, Forestry and Water Management drafted a National Environment Strategy addressing the reality that there is still a widespread lack of understanding of the relationship between the actions of individuals and their impact on the environment. The strategy recommends that environmental awareness be developed at all levels, including at the school level. It calls for the improvement of environmental education materials within the school system and for the development of a complete package of environmental interventions, including teacher education, sectoral modules and projects within the community.<sup>19</sup> The Child-Led Environmental Education Initiative (CLEEN) is leading the way to environmental sustainability in Albania and is now featured as a nationwide, media-driven behaviour change campaign known as ABC, or 'Albania, Beautiful and Clean'.

As part of this campaign, students in Albania identified plastic waste to be the biggest environmental problem. They engaged the services of a private recycling contractor, contacted national media and coordinated cleanup activities to eliminate plastic bags and bottles. Students presented their findings to adults in government, the private sector and civil society. In two years, this campaign has grown from a small-scale, child-led environmental project in a handful of schools to a national behaviour change campaign. It now focuses on reducing waste and environmental degradation as part of a national objective to join the European Union (see Module 10 for a case study on Albania).

#### What can the education sector do?

- Identify environmental vulnerabilities and capacities.
- Support participatory environmental actions that engage children. Such programmes instil new ways of thinking about the human relationship to the environment, promote self-confidence and pride in accomplishment, and reduce the vulnerability of the community at large to the impacts of climate change.
- Support formal and non-formal education efforts to reduce deforestation through environmental education.
- Support school-based initiatives to enhance forest seed banks by maintaining indigenous tree nurseries on school grounds and by taking part in forest conservation and watershed and ecosystem protection measures.
- Create mechanisms to work with children to identify and activate avenues, inside and outside of schools, for young people to forge a rational relationship to their natural environment.
- Institute environmental education starting with the youngest children, before they begin primary school. Lessons should build on previous learning and continue throughout the child's life cycle, leading to continued learning in adulthood. For example, young children can be encouraged to care for their own animals and plants in their homes and communities.

### Box 8.7 Inter-sectoral collaboration: Brazil leads on policy and programmes

Brazil has comprehensive legislation on environmental education. The National Environmental Education Policy (PNEA-law 9795/99) guides environmental education practices and names the Ministries of Education and Environment as the administrative authorities for this policy. The Directorate of Environmental Education of the Ministry of Environment and the General Coordination Organisation of Environmental Education of the Ministry of Education are engaging students, teachers, youth and communities to meet the challenge of creating a Brazilian society that is educated in sustainability. Linked with this, the country established the Inter-ministerial Commission on Climate Change and the Brazilian Climate Change Forum.

Brazil shows its leadership through programming, too. The National Children and Youth Conference for the Environment represents a landmark in the development of a public arena for environmental issues. The first conference, in 2003, involved 16,000 schools, mobilizing nearly 6 million people in 4,067 municipalities. The process triggered the Let's Take Care of Brazil programme, which focuses on teacher and student training.

The outcome of the Second National Children and Youth Conference for the Environment, in 2005/06, was the Let's Take Care of Brazil Charter of Responsibilities, a student-led multimedia campaign. Beyond demanding government measures, the charter committed to the construction of a "just, happy and sustainable society." The young people took on nine responsibilities in all, including the dissemination of knowledge through environmental education; protection of biodiversity; transformation of cities, communities and schools into environmentally healthy spaces; reduction of waste and polluting gases; prevention of deforestation; respect, understanding and recognition of cultural diversity; production and consumption of natural and organic food; and culturally sensitive food re-education (see Module 10 for a case study on Brazil).

### 8.5.5 Financial and economic issues

**Inadequate resource allocation.** According to the Stern Review (2006), costs of unabated climate change are equivalent to at least 5 per cent of gross domestic product (GDP) each year and could increase to 20 per cent of GDP or more. In contrast, the costs of action to reduce greenhouse gas emissions can be limited to about 2 per cent of global GDP each year.<sup>20</sup> This suggests that investments in the area of climate change mitigation and adaptation are very cost-effective. Addressing climate change and disaster risk requires action at the institutional

and individual levels. Such behaviour change requires new intentions, new knowledge and competency in applying that knowledge. The role of education, formal or non-formal, is fundamental in this process.

Allocating more resources for girls' education multiplies the effects of environmental education. Girls' education is recognized for its intergenerational effect on development, equality, and environmental and social justice. An analysis of loss of life from floods and droughts between 1960 and 2003 found that countries with higher rates of female education came

through the events better than those with similar economic and weather conditions but with lower female education rates.<sup>21</sup>

**Insufficient policy or institutional frameworks.** According to the World Bank:

... the pathways by which macroeconomic and sectoral reforms can influence climate policy are complex and depend on the existing institutional framework. With appropriate institutions, one can ensure a high degree of consistency between development policy and climate policy, whereas in the absence of such institutional support there can be considerable dissonance. From a broad environmental viewpoint, a country's environmental management capacity can be assessed through the Center for International Earth Science Information Network's Environment Performance Index (CIESIN EPI),<sup>22</sup> the World Bank's Country Policy and Institutional Assessment (CPIA) index,<sup>23</sup> or the Global Environment Facility Resource Allocation Framework (GEFRAP).<sup>24</sup> For climate policy, that assessment is important, but it is not enough. In addition, an assessment should be made of the country's institutional capacity to address climate issues and the extent to which these have been mainstreamed into the government policymaking framework.<sup>25</sup>

While these reforms do not directly impinge on climate change adaptation, there is potential for including a climate overlay in the operations of banks and rural financing agencies to encourage them to undertake proper climate

assessments when they make loans for infrastructure investments. These efforts could be combined with government incentives to move towards greener economies. Education on climate change and disaster risk reduction could also play a significant role in those efforts.

Making clear budget allocations for climate change adaptation and mitigation is essential. Planners need to ensure that allocations benefit all groups, especially the most disadvantaged. In this respect, gender budgeting and pro-poor budgeting could set a clear example and can also help in guaranteeing possibilities for access to quality education on climate change and disaster risk reduction for the most disadvantaged girls, children living in poverty and children of other disadvantaged groups.

### **What can the education sector do?**

- Earmark long-term funding sources and commitments within the sector for climate change adaptation and disaster risk reduction under the commitments made in UNFCCC funding mechanisms.
- Provide budgetary and fiscal support to cross-sectoral planning and implementation processes regarding climate change adaptation and disaster risk reduction through education.
- Engage the private sector (e.g., the tourism industry) and encourage corporate social responsibility initiatives to support climate change adaptation and disaster risk reduction in education.

### 8.5.6 Gender issues<sup>26</sup>

**Unequal access to education.** Differences in what is expected of and for girls and young women in many societies mean that they may lack access to education, information and resources. This makes it more difficult for women and girls to respond to natural hazards, including those linked to climate change and disaster. In many parts of the world, women and girls are almost entirely responsible for providing food, water, heat and other resources to care for their families; in sub-Saharan Africa, for example, women grow 90 per cent of all locally grown food.<sup>27</sup> They do not, however, have the right to own land, so they have less ability to protect the natural resources on which they depend. Women are usually the ones responsible for working on the land, and they often are the most knowledgeable about the local environment. Yet they do not have an equal share in deciding how to manage resources, and they should. The way authority is structured in many cultures means that the views of girls and young women are ignored by decision-makers, scientists or planners. This makes it more difficult for girls and young women to attempt to change things for the better.

#### **Disproportionate vulnerability to risk.**

Women and girls suffer more than boys and men from natural hazards, including climate-induced disasters. Particularly in areas where women do not have equal rights, more females than males are directly and indirectly killed and affected by natural disasters.<sup>28</sup>

### *What can the education sector do?*

- Assess gendered aspects of disasters, environmental degradation and climate change, paying specific attention to gender mainstreaming in (child friendly) education.
- Empower women and girls by ensuring their active participation in disaster risk reduction programmes at schools and other educational centres.
- Institute educational initiatives in the formal and non-formal sectors targeting males of all ages in order to teach them how to include females of all ages in community efforts related to climate change and disaster risk reduction, including in education sector decision-making bodies.
- Develop climate change adaptation and disaster risk reduction curricula that include a gender perspective.

### 8.5.7 Health issues

#### **Increased developmental susceptibility.**

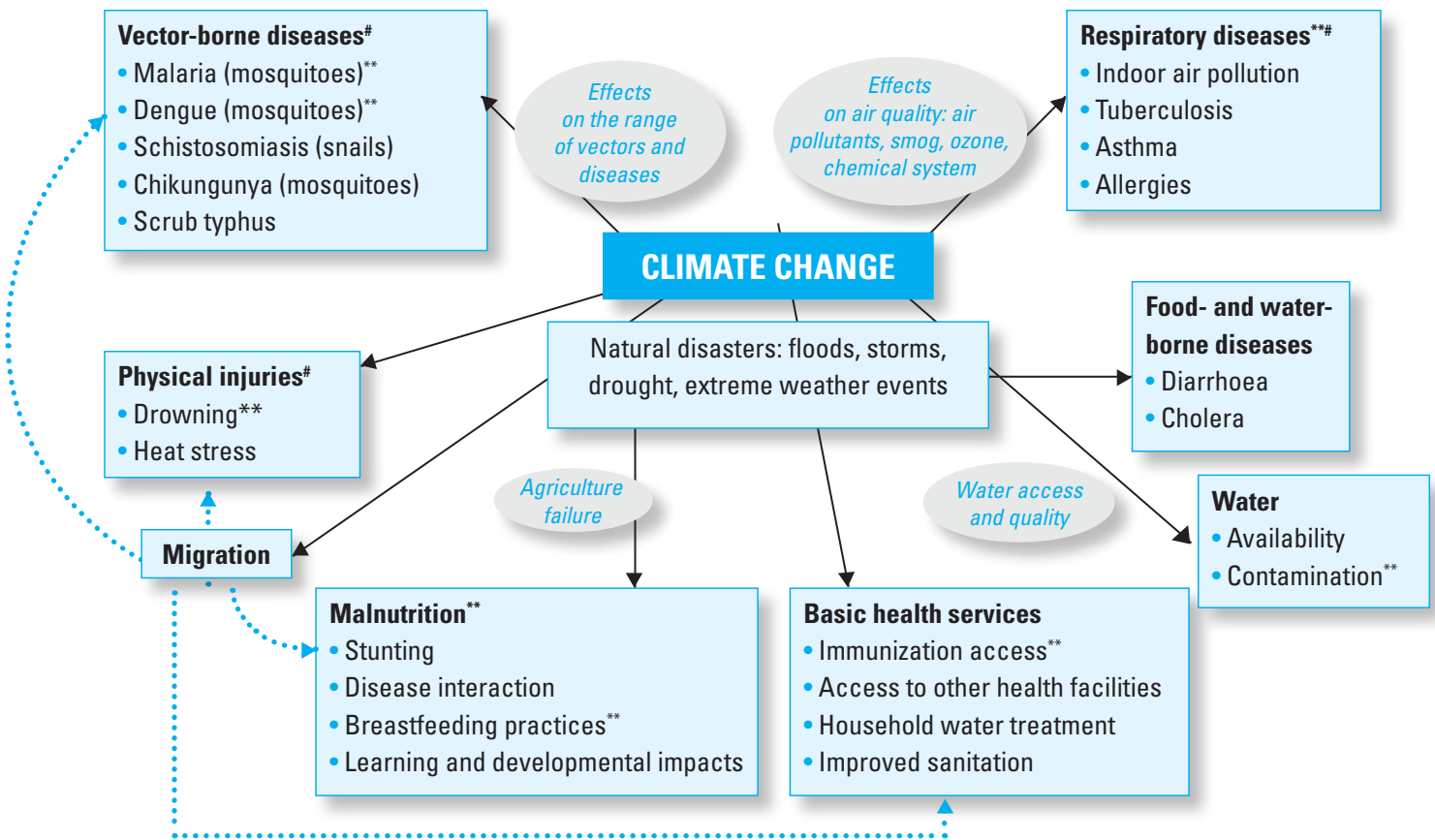
Children are more sensitive and susceptible to environmental factors than adults. Their bodies and minds are developing, undergoing rapid and dramatic changes. Figure 8.2, below, illustrates a range of environmental threats to which children are exposed. The five major categories of children's and environmental health indicators are physical injuries, diarrhoeal diseases, respiratory diseases, insect-borne diseases and perinatal diseases.<sup>29</sup>

Contrary to the perception that pollution is mainly a phenomenon of industrialized societies, environmental hazards take the biggest toll on children from the poorest regions of the world. Carbon emissions and outdoor air pollution remain serious threats to the welfare of children in cities throughout the world, particularly in the megacities of developing countries (see also section 8.5.3 on energy). An estimated one quarter of the world’s population is exposed to unhealthy concentrations of air pollutants, which significantly affect

infants and young children because of the immaturity of their respiratory systems.<sup>30</sup> Pollution levels tend to be highest close to the pollution source. However, some pollutants are transported over long distances in the air, often for hundreds or thousands of kilometres, causing health problems far away from the sources. This is therefore an issue for both urban and rural inhabitants.

In the poorest parts of the world, one in five children dies before her or his fifth birthday owing to preventable diseases.

Figure 8.2 – Impacts of climate change on child health



\*\* Evidence of climate change affecting health, and evidence of its disproportionate impact on child health

# Listed as children’s environmental health indicator (WHO, 2003)

Long-term social-economic implications of climate change are likely to reinforce the arrows leading to negative health outcomes; child poverty is also associated with ill health due to associated prevalence of child migration, child labour and trafficking

Source: UNICEF Office of Research, Innocenti Research Centre (2009). *Global climate change and child health: A review of pathways, impacts and measures to improve the evidence base*. Page 3. Florence: UNICEF. Retrieved from [http://www.unicef-irc.org/publications.pdf/idp\\_2009\\_03.pdf](http://www.unicef-irc.org/publications.pdf/idp_2009_03.pdf).



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Pathogens in human excreta (which cause waterborne diseases) remain the number one pollutant in terms of the number of people affected. Overall, deteriorating nutritional status as a result of a waterborne disease increases vulnerability to health problems, especially for girls and boys living in poverty or those in other disadvantaged groups.

Increasingly, changes in the incidence, range, intensity and seasonality of many existing health disorders present a major health challenge.<sup>31</sup> Among the main problems are heat and cold stress, as well as an increase in water-related diseases in cases of flooding or extreme drought.

Programme and planning guidance related to children's environmental health indicators can be accessed through the Global Initiative on Children's Environmental Health Indicators.<sup>32</sup>

### ***What can the education sector do?***

- Integrate life skills-based education into learning and teaching in the context of local health risks so children have the knowledge and skills to make healthy choices and stay safe.
- Provide health services such as immunization programmes and deworming through schools. Monitor the programmes, with particular attention to the inclusion of children from marginalized groups.
- Support school gardens and school feeding programmes to provide nutritious meals at school.
- Institute mechanisms that maintain safe and healthy environments in and around schools and other learning spaces.

This includes safe green spaces and an environment free of hazardous waste.

- Institute participatory methods for monitoring children’s environmental health indicators through the education sector; include children and young people as much as possible.

### 8.5.8 Indigenous issues

“Mother Earth is no longer in a period of climate change, but in climate crisis. ... Indigenous Peoples have a vital role in defending and healing Mother Earth. We uphold that the inherent rights of Indigenous Peoples ... must be fully respected in all decision-making processes and activities related to climate change.”

—Anchorage Declaration<sup>33</sup>

**Land rights and dispossession.** The 370 million indigenous peoples from all regions of the globe hold inalienable collective rights over lands, territories and resources, as recognized in the United Nations Declaration on the Rights of Indigenous Peoples (UNDRIP). Mainland indigenous communities and those who live in voluntary isolation or in small island states that depend on forests or water for their livelihoods are especially vulnerable to the impacts of climate change and disasters.

**Unequal access to decision-making.** At the same time, indigenous people have traditional knowledge of the natural systems that help them and others deal with environment-related risks. Some of their worldviews and practices related to the use of natural resources are valuable in addressing climate

change and disasters. National education systems may marginalize indigenous groups by providing instruction in the mainstream language within the context of mainstream cultural values and knowledge. Therefore, members of these communities should be guaranteed the opportunity to define the core content and delivery of quality education so that it reflects their own values and knowledge. As the environment often plays a central role in indigenous culture, the incorporation of climate change adaptation and disaster risk reduction in schools can provide a convening forum through which respect for indigenous culture and knowledge can be promoted and can influence mainstream culture.

#### *What can the education sector do?*

“We offer to share with humanity our Traditional Knowledge, innovations, and practices relevant to climate change, provided our fundamental rights as intergenerational guardians of this knowledge are fully recognized and respected. We reiterate the urgent need for collective action.”

—Anchorage Declaration<sup>34</sup>

- Protect opportunities for indigenous peoples to integrate traditional knowledge into education on climate change and disasters.
- Implement curricula that build a culture of reciprocity at school and throughout the education system to support the integration of traditional knowledge within the mainstream curriculum.
- Ensure the participation of girls and boys from indigenous communities in

the definition and implementation of quality education.

- Secure the involvement of indigenous children in formal and non-formal educational activities in the areas of climate change adaptation and disaster risk reduction.
- Include members of indigenous organizations in all phases of scaling up and mainstreaming climate change adaptation and disaster risk reduction in education systems.

### 8.5.9 Meteorology issues

**Knowledge dissemination.** Weather and climate recognize no political borders. For this reason, some 60 years ago, on 23 March 1950, the World Meteorological Organization was created to facilitate international cooperation in the areas of weather, climate, water and related sciences. The meteorology sector monitors weather, climate, hydrology, water resources and related environmental issues contributing to the safety and well-being of all people. In many countries, this sector oversees a network of meteorological stations as well as hydrological and other geophysical observations.

#### *What can the education sector do?*

- Support capacity and facilities development for weather observation stations and Internet access in schools, to provide early warning systems for the communities and schools.
- Engage students in measuring climate-related indicators such as rainfall,

temperature, wind currents and sea-level rise.

- Enhance children's and teachers' access to meteorological information and technology.

### 8.5.10 Transportation issues

**Inadequate infrastructure.** The world is facing tremendous transport challenges that will grow more acute in the decades to come. By the year 2050, the world's population is expected to surge by 40 per cent, to 9 billion people.<sup>35</sup> A growing population increases demand on all transportation systems.

**Injury and death.** The same roads need to serve multiple purposes, and overcrowding has high human costs. Every year, more than 1.2 million people are killed and up to 50 million are injured on the world's roads; many of these are children.<sup>36</sup>

**Poor air quality.** While the completion of a rural road can more than triple school attendance, having too many roads can bring unintended detrimental effects on the ecology of a region. Urban air pollution kills an estimated 800,000 people each year; nearly 90 per cent of this pollution is generated by motor vehicles. Children are particularly vulnerable to heavy metals such as lead carried in exhaust fumes. The British Government's 2006 *Stern Review of Climate Change* found that transport as a whole contributes nearly 15 per cent of the world's greenhouse gas emissions, second only to power generation.<sup>37</sup>

These are complex and delicate issues. A well-coordinated cross-sectoral response



is integral to finding solutions that are sustainable for the environment and for people. Cross-sectoral solutions can have positive effects such as reduced transport costs, an increase in bicycle riding and other modes of public transportation, job creation, and growth of local economies.

### **What can the education sector do?**

- Provide transportation solutions for children who cannot access education. Specific attention should be paid to children with disabilities and to the safety of girls.
- Provide transport options for evacuation from schools in disasters.
- Institute emergency plans to resume safe transport of children and staff to schools or alternate learning spaces as soon after a disaster as possible.
- Address air quality near urban and rural schools.
- Ensure that schools and local transport authorities identify sustainable modes of travel accessible to pupils and staff.
- Generate investment in public transport and a school bus system.
- Institute child friendly cycling plans and safe routes to ride.

### **8.5.11 Urbanization and housing issues**

**Population density.** Currently, one half of the world's people live in cities, and that number is predicted to grow to two

#### **Box 8.8 Refurbished bike scheme and cycling club, New City School, Newham, United Kingdom**

By fixing old bikes found at the local dump and raising money to buy new ones, the New City School now has about 400 bikes. Children can rent the bikes for £5–15 per year, and 200 of the bikes are now out in the community. There has been a 7 per cent reduction in car use and a 5 per cent increase in cycling at the school since the programme started.<sup>38</sup>

thirds, or 6 billion people, by 2050. In many cities, especially in developing countries, more than half of the residents live in slums (in sub-Saharan Africa, that number rises to more than 70 per cent) and have little or no access to shelter, water or sanitation.<sup>39</sup> People living in urban areas, especially slums, face high levels of disease, pollution and poverty and lack direct access to natural resources. Children in dense urban areas are especially vulnerable to debris, drowning and downed power lines.

**Vulnerable locations.** Worldwide, the urban poor live in places other people choose to avoid. The poor live along beaches vulnerable to flooding, on slopes prone to landslides, near polluted grounds and near railways. They live in shaky structures that are easily affected by hurricanes, mud streams and flooding. These conditions cause untold loss in lives and destruction. In this urban age, megacities are potential flood and disaster traps.

