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COMBATING CLIMATE CHANGE THROUGH QUALITY EDUCATION

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ABBREVIATIONS

EFA	Education for All
ESD	Education for Sustainable Development
GHG	greenhouse gas
IASC	Inter-Agency Standing Committee
INEE	Inter-Agency Network for Education in Emergencies
ISDR	International Strategy for Disaster Reduction
MDGs	Millennium Development Goals
NGOs	Non-governmental organizations
TPKE	Thematic Platform for Knowledge and Education
UNFCCC	United Nations Framework Convention on Climate Change
UNESCO	United Nations Educational, Scientific, and Cultural Organization
UNEP	United Nations Environment Programme
UNICEF	United Nations Children's Fund

INTRODUCTION

Climate change threatens to undo and even reverse the progress made toward meeting the Millennium Development Goals (MDGs) and poses one of the most serious challenges to reducing global poverty for the international community. However, the education sector offers a currently untapped opportunity to combat climate change. There is a clear education agenda in climate change adaptation and mitigation strategies, which require learning new knowledge and skills and changing behaviors in order to reduce the vulnerabilities and manage the risks of climate change. Therefore, investing in quality education to combat climate change is an essential tool in achieving the MDGs.

This brief reviews the current policies and actions on climate change and the barriers to engaging the education sector in the discussions on climate change mitigation and adaptation. At present, there is no coherent dialogue on how to expand the climate change agenda to include education as a tool in adaptation and mitigation strategies. However, leveraging education for climate change action is indeed possible through existing international agreements and relevant agendas. The brief presents a framework for the existing communities of practice to mobilize around in order to promote education for sustainable development and also integrate disaster risk reduction, quality learning, and environmental and climate change education.

THE CLIMATE CHANGE THREAT

We recognize that climate change poses serious risks and challenges to all countries, particularly developing countries. . . . Addressing climate change will be fundamental to safeguarding and advancing progress towards the Millennium Development Goals. – U.N. High Level Plenary meeting on the Millennium Development Goals¹

According to the United Nations International Panel on Climate Change, climate change is progressing and will have widespread effects on human life and natural systems.² Climate change is a key causative factor in increased heat waves, flooding, droughts, intense tropical cyclones, rising sea levels and loss of biodiversity.³ The average number of disasters caused by natural hazards has increased in the last 20 years from 200 a year to more than 400 today,⁴ and this is predicted to increase by as much as 320 percent in the next 20 years.⁵

People and particularly children living in poverty in underdeveloped countries with weak governance and poor education systems are the hardest hit by climate change. The effect of the physical consequences – more frequent extreme weather, melting glaciers and shorter growing seasons – adds to the existing pressures for those societ-

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ies. Over the long term, these impacts combined with factors such as population pressure are likely to lead to environmental degradation and deterioration in livelihoods, and exacerbate existing socio-economic tensions and create new ones. This will have implications for migration, stability and security at local, national, regional and global levels.⁶

Moreover, disasters caused by hazard-induced climate change can damage or destroy school facilities and educational systems, threatening the physical safety and psychological well-being of communities and interrupting educational continuity. The economic impacts of disasters reduce school enrollment, as children are kept out of school to help with livelihoods. Research suggests that in all instances such outcomes are likely to affect girls and children with disabilities disproportionately. Despite being threatened by climate change, the education sector offers an opportunity to combat climate change through contributing to mitigation efforts and enhancing the adaptive capacity of education systems and learners, thereby reducing vulnerabilities and building resilient societies.

WHAT IS BEING DONE TO ADDRESS CLIMATE CHANGE

There are two main strategies to address climate change: mitigation and adaptation. Mitigation focuses on interventions to reduce greenhouse gas (GHG) concentrations through measures that cut GHG emissions or move carbon out of the atmosphere, which can range from investment in clean energies to forest conservation. Mitigation measures aim to stabilize and reduce the amount of GHGs in the atmosphere, therefore stopping many of the negative impacts of climate change.

Since the causes of climate change are at least partly linked to human actions, these actions need to be identified and changed. This involves learning to change consumption patterns, such as using renewable forms of energy and designing greener technologies. Thus, mitigation requires education geared toward learning how to change lifestyles, economies and social structures that are based on excessive greenhouse gas production.