Further, climate change threatens whole cities (and countries). Many coastal cities are vulnerable to continuing sea-level rise. For example, a 1-metre rise in sea

level will affect several major cities with populations over 10 million – Buenos Aires, Cairo, Dhaka, Karachi, Kolkata, Lagos, Los Angeles, Mumbai, New York, Osaka-Kobe, Rio de Janeiro, Shanghai and Tokyo. Numerous smaller cities and small island developing states at or near sea level are also vulnerable.

In small countries such as Maldives, where land is scarce and at low elevation, inland relocation is not an option. For Maldives and other small island developing states, it is essential for ministries of housing to provide guidelines or building codes to make all residential and educational buildings and other learning spaces more resilient to flooding.

UN-Habitat works with mayors and other local authorities in these places to ensure direct access to global climate funds. Addressing pollution in cities has secondary benefits for local environmental problems related

to energy, waste and transport. Local interventions have an impact on climate change, resulting in win-win solutions.

### *What can the education sector do?*

- Link climate change adaptation, disaster risk reduction and local environmental and developmental priorities to activities throughout the education sector.
- Synchronize the messages about climate change adaptation and disaster risk reduction conveyed by local authorities in key strategy and delivery documents with messages within the education sector in order to optimize and leverage legislative opportunities.
- Form a cross-sectoral steering group at the municipal level to align climate change adaptation and disaster risk reduction efforts with those of the national-level steering group.
- Build schools and other learning spaces using facilities-based infrastructure and sustainable building principles in places that are safe and present minimal risk to children (see also Module 9 on green school facilities).
- Include girls, children from disadvantaged groups and children with disabilities in all phases, so they may identify their needs in relation to school infrastructure and sanitation facilities.



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### **8.5.12 Water and sanitation issues**

Water is essential for human life and is a critical element for good health and food production.

### Box 8.9 UNICEF Municipal Seal of Approval programme in Brazil

The UNICEF Municipal Seal of Approval programme in Brazil recognizes municipalities that have significantly improved, or have made considerable efforts towards improving, the standards of living for children and adolescents. The initiative was created in 1999 by the UNICEF office in the Brazilian state of Ceará, and it has spread to 10 other states within the Brazilian semi-arid region. This region is home to 13 million boys and girls and has some of the worst social indicators in the country. In 2006, the Seal received 1,130 municipal applications from the region's nearly 1,500 municipalities, which demonstrates its capacity to mobilize the population and clearly indicates that it is a highly replicable programme.<sup>40</sup> (See Module 10 for the Brazil case study).

- Water resources are important for conservation of the natural environment.
- Each person requires a minimum of 20 litres of safe water a day to survive.<sup>41</sup>
- Adult human bodies are about 50–60 per cent water. Children's bodies are about 60–70 per cent water.
- Drinking dirty water causes diarrhoea, the second leading cause of child death worldwide. Nearly one in five child deaths – about 1.5 million each year – is due to diarrhoea.<sup>42</sup>

#### Decreasing supply and poor distribution.

The sustainability of water supplies is among the most serious environmental problems affecting societies. Access to a safe and sustainable source of drinking water is jeopardized by water pollution, over-exploitation and, in many communities, climate change – for example, through diminishing shallow groundwater resources and saline intrusion in coastal areas. Increasing water supply services alone would not suffice to ensure safe drinking water for all. Pollution control and water treatment

measures should also be taken to ensure that the water supplied is sustainable and safe for human consumption and hygiene.

**Inadequate infrastructure.** Sanitation includes infrastructure for water delivery and waste disposal. Some 2.65 billion people live without access to proper toilet facilities, and 883 million lack access to safe water. Human waste is a major threat to children's health. Poor sanitation not only causes health problems, but also pollutes the environment.

**Insufficient institutional attention to feminine hygiene needs.** Girls in developing countries report that issues related to managing menstrual hygiene cause them to be absent from school and may lead them to drop out. A water, sanitation and hygiene (WASH) in schools evaluation in Kenya indicates that girls' attendance was better in schools with adequate handwashing and toilet facilities.<sup>43</sup> WASH programmes in schools can address larger issues of gender equity and girls' empowerment, in addition to boosting overall attendance and improving children's health. Project evaluations and research found a 15 per cent increase in

attendance in Bangladesh when water was available within a 15-minute walk (as compared with one hour or more).

**Insufficient information about positive hygiene behaviours.** A programme in Chinese primary schools to promote handwashing by the continuous provision of soap and the selection of a 'student handwashing champion' resulted in healthier children who had 54 per cent fewer days of absence.<sup>44</sup> Available evidence suggests that households that have soap for handwashing show a 53 per cent lower incidence of diarrhoea among children under 15 years of age.<sup>45</sup>

Children are generally more receptive to new ideas than adults and can more easily change their behaviour and promote sustainable practices within their families. As a result of a project in Malawi through which students brought the safe water message home, for example, the community clinic reported a 35 per cent decrease in diarrhoeal disease cases in 2007.<sup>46</sup>

Many developing countries are currently investing in strategies to reach the Millennium Development Goals (MDGs). Access to safe water and sanitation is a key component of MDG 7, on environmental sustainability. The goals include a call to reduce by half the number of people without access to sustainable drinking water and sanitation by 2015, and to stop unsustainable exploitation of water resources. Much progress has already been made on this front.

#### **What can the education sector do?**

- Provide safe and sustainable access to water and sanitation facilities for schools and other learning spaces.

- Ensure a constant supply of resources to build and sustain water and sanitation facilities in learning spaces of all kinds.
- Use WASH for school programmes as an entry point for climate change adaptation and disaster risk reduction in schools.
- Raise awareness among children and their parents about effective water testing and treatment techniques, such as boiling, chlorination, filtration and safe storage, as well as indigenous technologies, where applicable.
- Monitor the quality and availability of safe water and sanitation facilities in schools and other learning spaces. Collaborate with health departments on evaluating the occurrence of water-related diseases among children through the education system.

For additional information, please refer to the WASH companion to the *Child Friendly Schools Manual*.<sup>47</sup>

#### **8.5.13 Opportunities for youth**

**Demographic advantage.** Worldwide, there are 1.2 billion adolescents, defined by the United Nations as those between 10 and 19 years of age. Nine out of ten of these young people live in developing countries, which are expected to bear the brunt of the effects of climate change, increasing disasters and environmental degradation. For this generation of adolescents, addressing these threats is urgent. Climate- and disaster-related disruptions can have long-term negative consequences for the lives and prospects of adolescents, potentially compromising

### Box 8.10 WASH in Schools

In 2006, UNICEF began piloting a WASH in Schools initiative in 50 child friendly schools in China. Within two years, all 50 pilot schools were teaching hygiene education, and 22 had built school latrines with handwashing facilities, benefiting 15,000 students. Though the initiative was small, it was successful, enabling UNICEF to advocate for the Government to expand the programme. The model has been adopted by several local governments, and the Chinese Ministry of Education has included WASH in Schools as part of the Child friendly School National Standards.<sup>48</sup>

their health and nutrition and interrupting their education. Climate change adaptation and disaster risk reduction encompass environmental, political, social and economic factors and can be an ideal platform for young people to learn holistic citizenship and advocacy skills.<sup>49</sup>

**Social entrepreneurship.** Social entrepreneurship has great potential to enable adolescents to develop themselves while contributing to the development of their communities. In fact, young people join peer education and other programmes in order to access the capacity development and visibility that makes them more employable, and self-employable, in the future. As national rates of education rise, governments of many monetarily poor countries have been hard-pressed to provide jobs at the same pace. An increasing number of youth who have completed some education are left with few employment opportunities. At the same time, urgent work to maintain or restore healthy environments is left undone. Social entrepreneurship can help fill this rich gap.

**Increasing access to quality post-primary education.** Many countries are providing and guaranteeing more educational opportunities for adolescents and youth at the post-primary level. Collaboration between ministries of youth and education could serve as an entry point for climate change adaptation and disaster risk reduction through education. Such initiatives may involve active learning through rehabilitating and restoring degraded ecosystems, conserving nature, expanding the use of renewable energy, conducting energy audits, promoting sustainable transport systems, sequestering carbon through reforestation and promoting green economies in general.

#### *What can the education sector do?*

- Support youth organizations that focus on environmental and climate-related issues, and increase their participation in educational and skills-building activities related to climate change adaptation and disaster risk reduction.
- Promote social entrepreneurship through education among youth in climate adaptation, mitigation and disaster risk reduction activities.
- Involve young people in active learning through conservation and environmental action and restoration.
- Empower young people by facilitating speaking corners and forums on climate change, via the Internet as well.
- Create jobs at or near schools and provide associated vocational training, tree planting and renewable energy.

### **Box 8.11** Non-governmental partners: Communication and media specialists

Apart from other line ministries in a country, there are also, of course, many other actors that can play an important role in scaling up and mainstreaming climate change adaptation and disaster risk reduction throughout the education sector. Among these are communication and media specialists. In the short run, they can help explain and build support for climate change adaptation and disaster risk reduction among the general public. In the longer term, in raising awareness of and commitment to issues of climate change and risk education, they can help guarantee that this commitment will survive the often frequent changes of ministers and other policymakers at the top of the system. Albania strengthened the success of its environmental education programme significantly by combining it with a media campaign (see case study in Module 10). UNESCO has published a useful training and resource kit to help engage media.<sup>50</sup>

## **8.6** Global networks

Emerging national, regional and global responses influence the outcomes of multi-sectoral actions. Wide-range networking and the development of communities of practice are essential to harnessing information and resources and achieving results for children. A global network on climate change adaptation and disaster risk reduction in education can use existing global networks that provide a natural fit for the thematic area to reach relevant

stakeholders and harness global expertise and experiences. For continuous learning and improvement in the implementation of climate change adaptation and disaster risk reduction through child friendly education, it is also important to provide opportunities for school staff to network and benefit from local insights and practice. Some examples of potentially relevant networks are listed in the following box.

### Box 8.12 Existing global networks

**The Adaptation Learning Mechanism** is a global inter-agency knowledge platform available online to support learning about climate change adaptation. It features practical guidance and best practices on climate change adaptation as contributed by practitioners from the field. The Global Environment Facility is the main financier of the Adaptation Learning Mechanism. United Nations Development Programme (UNDP) implements the project in partnership with the UNFCCC Secretariat, the World Bank and United Nations Environment Programme (UNEP). See <http://www.adaptationlearning.net/>.

**The Inter-agency Network for Education in Emergencies (INEE)** is an open global network of representatives from NGOs, United Nations agencies, donor agencies, governments, academic institutions, schools and affected populations that work together to ensure the right to quality and safe education in emergencies and post-crisis recovery for all people. See <http://www.ineesite.org/>.

**UNESCO Associated Schools Project Network (ASPnet)**, founded in 1953, is a global network of more than 9,000 educational institutions in 180 countries. Member institutions – including preschools; primary, secondary and vocational schools; and teacher training institutions – work in support of international understanding, peace, intercultural dialogue, sustainable development and quality education in practice. See <http://www.unesco.org/new/en/education/networks/global-networks/aspnet/>.

**UNFCCC Regional Workshops on Article 6 Implementation** bring together government focal points for implementation of Article 6 of UNFCCC, providing an excellent forum for knowledge-sharing and fostering of comprehensive action. Article 6 addresses climate change-related education, training and public awareness, and is the main vehicle by which the Climate Change Convention fosters action to develop and implement educational and training programmes on climate change. See [http://unfccc.int/cooperation\\_and\\_support/education\\_and\\_outreach/items/3143.php](http://unfccc.int/cooperation_and_support/education_and_outreach/items/3143.php).

**World Environmental Education Congress (WEEC) International Environmental Education Network** is a worldwide community of research and practice in environmental education and sustainability. It brings together professionals to discuss key issues in environmental education and to exchange thoughts, experiences and proposals. The network is closely linked with the global WEEC conference, which has been held periodically since 2003. See <http://www.environmental-education.org/en.html>.

**United Nations University Regional Centres of Expertise on Education for Sustainable Development** are networks of existing formal, non-formal and informal education organizations, mobilized to achieve the goals of the United Nations Decade of Education for Sustainable Development (DESD, 2005–2014), by translating its global objectives into the context of the local communities in which the organizations operate. It is envisioned that a network of Regional Centres of Expertise worldwide will constitute the Global Learning Space for Sustainable Development. See [http://www.ias.unu.edu/sub\\_page.aspx?catID=108&ddlID=183](http://www.ias.unu.edu/sub_page.aspx?catID=108&ddlID=183).

**Climate Frontlines** is a global forum for indigenous peoples, small islands and vulnerable communities that promotes the open sharing and exchange of observations, experiences and innovations among indigenous and local communities, as well as with the general public. It also supports community-based educational activities related to climate change. See <http://www.climatefrontlines.org/>.

*(continued)*

### Box 8.12 Existing global networks *(continued)*

The **British Council** is working to strengthen networks and relationships among decision-makers, influencers and future leaders worldwide to tackle climate change (one of its major areas of work), including through education. See <http://www.britishcouncil.org/new/climatechange/>.

**United Nations Conference on Sustainable Development Education Caucus** works within the United Nations system to promote policies that support education and sustainable development; it connects a wide range of stakeholders through its listserv. Contact: [pjpunt@umich.edu](mailto:pjpunt@umich.edu).

**Youth Networks** related to learning and action on climate change adaptation and disaster risk reduction include Unite for Climate (<http://uniteforclimate.org/>), YouthXChange, (<http://www.youthxchange.net/main/home.asp>), YOUNGO (<http://youthclimate.org/>) and the Indian Youth Climate Network (<http://www.iycn.in/>).

## 8.7 Next steps

Module 9 on implementation raises questions for stakeholders to consider as they design and implement new programmes or policies related to mainstreaming climate change adaptation and disaster risk reduction. These

categories include issues surrounding capacities, teaching and learning, and physical environments of schools. The module also provides illustrative examples of actual practices in mainstreaming and scaling up.

## Notes

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# Climate Change Adaptation and Disaster Risk Reduction in the Education Sector

## RESOURCE MANUAL

# 9

## MODULE 9

# Implementation

## Key messages

- 1. Agreement on implementation plans is vital.** It is important to agree on clear implementation arrangements and to ensure that key implementers of climate change adaptation and disaster risk reduction in education – including teachers and school heads, planners, finance specialists, policymakers and local government officials – have sufficient capacities.
- 2. Use a results-based process to develop learning and teaching content.** First assess the needs of targeted children, then design learning outcomes and measurable indicators on knowledge, attitudes and skills that address those needs.
- 3. A child rights-based approach to pedagogy is active, participatory and inclusive.** This approach is life-cycle oriented and takes into account children's developing capacities.
- 4. Climate change adaptation and disaster risk reduction may be infused throughout the curriculum or integrated into a limited number of carrier subjects.** The best option depends on local implementation capacity.
- 5. Ensure that school buildings, facilities and grounds are safe.** Protective and enabling learning environments are critical. Develop strong links between the school and the community and involve all stakeholders in the processes of planning, construction and maintenance.

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This is the ninth module of the resource manual *Climate Change Adaptation and Disaster Risk Reduction in the Education Sector*. It examines a number of relevant educational practices and the ways in which climate change adaptation and disaster risk reduction could be mainstreamed within them. The following aspects are covered:

- (a) **Capacities:** how to ensure that all stakeholders involved in the education and development of children have sufficient capacities.
- (b) **Learning and teaching:** how to ensure that curricula, assessments, teacher training and instruction serve to increase children’s capacities towards environmental stewardship, reduce risks and enhance resilience with regard to climate change and disasters.
- (c) **Safe and enabling schools:** how to ensure children’s right to a protective and enabling learning environment through adequate and environmentally sustainable facilities, services and supplies, including hazard-resilient buildings, secure food and water, gender-sensitive sanitation facilities and safe energy.

The reader is also encouraged to refer to *Climate Change and Environmental Education*,<sup>1</sup> a companion to the *Child Friendly Schools Manual*.<sup>2</sup>

For more information, contact the Education Section, UNICEF New York, <educationhq@unicef.org>.

## Questions to guide your reading

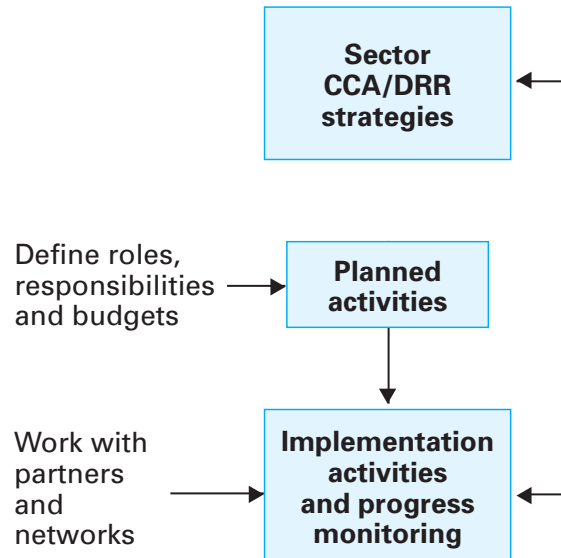
1. How are policy, planning and implementation interdependent? What implications does the implementation stage have on policy and planning?
2. What are the key inputs that designers and stakeholders need to consider as they move from analysis and planning to implementation?
3. How does implementation at the institutional level affect achievement of the desired learning outcomes at the classroom level with students?

## 9.1 Introduction

This module examines different aspects of school-level implementation linked to education sector mainstreaming and scaling up of climate change adaptation and disaster risk reduction.

Mainstreaming and scaling up are typically identified as distinct stages in strategic planning processes (see Module 4), but in reality, planning and implementation often happen simultaneously. Implementation can lead to a wholesale revision or immediate modification of plans. In a way, the implementation phase tests whether planned objectives and activities will realize intended outcomes. The diagram on the right shows the interrelationships between stages of strategic planning and implementation.

The process of planning and implementation contains three areas that are directly relevant for school-level interventions. In this module, key inputs for mainstreaming and scaling up in learning and teaching are described within the following categories: ensuring sufficient capacities, learning and



teaching (curricula, assessments, teacher training and instruction), and school environment and facilities.

The remainder of this module offers relevant examples of implementation, describing the key inputs necessary for mainstreaming and scaling up to achieve the desired outcomes related to climate change adaptation and disaster risk reduction.

## 9.2 Key inputs for mainstreaming and scaling up

### 9.2.1 Ensuring sufficient capacities

The importance of sufficient capacity in the area of climate change adaptation and disaster risk reduction in education cannot be overemphasized. As noted earlier, partnerships, outsourcing and networking are crucial for getting the needed capacities (see Module 6). The challenge is to identify the range of

capacities and skills that are required of various stakeholders in order to successfully implement the programme.

It is important to reiterate that mainstreaming and scaling up require simultaneous development of knowledge, attitudes and skills by multiple stakeholders. Each sector will need to determine the appropriate resources and capacities. Participants will need

to develop knowledge and skills in the following areas:

- Environment
- Climate change adaptation
- Disaster risk reduction
- Participatory planning
- Child participation
- Gender equality
- Equity issues
- Integration of standards into teacher education institutions
- Continuing education and training.

Table 9.1 below, adapted from *Climate Change and Schools: A carbon management strategy for the school sector*,<sup>3</sup> shows the players in climate change adaptation and disaster risk reduction and their potential roles in the mainstreaming and scaling-up process. These roles should guide the capacities – knowledge, skills and values – that various players need to acquire.

- **Teachers and school heads:** In addition to reforming pre-service and

**Table 9.1 – Players in climate change adaptation and disaster risk reduction at school**

- **Head teachers:** Head teachers need to visibly endorse action to address local environmental issues, climate change and disaster risks. They need not do the work themselves, but without their support, success is less likely.
- **Parent-teacher associations and school governance committees:** Committees need to actively support climate change adaptation and disaster risk reduction; they should review progress as part of regularly scheduled meetings and provide support and status to those running projects within the school.
- **Students:** Students are the most significant users of the school. They can drive change by communicating with fellow students, monitoring progress, celebrating successes and organizing events.
- **Teachers:** Teachers can help drive and embed behaviour change by integrating knowledge about this area into teaching, at both theoretical and practical levels. They should also be role models in changing behaviour.
- **Bursars and business managers:** Bursars and business managers oversee school budgets and expenditures and are likely to be concerned with expenses related to facility improvements, water and energy. Along with the head teacher, they liaise with school heads and may be key contacts for local and regional government authorities.
- **Facilities managers, caretakers and technicians:** These staff tend to be experts in managing water, lighting, facilities and other systems, and in training users of the building. They are often active in equipment specification and liaising with suppliers.
- **School heads (principals):** School heads are an important influence on the priorities and budgets of the school and will reinforce action if climate change adaptation and disaster risk reduction are regularly considered at ministry meetings.
- **Cooking and cleaning staff:** These staff are another vital group whose decisions have a big impact on a school's energy and water use and waste management. They are often active in purchasing food, cleaning supplies and other materials.
- **Parents, families and the wider community:** Parents, families and the wider community can be inspired by the school's work to take action themselves. They also add energy and enthusiasm to the work at hand.
- **Local and regional governments:** These authorities can give their expertise and time to schools to both inspire and facilitate action. Local authorities are important in sharing best practices between schools and are the source of expertise most frequently used by schools.

in-service teacher education systems (see below), maintaining the culture of a clean, healthy and safe environment in the school for all may also require that school heads and teachers be trained in and committed to organizing an ongoing programme to review and plan safe environmental facilities, as well as involving children in the planning and maintenance of those facilities.