However, with sufficient GHG concentrations already in the atmosphere, some effects of climate change will continue despite mitigation. Therefore, adaptation – reducing the vulnerability of natural and human systems to the impacts of climate change and adapting to a changing climate through adjustments in social, ecological or economic systems – is also essential.

Given the unpredictability of climate change, the challenge is not simply adapting from one stable climate to another, but adapting to an uncertain climatic future. This demands an approach to adaptation that not only manages current risks and uncertainties but also fosters adaptive capacity. Adaptation is, therefore, not a choice between reducing general vulnerability and gaining the knowledge needed to learn about, prepare for and respond to specific hazards. Rather, adaptation requires both.

Currently, the communities, strategies and policies related to climate change are disconnected and divergent. Policy has mostly focused on mitigation with country-level GHG emission reductions through international

summits and protocols. Other strands of work include adaptation, disaster risk reduction, environmental stewardship, sustainable development, and public awareness and education. However, these efforts are rarely coordinated. For instance, since lead responsibility for disaster risk reduction in most governments, non-governmental organizations (NGOs), multilateral institutions and donor agencies rests with units managing emergency response, disaster risk reduction is rarely comprehensively integrated into longer-term development practices. Recent reports have highlighted the confusion created at the country level from this lack of coordination between the wide array of agendas and actors.⁷

THE POLICY PUZZLE: EDUCATION AND CLIMATE CHANGE

Successful climate change adaptation and mitigation require appropriate knowledge, skills and behavior change that education can provide. Specifically, education can enable individuals and communities to make informed decisions and take action for climate resilient sustainable development. Policymakers have not fully engaged the education sector, even though existing climate change frameworks are in place that could utilize education as a mitigation and adaptation strategy. For example, two major climate treaties, the United Nations Framework Convention on Climate Change (UNFCCC) and the Kyoto Protocol, have articles calling on governments to support education for climate change.⁸ This is complemented by the focus on education and knowledge as a priority for risk reduction within the *Hyogo Framework for Action: Building the Resilience of Communities and Nations to Disasters, 2005-2015*.

Therefore, the tools are in place, but what is missing is a clear and coherent articulation of how to do this. Ignoring the education sector has negative consequences for practical work being carried out to combat climate change and fulfilling the commitment to the UNFCCC. For instance, there are few mechanisms in place at the country level to support the development and funding of education activities within existing national climate change committees.⁹

In the global education community, several stakeholders, such as UNESCO, UNEP and UNICEF, are incorporating components of the climate change agenda in education and helping schools and communities integrate climate change education and environmental stewardship into the curricula. Others, like Plan, Save the Children and ActionAid, are focused on building the skills of communities and learners to adapt to climate change through integrating risk reduction in education curricula and systems. At regional and international levels, networks and inter-agency platforms, such as the Asia Preparedness Disaster Center, the Global Coalition for School Safety and Disaster Prevention Education, the IASC Education Cluster, the Children in a Changing Environment coalition, and the ISDR Thematic Platform on Knowledge and Education, are focused on sharing lessons learned and codifying them in programming tools focused on risk reduction through education. However, this education work remains ad hoc and is not yet widely recognized by nor integrated into the efforts of the climate change community.

EDUCATION AS AN UNTAPPED RESOURCE TO COMBAT CLIMATE CHANGE

The international community and particularly those within the climate change arena have overlooked the role of education in bringing about behavior change for mitigation. Educators have long traditions of educating for social change and can use their expertise on knowledge, skills, and attitude and behavior change to help reduce greenhouse gas emissions. In addition to education's integral role in behavior change, schools have a role to play in mitigation in terms of becoming carbon neutral and reducing their own ecological footprint.

Education is also a critical component of adaptive capacity, along with health, assets and governance.¹⁰ The way that people are educated and the content of education provide the knowledge and skills needed for making informed decisions about how to adapt individual lives and livelihoods as well as ecological, social or economic systems in a changing environment.