- **Planners, finance specialists and policymakers:** In creating healthy, safe and protective environments to address climate change, different government sectors need to work in a coordinated way through inter-sectoral and sector-wide approaches that will ensure integrated government policy. Departments in the government responsible for education, water and sanitation, health, environment, justice, social welfare, gender and women, finance, and others may all play important roles, as indicated in Module 8. Life-skills education for climate change adaptation and disaster risk reduction needs to be part of wider education sector plans and become firmly rooted in official curricula and related teacher education. The writing, costing and budgeting capacity of planners and finance specialists may also need to be developed in order to entrench climate change adaptation and disaster risk reduction, including interventions linked to school facilities, in education plans.
- **Local government officials:** Another key constituency for whom capacity development exercises are likely to be beneficial are decision-makers, such as

heads of district and sub-district offices in decentralized systems. It is important to note that in decentralized systems, such officials are assuming ever more authority for a range of social services. Their awareness of and support for climate change adaptation and disaster risk reduction is therefore needed, and it is crucial to build their capacity in these areas.

- **Community leaders, parents and school committees:** In order for adaptation strategies to work, they must lead to change at the local level. A key indicator of successful adaptation at the local level is an increase in the coping capabilities of families. Parent-teacher-community associations are key components of the success of programmes that mainstream and scale up climate change adaptation and disaster risk reduction. For example, local school committees in Cambodia and the Philippines have important functions in supporting primary education and monitoring primary schools. They are particularly useful in helping schools carry out self-assessments of child-friendliness and designing school improvement plans to achieve locally determined goals.

When converting the plan into actions, the following ideas and questions should be considered in order to maximize **school capacity** to integrate climate change adaptation and disaster risk reduction:

- How to ensure that appropriate training and information are available for those able to effect change, including teaching staff, school leaders, bursars



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- and business managers, governors, information and communications technology (ICT) technicians, and administrative and support staff.
- How to provide opportunities for school staff to network and benefit from local insights and practice around reductions in energy use, safe buildings, environmental planning, greening the environment, etc.
  - How best to simplify, align, sign-post and communicate climate change adaptation and disaster risk reduction to all school community members, in order to avoid complexity and uncertainty about reliable sources of advice regarding what actions to take.
  - How to promote effective partnership to build capacity within the education sector.
  - How to ensure equitable participation of men and women in capacity development and how to ensure access to capacity building for members of groups especially vulnerable to climate change, including migrants, those living in poverty and indigenous communities (see Module 2 for more detail).
  - How to ensure monitoring, evaluation and timely feedback for schools to track their performance. If schools are to become sustainable, they will need feedback on how they are doing and what progress is being made (see Module 7).



**Table 9.2 – Planning effective learning and teaching processes**

<p><b>Use results-based planning to allocate programme inputs</b></p> <ul style="list-style-type: none"> <li>• Work with children, parents and teachers to identify:           <ul style="list-style-type: none"> <li>• Children who are more vulnerable because of social and economic determinants of inequity.</li> <li>• Risks and threats to equity in the community – with a focus on environmental issues, but also on health and violence.</li> <li>• Wishes and opportunities for the future.</li> </ul> </li> <li>• Establish goals, objectives and learning outcomes to:           <ul style="list-style-type: none"> <li>• Reduce immediate and future risks.</li> <li>• Provide a greater range of choices to reduce vulnerability and inequity due to gender, poverty, disability, health status or association with groups that are discriminated against.</li> </ul> </li> <li>• Develop measurable indicators to assess learning outcomes.</li> <li>• Select learning and teaching methods and activities that ensure the active participation of learners.</li> <li>• Identify training needs to ensure that participating teachers can embrace a holistic and child-centred approach that envisions change (exploring alternative futures, learning from the past and inspiring engagement in the present) and achieves transformation in children.</li> <li>• Develop lesson plans and assessment instruments.</li> </ul>
<p><b>Link implementation to school safety and protection</b></p> <ul style="list-style-type: none"> <li>• Ensure enabling and protective learning environments (school, classroom, school grounds and sport facilities).</li> <li>• Facilitate access to community association input and support.</li> </ul>
<p><b>Monitor and evaluate programme outputs</b></p> <ul style="list-style-type: none"> <li>• Monitor the process.</li> <li>• Assess learning outcomes.</li> <li>• Evaluate other programme results.</li> </ul>

### 9.2.2. Learning and teaching: Curricula, assessments, teacher training and instruction

Some key steps in learning and teaching processes are outlined in Table 9.2. These steps are based on evidence and experience from life-skills education with regard to developing risk reduction knowledge, attitudes and skills in a number of thematic areas (e.g., environment, health, and social and emotional learning). Owing to the unique vulnerability associated with gender and poverty in relation to climate change and disaster, curriculum development, pedagogy and teacher training must pay special attention to the position of girls and children living in poverty or other disadvantaged situations when

considering teaching and learning inputs. Please refer to *Climate Change and Environmental Education*<sup>4</sup> for more extensive and practical information on how to mainstream and scale up climate change adaptation and disaster risk reduction at the school level through a child-rights approach.

#### 1. Curricula and assessment

Implementation of climate change adaptation and disaster risk reduction curricula and assessments should be integrated into interrelated thematic areas that address behaviour change and risk reduction, such as life-skills education. Integration can either be done through a limited number of carrier subject areas, such as science,

social studies and health, or infused throughout the whole curriculum. Sometimes, a mix of approaches is used. The best approach will depend on the existing context and structures for this implementation. The infusion approach might be more efficient if the education system is already of higher quality and well structured. Alternatively, the carrier subject approach may be better suited for resource-poor settings and when initiating the process of curriculum mainstreaming, because integration into carrier subjects can facilitate teacher training and better oversight of the issues to be covered.

Within the overarching standards and indicators established for system quality, climate change adaptation and disaster risk reduction at the classroom level, curricula and assessment should be child-centred at the individual level to focus on learning outcomes. As at the system level, expectations of individual learners are also expressed in the language of standards and indicators. At the curricular level, it is important to:

- **Understand the needs of targeted children.** Life-skills education programmes, such as climate change adaptation and disaster risk reduction education, should be based on the needs of the targeted group of learners as established through formative evaluation involving key gatekeepers and stakeholders. Needs assessment activities (e.g., data collection and analysis, focus groups and key informant interviews) provide essential information on the risks and protective factors in the learners' environment, as well as their level of awareness of,

and readiness to manage, probable challenges and opportunities.

- **Establish goals, objectives and learning outcomes.** Analysis of the needs of the target group leads naturally to a vision of what climate change adaptation and disaster risk reduction education should look like in the classroom. Desired learning outcomes are usually articulated as goals and objectives, where goals express the long range impact of a learning programme, and objectives describe short- or intermediate-range affects. In life-skills education, goals often describe the big, population-level impact desired, while objectives represent the behaviours that must be affected to achieve the goal. Objectives are generally statements of what may be expected to occur if some critical minimum of learning outcomes is achieved. In other words, learning outcomes are the foundational elements, or building blocks, of programme results. Learning outcomes in life-skills education programmes such as climate change adaptation and disaster risk reduction education should reflect anticipated changes in participants' knowledge, attitudes and skills. Results-based planning calls for learning outcomes that are specific, measurable and achievable.
- **Develop measurable indicators to assess learning outcomes.** Indicators specific to a life-skills education programme focused on climate change adaptation and disaster risk reduction are statements of what learners will know, be capable of, believe, do, be, etc., in order to live

sustainably. Indicators are observable and measurable and are usually formulated to 'show us the proof' that the desired learning has occurred. To document the achievement of specific learning outcomes for a given climate change adaptation and disaster risk reduction education programme, indicators must be measurable, in both real and practical terms. This means that there must be a valid way

of assessing whether some criterion is met, and teachers or other education authorities must be able to implement that assessment.

There should also be respect for the evolving and differing capacities of children, together with recognition that children do not acquire knowledge, attitudes and skills at fixed or predetermined ages.

**Table 9.3 – Examples of age-appropriate learning outcomes for climate change adaptation and disaster risk reduction**

For pre-primary-school-aged children	For primary-school-aged children	For secondary-school-aged children
<b>Knowledge: The learner will understand ...</b>		
<ul style="list-style-type: none"> <li>• The importance of the environment</li> <li>• Her or his role in keeping the environment clean</li> <li>• How to detect and avoid risks in the daily environment</li> </ul>	<ul style="list-style-type: none"> <li>• The importance of using relevant information and sources of information</li> <li>• Basic concepts of climate change</li> <li>• Basic concepts of environmental stewardship</li> <li>• The importance of natural resources for daily life</li> <li>• Basic ecological cycles (e.g., water cycle and life cycle)</li> <li>• The relationship between risks, threats and vulnerabilities</li> <li>• How to detect and avoid risks in the daily environment</li> <li>• Basic disaster preparedness in the daily environment</li> <li>• Historical factors and future consequences of present actions for self, others and the local environment</li> <li>• That social norms (and collective behaviours) can be both a risk factor and a protective factor</li> </ul>	<ul style="list-style-type: none"> <li>• How to identify and analyse relevant information and sources of information</li> <li>• Concepts of climate change adaptation and mitigation</li> <li>• Local ecological cycles (e.g., water, nutrients) necessary to maintain local resources, and how they interact with other environmental, social and economic factors</li> <li>• The life cycle of consumer products and concepts of environmental stewardship (including reusing, recycling and conserving environmental resources)</li> <li>• Historical factors and future consequences of present actions for self, others and the local and global environment</li> <li>• The interaction of local and global actions and consequences with regard to climate change and environmental issues</li> <li>• Concepts of disaster preparedness</li> <li>• How to identify risks, local threats and vulnerabilities, and how these relate to one another</li> <li>• The impact of social norms and collective behaviour on risk and protection</li> <li>• The impact of inequity on risk for individuals and society</li> <li>• How to evaluate alternative solutions to problems</li> </ul>

(continued)

**Table 9.3 – Examples of age-appropriate learning outcomes for climate change adaptation and disaster risk reduction** *(continued)*

For pre-primary-school-aged children	For primary-school-aged children	For secondary-school-aged children
<b>Attitudes: The learner will demonstrate</b>		
<ul style="list-style-type: none"> <li>Concern and appreciation for the local environment</li> <li>Awareness of basic environmental hazards</li> </ul>	<ul style="list-style-type: none"> <li>Concern and appreciation for the local environment</li> <li>Respect and empathy for people in different circumstances and with different opinions</li> <li>Appreciation of local (indigenous) knowledge of the environment</li> <li>Awareness of her or his own and others' rights and responsibilities in protecting the environment and reducing risk</li> <li>Responsibility with regard to use of environmental resources</li> <li>Ways to recognize and deal with fear, grief and loss</li> </ul>	<ul style="list-style-type: none"> <li>Concern for environmental sustainability and disaster risk, and appreciation for environmental services at the local and global levels</li> <li>Awareness of her or his own and others' rights and responsibilities, including those of local indigenous groups, in environmental stewardship and disaster risk reduction</li> <li>Responsibility with regard to use of environmental resources</li> <li>Ways to positively cope with risk, fear, grief and loss</li> <li>Consideration of the environmental and social impact of consumer items before purchasing</li> <li>Appreciation for the complexity of interacting environmental, economic and social issues</li> </ul>
<b>Skills: The learner will be able to ...</b>		
<ul style="list-style-type: none"> <li>Use resources responsibly</li> <li>Stay away from dangerous things in her or his environment</li> </ul>	<ul style="list-style-type: none"> <li>Communicate openly and respectfully about living in harmony with the local environment and reducing risk</li> <li>Identify local natural resources (e.g., plants and animals) commonly used</li> <li>Review her or his daily practices and implement changes to become a better environmental steward</li> <li>Seek help when needed</li> </ul>	<ul style="list-style-type: none"> <li>Communicate openly and respectfully about living in harmony with the local and global environment and reducing risk</li> <li>Provide examples of how to collaboratively contribute to environmental stewardship, climate change adaptation and mitigation, and disaster risk reduction</li> <li>Identify and sustainably use local natural resources</li> <li>Act locally to preserve the environment and reduce risk</li> <li>Exercise rights and responsibilities of active citizenship to achieve positive social goals</li> <li>Seek help when needed</li> </ul>

## 2. Teacher training and instruction

How children learn is as important as what they learn. Traditional models of schooling that silence children and perceive them as passive recipients of information are not consistent with a rights-based approach to learning. There should be respect for the autonomy of

children and young people, who should be recognized as intelligent and active contributors to their own learning. Reforming pre-service and in-service teacher education systems is an important step towards successful integration of climate change adaptation and disaster risk reduction within a

life-skills framework. Such efforts seek integration into a comprehensive reform of pre-service teacher education curricula, materials and pedagogy.

Pre-service training of all teachers in climate change adaptation and disaster risk reduction education is optimal, but not necessarily sufficient, preparation for quality life-skills education teaching. As the content of an education aiming to change attitudes and behaviour (i.e., life-skills education) is linked to prevailing and evolving conditions in society and learners' lives, teachers need access to relevant and current information in order to develop appropriate materials; they also need opportunities for continuing education and professional development through in-service training.



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### Box 9.1 Proposed teacher competencies on education for sustainable development, developed by the United Nations Economic Commission for Europe expert group<sup>5</sup>

The competencies are presented according to essential characteristics of education for sustainable development, identified as:

- A holistic approach that seeks integrative thinking and practice.
- Envisioning change; that is, exploring alternative futures, learning from the past and inspiring engagement in the present.
- Achieving transformation, to change the way people learn and the systems that support learning.

The clustering of competencies is inspired by the report of the International Commission on Education to UNESCO:

- 'Learning to know' refers to understanding the challenges facing society both locally and globally and the potential role of educators and learners ('The educator understands ...').
- 'Learning to do' refers to developing practical skills and action competence in relation to education for sustainable development ('The educator is able to ...').
- 'Learning to live together' contributes to the development of partnerships and an appreciation of interdependence, pluralism, mutual understanding and peace ('The educator works with others in ways that ...').
- 'Learning to be' addresses the development of one's personal attributes and ability to act with greater autonomy, judgment and personal responsibility in relation to sustainable development ('The educator is someone who ...').

## 9.3 School environment and facilities

### Box 9.2 Safe at School campaign

It is neither expensive nor technically difficult to structurally improve most school buildings. The estimated average cost per school ranges between US\$1,000–\$1,500, assuming the use of local labour and materials and low-cost design options.<sup>6</sup>

Millions of children in many countries attend schools that are not built well enough to protect them from the effects of natural hazards, which are increasing in prevalence and severity owing to climate change and environmental degradation. For example, more than 50 per cent of children who die in earthquakes each year die inside their school buildings.<sup>7</sup>

- In Pakistan, more than 17,000 students perished when their school buildings collapsed following the earthquake in late 2005.<sup>8</sup>
- Following the Bam earthquake in Iran in 2003, all 131 school buildings in

the area collapsed or were severely damaged, killing an estimated 12,000 students (out of 32,000).<sup>9</sup>

Lessons from recent emergencies have led to increased emphasis on school site selection, sustainable design practices and proper construction processes. The goal is to provide safe and healthy physical facilities, promote participatory and relevant pedagogy and provide cost-effective school models, while also addressing environmental issues, community participation and safety (in terms of school location and provision of 'safe areas' within schools). Efficient use of natural resources and energy, a clean environment, and safety are important elements of such facilities.

Sustainable school design and construction for delivery of quality education in safe and healthy learning environments can serve as focal areas for greater social change at the local level when an inclusive child-centred process engages the participation of all stakeholders, thereby strengthening the links between communities and

### Box 9.3 After the earthquake in Bam<sup>10</sup>

After the 2003 earthquake in Bam, Iran, UNICEF expanded the child friendly school concept to encompass child-centred homes, communities and cities. This has been a way of addressing major environment, health, protection and civic issues, as highlighted in the Convention on the Rights of the Child. Links between schools and communities are fundamental. The challenges in the project yielded the following lessons: A supportive environment in terms of the home, the community, the city and society at large are necessary for child friendly schools to be viable. Child friendly schools can serve as a springboard for changes to help the wider society 'build back better'. Structural improvements, mapping and preparedness activities can reduce the effects of environmental degradation and disasters.

### Box 9.4 Building safe schools in Myanmar

Ecologically friendly schools were built in Myanmar with compressed earth blocks. This technology has reduced the carbon footprint of a traditional reinforced concrete structure by more than 300 per cent. These schools have rainwater collection systems, access to safe drinking water, vegetable gardens, central courtyards and play areas. Some roofs are sloped properly to receive solar panels. Substantial community participation went into both design and construction. This process allowed for the transfer of technology to the local community and created much-needed work and cash transfers to households.



All schools have covered outdoor areas, which are elevated a minimum of 3 feet (1 metre) and are fully accessible (ramps and handicap toilets). The multipurpose space can be used and shared by the community (library, clinic, food storage, etc.). The schools were successfully used for refuge during the cyclone season in 2009. There were no casualties, and the structures survived the intensive consequences of climatic changes.

schools. Community participation, low-carbon technologies and maintenance programmes can become part of a more sustainable way of designing and building learning spaces, health facilities and other structures that become part of local ecology and social and cultural history. Use of locally available materials and building technologies has a positive environmental impact, creating jobs and sustainable change rather than more negative environmental externalities.

Although some children will never have to live through a natural or human-made disaster, all schools need to have emergency preparedness plans to reduce children's vulnerability. This is especially critical for schools in least developed countries and in the poorest communities in the context of climate change adaptation, disaster risk reduction, and food and water security.

### Box 9.5 Maldives: 'Building back better'<sup>11</sup>

The Government of Maldives, with aid from international donors, took the 'building back better' approach after the devastating tsunami that occurred on 26 December 2004. With help from UNICEF, the child friendly school model was expanded to 100 schools following the tsunami. The current goal is to follow the model in all schools, particularly in all preschools and grades 1–3 of primary schools. Also, in accordance with the Hyogo Framework of Action, a set of textbooks and teacher guides about disaster risk reduction in Maldives has been produced by the Education Development Center of Maldives, in partnership with UNDP and with financial support from the International Strategy for Disaster Reduction. The books were developed with wide stakeholder participation from various sectors to enable teachers to fully integrate the learning materials into the national curriculum.

### Box 9.6 UNICEF school design and construction<sup>12</sup>

This is the time to imagine, design and build the school of a post-carbon society, with sustainable construction systems and educational tools that empower people. For this to take place, an integrated approach towards safer school environments for all children is needed from the onset, and it is important to create close links with other sector initiatives, such as WASH in Schools and child protection. Child friendly schools are leading the way in innovative and cost-effective school designs that are conducive to learning. Assessing existing educational facilities and building new learning spaces for the 69 million children who are not enrolled in school is a daunting task.



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Measures to address environmental degradation, desertification and climate change can be implemented by restoring school and community buildings, mapping risks and training for natural disaster preparedness. Children and young people are the potential disaster management experts of the future and can also act as teachers on disaster risk reduction within the family, thereby involving families and communities in school-based initiatives.

Turning education about emergency into a means of empowerment, in order to increase resilience and adaptive capacity, is the real challenge. Preparedness for climate change and disasters is a strategy for empowering children, providing them with critical thinking skills and tools to address rapidly changing environments. Providing education in emergencies is a powerful first response for children affected by conflict and natural disasters. Youth-led activities, such as community risk mapping, can increase resilience at the community level. However, a major shift is required, away from a prescriptive, expert-driven approach towards one that helps communities develop new solutions of their own.

#### **Preventive maintenance**

Typically, schoolteachers would work together with children to prepare and carry out a plan for monitoring and maintaining the facilities, as well as for helping children keep themselves clean and healthy. In this regard, the concept of preventive maintenance, as outlined in the *Child Friendly Schools Manual* (Chapter 5) and training materials, can build adaptive capacity while setting standards and reducing costs, which tend to be higher when prevention is not part



### Box 9.7 Food security and empowerment of schools project, Zimbabwe<sup>13</sup>

Zimbabwe has been profoundly affected by drought since the early 1990s. The drought has had a major impact on food security and has affected the health status of children in many communities throughout the country. The Enhancing Food Security through the Empowerment of Schools project started in 2007 and ended in December 2009. The project focused on 50 schools in five selected rural districts of Zimbabwe. It established gardens, involved communities and trained teachers in participatory methodologies. A study executed in 2010 revealed that the project had an 80 per cent success rate: In 13 out of the 15 sample schools, gardens and boreholes were in place. Pupils and the community confirmed that the project improved food security to a large extent. Less successful were the handwashing facilities, which were used in only 53 per cent of cases, and the efforts to address issues of climate change adaptation and disaster risk reduction in the curriculum. The need for continuous teacher training and community capacity building was highlighted as well.