Recent studies from the World Bank and the Center for Global Development state that educating girls and women is one of the best ways of ensuring that communities are better able to adapt and thus be less vulnerable to extreme weather events and climate change. Based on existing data demonstrating that educating women reduces their vulnerability to death and injury during natural disasters and could potentially reduce their families' vulnerability to death and injury during weather-related disasters, researchers found that a huge number of weather-related tragedies could have been averted if more developing countries had focused on "progressive but feasible female education policies."¹¹ Both reports conclude that in the developing world, neutralizing the impact of worsening weather over the coming decades will require educating a large new cohort of young women, which will enhance countries' future resilience.¹² Moreover, the cost effectiveness of the education of girls and women for climate change adaptation has been affirmed by World Bank research.¹³

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LEVERAGING ACTION: TOWARD AN INTEGRATED FRAMEWORK FOR COMBATING CLIMATE CHANGE THROUGH EDUCATION

Mirroring the disparate and disjointed agendas within the climate change arena, the education arena currently lacks a coherent framework that articulates how education can combat climate change. There are several education related agendas that are tackling components of climate change mitigation and adaptation, but they are not sufficiently sharing information and working together to leverage resources and opportunities. The following is an overview of five relevant education agendas and communities of practice:

1. Education for All (EFA) is a global education movement that aims to meet the rights and learning needs of all children, youth and adults by 2015. The guiding principles are codified within the Dakar Framework — a collective commitment to action that focuses on six internationally agreed education goals, including expanding and improving early childhood care and education, inclusive access to primary education, access to learning and life skills programs and improving adult literacy, achieving gender equity, and improving quality. However, in practice, especially since the uptake of two EFA goals by the Millennium Development Goals, the EFA agenda has been primarily concerned with access to organized, formal education. EFA has succeeded in raising the profile of education internationally and has a rich partnership of governments, NGOs and U.N. agencies working to fulfill the EFA goals. UNESCO is the lead agency and coordinator for this agenda.

2. Education for Sustainable Development (ESD) shares EFA's focus on basic, quality education and literacy but goes beyond it to promote relevant and interdisciplinary education that fosters critical thinking and problem solving. Encompassing a range of learning spaces, from formal to non-formal and from early childhood development through to tertiary and adult education, ESD promotes active and participatory learning to deliver knowledge and skills that are relevant to local contexts and needs. Through these skills, attitudes and knowledge, ESD aims to enable individuals to make informed and responsible decisions and take action in the context of sustainable development. ESD also promotes the principles that are the basis of sustainable development, including equity, social tolerance, poverty reduction, environmental protection and restoration, and natural resource conservation.

UNESCO is the lead agency for the United Nations “Decade of Education for Sustainable Development” (2005-2014) and reaffirmed that climate change is a key action theme of the DESD at the World Conference on ESD in Bonn in April 2009.¹⁴ ESD's constituency is vast and particularly involves educators who have come from the development education, environmental education, peace education and global citizenship arenas.

3. The quality learning agenda is an emerging agenda that focuses on acquiring knowledge and developing skills through learners' engagement in critical analysis of problem-solving. Like ESD, this agenda promotes teaching and learning methodologies that are participatory, experiential, critical and inclusive. A loose network of actors from U.N., NGO, academic and government arenas are involved in this agenda to strengthen action toward EFA goal six: improving quality and measurable learning outcomes, especially in literacy, numeracy and essential life skills. Although a number of actors have been concerned about the issue of educational quality for a while, this agenda is experiencing renewed focus as the EFA community is coalescing around better data that shows poor levels of basic learning, especially reading, in the early grades. In terms of policy for realizing quality learning, it requires moving *learning* – rather than educational access and enrollment as the MDGs currently focus on – up the global education and development agendas. Concretely, this involves not only a focus on literacy, numeracy and life-skills, but also a stronger focus on the contributing factors that have been shown to impact learning, such as high attendance rates, progression through grades, and testing the acquisition of knowledge and the development of skills through the evaluation of learning outcomes. The value-added of the quality learning agenda is that it complements ESD through a focus on essential life skills and learning, and also focuses on testing acquisition of that knowledge and the development of skills to use the knowledge.