### Box 9.8 School gardens and water management in Togo

In Togo, child friendly schools in the state of Dapaong have engaged teachers and students in projects to promote sustainable hygiene, water and ecological sanitation practices. Now they have begun to use the by-products – water and organic waste – to fertilize school gardens, with the aim of increasing access to locally grown food in a drought-prone environment.

of the maintenance culture. Prevention involves things as simple as patching minor cracks in slabs before they become big faults in the wall; fixing leaking taps to avoid waste; repairing water pumps before the whole system fails; painting regularly to protect buildings; maintaining safe, clean, separate sanitation facilities for girls and boys; scrubbing and cleaning regularly to prevent grime; planting trees to provide shade and soil security; maintaining school gardens; and reusing and recycling waste through activities such as composting.

#### Health issues and safe schools

The safety of school structures is also a crucial element in protecting the health and very survival of children. Essential services can dramatically improve the

school environment; examples include safe and clean water, separate sanitation facilities for girls and boys, safe heaters that keep the air clean in school buildings, and school gardens that provide food. Boxes 9.7 and 9.8 describe projects in which school gardens play a major role.

#### Schools as environmental laboratories

Schools can act as laboratories for environmental design and construction, allowing children, teachers and communities to learn how to put environmental education into practice. This can be done through environmentally sound buildings, energy, materials, waste management and WASH initiatives, as well as through rainwater harvesting and new information and communication technologies.

### Box 9.9 The role of information and communication technologies in sustainable schools

In Senegal, UNICEF is promoting dialogue among young people through a 'connecting classrooms' initiative. Students such as Mame Arame Mbaye, 19, come to the computer lab each afternoon to exchange ideas with students from other countries, sharing their opinions on issues like health and climate change as they envision the future of Africa's environment. "I read papers that the students have written in English," Mame says. "The exchanges also help us understand other cultures without leaving our country." After the students post their thoughts on the forum, they can read other students' ideas and post commentary. These exchanges address current issues such as food security, climate change and health.

Adults widely underestimate the capacities of girls and boys to understand, research and communicate their local environmental knowledge. Child-centred schools provide an excellent opportunity for children to exercise these skills and for their schools and communities to benefit from them.<sup>14</sup>

Climate change adaptation and disaster risk reduction education, both in and

out of school, can substantially improve environmental protection, reduce risk and contribute to sustainable development. Preparedness for climate change and disasters can also empower girls and boys. In this respect, particular attention should be given to the involvement of disadvantaged groups, such as children living in poverty or those from migrant communities.

## Notes

- 1 For more information on climate change and environmental education, see UNICEF (2012). *Climate change and environmental education: A companion to the Child Friendly Schools Manual*. Retrieved from [http://www.unicef.org/publications/files/CFS\\_Climate\\_E\\_web.pdf](http://www.unicef.org/publications/files/CFS_Climate_E_web.pdf).
- 2 For more information on the *Child Friendly Schools Manual*, visit [http://www.unicef.org/publications/files/Child\\_Friendly\\_Schools\\_Manual\\_EN\\_040809.pdf](http://www.unicef.org/publications/files/Child_Friendly_Schools_Manual_EN_040809.pdf).
- 3 Department for Children, Schools and Families (2010). *Climate change and schools: A carbon management strategy for the school sector*. London: Crown. Retrieved from <https://www.education.gov.uk/publications/standard/GeographySCH/Page1/DCSF-00366-2010>.
- 4 *Climate change and environmental education*.
- 5 United Nations Economic and Social Council (2011, 21 January). Report on progress made by the United Nations Economic Commission for Europe Expert Group on Competencies in Education for Sustainable Development. ECE/CEP/AC.13/2011/5.
- 6 UNICEF (2009). *Child Friendly Schools Manual* (chapter 5). New York: UNICEF.
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# Climate Change Adaptation and Disaster Risk Reduction in the Education Sector

## RESOURCE MANUAL

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### MODULE 10

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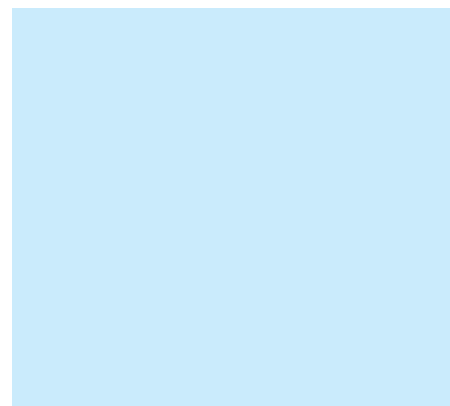
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## CASE STUDY

# Albania

## Implementing compulsory environmental education using a participatory, life skills-based approach

This case study highlights the importance of partnerships to mainstream and scale up climate change and environmental education. The Albania National Environment Strategy (NES) calls for the improvement of environmental education materials within the school system and for the development of a complete package of environmental modules, including teacher training, sectoral modules and local projects within the community. To support these objectives, the Ministry of Environment, Forestry and Water Administration (MoEFWA) and the Ministry of Education and Science (MoES), in collaboration with donors and partners, approved environmental education as part of the curriculum framework for compulsory education in Albania. This led to the development and implementation of the Child-Led Environmental Initiative (CLEEN), which follows a participatory, life skills-based approach. CLEEN seeks to engage children and their families, encourage them to undertake sustainable behaviour change and empower them to act to improve the environment in their schools, homes and communities.



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## Overview

Albania<sup>1</sup> is a country in transition that is being influenced by a host of factors, including accession to the North Atlantic Treaty Organization (NATO) in April 2009, potential European Union (EU) candidacy, and its position as a United Nations Delivering as One pilot country. As a signatory to the Millennium Declaration, and with the assistance of the United Nations and other donors, Albania has harmonized its endeavour to meet the Millennium Development Goals (MDGs) with its EU integration agenda; it has made progress in achieving several goals and targets yet lags behind in others.<sup>2</sup>

In 2008, the country revised its MDG targets and indicators to better reflect its current stage of social and economic development as well as its aspiration to become an EU member state in the foreseeable future. Numerous environmental problems have challenged Albania's efforts towards MDG 7, ensuring sustainable environmental development.<sup>3</sup> To address these challenges, newly introduced indicators aim specifically at monitoring pollution and threatened natural resources.

The European Commission's 2008 Progress Report on Albania underlines specific needs for improvement in areas such as air quality, waste management, water quality and environmental protection,<sup>4</sup> all of which negatively affect child welfare, infringe on children's right to the highest attainable standard of health and jeopardize the national constitution, which promises "a healthy and ecologically adequate environment

### Environmental education for systemic social change

"Approaches in the curriculum for primary, secondary and high school are different. They go from simply involving pupils in activities that help them to better know, understand and respect themselves and others (in primary) to more complex activities that help them understand the complexity of the relationships between people and the environment. As a result, they act and behave as responsible citizens in a global and interdependent world."<sup>5</sup>

for the present and future generations."<sup>6</sup> The European Commission report points to the NES, which notes, "The population's interaction with the environment is a two-way relationship. Quality of life is affected by the condition of the environment and the quality of the environment is affected by people's behaviour."<sup>7</sup>

The NES and the MoES state, "Dedicated environmental studies will be a new subject in the pre-university curriculum, but because it directly affects so many aspects of people[s] lives and the potential success of the National Development Plan of Albania, [it] should be considered also in a wide range of subjects already in the curriculum."<sup>8</sup>

To support implementation of these objectives, UNICEF; the MoEFWA; the MoES; and the embassy of the Netherlands signed a Memorandum of Understanding in 2007<sup>9</sup> in which all parties commit themselves to the development and

implementation of the CLEEN initiative,<sup>10</sup> to ensure that children have positive attitudes towards the environment and encourage them to act to improve the environment in their schools, homes and communities.

The CLEEN project is strategically positioned within a number of national policy and reform processes, including:

- **Curricular reform.** Environmental education has been adopted as a part of the National Curriculum Framework. The CLEEN curriculum for the lower primary cycle represents core competencies to be achieved.
- **Professional development for teachers.** Teachers may request the CLEEN teacher training package

and methodology, which have been accredited by the Institute of Curriculum and Training.<sup>11</sup>

- **Quality of teaching.** Materials developed by the Child-to-Child Trust – using the child-centred, life skills-based method of peer learning – help meet the NES’s goal of allowing students more time to experiment, research, reflect and synthesize information.

Results of a CLEEN evaluation in 2009 found that children at participating schools were more aware of environmental issues compared with children in the control group, and about 44 per cent had adopted at least one environmentally friendly action at home.

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## Issues and challenges for education

The Albanian primary school system provides significant opportunities for raising environmental awareness and learning about the environment. A majority of children attend school:<sup>12</sup> 94 per cent of children of primary school age were enrolled in 2008. Curriculum frameworks call for certain learning objectives in accordance with the education-related articles of the Convention on the Rights of the Child. For example:

- By Grade 5, students are expected to know how to protect the environment and to develop elements of a responsible attitude towards it.

- Instruction in biology is integrated with environmental education, including thematic areas such as ecosystems and biodiversity.
- Instruction in science aims to ensure that students understand that the condition of the environment affects human health, recognize the necessity for a healthy environment, and acknowledge their responsibilities for the future stability of the environment.

To integrate environment-related material currently scattered across the curriculum, the MoES plans to introduce environmental studies as a stand-alone

subject, with an integrated statement outlining the scope and sequence of competencies that students must master.

Additional constraints have to do with the quality of education overall.<sup>13</sup> The existing education system has been found to be inefficient in transmitting knowledge and skills. For instance, roughly one third of students at the basic level (Grades 1–8) receive only the lowest passing mark, the scores of students in rural schools are 30 per cent lower than those of students in urban schools, and the scores of children from poor households are 40 per cent lower than those of children from higher income families.<sup>14</sup> Albania's performance was second to last in the 2000 Organisation for Economic Co-operation and Development (OECD) Programme for International Student Assessment (PISA)<sup>15</sup> – an evaluation of student learning achievements in reading, mathematics and science. To address the disparity, the NES states that the school system must consider the quality of learning and allow more time for students to experiment, research, reflect on and synthesize information.<sup>16</sup>

To ensure the effectiveness of the new environmental studies material, it was deemed necessary to first address the underlying inefficiency in Albania's primary education system. UNICEF and government ministries recognized that the CLEEN project needed to:

- Organize curricular objectives pertaining to the environment into an integrated series of competencies.
- Strengthen teachers' skills in active learning methods that allow children to focus on topics of interest, apply knowledge, develop skills and take action.
- Build teachers' capacities to identify learning objectives and monitor individual progress.
- Provide more teaching aids and improve their quality.
- Encourage pedagogical inspectors, principals and deputy principals to accept active learning methods, and increase their capacities to promote these methods in school.

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## Programme description

As the first step, a Memorandum of Cooperation was signed with the Institute of Curricula and Training (ICT), which either offered its human resources or put its training facilities at the project's disposal. A senior-level steering committee – comprising high-level representatives of MoES, MoEFWA, the project donor and UNICEF – was appointed to supervise project

implementation. The committee meets quarterly to review the status of the results framework indicators and to discuss progress.

Both ministries involved in the exercise indicated their support during the opening ceremonies, presenting letters of intent and participation in which they emphasized the need for



environmental education in elementary schools. An endorsement of the project with instruction from the MoES issued on September 2008 helped ensure compliance, to promote optimal usage of CLEEN in primary education.

Project implementation was managed by the Project Working Group (PWG), which includes representatives of the Department of the Curriculum, MoES, Institute for Nature Conservation in Albania (INCA),<sup>17</sup> the Education Center for Training and Qualification (ECTQ), the MoEFWA, participating faculties of education, non-governmental organizations (NGOs) specialized in community mobilization for the environment, a coordinating NGO and the UNICEF CLEEN project officer.

The primary roles of the other PWG members are determined by their professional responsibilities. Hence, the Department of the Curriculum and INCA take a lead role in developing the project's environmental curriculum, ECTQ takes a lead role in developing the teacher training programme and materials, and so forth. However, members of the PWG cooperate closely, as all areas of intervention are part of an integrated curriculum.

The PWG worked to develop a set of criteria to institutionalize the accreditation of the training and to define the tools necessary to assess the teachers' ability to deliver the CLEEN curriculum. As a result, the ICT approved and accredited the CLEEN package, and the CLEEN curriculum and model were incorporated into the training catalogue of the ICT and distributed to all schools and the

Directorates of the Education Department (DoE). This accreditation and cataloguing made it possible for the CLEEN initiative to extend to additional schools with access to their own funds to support participation in training programmes offered by the ICT. As accreditation is linked to career advancement and salary raises, more teachers are expected to enrol in CLEEN training.

Schools were selected in close cooperation with the representatives of the Regional Education Directorates, with consideration for the schools' willingness to participate, resulting in the selection of 251 schools, both urban (122) and rural (129). From 2008 through 2009, a step-by-step approach was undertaken to meet national goals for quality and sustainability while working towards mainstreaming and long-term behaviour change. Key benchmarks were as follows:

1. Establish collaboration with the main government stakeholders (MoES, MoEFWA and ICT).
2. Develop training manuals for each category through a consultative and participatory process; engage with teachers, DoE representatives, headmasters and other key stakeholders.
3. Work with the Regional Education Directorate to compile a database for use by all participating schools and teachers.
4. Organize the 'training of the trainers' as well as training for the Regional Education Directors, to be facilitated by the Child-to-Child Trust methodology and expertise.

5. Train DoE representatives, headmasters and teachers.

CLEEN project development activities are defined within six main components:

- 1. Teacher learning materials.** The main purpose of these materials is to help teachers deliver the environmental studies curriculum using a participatory, life skills-based approach designed to help children master the competencies. The materials are closely aligned with the environmental studies competencies.

Competencies and key messages were determined in a participatory manner by a working group that engaged key stakeholders in mapping out the curriculum and identifying the main issues with regard to the environmental situation in Albania.<sup>18</sup> The United Kingdom-based Child-to-Child Trust<sup>19</sup> was contracted to facilitate the process and to integrate the child-to-child methodology, which has been found to be successful in linking children's learning (in or out of schools) with their lives (at home and in the community) – so that knowledge translates into behaviours and action. The five main topics are water, air, nature, soil and pollution. The teacher's guide contains additional background and resource information, providing teachers with all the information they need to teach the environmental studies curriculum, including both technical content and effective teaching-learning approaches.

- 2. Student learning materials.** Five student workbooks (one per grade) linked to guidance in the teacher's guide provide children with an

opportunity to learn how to protect the environment through constructive play. Illustrations, puzzles, games and posters are tools of the four-step approach: (1) understanding, (2) finding out, (3) planning and doing and (4) evaluating. The teacher's guide and student workbooks were distributed to 1,300 trained teachers, and baseline evaluation results indicate that 56 per cent of classes had used some of the materials.

- 3. School curriculum materials.** Upon completion of the teacher's guide and student workbooks, a school guide was developed to broaden the spectrum of environmental education activities. The school guide is a holistic document designed for distribution to both schools and the DoE to enable a thorough understanding of all the components of CLEEN. Three thousand copies of the guide were distributed. It is an important document for policymakers, as it includes all of the CLEEN experiences as well as information on how to teach environmental education in primary schools.

- 4. Young Environmentalist Kit.** One kit was provided per classroom during the teacher training workshop. Each kit contains 23 items related to activities in the teacher's guide and student working materials as well as inputs from the working group and teachers. Based on testing and feedback from teachers in 10 schools, the kit was revised in 2009 and four new items were added.

A post-training survey administered after the first year of the CLEEN project

indicated that more than 80 per cent of participants considered the methods to be very useful and easy to implement.

A new component was added to the 2009 training to integrate a cluster methodology<sup>20</sup> that consists of organizing 'open classes' in which teachers from different schools participate in a CLEEN environmental education class. Usually, the open class is organized by a teacher recommended by the DoE based on experience in delivering environmental education and willingness to share experiences with others. The environmental education class is followed by a group discussion among teachers from different schools on how to improve teaching techniques, what other examples can be used, etc.

Teachers' group discussions were facilitated by one of the trainers who had

completed the entire training programme. Some 625 teachers benefited from the open-class activities during 2009. The open classes were perceived as an effective intervention and positive means for teachers to update their knowledge and enable discussions with other colleagues. Open classes were also used to monitor the implementation of the project and to assess teachers' delivery of the CLEEN curriculum.

In 2010, an additional 1,300 teachers were trained from five regions in close cooperation with the DoE and the ICT. The training programme was enriched with real stories and examples that the trainers have gathered during sessions conducted by teachers who have been using the curriculum. Approximately 40,000 Albanian children learned about the environment through the CLEEN project.

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## Community support

Participants in the first phase of CLEEN emphasized that it is very important to link knowledge obtained in class with actions that children can undertake, and also to link the school and community to a bigger picture through media such as TV debates and newspaper articles.<sup>21</sup> The key message of the campaign was to recycle plastic waste, because this was identified as one of the most visible pollutants. The Communication for Behavioural Impact (COMBI) initiative was launched in 2008, based on integrated marketing communication, a dynamic approach from the private sector that aims for behavioural change in social development. COMBI is used to propagate environmental awareness

in schools as part of the CLEEN initiative. In 2009, a national communication initiative for behaviour change, entitled Albania, Beautiful and Clean (ABC), was adopted within the National Waste Strategy. Later that year, ABC was highlighted at the UNICEF International Children's Climate Change Conference to emphasize how such efforts can help the next generation become better environmental stewards.

The ABC component of CLEEN has successfully promoted environmental awareness in national media, and it has encouraged primary schools and communities to mobilize to change, most notably in regard to waste collection

behaviours. To scale up these efforts, business partnerships were initiated to deal with waste collection, recycling and use of plastic bags. CLEEN is now working with two major recycling companies to gather and recycle plastic materials from schools.

### **Approximately 40,000 Albanian children learned about the environment through the CLEEN project.**

These accomplishments are especially remarkable because previous recycling experiences were not sustainable. Although putting a recycling system in place is a lengthy and difficult process, the initial phase of awareness-raising among all partners – which included a series of activities that brought together the DoE, schools and recycling companies – explained the benefits of such an intervention effectively and in a media-friendly manner. Businesses agreed to cooperate with schools, with an understanding that a minimal profit was assured. On that basis, children now collect the recyclables, and the recycling company picks up the materials from the school on a monthly basis. Students were invited to visit the recycling plant, to see for themselves what happens to the plastic waste.

Seed grants were another important means of linking knowledge to action. The initiative welcomed projects that included planting trees, rehabilitating and cleaning school grounds, setting up exhibitions or competitions, visiting sites, producing materials for awareness-raising and conducting activities within the community. A call for mini-projects was published in the newspaper and on UNICEF's website, and a mini-project proposal application was developed and conveyed to regional directorates of education. A total of 80 mini-grants from US\$600–\$800 each were financed in 2010.

A newly formed secretariat is working with INCA to provide information to schools and assist them in preparing the applications. Further, INCA helps prepare a summary of the applications to a group selected from the steering committee and designated to evaluate the applications. The proposed criteria include:

- Have they adopted a whole school approach?
- Do children participate in design and project implementation?
- Do they show possible parental or community involvement?
- Does the initiative contain creative ideas or demonstrate innovation?

## Monitoring and evaluation

A monitoring framework for CLEEN, including indicators and a baseline, was developed together with the methodology for the baseline and endpoint survey. Based on this framework, an external agency, the National Albanian Centre for Social Studies, conducted the baseline evaluation. The results, based on school observations, children's tools and focus groups, are quite encouraging. The baseline evaluation sets milestones to assess the objectives and outputs of the evaluation tools prepared by the Child-to-Child Trust.

**Some of the main findings of the report were as follows:**

- **Children in participating schools were more aware of environmental issues than children in the control group.** When assessed on their level of involvement in environmental issues in class, 38 per cent of children were rated as 'good', 40 per cent 'satisfactory' and 14 per cent 'poor'. In the external control group, 11 per cent were rated as 'good', 17 per cent 'satisfactory' and 72 per cent 'poor'.
- **Some 42 per cent of the parents indicated that their children showed positive changes in environment-related knowledge and behaviour.** Observable behaviour changes related to water use and management, for example, included: (i) shutting the tap while brushing teeth; (ii) taking a five-minute shower; (iii) always shutting the water tap tight so that it does not drip water; and (iv) knowing how to use wastewater to water the plants.
- **Student data<sup>22</sup> indicate that children who participated in the environmental education programme showed positive results in all three components (knowledge, doing and attitudes).** In contrast, children who did not attend the environmental education school did not do as well on the 'doing' and 'attitudes' components.
- **In 37 per cent of cases, teachers indicated that children who participated in the environmental education programme had an enhanced awareness of its importance.** Their interest in other subjects, such as Albanian language, science and literature, has increased as well.
- **More than 80 per cent of teachers said that the child-to-child approach used in environmental education helped children become knowledgeable and competent through activity-based learning that can be applied to their everyday lives.**
- **The environmental education programme improved the students' awareness of the issues.** In environmental education schools, 34 per cent of children communicated 'frequently' about environmental issues with their parents.