4. Disaster risk reduction in the education sector aims to plan for educational continuity and to strengthen education systems and learning for disaster reduction and prevention, which are also critical components of climate change adaptation. Experience from countries around the world has shown that investments in disaster risk reduction through education can result in changes in human perceptions and patterns of behavior that reduce the risks and costs of disasters and produce long-term benefits. By observing building standards for disaster-resistant school construction and practicing evacuation plans, the education sector can decrease the risk of physical collapse and the associated material, economic and human life loss. Education can also increase capacities to reduce overall vulnerability to disaster by teaching environmental stewardship, the potential hazards that communities face, how to reduce disaster risks and skills needed in the event of a disaster. Like ESD and the quality learning agenda, disaster risk reduction in the education sector seeks to tap the instrumental values of engaging learners and schools as participants in changing social norms.

Education is one of five priorities codified within the *Hyogo Framework for Action*. Also within the International Strategy for Risk Reduction — the U.N. focal point to promote disaster reduction activities — there is a Thematic Platform for Knowledge and Education (TPKE). The TPKE is comprised of some of the major actors in risk reduction through education, such as UNICEF, UNESCO, Plan, ActionAid and the Inter-Agency Network for Education in Emergencies (INEE). In addition, local NGOs, regional and global networks like the Coalition for Global School Safety and Disaster Prevention Education, and coordination bodies like the IASC Education Cluster, are leading actors in sharing information and integrating risk reduction into education. There is currently a focus on risk reduction within the field of education in emergencies, but a lack of risk reduction implementation within the wider development education arena.

5. Environmental and climate change education seeks to teach about how natural environments function and how individuals can manage their behavior and ecosystems to live sustainably. It fosters the effective integration of environmental stewardship and climate change education into educational programs and school curricula, including understanding the causes and consequences of climate change, recognizing its impact and implementing appropriate responses. Environmental and climate change education promotes not only knowledge of the environment, climate change and the associated challenges, but also fosters attitudes and motivations to make informed decisions and take responsible action. There is no clear lead actor for this work, which is being carried out internationally in varying degrees by educational ministries, schools, non-formal education programs, NGOs, and U.N. agencies like UNEP, UNESCO and UNICEF.

To leverage the education sector in climate change mitigation and adaptation, an integrated approach to these education agendas is needed. In keeping with the principles of the Paris Declaration for Aid Effectiveness and the Accra Agenda for Action, policymakers from each agenda must meet to develop a common understanding of how to work together to achieve this integrated approach. Based on a review of these agendas and the discourse and recommendations at recent international climate change education meetings, such as the International Seminar on Climate Change Education and the World Conference on Education for Sustainable Development in 2009, ESD appears to be the best placed to move forward an overall agenda to use education to combat climate change. It encompasses the broadest and most interdisciplinary agenda and the principles of ESD are already considered within the other initiatives. Moreover, ESD is aimed not just at poverty reduction but also at pro-ac-

tive poverty prevention. The agenda seeks to bring about changes that not only reverse but also prevent harmful trends of social and environmental degradation, including climate change.

An ESD agenda that effectively combats climate change will need to more strongly and explicitly incorporate the educational components of the risk reduction, environmental and climate change education, and quality learning agendas. An important consideration in the strategy of moving forward this agenda will be its acceptance and promotion by the EFA community, which is more connected to high-level government policymakers than ESD. There appear to be positive signs that two U.N. agencies, UNESCO and UNICEF, will put ESD at the center of their thinking about how education can combat climate change.¹⁵ However, based on an analysis of EFA documentation, neither ESD nor the challenge of climate change are currently highly promoted within the EFA platform and policy arena. A coherent and integrated approach to combating climate change is a gap within the EFA agenda. In fact, education that reduces the vulnerability and increases the resilience of learners and education systems can strengthen the agenda toward meeting the EFA goals. UNESCO is working to create more synergies between EFA and ESD;¹⁶ this is an area that deserves priority attention.