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## Advocacy

The advocacy component of the CLEEN project has mainly been focused on raising awareness among policymakers in the MoES and MoEFWA about the importance of early childhood interventions in preserving the environment. A circular issued by the Minister of Education, which included the CLEEN curriculum as part of environmental education, was a positive step by the Government to include environmental education as a

subject and cross-curricula from the primary school level. The advocacy workshop and the accreditation ceremony further demonstrated both ministries' commitment to extending such an initiative. Furthermore, the development of business partnerships and discussion of corporate social responsibility – with the shared goal to keep the environment clean – has given a boost to the recycling business in Tirana.

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## The way forward: Ensuring continuity and sustainability

Effective mainstreaming and scale-up of CLEEN and ABC depend on access to sustained funding. Through the Delivering as One environment pillar, UNICEF continues to work with mainline ministries and other United Nations agencies to expand the CLEEN initiative using Delivering as One resources. Additionally, a new draft law on recycling and tax incentives is under discussion with MoEFWA. If approved, it will substantially assist the implementation of COMBI.

Parliamentary elections in 2009 affected the implementation of CLEEN training activity and COMBI. The training calendar was changed owing to the elections, and the communication for behaviour change initiative was postponed because Albania's media were occupied with the election campaign. The parliamentary elections also affected the turnover of teachers, headmasters and representatives from the DoE. In

response, CLEEN has tried to create a critical mass of teachers and other education staff who are aware of the importance of environmental education and able to engage with newly appointed staff involved in environmental activities.

Lastly, one of the challenges in implementing the CLEEN project has been coordinating the involvement of the environment and education sectors. UNICEF played a key facilitation role in ensuring that all activities are coordinated with the ministries to integrate sector plans and strategies. This will help maintain the sustainability of the project. NGO partners selected for the implementation of the various components of CLEEN have worked alongside government partners to make sure all actions are coordinated. UNICEF has put in extra effort and time to support government staff in coordinating different stages of the project using mechanisms such as working group meetings, steering

committees and other technical-level meetings.

Maintaining CLEEN efforts remains a challenge for all partners. While the main actors have expressed their commitment, additional funding is needed. Internal education system funding, mainly through training funds to be allocated

to the schools, is one sign of progress. Delivering as One funds have provided some resources, and a funding proposal for scale-up has been submitted. To secure further funding, it is necessary to bring in other donors, leverage government budgets and expand the role of the private sector.

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## CASE STUDY

## 2

## Brazil

### A leader in youth engagement with a focus on the marginalized

This case study focuses on children's and young people's right to participation, spotlighting a participatory policy collaboration led by Brazil's Ministries of Education and Environment. The study takes a look at theory in action in the municipality of Santarem in the state of Para within the Amazon region, with special emphasis on the position of indigenous populations. It focuses on child protection and engaging vulnerable communities through methodologies that encourage personal and national responsibility and respect for traditional knowledge. Brazil's education sector has made great strides towards incorporating environmental issues, including climate change, as framed by the National Environmental Education Policy. This policy led to the establishment of the National and International Conference for Children and Youth, entitled Let's Take Care of the Environment; it also helps schools keep up the momentum through student-led commissions for sustainable development.



Photo credit: ©UNICEF/NYHQ1992-0288/Perkell

## Overview

With a population of 190 million, including 60 million citizens under the age of 18,<sup>1</sup> Brazil<sup>2</sup> faces wide disparities. These disparities are particularly apparent in the Northern and Northeast regions, which have the worst social indicators in the country, and they are most pronounced among children.<sup>3</sup> Whereas 29 per cent of Brazil's overall population lives in poverty, this figure climbs to 45.6 per cent when only children are taken into account.<sup>4</sup> In the Semi-arid region, home to 13 million children, more than 70 per cent of children and adolescents are classified as poor. These inequities are the greatest obstacle to Brazil's achievement of the Millennium Development Goals (MDGs).

Among Brazilians living in poverty, those residing in the Semi-arid and Amazon regions (Figure 1) are most vulnerable to the impacts of environmental degradation and climate change.<sup>5</sup> Children living in slums (favelas) in and around Rio de Janeiro and Sao Paulo are also particularly vulnerable owing to their exclusion and disadvantage; however, these challenges are not specifically addressed in this case study.

Changing rainfall patterns, especially in the drought-affected parts of the country, will mean poorer water resources and reduced water supply. Agriculture will suffer, aggravating the risk of famine. Less rainfall will also diminish the supply of hydropower, which, according to the International Energy Association, provides more than 80 per cent of Brazil's electricity.<sup>6</sup> Floods – already a serious

Figure 1: Brazil's vulnerable areas



Note: This map is stylized and not to scale. It does not reflect a position by UNICEF on the legal status of any country or territory or the delimitation of any frontiers.

problem in various regions, including the Amazon – may increase.

**Semi-arid region:** UNICEF reports that 70 per cent of the 13 million children and adolescents in this region are living in poverty. While the extent and pace of change are subject to debate, this region is predicted to be one of the most vulnerable to climate change, as it faces increasing threats of drought and desertification, low adaptive capacity and chronic poverty.<sup>7</sup> Research projections indicate that climate vulnerabilities may affect about 2 million rural smallholder farmers who currently live in the

northeast. According to official data from 2007, approximately 24.2 per cent of families in the northeast live in acute poverty, with 71.6 per cent of children and adolescents growing up in poor families.

**Amazon region:** The Amazon region accounts for about 23,061,000 people, representing 12.8 per cent of the national population. The region is young, with approximately 40 per cent of the population under 17 years of age. Of these children and adolescents, 61.1 per cent live in poverty.<sup>8</sup>

Land use in this region over the past three decades has been characterized by intense exploitation of natural resources that has created a “mosaic of human-altered habitats,” while improving neither quality of life nor income distribution among the local population. According to Food and Agriculture Organization (FAO) statistics, approximately 17 per cent of the Amazon forest – 60 million hectares, an area equivalent to that of France – has been converted to other uses, mostly low-productivity pastures for cattle ranching.<sup>9</sup>

Still, the Brazilian Amazon region plays a central role in keeping the global environment stable: “The region sequesters trillions of tons of carbon, both on the ground and in the existing biomass. Its vegetation releases some 7 trillion tons of water into the atmosphere every year, while its rivers account for nearly 20 percent of all freshwater flows into the world’s oceans.”<sup>10</sup>

Planned interventions to reduce the vulnerability of communities in the Amazon, with a focus on increasing the capacity of the local population to adapt to climate change, have been under way since 2003, through a joint initiative in schools supported by the Federal Ministries of Education and Environment. School-based initiatives with community outreach are increasing access to knowledge and education through school curricula and non-formal education systems that make both adults and children more aware of environmental challenges.

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## National environmental education policy

Brazil has been an international and national leader in thought, policy and practice in the field of environmental education for more than 40 years.<sup>11</sup> The first government action was the establishment of the National Secretary of the Environment in 1972, in response to the international debate generated by that year’s United Nations Conference on the Human Environment, also known as the Stockholm Conference.<sup>12</sup>

The constitution’s Article 225, adopted in 1994, states that “both the Government and the community shall have the duty to defend and preserve [an ecologically-balanced Environment] for present and future generations.”<sup>13</sup> To align economic development with environmental protection while improving quality of life for Brazil’s people, the Public National Policy in Federal Law 9394/96<sup>14</sup> of 1996 stated that environmental education

## The Forest School in Santarem

Beyond its natural wealth, the Amazon is home to a substantial number of indigenous and Afro-descendant populations, making it a cradle of cultural diversity. These populations rely on extractive and sustainable activities for their survival. Nearly 25 million Brazilians live in the nine states that make up the Amazon region.

The Forest School (Escola da Floresta), established by the Secretary of Education and Sport in the municipality of Santarem in the state of Para, offers a participatory orientation on how to preserve, protect and restore nature. Located on 33 hectares of secondary forest in the heart of the Amazon, the school seeks to engage children, university students, teachers and other community members in preserving and conserving the Amazon forest. The school promotes environmental education of good quality while helping change behaviour and values and encouraging local actions.

Inspired by the educational philosophy of Paulo Freire, activities seek to build a critical conscience among teachers and students through a dialogue of respect and consideration for the environmental knowledge the students already hold. Escola da Floresta has the capacity to seed and nurture 80,000 saplings per year, in addition to a vast array of medicinal plants. It also offers ecosystem exploration and instruction in indigenous trades such as traditional grain processing, fishing and rubber harvesting.

should be promoted at all levels of the education system.<sup>15</sup>

In 1997, the Ministry of Environment (MMA) established the National Programme of Environmental Education (PRONEA), with support from the Ministry of Culture, Science and Technology and the Ministry of Education and Sports. PRONEA responds to an urgent need for social change that seeks to overcome environmental injustices, social inequality, and the appropriation of nature and humanity itself.

Article 1 of the National Environmental Education Policy (PNEA, law 9795/99) defines environmental education as “the processes whereby an individual and the community build social values, knowledge, training, attitudes and skills geared towards preserving the environment, a resource for communal use by the population, which is vital

to a healthy quality of life and the sustainability thereof.”<sup>16</sup>

Article 2 affirms that environmental education should be mainstreamed, stating that “it is an essential and permanent component of national education, and should be coordinated to form part of all levels and modalities of the education process, both formally and informally.”<sup>17</sup> This law provides a guide for the practice of environmental education and its regulation (Decree 4281/02); it also names the Ministries of Education and Environment as the administrative authorities for this policy.

The educational system plays a leading role in entrenching principles of environmental stewardship, laying the groundwork for an ecological ethics and facilitating cultural and social change to empower vulnerable individuals, groups and societies facing the challenges of modern life.

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## The Brazilian Ministries of Education and Environment Let's Take Care of Brazil programme

Brazil's National Environmental Education Policy is the joint responsibility of the Directorate of Environmental Education of the Minister of Environment and the General Coordination Organisation of Environmental Education (CGEA) of the Ministry of Education (MEC). In 2003, both agencies were seeking programmes to engage students, teachers, youth and the wider community in environmental sustainability.

In 2003 a National Children and Youth Conference for the Environment was held to respond to the Environmental Education Policy challenge.<sup>18</sup> The conference mobilized nearly 6 million people in 4067 municipalities with the

active participation of over 16,000 school communities. A significant outcome was the Let's Take Care of Brazil programme which put emphasis on training of the leading conference participants, ie teachers and students.

Building on the momentum, a second National Children's Conference for the Environment was held in 2005. Active child participation was a key component. The objective was to reinforce the vision of the MEC and CGEAs implementation strategy for Environmental Education. The timely process corresponded with the beginning of the UN Decade of Education for Sustainable Development (DESD) and helped expand the local and international debate on the MDGs.

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## The Process of Change through Active Children's Participation

The social mobilisation process involving active child participation was a unique feature of the Brazil initiative. The conferences were catalysts for change as the process turned schools into forums for democratic debate on social and environmental problems facing communities. The results are noteworthy. Community based dialogues and local conferences were held in over 11,475 private, public, urban and rural schools. Young people and children facilitated the discussions on environmental issues. The process included girls, boys, the indigenous, rural and ethnic minorities, i.e., children who are normally excluded from

planning or even participating in their own right to education.

Both conferences brought over 500 delegates to Brasilia from all over the country. The delegates were supported by 70 facilitators from a local Youth NGO entitled the Youth Environmental Collectives as well as some 17 young facilitators from other Latin American countries. The conferences were based on the principle that young people educate and organize their peers. The conferences encouraged and facilitated dialogue between students and communities. Inter-generational dialogues were also organised with

Ministers and across sectors around four themes: biodiversity, climate change, food and national food safety, ethnic and racial diversity.

The final outcome of the Second National Children and Youth Conference for the Environment was the Let's Take Care of Brazil Charter of Responsibilities,<sup>19</sup> which was also turned into a radio broadcast and media campaign. In April 2006, adolescent participants delivered the charter to Brazilian President Lula da Silva and the Ministers of Education and Environment. In addition to calling for government action, the adolescents affirmed their personal commitment to the construction of a sustainable society, stating that "If we want to protect ourselves from environmental changes, we need to take on these actions and responsibilities ourselves.... To accomplish this, we need my help, your help, help from everyone. We need to act now and start from our houses, our schools, because by taking care of ourselves, we take care of all of humanity and prove that humans are not what they say but what they do."<sup>20</sup>

The young people took on nine responsibilities, each of which is to be accompanied by actions. They agreed to:

1. Disseminate information and broaden knowledge through environmental education.
2. Protect and develop biodiversity.
3. Transform cities, communities and schools into environmentally healthy spaces.
4. Reduce waste by practicing the 'five Rs': rethink, refuse, reduce, reuse and recycle.
5. Reduce polluting gases that cause global warming.
6. Prevent deforestation and the burning of forests.
7. Respect, understand and recognize cultural diversity.
8. Develop the production and consumption of natural and organic food.
9. Re-educate people about food while respecting their customs.

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## Methodology and implementation

The Second National Children and Youth Conference for the Environment consisted of two stages that were coordinated at three levels of supervision: 'centralized' national coordination mechanisms, 'decentralized' state and municipal-level planning committees, and 'site-

based' activities at the local school and community level. The process was decentralized, involving 27 State Planning Committees as well as collectives of public and social organizations composed of the State Education Secretariats, the Youth Environmental Collectives, the

National Union of Municipal Education Managers (UNDIME), NGOs and many segments of society. With shared goals, the various public institutions and sectors of civil society worked together to enable input and adaptation to the regional reality of the proposal for national mobilization.

The two stages of participation were:

1. The mobilization of schools and communities during the second semester of 2005, which assumed responsibilities and actions based on the international agreements on biodiversity, climate change, food and nutritional safety, and ethnic and racial diversity.
2. A national event in Luziania (in the state of Goias), bringing together more than 500 adolescent delegates in the collective production of the Let's Take Care of Brazil Charter of Responsibilities, representing the ideas of all the schools and communities involved and providing information for public policies.<sup>21</sup>

The overarching programmatic theme was 'living diversity at school', which

was innovative because it brought together students in Grades 5 and 6 with children and adolescents from indigenous communities, *quilombolas*, rural settlements and the Movement for Street Boys and Girls, which included adolescents aged 11–16, many of whom were outside of the regular education system.

Affirmative action is characterized by specific, compensating and temporary policies that seek to accelerate social inclusion and equality of rights, while always respecting diversity. For this initiative, an Affirmative Action Working Group was created, comprising representatives from governmental and non-governmental organizations as well as social movements.

The programme encouraged contributions from the various groups, with open dialogue between the delegates. The participation of indigenous communities, *quilombolas*, rural settlements and street boys and girls signified not only social inclusion, but also the inclusion of these groups' specific knowledge to inform the process of building the Charter of Responsibilities.

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### School-based management, empowering action

In this process, schools and communities are the sites of interpretative learning and transformation. Changes in quality of life begin with actions and interventions that affect local realities while also moving towards broader objectives. With this in mind, primary schools (from Grades 5 to 8), together with indigenous communities,

*quilombolas*, rural settlements and groups of street boys and girls, held debates throughout the 2005 academic year to democratize access to contemporary socio-environmental themes and, in particular, to bring both local and global issues into daily life. In this way, the school communities assumed responsibilities and

actions related to all four themes, based on international agreements to which Brazil is a signatory.

The local elements were able to contribute to a new vision of the political system and society. Participants were able to see themselves as part of a broader context and as actors with a stake and a voice in society's destiny. Throughout the process – from the schools to the conference and into the political realm – there was an emphasis on the importance of involving adolescents in public policy, starting with the responsibilities they share with those in power and other segments of society.

The responsibilities prepared in relation to the four themes were more consistent, clear and coherent when compared with the proposals from the 2003 Conferences in Schools, showing the qualitative leap and conceptual consolidation in the second conference, stimulated by a more consistent and complex foundation document – 'Step by Step towards an Environment Conference in School'. During the conferences, 47 different ethnic groups were identified. The increase in ethnic and racial diversity and gender equality that permeates the second conference's pedagogic process is reflected in the profile of the delegates:<sup>22</sup>

Of the 11,297 participating schools:

- 54 per cent held a first conference
- 49 per cent participated in the trainer seminar of the Let's Take Care of Brazil programme
- 36 per cent have COM-VIDAs (youth-led commissions for promoting the

exchange of knowledge and experience between schools and communities)

- 88 per cent are located in inland municipalities and 74 per cent in urban areas.

Of the 178 participating communities:

- 40 per cent were indigenous communities
- 27 per cent were from rural settlements
- 19 per cent were groups of street boys and girls
- 14 per cent were *quilombola* communities.

The participation of indigenous communities was possible owing to the already consolidated network of indigenous managers and teachers throughout the country. Of the participants, 66 per cent were girls and 34 per cent were boys; 1 per cent had special educational needs.

The large majority of girls among the delegates indicates not only a greater female interest in socio-political action, but also a trend towards greater retention of girls in the education system. In this age group, girls attend school for a longer time than boys, who tend to leave school and enter the job market. The participants were evenly balanced between people declaring themselves white and black.

To continue the momentum of the children's conference, schools have been encouraged to create and strengthen COM-VIDAs. Organized by the delegates themselves, COM-VIDAs aim to contribute to a participatory, democratic, lively and



healthy coexistence at school, promoting exchanges between the school and the community.

The Youth Collective for the Environment is an informal group gathering young people between the ages of 15 and 29. These youth collectives mobilize around socio-environmental themes in partnership with the MEC. In their states, youth collectives help mobilize schools, facilitate the national event and implement the COM-VIDAs, following three principles:

- 1 *Young person choosing young person (selection)* – Young people are at the centre of decision-making, which is done by young people themselves and not by third parties.
- 2 *Young person educating young person (facilitation)* – Young people are social subjects who live, act and intervene in the present, not in the future.
- 3 *One generation learns from another* – Intergenerational dialogue,

collaboration and action are necessary for sustainable development.

**“I think that it was very important in improving methodological knowledge for the continuation of my work of spreading environmental education.”**

— A youth facilitator

Youth collectives have been established all over the country to lead the COM-VIDAs, which are permanent and dynamic spaces for Let's Take Care of Brazil. The collectives are articulated and linked to the nation-wide Youth Network for Environment and Sustainability (REJUMA). Formed in September 2003, REJUMA has strengthened the local youth action groups through School Commissions (local action) and the Youth Collective for the Environment (at a state level) to promote the exchange of information, experiences and support at the national level. REJUMA encourages and supports the creation of local networks to empower youth to take action on social and environmental issues.

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## Monitoring and evaluation

The decentralized management approach of the Second National Children and Youth Conference for the Environment enabled the State Planning Committees and the MEC facilitation team to monitor the whole process, resulting in step-by-step planning in line with the proposed

**“I will return to my state, municipality and community with my head held up because I gave the best of myself in all of the activities. ... it was all a learning experience and now I can say I am a young environmentalist.”**

— Antunes, a young delegate

objective. At the end of the process, in the State Committee Workshop, the State Planning Committee and field supervisors undertook a general assessment of all of the stages.

The analysis confirms the relevance and effectiveness of the National Children and Youth Conference for the Environment initiative, in terms of both environmental education and youth public policy. Preparations for the conference enabled the planning and implementation of environmental education programmes and local actions led by young people. Its management approach, shared with the different governmental and civil society actors in all federal units, also helped to strengthen the institutionalization of environmental education. The methodology awakens community participation in the debate on urgent themes, which is usually limited to centres for research or public policy development. The exchange of knowledge and views resulted in development and implementation of local actions for change.

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## Conclusion

The institutionalization of the National Children and Youth Conference for the Environment within the environmental education system, as proposed by the Institution for the Development of National Environmental Education, helps guarantee the continuity and consolidation of the programmes and actions resulting from this mobilization process. Nowhere else in the world have schools systemically become spaces for the popularization of international

agreements, with students, teachers and communities assuming their individual and collective responsibilities.

Beyond the events themselves, the conferences have continuity as part of the Let's Take Care of Brazil with Schools project, led by SECAD. The creation of COM-VIDAs – structured forums that promote exchange between schools and the community and are aligned with continuing education for teachers – helps

entrench environmental education in educational systems.

PRONEA contributes to the building of sustainable societies by empowering

an active, well-informed citizenry within a context of democratic participation, whereby young people are involved in the implementation of public policies.