WHAT COMBATING CLIMATE CHANGE THROUGH EDUCATION LOOKS LIKE

The changing climate is making it harder to deliver quality education and to keep learners safe while doing it. However, climate change mitigation and adaptation through education *is* within reach. An Education for Sustainable Development agenda that integrates the core principles of the quality learning, disaster risk reduction, and environmental and climate change education agendas could combat mitigation and enhance adaptation through the following components: relevant content knowledge, critical thinking skills, safe and adaptive schools, and green schools. These four components can build the capacity of education systems to integrate risk reduction while also providing learners with the knowledge base and critical thinking skills to help shape and sustain future action and policymaking about climate change and other uncertainties.¹⁷

1. Relevant content knowledge. A central function of education is to foster learning about new subjects, including strategies on how to adapt to and mitigate climate change. Teaching and learning can integrate environmental stewardship, which encompasses environmental education, climate change and scientific literacy, as well as disaster risk reduction and preparedness through formal, co-curricular and informal curricula. Learners

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need a basic understanding of scientific concepts with a deeper level of systems thinking, such as knowledge of the history and causes of climate change; knowledge of and ability to distinguish between certainties, uncertainties, risks and consequences of environmental degradation, disasters and climate change; knowledge of mitigation and adaptation practices that can contribute to building resilience and sustainability; understanding of different interests that shape different responses to climate change and ability to critically judge the validity of these interests in relation to the public good. Teaching and learning on this front can draw on both scientific and indigenous knowledge for successful mitigation and adaptation.¹⁸ In particular, higher education can promote relevant scientific knowledge and expertise and support the development of adaptive technologies.

For instance, in the Philippines, communities have worked with the ministry of education, Plan and other partners to prepare children and young people to adapt to climate change and reduce the risk of disaster. Children learned about climate change adaptation and how to reduce their vulnerability to disasters through education and training in early warning systems. This included education on rain gauges, disaster simulation and drills as well as carrying out risk mapping and learning first aid, swimming and water safety. Children were then encouraged to express what they had learned through theater and music activities, thus delivering information on potential hazards and the practical solutions to the hazards to their communities. These efforts have already saved lives. For example, in 2006 after three days of continuous rain in Liloan and San Francisco villages, children and adults used the knowledge they gained from adaptation focused risk reduction contingency planning and evaluation procedures to evacuate before landslides covered their homes.¹⁹

Education is also an essential component of learning sustainable livelihoods as a strategy for adapting to climate change. Ensuring appropriate education for developing new climate-friendly and climate-resilient livelihoods for youth and adults is an important way in which education policy can help climate change adaptation and mitigation.

2. Critical thinking skills. Given the uncertainty that climate change brings, it is not enough to integrate relevant knowledge such as environmental and climate change education into curricula. Education can provide the necessary skills to facilitate critical thinking, open-mindedness and problem-solving across all subjects. This is essential to developing and sustaining adaptive capacity because these skills can enable learners to comprehend, analyze and use information to think creatively and change behavior in order to adapt to different futures.²⁰

An example of a program that combines relevant content knowledge and critical thinking skills is Sandwatch – a network of NGOs, schools and youth groups working together in the Caribbean, Europe, Africa, Asia and South America to monitor and enhance beach environments. Sandwatch promotes an educational process where schools, students and community members learn and work together to critically evaluate the problems and conflicts facing their beach environments, including a changing climate, and develop sustainable approaches to address these issues. The program utilizes a method that not only includes acquiring skills to monitor the environment but also to analyze the results, to share the findings across stakeholder groups and then to take action.²¹

A central component in this effort to develop critical thinking skills is to create education systems that equip learners with the requisite skills, knowledge and attitudes to deal with future uncertainties and challenges, including climate change. Enhancing teachers' own knowledge and their capacities to strengthen learners' ca-

capacity for critical thinking is essential. This requires teacher training, with a focus on the faculty of pedagogic institutes and post-secondary trade schools, in content areas and in learner-centered, participatory and inclusive instruction.

3. Safe and adaptive schools. Disaster risk reduction strategies can ensure the safety and continuity of education, helping the system to adapt to climate change and reduce the vulnerability of learners. Safe school sites can be selected through participatory risk assessments geared at ensuring that every new school is climate-proofed and multi-hazard resilient. This requires prioritizing replacement and retrofit of unsafe schools and minimizing non-structural risks. For instance, in 2004 two strong cyclones struck Madagascar's east and west coasts, damaging 3,400 schools, of which 1,420 were completely destroyed. The government then constructed or retrofitted 2,041 cyclone-resistant school buildings to withstand cyclone winds of up to 250 km/hour. This project relied on the leadership, management and ownership of the local community, who took responsibility for maintaining and administering the building through a local association.²²

A critical element in enhancing resilience is the ability to prepare for and respond to the impacts of climate change. Students, teachers, parents and communities must be involved in practicing early warning, simulation drills and evacuation for expected and recurring disasters. In Kenya, UNICEF has helped children to adapt to the impacts of climate change expected in the Mombasa region by training students and teachers recognize the early warning signs of flooding and to prepare for the onset of emergencies such as flooding.²³ Education systems also need to work with parents and the wider community to adapt as necessary to the seasonality changes caused by climate change through strategies such as adapting the school year, exam calendar and textbook distribution.