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## CASE STUDY

## 3

## Maldives

### Addressing the drivers and challenges in climate change and environmental education across sectors

This case study outlines national strategies to address climate change and disaster risk from the perspective of a small island developing state. Environmental education in Maldives aims to empower young people under the age of 14 – representing 40 per cent of the country’s population – and to enhance their resilience. Maldives recognizes education and environmental sustainability as basic rights, and the national curriculum has included environmental studies since 1984. Subsequent efforts to mainstream environmental education were bolstered by the National Adaptation Plan of Action (NAPA). In collaboration with the United Nations Development Programme (UNDP), the United Nations Children’s Fund (UNICEF) and civil society, the Government initiated an environmental education project that encourages children to be advocates who actively contribute to safeguarding Maldives’ fragile environment. The project also supports the integration of disaster risk reduction in the school curriculum and co-curricular activities.



Photo credit: © UNICEF/NYHQ2005-0241/Pirozzi

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## Overview

The Republic of Maldives<sup>1</sup> is an archipelago in the Indian Ocean consisting of about 1,190 small, low-lying coral islands. The population of this small island developing state (SIDS) is approximately 300,000, 44 per cent of whom are under age 19.<sup>2</sup> Coral reefs form the basis of the small islands and also serve as a natural defence against the encroachment of the ocean. Tourism and fisheries dominate the economy, together generating more than 80 per cent of the country's total revenues.<sup>3</sup>

The geophysical characteristics of the islands make Maldives one of the world's most vulnerable countries in the face of climate change.<sup>4</sup> More than 80 per cent of the islands are less than 1 metre above sea level, while 96 per cent of the islands are less than 1 kilometre long.<sup>5</sup> The low elevation and small size of the islands means that their inhabitants, livelihoods and critical infrastructure are at very high risk from the predicted sea-level rise.<sup>6</sup> Because Maldives relies heavily on the proper functioning and survival of the coral reef system, stresses to the reefs, such as increases in sea surface temperatures, have alarming consequences for the country.<sup>7</sup> In 1998, for example, a rise in sea surface temperatures during El Niño caused a mass coral bleaching that devastated the fisheries and tourism industry, resulting in huge economic losses for Maldives.<sup>8</sup>

The Indian Ocean tsunami on 26 December 2004 demonstrated the vulnerability of Maldives to natural hazards. Nearly one third of the population suffered loss or damage to homes, livelihoods or infrastructure.<sup>9</sup> Although less than 100 deaths were recorded, the tsunami affected the entire population and damaged the country's overall economy.<sup>10</sup> Because Maldives is situated across the equator, it is especially vulnerable to natural hazards such as tropical cyclones, thunderstorms, floods induced by heavy rainfall, storm surges, swell waves, drought, earthquakes and tsunamis.<sup>11</sup> Climate-related hazards have caused water shortages, damage to homes and infrastructure, damage to food crops from salt water intrusion, and epidemics of diseases such as dengue.<sup>12</sup>

Despite enormous challenges and extreme vulnerability, Maldives has made significant progress in economic and social development in the past two decades. The country has achieved five out of eight Millennium Development Goals (MDGs) – universal primary education, eradicating extreme hunger, reducing child mortality, improving maternal health and combating HIV and AIDS, malaria and other diseases) – ahead of the timeline, making it an 'MDG-plus' country.<sup>13</sup> In 2011 Maldives graduated from least developed country status to middle-income country status.<sup>14</sup>

## National strategies to address climate change and reduce disaster risk

In the international arena, Maldives has been advocating the urgency of combating climate change since the late 1980s. It was the former President of Maldives, Maumoon Abdul Gayoom, who first raised the issue of climate change before world leaders at the United Nations General Assembly in 1987.<sup>15</sup>

Maldives faces many of the same development challenges as the other SIDSs spread across the Atlantic, Indian and Pacific Oceans and the Caribbean and Mediterranean Seas. Although the island states differ in many ways, they share a set of characteristics that pose challenges to their development: small size, fragile ecosystems, limited fresh water, geographical dispersion (which makes transport and logistics difficult), lack of natural resources, heavy dependence on imports, high sensitivity to exogenous financial and economic shocks and extreme vulnerability to natural hazards.<sup>16</sup> Accordingly, even though SIDSs have contributed very little to climate change, they are the most vulnerable to its adverse effects.<sup>17</sup> Maldives partners with other SIDSs so that their voices can combine to amplify the call to fight global climate change.<sup>18</sup>

In 1989, Maldives hosted the first-ever Small States Conference on sea-level rise, which produced the Male Declaration on Global Warming and Sea-Level Rise, one of the first ministerial declarations on the impacts of climate change.<sup>19</sup> The Male Declaration also paved the way for the establishment of the Alliance of Small Island States and contributed to

the establishment of the United Nations Framework Convention on Climate Change (UNFCCC).<sup>20</sup> Maldives was the first country to sign the Kyoto Protocol under the UNFCCC and was also among the first to ratify it, along with many other SIDSs.<sup>21</sup>

Together with other SIDSs, Maldives has been taking a strong stand in the UNFCCC processes and negotiations to ensure that proper international action is taken to reduce greenhouse gas emissions.<sup>22</sup> Extremely vulnerable communities need to develop the capacity and mechanisms to effectively adapt to the disastrous impacts of climate change.<sup>23</sup>

Maldives' First National Communication to the UNFCCC (2001)<sup>24</sup> incorporated a national strategy and action plan to combat climate change. The report highlighted the importance of mainstreaming measures that build resilience to climate change and reduce disaster risk. It also discussed education about climate change and the environment at a national scale, noting the need to:

- Raise awareness about climate change, for example, through workshops targeted towards policymakers, media, educators and the public.
- Develop a national capacity for emergency disaster relief, a national disaster management plan and an appropriate national response strategy.
- Review the national curriculum to include climate change education.

Implementation of these measures was hampered as a result of financial limitations, socio-political setbacks and other development challenges. However, the tsunami of 26 December 2004 brought new urgency to measures to improve resilience to climate change and reduce disaster risk. Immediately after the tsunami, a temporary National Disaster Management Center (NDMC) was established, with the mandate of coordinating all emergency relief work.<sup>25</sup> With assistance and cooperation from various international donors and non-governmental organizations (NGOs), the Government took the 'building back better' approach in its reconstruction efforts.<sup>26</sup>

In January 2005, Maldives, together with 168 other governments, endorsed the Hyogo Framework for Action, which provides a comprehensive approach to safeguarding lives and socio-economic and environmental assets in the wake of disasters.<sup>27</sup> The need to mainstream disaster risk reduction and resilience to climate change was also the subject of the 2007 National Adaptation Plan of Action, developed with the participation of a wide range of stakeholders. Moreover, the National Sustainable Development Strategy, the Third National Environmental Action Plan (2009) and the Strategic National Action Plan (2009–2013) highlight the importance of strengthening resilience to climate change and reducing disaster risk. In addition, a number of sectoral initiatives demonstrate inter-sectoral links and support. Such initiatives include: policy guidelines for children's safety in the education sector, inclusion of climate change in the national

curriculum, development of a Disaster Management Plan for the Tourism Sector (2005) and inclusion of national disaster preparedness at all levels in the Health Master Plan (2006–2015).<sup>28</sup>

Maldives has also pledged to become a carbon-neutral country by 2020.<sup>29</sup> Even though its greenhouse gas emissions are negligible in comparison to industrialized countries, the country seeks to make early and rapid reductions in such emissions in order to avoid the disastrous impacts of climate change. Following the carbon-neutral pledge in March 2009, the country's president formed a Climate Change Advisory Council consisting of 15 environment experts from different sectors.<sup>30</sup> The council advises the Government on how to coordinate the national, sectoral and local action plans to mitigate and adapt to the effects of climate change.<sup>31</sup>

In July 2009, with aid from the European Union and in collaboration with the United Nations International Strategy for Disaster Reduction (UNISDR), the Government initiated the development of a Strategic National Action Plan for Disaster Risk Reduction and Climate Change Adaptation for the period 2010–2020.<sup>32</sup>

The Government's leadership role in the international arena and its emphasis on climate change adaptation and disaster risk reduction in national policies are crucial for safeguarding communities – especially children, who are the most vulnerable to the devastating impacts of climate change and natural disasters. Keeping children safe is extremely important for Maldives because its population is relatively young.<sup>33</sup>



## Environmental education in Maldives

In Maldives, both education and environmental sustainability are recognized as basic rights.<sup>34</sup> Throughout the country's known history, education has played an important role in the Maldivian way of life.<sup>35</sup> Accordingly, Maldives has achieved universal primary education, gender parity in access to education, and an adult literacy rate of 98.8 per cent.<sup>36</sup> Environmental studies (ES) as a separate subject was introduced into the national curriculum in 1984.<sup>37</sup> The ES syllabus, which targeted Grades 1–5 of primary school, was initially developed as a 'catch-all' for subjects and topics not represented in other areas of the national curriculum.<sup>38</sup> The syllabus was revised over the years, and the most recent version has been designed with emphasis on development of knowledge and skills and exploration of attitudes and values that will help students understand the world around them and the possibilities for a sustainable future.<sup>39</sup>

Accordingly, the ES student textbooks and teachers' guides for Grades 1–5 were redeveloped to fit the local context between 2003 and 2009 with input from various stakeholders such as NGOs, primary schools and various government sectors (environment, fisheries, tourism and health). The revised books for Grades 3–5 published between 2007 and 2009 address climate change and natural disasters in light of the tsunami. The ES textbooks are the most up-to-date books in the national curriculum.

In addition to the environmental studies instruction offered during Grades 1–5,

aspects of environmental education have been covered in the syllabi of general science and social studies subjects offered in Grades 6–7. Because Maldives has achieved universal access to primary education (Grades 1–7), all Maldivian<sup>40</sup> children have access to environmental education through primary school. Also, Maldives is on track to achieve universal secondary education,<sup>41</sup> which means that subjects like geography, fisheries science, and travel and tourism offered at the secondary level provide students with further environmental knowledge.

Apart from formal education, school environmental clubs play an important role in environmental education. Most schools in Maldives (both primary and secondary) have extra-curricular environmental clubs. Although there are no set standards for environmental clubs, they provide an opportunity for children to attain environmental education through non-formal approaches.<sup>42</sup>

In 2006, UNICEF initiated an environmental education project with the aim of encouraging children to be active contributors and advocates who make positive changes to safeguard the fragile environment of Maldives. As an initial step, UNICEF contracted the NGO Live and Learn Environmental Education (LLEE) to carry out a Rapid Assessment of Perceptions (RAP) of environmental education in Maldivian schools. The RAP was conducted on four islands and revealed that although the communities were well aware of environmental

problems, they were unable to tackle them owing to limited resources. Also, the communities underlined the need for external assistance in order to address the environmental challenges, and believed that environmental education was vital for sustainable changes in practices and behaviours.<sup>43</sup>

Subsequent to the RAP findings, UNICEF, in coordination with the curriculum team of the Education Development Centre of the Ministry of Education, contracted LLEE to develop an Environmental Education Resource Pack. Targeted to primary schools, the resource pack aims to achieve two main objectives: deal with the gaps in addressing the environmental problems faced by the island communities, and address lack of capacity among teachers for implementing the activity-oriented inquiry model of teaching encouraged in the new ES syllabus. Designed and developed to complement and strengthen the existing ES syllabus, the resource pack was initiated at a time when the national curriculum was being revised, enabling the two programmes to complement each other.

The resource pack contains best practice guidelines for teaching ES and a set of textbooks consisting of six modules, with a set of flip charts, under the theme Schools for a Healthy Environment. In addition, field guides to Maldivian plants, mangroves, birds and beach ecosystems were developed and included. An accompanying environmental toolbox for children included practical tools to monitor winds, tides, water quality and coral health. The teacher guides encourage teachers to use the resource

pack in activities initiated by school environmental clubs, in addition to linking it with the ES syllabus. The objective is to facilitate an inquiry model of learning through formal and non-formal routes, so that children are able to actively learn about environmental issues and acquire the skills and attitudes required for responsible environmental stewardship.

The environmental education project was delivered to a total of 100 primary schools that piloted the programme in July 2008 with support from UNICEF.<sup>44</sup> The introduction of child-centred learning (according to principles of child-friendly schooling) raised the need to develop teachers' capacities in inquiry-based pedagogical approaches. Child centred learning runs contrary to traditional teaching methods, which are exam-driven and emphasize 'rote' learning of content outlined in the syllabus.<sup>45</sup>

The first set of training sessions, in July 2009, was offered to the coordinators of the Teacher Resource Centres (TRCs).<sup>46</sup> The TRCs were established by UNICEF, in collaboration with the Ministry of Education, as part of the tsunami rehabilitation programme's 'building back better' approach.<sup>47</sup> Equipped with a computer laboratory with broadband Internet access and other facilities, the TRCs were established in each administrative atoll in the hope of reducing the immense costs and logistical problems faced in delivering services and resources to teachers and students in Maldives' dispersed communities.<sup>48</sup>

The TRC coordinators were trained to coach teachers in their respective atolls;<sup>49</sup> a total of 108 teachers from across the

country were trained by the end of 2009.<sup>50</sup> Additionally, UNDP, in collaboration with the NDMC, developed resources to strengthen environmental education for disaster risk reduction and climate change adaptation for the period 2010–2020, resulting in a set of textbooks for Grades 1–7 and Grades 8–10.<sup>51</sup>

In addition to efforts through the educational system, many NGOs, community-based organizations and civil society groups in Maldives also carry out various environmental awareness campaigns and advocacy actions for schoolchildren as well as the wider community. For example, the NGO SEEDS Asia, in partnership with the NDMC and the Asian Disaster Risk Reduction Network, conducted a project in Maldives on integrating environmental management into disaster risk reduction.<sup>52</sup> The project, which aimed to build community resilience to natural disasters and climate

change, had support from UNISDR, UNDP, the European Commission and the Government of Maldives.<sup>53</sup> It was implemented on five islands,<sup>54</sup> and training was provided to government officials, community-based organizations and community leaders on disaster management and building resilience to impacts of climate change.<sup>55</sup> The main objective was to build community-level coping capacities, towards long-term resilience.<sup>56</sup> Since children are the one of the most vulnerable groups to climate change and natural disasters, schoolchildren were also involved in the project. Key outputs included development of Island Disaster Management Plans, establishment of community resource centres and mobilization of communities to establish home gardens, manage solid waste and create a bio-shield using native plant species to protect the beaches from natural hazards.<sup>57</sup>

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## Introduction of the child-friendly schools model

The child friendly schools (CFS) concept was first introduced in Maldives in 2002, with support from UNICEF.<sup>58</sup> Initially the project was piloted in 22 schools. Considering its success, the Ministry of Education was planning to expand CFS to all underserved schools when the devastating tsunami struck in 2004.<sup>59</sup> As part of the effort to ‘build back better’,<sup>60</sup> the CFS project was expanded to 68 tsunami-affected schools. UNICEF advocated for the Ministry of Education to adopt the CFS model in all schools, and to enable schools to provide psychosocial support and protective environments for

children.<sup>61</sup> This is crucial because children are among the most vulnerable to climate change and natural disasters.

In preschools and primary schools, the CFS model has become a key driver for scaling up environmental education and addressing climate change in Maldives.<sup>62, 63</sup> Based on the pillars of child-centredness, democratic participation, inclusiveness and protective environments, the CFS model creates a holistic framework.<sup>64</sup> The CFS model also seeks to create safe environments (ability of schools to withstand natural disasters)

and establish sustainable practices (e.g., using sustainable resources in school construction) as key components of resilience to climate change and environmental degradation.<sup>65</sup>

### **Challenges in climate change education**

Even though Maldives has a foundation of strong policy as well as established formal and non-formal approaches to environmental education, building resilient island communities and achieving ecologically sustainable development continues to be an enormous challenge. Although the policy foundation is strong, weak accountability mechanisms in local governments and organizations as well as insufficient financial resources, technical expertise and institutional capacity limit implementation.

Furthermore, the geographical makeup of Maldives – with its scattered islands – proves to be a major challenge. For example, while the established TRCs have provided in-service training to remote island communities, logistical challenges limit their effectiveness for teachers who do not live nearby. Because TRCs are located on just one island of each administrative atoll (generally the atoll capital), teachers from other islands within that atoll are unable to access them or utilize their resources owing to financial and time constraints.<sup>66</sup>

Another obstacle is the overall shortage of qualified local teachers, as a result of which many schools in remote island communities are hiring secondary school graduates who have just completed their exams and are not skilled at

delivering the activity-oriented lessons of the ES syllabus. Many teachers who have completed their basic training lack the requisite science background to effectively deliver ES lessons, particularly those pertaining to climate change and natural disasters. Additionally, the system often relies on expatriate teachers who lack the local knowledge to effectively convey the myriad dimensions of environmental education and climate change specific to the local context.

Lack of access to resources is also a major challenge. During consultations with leading teachers in the Southern Province, it was found that a number of teachers were unable to access the teachers' guides for the newly revised and published ES textbooks for Grades 4–5. Teachers at the Seenu Atoll Education Centre in the Southern Province stated that there had been considerable delays in receiving the teachers' guides, which made it hard to effectively deliver the lessons. In addition, inaccessibility of specific local knowledge and databases has made it hard to tailor lessons to the local context. For example, teachers from Fuahmulak Island in the Southern Province, whose ecosystem differs from the rest of the islands of Maldives, noted that the ES syllabus and existing avenues for environmental awareness only provide generic information, and that it is difficult to access information specific to their island and local needs.

Discrepancies also exist in the accessibility, awareness and use of environmental education resources. For example, the UNICEF-funded environmental education project, still in its pilot phase, has only been delivered

to 100 schools as of 2008. Consultations with teachers in the Southern Province revealed that while some teachers were aware of the materials and were keenly waiting to receive them, others were unaware of the resources despite the fact that they worked in schools participating in the pilot programme and had access to the resource pack. Evidently there were significant hindrances in distribution, delivery and dissemination of information regarding the resource pack to the relevant teachers. Although the programme has not yet been monitored or evaluated, it is assumed that these obstacles have arisen from miscommunication and lack of coordination among trained teachers, heads of schools and other teachers.

Although the CFS model has been introduced into Maldives, it is not clear how effective CFS methods have been in terms of children's actual learning outcomes.<sup>67</sup> The actual number of CFS classrooms is uncertain, as some schools began voluntarily implementing the CFS model, while other schools reverted to traditional teaching practices.<sup>68</sup> Although the Government, teachers and some parents have generally positive attitudes towards the CFS model, the community's lack of resources, training

and awareness about CFS have restricted implementation.<sup>69</sup> Teachers of Grades 4–7 in the Southern Province indicated that the inclination of parents and school managers to focus on exams has been a major obstacle in child-centred and child-friendly learning; many teachers are pressured to simply prepare their students for exams. Some of these teachers noted that most parents judge teachers by checking the students'

### **The education sector has been a key entry point for mainstreaming climate change education in Maldives.**

books – and if parents do not see any written work in the students' books, they complain that teachers are not teaching properly. This attitude has made it hard to take students on field trips or to implement activity-oriented learning in the outdoors.

Recent political instability and socio-economic changes have also hampered discussions of climate change at the national level. The problem of fragmented beliefs about climate change within Maldivian society is aggravated by the influence of climate skeptics operating through mass media.

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## **The way forward**

The Government of Maldives, along with international agencies, NGOs, schools and civil society, has made some notable efforts to address climate change. Nonetheless, attaining ecologically sustainable development and adequately responding to climate change will

continue to present complex challenges and give rise to many socio-economic and political implications.

Because religion plays an important role in Maldivians' way of life, it is crucial to actively engage with the Ministry

of Islamic Affairs and other religious leaders to address climate change and build community resilience to the environmental threats. Since Maldives' multiparty system is in its infancy, there is a great need to lobby the political parties about the urgency of addressing climate change.

It is evident that the education sector has been a key entry point for mainstreaming climate change education in Maldives. The major challenges have been a lack of trained teachers and limited knowledge. One possible means of addressing these shortcomings is to produce child-friendly videos using expertise from the field. The videos could link climate change to the various lessons in the ES curriculum, on topics such as air pollution, global warming and energy conservation. In addition, there is a great need to strengthen the capacities of TRC coordinators to effectively use distance learning modalities.<sup>70</sup>

Further work needs to be done to achieve and maintain productive results in addressing climate change. Since lack of financing, technical expertise, resources and institutional capacities have been the major challenges, it is important to optimize existing resources and capacity. Although both formal and non-formal approaches have been established, they are undermined by the weak links between them. These links must be strengthened through better interaction among and within government departments, agencies, NGOs and civil society groups involved in environmental education. A central information system providing access to local databases and user-friendly information about

climate science and climate change could help children and communities make informed judgements based on evidence. The recently established e-government infrastructure in Maldives could serve as a platform for such mobilization.

A number of other sectors can serve as potential entry points for mainstreaming climate change education. Because a significant proportion of Maldivians are young,<sup>71</sup> the Ministry of Human Resources, Youth and Sports must be involved in the mainstreaming efforts. Climate change education should be incorporated into the youth leadership and vocational training courses conducted by the Youth Ministry. The Youth Ministry can be a key advocate to empower youth to take proactive mitigation and adaptation measures at the grass-roots level.

Since Maldives relies heavily on imports, and because food insecurity is an alarming threat, the Ministry of Fisheries and Agriculture can play a prominent role in promoting local produce and investing in innovative means of reducing the reliance on imported foods – for example, supporting communities to establish vegetable gardens in homes and schools.

The environmental sector can be encouraged to work more closely with the health sector to strengthen water and sanitation systems. Since limited freshwater supply is a looming threat, special emphasis must be given to harvesting rainwater and ensuring that the water captured is safe to drink. Furthermore, since the existing

sanitation systems of Maldives have been designed to dump raw sewage into the sea, investment in proper sanitation and sewage systems with treatment facilities is urgently needed to protect the coral reefs and their fragile ecosystem, which are the country's cornerstones.

There is also a pressing need to educate community leaders, including island office and atoll office officials, about climate change, as they are influential in planning and coordinating related issues. Since proper implementation of the CFS model is a potential opportunity to effectively deliver education about the environment and climate change in schools, advocacy about the benefits of CFS implementation should be directed towards community leaders, teachers, head teachers, school management and parents.

Funding needs to be secured to implement such measures. Therefore, it is recommended that the Ministry of Finance and Treasury be lobbied regarding the crucial need for education about the environment and climate change; they need to be on board with

the mainstreaming efforts. In addition, it is important to actively engage key businesspeople, such as tourist resort owners, and advocate for them to support capacity-building projects for climate change resilience as part of their corporate social responsibility.

In spite of the many challenges, the fact that both former and current presidents of Maldives have taken a leadership role to combat climate change in the international arena is a great advantage. The political will to mainstream climate change is evident in the strong policy foundation and the recognition of the importance of education. The new national education framework is now in its draft stages and has been developed with the participation of a wide range of stakeholders. The new curriculum weaves sustainable practices into all core subjects taught in the schools. Once it is implemented, there is hope that it will enable teachers to link climate change mitigation and adaptation as well as disaster risk reduction into mathematics, language and religion as a means to empower children, families and communities.

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## CASE STUDY

## 4

## The Philippines

### National strategies to implement school-based climate change initiatives

This case study assesses the drivers and key determinants that led the Philippines to mainstream climate change adaptation and disaster risk reduction in the education sector. Enhanced media attention, strong political will and increased foreign aid in the aftermaths of frequent natural disasters revealed links between disaster management and education initiatives. The Government began to address these challenges at the national level through the Climate Change Act of 2009, which brought climate change adaptation into the mainstream of Philippine government policy. As a result of the Act, the Department of Education took steps to integrate climate change education into public school curricula, and disaster risk management was incorporated into school administration in the most vulnerable regions. Over time, these schools have increasingly mainstreamed disaster response education and preparedness activities, both independently and with support from outside organizations, and they have prioritized the design and construction of resilient school structures that can serve not only as education centres, but also as public havens during times of emergency.



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## Overview

The Philippines,<sup>1</sup> an archipelago of more than 7,000 islands, is prone to severe natural disasters, including volcanic eruptions, tropical cyclones, typhoons, earthquakes, floods, mudflows, fires and drought. With respect to the risk of tropical cyclones, floods, earthquakes and landslides, the nation ranks twelfth among 200 countries on the Mortality Risk Index recently released by the United Nations International Strategy for Disaster Reduction.<sup>2</sup> With 268 recorded disaster occurrences during the past 30 years, the Philippines ranks eighth among countries most exposed to multiple hazards, according to the World Bank's list of natural disaster hotspots.<sup>3</sup>

Climate change is putting the Philippines' already vulnerable environment and economy at even greater risk. Extended periods of drought have reduced agricultural output<sup>4</sup> and, consequently, its gross domestic product. Sea levels are expected to rise in the coming years, threatening 70 per cent of the 1,500 municipalities located along the coast.<sup>5</sup>

### **Policy development**

Tropical storm Ketsana, known locally as Ondoy, hit the Philippines on 26 September 2009 and caused the most extensive flooding that Manila had experienced in over 40 years. On 23 October 2009, the Philippine Government passed the Philippine Climate Change Act.<sup>6</sup> The legislation fully integrated the priorities of the Hyogo Framework for Action into legislation. It established the Climate Change Commission, headed by

the nation's president and tasked with coordinating, monitoring and evaluating climate change programmes and action plans. Local governments were also charged with integrating disaster risk reduction measures into their climate action plans.<sup>7</sup>

To align educational objectives with the Climate Change Act's mandate to integrate climate change adaptation and disaster risk reduction, the Philippine Department of Education (DepEd) took steps towards mainstreaming climate change education into public school curricula, and disaster risk management into school administration. The Philippines was one of the first countries to test the child friendly schools (CFS) model, which was piloted in 131 schools in 1999 and later extended to 6,000 schools throughout the country. In response to the Climate Change Act, DepEd sought to integrate climate change adaptation and disaster risk reduction into CFS and throughout the public school system.

### **A. Entry points**

#### **1) Post-disaster momentum**

Enhanced media attention, political will and foreign aid in the aftermath of recent natural disasters have been the main drivers of climate change initiatives. Consequently, links between disaster management and education initiatives have been strengthened. For example, in 2007, DepEd and UNICEF began an education in emergencies programme in disaster-affected areas.<sup>8</sup> Additionally,

schools particularly affected by disasters, such as those within the Albay Province, began to mainstream disaster response education and preparedness activities, both independently and with support from outside organizations, such as UNICEF, World Vision and local emergency agencies.

The Philippine Disaster Risk Management Act was adopted by the Senate and Congress in 2009.<sup>9</sup> This law adopts a proactive disaster risk management policy framework at the national level and includes provisions for mainstreaming disaster risk reduction into the education system. The act reclassifies the National Calamity Fund as the National Disaster Risk Reduction Fund, thereby allocating a majority of funds to “mitigation, prevention, and preparedness activities” rather than merely distributing money after a disaster, as was previously the case.<sup>10</sup>

## 2) New school development plans

Primary and secondary schools are often used as evacuation sites and public safe havens for communities during and after natural disasters and other emergencies. Building resilient school structures that can serve as both educational centres and public havens during emergencies was crucial to maintaining routine education. According to relevant literature, restoring education in the aftermath of a disaster is critical, as it helps meet the psychosocial needs of crisis-affected populations and it provides protection from harm as well as a channel for survival messages.<sup>11</sup>

In the rural districts of the Philippines, school administrations often lack the

resources to rebuild schools after a disaster, much less to rebuild them with stronger construction or appropriate design. In Albay some schools were only able to rebuild after receiving substantial aid from UNICEF and the Government of the Netherlands.<sup>12</sup>

## 3) Existing environmental agendas

Many government officials noted the convenience and utility of linking school-based climate change initiatives to existing environmental agendas.

The Philippine’s DepEd has been doing work in environmental protection, biodiversity and disaster risk reduction for more than 10 years now, and its strategy is not to set up new initiatives on climate change, but to use the existing language of environmental education. The Department of Environment and Natural Resources (DENR) took a similar approach with youth by integrating climate change education into its United Nations 2010 Year of Biodiversity plans.

Other environmental initiatives that present opportunities to integrate child-centred climate change activities include geo-hazard mapping, reforestation and conservation initiatives. While DENR works closely with the national Department of Science and Technology, it has yet to establish a strong partnership with DepEd or UNICEF, although it recognizes the benefits of collaboration.

## 4) National Adaptation Programmes of Action (NAPAs)

Since the Philippines is not a least developed country, it is not required by Framework Convention on Climate Change (UNFCCC) to produce a NAPA.

Nevertheless, as required by the Climate Change Act of 2009, the Government is currently producing national and local climate change plans that include input from DepEd and DENR. The result has been the recent mainstreaming of climate change lessons into public education, but initiatives beyond the school curriculum are still needed.

### 5) International frameworks

Many of those interviewed for this case study – in the Philippines and elsewhere – acknowledged the importance of the Convention on the Rights of the Child and Article 6 of the UNFCCC in relation to the topic at hand. Those in the Philippines, however, did not find international frameworks particularly important as factors driving child-centred initiatives.

### Role of local leadership in Albay

Albay is located in the Bicol region, which is often hit hard by storms, typhoons, heavy rains, mudslides and volcanic eruptions. Albay was the first province in the Philippines (and the whole Asia Pacific region) to implement a local governance reform model for climate-resilient development. It has also established disaster preparedness councils at the provincial, municipal and *barangay*<sup>13</sup> levels, and trained 720 village officials on climate change adaptation and disaster preparedness.<sup>14</sup> In 2007, the Albay government partnered with DepEd, the Commission on Higher Education, Bicol University and private universities to introduce climate change curricula in all schools, colleges and universities in the province. Further activities included essay writing and poster-making contests, documentary screenings and seminars to promote global warming awareness.<sup>15</sup>

## B. Mechanisms of support

### 1) Strong local leadership

A broad range of stakeholders interviewed for this case study noted the importance of strong local leadership in pursuing school-based initiatives to tackle climate change. This is especially true given the highly decentralized nature of the Government of the Philippines. It is crucial to first demonstrate effectiveness on a small scale, and only then advocate at the policy level.

### 2) School support networks

When climate change initiatives were discussed with school administrators, teachers and other on-the-ground actors in the Philippines, a common theme emerged: Schools lack the resources to implement such endeavours on their own. Thus, partnerships and sponsors

are needed to sustain such projects. For example, DepEd established an Adopt a School programme in which private-sector companies,<sup>16</sup> NGOs and civil society organizations partner with public schools to provide support, including facilities, infrastructure, textbooks, computers and other electronics, science laboratory equipment, teaching and skill development. A broader range of partners and networks were identified to sustain climate change initiatives; these included emergency forces such as the fire department and military officers to train students in disaster management, utility companies to promote public education on energy and water reduction strategies, and NGOs to provide environmental and community organizing expertise. Almost all the interviewees in the study stated that national policy efforts were

ineffective without local support or community-based initiatives.

CFS can provide built-in support networks. The Albay Province, for example, has implemented school-level reform in tandem with a strong network of child-friendly schools. According to school supervisors, the strength of the CFS model is the premium put on community ownership. School resources are often drawn from within the community and parent-teacher associations, and there is recognition that children must learn about their immediate environment.

### 3) Tertiary education partnerships

Currently, Albay Province is jointly piloting a climate change study with the College of Forestry and Natural Resources of the University of the Philippines and the University of the Sunshine Coast of Australia.<sup>17</sup> DepEd also harnesses the resources of various universities to support primary and secondary school teacher training, with an emphasis on child-centred approaches and the inclusion of a climate change curriculum. Nevertheless, there is a general understanding that more can be done to take advantage of the financial and human capital of tertiary schools to support child-centred climate change initiatives.

### 4) New media

New media, such as the Internet and mobile phones, are popular in the Philippines and especially utilized by children. In 2007, the Manila Observatory's Klima Climate Change Centre partnered with the Philippine Atmospheric, Geophysical and Astronomical Services Administration (PAGASA), DepEd and Smart

Communications, Inc. (SMART) on Project Rain Gauge, which introduced rain gauge data collection and education in the context of climate change monitoring and disaster risk management. Children were taught how to collect and gauge rainfall in an effort to advance their environmental education and ensure their participation in disaster risk reduction. SMART donated mobile phones to support data collection in 44 schools.

As part of a project initiated through the Philippines' Task Force for Disaster Preparedness, ABS-CBN Foundation, Inc., the non-profit arm of the country's most popular television station, produced and aired three episodes aimed at educating primary students on disaster preparedness for climate change, typhoons and earthquakes.<sup>18</sup> The organization found that the storyline of a television show was an effective way to educate younger children, especially if the topic was supported through the school curriculum. The episodes are now being used as training videos by other organizations, such as the Corporate Network for Disaster Response and World Vision.

The number of Internet users in the Philippines rose 1,100 per cent from 2000 to 2009, reaching 25 per cent of the population.<sup>19</sup> The country is also one of the most prolific text messaging centres of the world.<sup>20</sup> Even in poor rural areas, it is not unusual to observe people using cell phones, and the majority of students have some means of access to a mobile phone.<sup>21</sup>

### 5) Cross-sectoral planning clusters

Climate change is not an issue confined to one specific sector, so addressing

it effectively requires a cross-sectoral approach. For example, links between health and education can lead to mutually beneficial outcomes for both sectors. In 2007, the Philippines Education Cluster was created as the primary mechanism for inter-agency coordination for emergency

preparedness, strategy planning and relief.<sup>22</sup> The cluster is led by UNICEF and Save the Children, both of which support the DepEd. The cluster helps appoint contacts, divide the work and prevent overlap, and it has been the entry point for school-based climate change activities.

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## Recommendations

### 1) Post-disaster momentum

It is important to acknowledge that actions to leverage momentum in post-disaster situations are most relevant to those which are increasingly vulnerable to natural hazards such as the case in the Philippines, or those that have recently experienced a climate change-related disaster. Disasters can present opportunities for new legislation, increased allocation of resources and awareness-raising on climate change. These assets must be properly managed, especially once foreign aid and attention tapers off. This can be achieved by establishing permanent mechanisms, such as official curricula and climate change councils, in order to sustain awareness and continue education-based activities. Additionally, national legislation, such as the Philippine Disaster Risk Management bill, can allocate sufficient resources to efforts beyond emergency relief.

### 2) New school development plans

In the aftermath of a disaster, there tends to be a surge in political will to construct structurally resilient schools that can also serve as emergency safe havens. At other times, however, increasing awareness about the threats of climate change may be sufficient to convince government

and school officials about the importance of adaptive schools – especially if arguments emphasize the fact that resilient, environmentally friendly schools are more cost-efficient in the long-run. CFS models are important resources that should be involved in new school planning, where possible.

### 3) Existing environmental agendas

In order to take advantage of established resources and networks, and to prevent duplication, school-based climate change initiatives should be linked to pre-existing or developing environmental agendas. Before implementing new initiatives, involved parties should first investigate and identify existing environmental campaigns, educational activities and directives. Next, they should map and coordinate the integration of climate change issues. The challenge lies in ensuring that these aspects are not seen as add-ons, but rather as integral components of the overall environmental agenda. Increased coordination between environment and education ministries would prove beneficial.

### 4) National adaptation programmes of action

NAPAs can be used as an entry point for designing and implementing school-



based climate change initiatives at the national level, especially for least developed countries (LDCs) that have yet to complete the process. Increasing financial capital to support NAPAs – and similar plans in the case of non-LDCs like the Philippines – would help countries carry out the school-based initiatives laid out in these agendas.

### 5) International frameworks

While the Convention on the Rights of the Child, Article 6 of the Climate Change Convention and the Hyogo Framework for Action have had substantial impact at the national level, the Nairobi and New Delhi Work Programmes generally have not. Thus, investments should be allocated towards more effective entry points. Alternatively, attaching substantial funding towards the fulfilment of specific goals may give international frameworks greater traction on the ground.

### 6) Strong local leadership

The cultivation of leadership through training and sharing of knowledge and best practice (coordinated by UNICEF or national governments) is needed to promote successful initiatives at the sub-national level. The most effective local champions may be politicians, since they control budgets, but others – for example, professors, other prominent members of civil society or even passionate students – could also fill this role.

### 7) School support networks

In order to ensure a broad and diverse base of resources and input, school officials should reach out to local emergency agencies, government committees, service organizations, parent-teacher associations and

businesses to support their climate change activities. CFS should be used as models because the holistic approach draws support from a variety of sectors, NGOs and community-based organizations.

### It is crucial to first demonstrate effectiveness on a small scale, and only then to advocate at the policy level

The main challenge of this strategy is developing productive relationships while avoiding fragmentation and duplication. CFS coordinators, where available, should play a considerable role in establishing and facilitating such relationships. School support networks should also not detract from government obligations. Brainstorming strategies to find complementary activities and avoid this potential dilemma should be conducted in the early stages of planning processes.

### 8) Tertiary education partnerships

Mutually beneficial partnerships between tertiary educational institutions and primary and secondary schools should ideally include input from children themselves, and should centre around the following activities: 1) curriculum development through DepEd; 2) climate change programming, including the use of interactive games and media; 3) climate change research, with children as data collectors or actual subjects; and 4) teacher training on climate change issues. Government coordination and the provision of grants

could be used as incentives to strengthen partnerships. This strategy would also benefit from facilitation by CFS coordinators.

## **Climate change is not an issue confined to one sector. Addressing it requires a cross-sectoral approach.**

### **9) New media**

The use of new media to implement climate change programming depends on the infrastructure and resources of local communities and schools, as well as on children's access to such devices as mobile phones and computers. In areas where technology is scarce, schools and

governments should partner with private corporations or seek charitable donations.

### **10) Cross-sectoral planning clusters**

While cooperation between government agencies dealing with health, the environment, education and emergencies is particularly relevant for national policy coordination, NGOs must also have a strong cluster presence. Such organizations often have the capabilities to pull in resources beyond the reach of government. They may also have a better understanding of what is needed at the local level or on the ground. Because this strategy comes with transaction costs and coordination obstacles, appointing an efficient co-ordinator is crucial.

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## **Conclusion**

The Government of the Philippines – with support from UNICEF's cross-sectoral approach to education, as manifested in the CFS model – encourages education systems to harness input and expertise from a variety of sectors and non-governmental entities. Such coordination can ensure that children are included in discussions, programming and advocacy related to climate change. Integration of climate change adaptation and disaster risk reduction education through CFS offers the opportunity to build upon established networks of holistic programming and encourages knowledge-sharing across schools and countries, including exchange of information on healthy physical and social environments as well as extra-curricular activities.

To mainstream school-based climate change adaptation and disaster risk reduction initiatives, advocates must convince stakeholders to prioritize this issue, especially in resource-poor countries that are already burdened with a myriad of development goals. The cross-sectoral approach also requires the alignment and coordination of numerous government and organizational agendas in order to sustain climate change adaptation and disaster risk reduction efforts over the long term and to provide resources to poor areas.

Strong national and local leadership is needed to guide initiatives from planning and legislation to implementation. Leaders play a critical role in coordinating networks to support schools in their

climate change adaptation and disaster risk reduction activities. Finally, children's role in mitigation, adaption and preparedness must be given

more precedence on the international stage, through earmarked funding and resources that developing countries may draw upon.

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## CASE STUDY

## 5

## Zimbabwe

### Enhancing food security by empowering schools

This case study documents Zimbabwe's Enhancing Food Security through the Empowerment of Schools (EFSES) project, which integrates district-level teacher training; nutrition gardens; water, sanitation and hygiene (WASH) facilities; and community involvement. The project was implemented in districts where food shortages and hunger resulting from chronic drought were negatively affecting children's school attendance, performance and completion. Conducted in 15 schools, the project was anchored through local government (Ministries of Education; Sport, Arts and Culture; Health; Child Welfare; and Agriculture); school-based leadership, including both the Girls' and Boys' Education Movement clubs and local communities; NGOs; and United Nations organizations. Pupils gained applicable skills related to food security and climate change adaptation. The project also correlated with reduced dropout and increased enrolment, and proceeds from the sale of produce from school gardens helped orphans and vulnerable children pay for supplies and uniforms.



Photo credit: ©UNICEF/NYHQ2006-0419/Pirozzi

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## Introduction

Zimbabwe<sup>1</sup> has been profoundly affected by drought and sudden changes in weather conditions since 1992. For the 2003/04 season, the Government declared a national drought disaster, with over 5 million people declared food insecure, 60 to 70 per cent of whom were women and children.<sup>2</sup> Zimbabwe has been receiving food aid since 2002 owing to a combination of consecutive years of drought, the HIV and AIDS epidemic, weakened capacities for response and declining investment in basic social services, including agricultural education for both children and adults.<sup>3</sup> The February 2011 World Food Programme (WFP) Southern Africa Regional Food Security Update for Zimbabwe indicated that food aid continues to be reported as a major source of food in WFP monitoring sites.<sup>4</sup>

While the overall prevalence of severe acute malnutrition remains relatively low across the country for children under 5, at 2.1 per cent, the rates double among younger children 6–18 months old, suggesting inherent problems in infant feeding practices, including access to the right foods. These rates of severe acute malnutrition translate to over 15,000 severely malnourished children that are at a very high risk of dying in Zimbabwe.<sup>5</sup> Further, more than one third of the population does not have access to safe drinking water. In 2009, 82 per cent of households used improved drinking water at the household level (by boiling, using water tablets or bleaching). The proportion was significantly higher in urban areas, at 98 per cent, and

significantly lower – only 61 per cent – in rural areas.

Furthermore only about 8 per cent of children below the age of 2 years receive the minimum acceptable complementary foods in terms of quality and diversity. In addition, over a third of the children reside in households lacking safe water and sanitation facilities. These factors appear to be directly linked to undernutrition. Access to health and nutrition services is also reported to be poor, as indicated by only a quarter of the women currently receiving micronutrient supplements during pregnancy and soon after delivery, although this is critical for both the health of the baby and the mother.

In education, government spending has been stagnant in the past few years, while donor funding has been on a downward trend. Using the Grade 7 pass rate as an indicator of quality, the 2004 data indicate that the education system is facing efficiency-related challenges: only 39 per cent of students passed the exam.<sup>6</sup> Additionally, school curricula wholly neglect community outreach and the relationship between curriculum content and its application to society at large.<sup>7</sup> Food shortages and hunger resulting from the drought are negatively affecting children's school attendance, completion and performance. Zimbabwean children's rights to food, health, good nutrition and education are at risk of not being realized.

The EFSES project was initiated as a holistic educational response to these

challenges. It supports interventions such as the establishment of school nutrition gardens, community involvement and teacher training in participatory methodologies.<sup>8</sup> This case study aims to assess the impact of the project on

climate change and environmental education. It was conducted in July–August 2010 and involved a sample of 15 schools (30 per cent of the 50 schools reached by the project), with visits to three schools in each of the five districts.

## Programme description

The EFSES project was initiated by the Ministries of Education of Sports, Arts and Culture (MoESAC); the United Nations Children’s Fund (UNICEF) and the Food and Agriculture Organization (FAO) in 2006.<sup>9</sup> The project was a component of the broader child friendly schools (CFS) initiative, which supports the accelerated promotion of quality education for all children in six African countries, including Zimbabwe. The aim of the EFSES project was to increase the food security status of vulnerable children and communities in five selected rural districts: Binga, Bulilima, Hwange, Mangwe and Zaka.

The project embarked on an educational strategy that focused on training primary schoolteachers from 50 schools in the five districts.<sup>10</sup> The training emphasized the use of participatory, child-centred teaching methodologies and approaches for implementation. The direct beneficiaries of the project were the 5,839 primary schoolchildren (49.6 per cent boys and 50.4 per cent girls) who attended Grades 1 to 7 at the selected schools, as well as the 300 children who attended early childhood development classes at these schools. In one school, a class of 10 children with learning difficulties also directly benefited. Indirect beneficiaries of the project include teachers, young children

at home and the members of the community at large. This project was strongly anchored in the principle of building existing structures in local government (district administrators) and in line with the Ministries of Education, Sport, Arts and Culture; Health and Child Welfare; and Agriculture.

Data were collected using a mixed-methods approach. This involved conducting interviews with project partners: two from UNICEF and one each from FAO and the Flemish Association for Development Cooperation and Technical Assistance. Interviews were also conducted with three Provincial Education Directors, one curriculum development officer from MoESAC and 15 school garden masters. Questionnaires were administered to five district education officers and 15 school heads. Focus group discussions were held in each of the five districts with pupils, school heads, teachers and parents.

Lessons were observed in each of the 15 schools visited, and each school’s schemes and corresponding lesson plans were analysed. Each school’s nutrition garden and water and sanitation facilities were examined. The review also considered how green the school was and how it used and managed the materials

and equipment that had been donated. An analysis of the Grade 7 results for 9 out of the 15 (60 per cent) sample schools was conducted for 2007–2010, the period of project implementation. Factor analysis, human interest stories, photographs, tables and pupils' work were used to determine the findings.

#### **The project's main activities included:**

- Teacher training.
- Developing and maintaining the school garden, and using it as a teaching and learning site.
- Establishing effective health and hygiene practices through proper use of toilets and hand washing.
- Using and maintaining the borehole as a joint project by the school and the community.
- Involving the community in the school gardens and other school development projects.
- Producing a variety of crops in the school garden to promote health and nutrition. Main crops included carrots, cow peas, beans, peas, tomatoes, cabbage, spinach, rape and onions; others included choumolier, beetroot, butternuts, pumpkins, maize, potatoes, covo, lettuce, pawpaws, mangoes, okra, sorghum, guava, herbs (mint, basil, balm and rosemary), cucumber, eggplant, garlic, shallots, peppers, squash and leeks.

#### **Outcomes of the project**

- All of the 15 schools visited in the assessment had nutrition gardens;

11 were rated 'very good', 3 were rated 'good' and only 1 was rated 'poor'.

- All had adequate toilets and hand-washing facilities in place.
- Boreholes were in place at 12 schools. Two schools used water from the rivers, and one used piped water from the local authority, even to water the garden.
- Garden tools were in place in each school and seed packs were regularly supplied to the schools by FAO and UNICEF, as confirmed by district education officers.

## **Impact of the project**

### **1. School environment:**

- Before the project, children appeared to be malnourished; afterwards, they looked much healthier according to respondents from the 14 schools with flourishing gardens.
- School environments became greener and cleaner.
- Participating schools had stronger relationships with the community as compared with other schools (as evidenced by discussions and contributions at the training gatherings for School Development Committee members in the province).
- The gardens provided income for the schools (previously, the schools had lacked any source of funds).
- Income-generating ventures promoted self-reliance.



- The project boosted the Girls' Education Movement (GEM) and Boys' Education Movement (BEM) clubs.
- Schools were motivated to buy seeds to sustain variety in their gardens.
- Schools were able to barter garden crops to acquire corn meal to feed pupils on sports days.
- Some school clubs donated seedlings to neighbouring schools that were not involved in the project.
- More schools lobbied the provincial office, seeking to participate in the project.
- Water availability improved, as did the schools' hand-washing systems.

## 2. Quality of teaching and learning

### *2.1 Pupils gained skills related to food security and climate change adaptation*

- Schools used the garden as a teaching and learning site for practical, hands-on activities.
- Working in the garden improved pupils' knowledge about agriculture and managing plants.
- Pupils learned to plant seeds, germinate and transplant seedlings, and harvest vegetables and other crops.
- Pupils learned the importance of mulching.
- Pupils grew crops in their own gardens at home using knowledge and

skills gained at school; they planted seedlings germinated at school.

- Examination results improved (though these may not be attributed to the project alone).
- Pupils were able to write compositions on how to manage gardens and produce a variety of crops, including crops that had not been provided by the project, such as wheat.

As the outcomes show, pupils gained skills related to food security and climate change adaptation, and they were able to apply these skills to improve their own lives.

### *2.2 Lesson observations showed improvements in teaching and learning*

- The following subjects used the garden as part of an integrated approach to teaching and learning: AIDS education, social studies, physical education, music, environmental studies, art, home economics, mathematics (measuring), agriculture and languages (English, Ndebele and Shona).
- The garden was most prominently used as a teaching and learning site in the following subjects: environmental science, social studies, languages, mathematics, home economics and physical education.
- A variety of learning media used in teaching as observed and noted in the scheme books included: the garden (and the wider school environment), pictures, charts, flash cards and chalkboards.
- Scheme-cum plans (scheme books combined with plan books) were

available in 13 of the 15 schools (or 73 per cent of schools) visited and most detailed 2–3 objectives; the remaining 3 participating schools did not appear to have schemes.

- Of the observed lessons, three included introductions that aroused pupils’ interest by making reference to local ideas and context; two of the lessons were not properly introduced.
- Out of the 13 scheme-cum plans analysed, 12 included objectives in the cognitive domain, 7 in the affective domain and 9 in the psychomotor domain.

On lesson development, the following was noted:

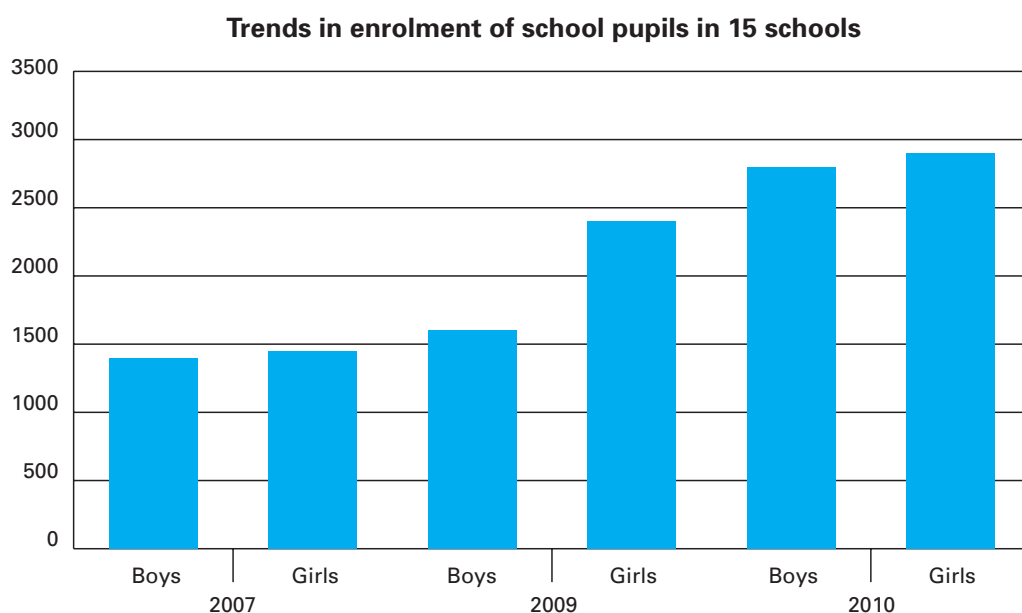
- Texts on the chalkboard in three classes showed no evidence of environmental education or climate change issues.

- In seven instances, the local language was used to clarify concepts.
- Ten lessons integrated more than two subjects, while five demonstrated clarity on environmental and climate change issues.
- A variety of teaching and learning methods were employed in the lessons, including field visits, hands-on activities, drama, experiments, discovery, child-centred activities, quizzes and projects.

### 2.3 Pupil enrolment improved

- School drop out rates decreased and school enrolment increased as orphans and vulnerable children were helped through the project. The needs of these children were being addressed in a sustainable manner, as proceeds from the sale of produce helped them buy school supplies, food and uniforms.

**Figure 2: Improved enrolment**



- Total enrolment in 2007 was 3,311. It increased to 4,559 in 2009 and 5,849 in 2010.

#### **2.4 Examination results revealed a decline in pass rates**

An analysis of Grade 7 results for 9 out of 15 of the sampled schools revealed a general decline in pass rates.

These results raise concerns that may need to be investigated further:

- Teachers may have had difficulty balancing the application of participatory teaching methods, garden-based learning and examination requirements.
- The national examination and assessment system may not cater to the knowledge and skills pupils acquire from participatory teaching and learning methods and garden-based learning.
- Pupils who took their Grade 7 examinations in 2010 may have missed out on essential concepts introduced in Grade 5 in 2008 due to a national economic crisis.
- Analytical review of the general syllabus revealed that instructional materials on scientific process skills prior to the project lacked hands-on activities.

In view of these factors, it is difficult to attribute the decline in pass rates to the impact of the project. However, the project did achieve the objective of conveying livelihood and life skills that enhance food security and empower vulnerable children in Zimbabwe.

#### **Pass rates in 9 schools**

		2007	2008	2009	2010
<b>Zaka District</b>	School A	75%	52%	28%	38.8%
	School B	28.7%	42.2%	27.8%	35.5%
	School C	30%	60%	26%	3.1%
<b>Bulilima District</b>	School A	97.6%	14.5%	3%	17.3%
	School B	100%	45%	50%	24%
	School C	30%	60%	26%	3.1%
<b>Mangwe District</b>	School A	58%	65%	72%	35%
	School B	66%	58%	31%	39%
	School C	58.7%	35%	14%	13.9%

### **3. Communities**

Pupils took home garden produce to improve their nutrition.

- Parents supported and took part in the project.
- Some parents worked in the gardens to cover the cost of their children's school fees.
- Communities showed a lot of interest in learning about new crops (e.g., carrots and butternuts).
- Pupils and community members learned necessary life skills such as gardening, proper use of the toilet and hand washing.
- Communities learned to practise better agricultural methods.
- Vegetables sold at low cost to pupils and parents improved their food security.
- Demonstrations by teachers taught parents about the need to improve food security and how to practise it at home.

- Pupils and community members learned about different varieties of vegetables and the nutrients they provide.

#### 4. Life-skills development

Responses from the 15 schools indicated that the learners had acquired a number of important life skills, including poverty alleviation, healthy living and eating, disease prevention through nutrition, universal precautions for caregiving, self-reliance, effective communication, responsibility and leadership.

- In 8 of the 15 schools, parents and community members were allocated portions in the school garden to grow their own vegetables; in some schools, parents sold garden produce on behalf of the schools.
- Proceeds from the garden produce helped vulnerable children purchase school supplies and uniforms and cover school fees and costs of supplementary feeding. This led to a reduction in dropouts and an increase in enrolment and retention.

**“I used to sleep hungry, but now I can eat carrots and take some vegetables home for gogo [grandmother] to cook.”**

— A Grade 6 child in Bulilima

**“Every time we go to the garden, I tell my gogo what we have done and we now do container gardening at home – even gogo can water the garden using a cup.”**

— A Grade 6 child in Bulilima

#### 5. Impact of the project on learning through clubs

- The project boosted the activity of several clubs, including the garden club, GEM and BEM, the AIDS club, the health club, the food and nutrition club, the science exhibition club, the waste management club and the scripture union. The clubs’ activities improved teachers’ perception of the value and dignity of practical manual work in schools.
- The project strengthened learning through clubs, especially through the GEM and the BEM clubs, which also received vegetable beds in the gardens to boost club finances.

#### 6. WASH facilities

- The availability of water and hand-washing facilities improved.
- Hand washing after using the toilet was made possible and done more frequently.
- Safe drinking water was provided in classrooms.
- Toilets were cleaned daily using detergents and clean water.
- Adequate toilets were provided for pupils.
- The water crisis was perceived as a thing of the past.
- There was a drastic improvement in cleanliness and hygiene practices in both schools and communities.

## 7. Environmental education: Best practices as a result of changing attitudes

### 7.1 The community

- Community members became involved in the cultivation of the garden, including making beds, spreading manure, providing seedlings, planting, fencing and selling produce.
- In 14 of the 15 schools (93 per cent), parents and volunteer community members cared for the garden during holidays, watering the vegetables and fertilizing them with manure.
- Village chiefs increased parents' awareness of the need for security for the garden.
- Community members constructed toilets and water tanks for hand washing.
- Parents and community volunteers fetched water for the building project.

### 7.2 The school

- There was evidence of school greening, with shrubs and flowers.
- Water conservation was practiced through planting beds perpendicular to the slope, mulching and drip irrigation.
- Indigenous methods were used to kill ants, and grass was used to create windbreaks.
- People were encouraged to build huts using bricks instead of poles, and to keep records on the planting

and maturation of crops, noting any changes, such as retarded growth.

- Experts were invited to give talks.
- Schools accepted changes and learned to use the new varieties of crops introduced through the project.
- Students learned about climate change, erosion and the dangers of burning grass and cutting down trees.
- Relevant topics were taught at the appropriate time of year.
- Schools conducted in-house staff development to spread knowledge and skills.
- Cluster training was conducted during one-day staff development workshops in the districts.

### 7.3 Teacher training

- The teacher training component provided in-service training for teachers and upgraded unqualified teachers' skills in applying child-friendly teaching and learning methods.
- Training in agricultural skills at agriculture colleges such as Esigodini expanded the capacities of garden masters to manage gardens more effectively.
- In-house, school-based staff development, conducted by teachers who had been trained in various workshops, helped disseminate knowledge and skills to other teachers, enabling them to implement project activities effectively.

## 8. Long-term effects of the project

- Relationships between the school and the community were strengthened and improved, as evidenced by community involvement in school projects.
- Income-generating ventures promoted the schools' self-reliance.
- Some school clubs were empowered to donate seedlings to neighbouring schools that were not participating in the project.
- Pupils and community members applied knowledge gained from the gardens in their homes.

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## Monitoring and evaluation

All district education officers confirmed their involvement in the planning, monitoring and implementation of school and community action plans. Records of materials and equipment donated through the project were available as evidence of effective monitoring of the management, use and security of project assets in all 15 schools. Further, as evidence of heightened interest in and ownership of the project, some of the school heads designed a reporting instrument to be completed every month,

as a proposed improvement in project monitoring.

UNICEF and FAO field officers made frequent monitoring visits to the schools. In response to transport challenges experienced by district officers, UNICEF and FAO field officers were often able to accompany the district officers to the schools for joint monitoring. Follow-up surveys in 2008/09 have confirmed an 80 per cent success rate for the project.

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## Recommendations

Several recommendations have been made, most notably to extend the project to more schools in the district, and to involve parents more regularly.

Requests for **integration of climate change and environmental education in the mainstream curriculum** as well as in community outreach would be preferred, because environmental science alone does not suffice toward practical understanding that leads to long-term behaviour change. It was also proposed that syllabi be reviewed periodically to incorporate emerg-

ing issues such as climate change; teachers should become aware of what is going on in the world so that science teaching becomes applicable to reality. One way to achieve these goals would be to convene workshops to help shift teachers' mindsets regarding climate change and environmental education and to enable them to take ownership of the project.

On the **student engagement** side, it is recommended that pupils be informed about the importance of preserving forests. They should also be provided

with information on the efficient use of water. Further, classes should use drama, poems and songs that convey the messages. Pupils should take at least one practical subject and participate in hands-on projects. Health clubs can encourage the growing of crops that thrive in a given area and can serve as forums for discussion of climate change at the ward level.

From the **nutrition perspective**, it is recommended that learning materials provide information on the nutritional value of indigenous foods, to prove that local foods are just as nutritious as imported ones. The topics of food processing and preservation should also be covered.

Recommendations regarding **technical aspects** encouraged carrying out research on sustaining gardens, involving local leadership in mitigation strategies and conducting community outreach follow-up trainings to improve sustainability and instil a sense of ownership. Easy-to-use technologies like windmill-operated boreholes should be adopted to avoid overburdening the young and the elderly and to facilitate scale-up. Planting early maturing varieties of crops would also make scale-up easier. Additionally, future engagement might be improved if agricultural rural extension officers and health officials are involved in presenting agricultural and nutritional issues in schools.

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## Operational challenges

### 1. At the school level

- Water scarcity: Gardens needed to be watered more frequently owing to intense heat and quick evaporation of moisture. Because the borehole was the only reliable source of water, the water table went down, diminishing the water supply. In some places the water was salty and therefore not suitable for watering crops or drinking.
- Weather conditions: Tomatoes were affected by frost.
- Pests: Some garden projects were damaged by animals such as elephants.
- Inadequate community support: Parents at one school were reluctant

partners, preferring to fish instead of working in the school garden.

- Inadequate supply of seeds: Nearby shops did not stock sufficient seeds, and there was little capital and insufficient financial resources for procurement of seeds. During the holidays, when pupils and teachers were away, there were concerns about security of the gardens and their equipment.
- Teacher mobility and brain drain.

### 2. Leadership roles and transport

- Some schools were inaccessible by road owing to inadequate infrastructure or rough terrain.

- Some districts did not submit adequate progress reports on the project to provincial offices, making it difficult for provincial offices to effectively report to the national office.
- More effective information-sharing as well as stronger involvement of more than one officer at the national level were needed for sustainability of project monitoring.

### 3. Organizational collaboration

- Different agendas among the collaborating partners created disharmony and biases in identifying districts that would benefit from the project and choosing methods of project implementation.
- Variations in criteria for assessing project achievements led to divergent organizational measurement standards.
- Some project partners had rigid budget lines that left no room for responsiveness to emerging issues and circumstances during implementation.
- Biases on the part of some partners, who might have been implementing

other projects in the same districts, led to a breakdown in communication.

### 4. Capacity gaps

- Ten of the plans failed to document evidence of using the garden as a teaching and learning site, even though the garden, school grounds and school environments were being used during teaching, as witnessed in the five lessons observed.
- Borehole drillers were unable to vary the depth to which they sunk the boreholes according to the varying depths of water tables. As a result, most of the boreholes failed to yield enough water to sustain the schools throughout the year.
- Transport was inadequate to effectively monitor the project using the structures of the Ministry of Sports, Arts and Culture.
- The Ministries of Agriculture and Health and Child Welfare failed to sufficiently mobilize and involve expertise.

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## Future directions

Collaborative efforts succeeded in conveying livelihood and life skills to enhance food security and empower vulnerable children in Zimbabwe. However, there is a need to investigate and address the problem of the general decline in pass rates. There is also a need to scale up project activities

to more districts and schools in the country. Lessons learned substantiate the call for involvement of parents in the entire process, from planning to implementation, in order to heighten interest, commitment and ownership of the gardens.



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- 1 This study would not have been possible without the cooperation and support of many contributors: UNICEF provided the funding and logistical support; the Ministry of Education, Sport, Arts and Culture facilitated access to and cooperation from the provincial education directors, district education officers, education officers, school heads, teachers and pupils; School Development Committees and other community members willingly participated in the focus group discussions; the administration of Belvedere Technical Teachers' college supported the outreach activities; Fanuel Manyinyire provided invaluable encouragement and technical support; and Saloni Sharma of the Earth Child Institute edited the case study.
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