To ensure adaptive and safe learning environments, schools can develop contingency plans for continuity of learning in the event of unexpected disasters and/or displacement caused by impacts of climate change. One concrete framework for doing this is the INEE *Minimum Standards for Education: Preparedness, Response, Recovery*. This handbook provides guidance on how to prepare for, respond to and recover from disasters in ways that reduce risk, improve future preparedness and lay a solid foundation for quality education.

4. Green schools. There are millions of schools around world and ensuring they are environmentally sustainable and carbon neutral is one way that education policy can contribute to climate change mitigation efforts. This requires design, building and maintenance practices geared toward carbon neutral and environmentally sustainable learning spaces, which integrate green technology to reduce energy consumption. For example, climate change can increase water stress caused by erratic rainfall patterns and create a need for alternative sources of water. Programs for harvesting rainwater can be integrated into schools so that children have a safe and ready supply of drinking water and basic sanitation facilities at school. School-based water and sanitation programs also have the benefit of encouraging parents and the community to support children going to school. To ensure that the climate-specific impacts on the education sector are not overlooked, the education sector needs to be involved in strategic planning in sectors such as water and sanitation, construction and health and hygiene.

An example of a green school initiative is California's Cool Schools toolkit for district officials, teachers and students to take action to reduce GHG emissions. Cool Schools is a partnership between the state government, NGOs and universities. The toolkit contains information, resources and tools in the areas of energy and water

efficiency, transportation, purchasing, building, recycling and green energy. For instance, it provides guidelines and good practices for building and maintaining high performance schools that use a “whole-building” approach to providing a healthy learning environment while conserving energy, water, and resources and serving as a community resource. It recommends that district officials appoint an energy team within the school or district to decide on the best sources of renewable energy for the school and provides links to case studies to learn about what other schools are doing to incorporate renewable energy infrastructure, such as through solar, biomass and wind energy. The toolkit also provides calculators and modeling tools to estimate GHG emission reductions from school, district and student actions.²⁴

There are two cross-cutting issues that are important in realizing each of these previous components: (1) the active participation of the community, especially children, as agents of change and (2) enhanced linkages with climate researchers.

1. Active participation of the community as agents of change. Knowledge gained by learners can further extend climate change mitigation and adaptation measures outside of the school or non-formal learning program and into the wider community. Research from Bangladesh, El Salvador, India, Indonesia, Ghana, Kenya, Malawi, Nepal, the Philippines and Zambia has shown that school communities can help provide critical public awareness, outreach and non-formal education on mitigation and adaptation, particularly disaster prevention and risk reduction, through creative activities such as music and drama.²⁵ In this way, learners provide leadership through not only raising awareness about what they have learned, but also in sharing information about how to address vulnerabilities and adapt to climate change impacts.

Children in particular can play a leading role in combating climate change. The 2.2 billion young people under the age of 18 worldwide will be the ones called to cope with the impacts and make the decisions on climate change in the not so distant future. Children are powerful agents of change and research has shown that providing them with empowering and relevant education on disasters and climate change in a nurturing school environment can reduce their own and the community’s vulnerability to risk and contribute to sustainable development.²⁶ For instance, when Cyclone Sidr hit Bangladesh in 2007 Lamia Akter, a 7-year old student from one of ActionAid’s project sites, helped save the lives of her family and others by passing on a cyclone warning alert she had received at school to villagers in her community. Lamia went from door to door, telling people to store their valuables and go to the cyclone shelter. Lamia had learned what actions to take before, during and after a disaster and she told others in her community. Lamia’s quick action meant that she was able to get her family and

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neighbors to the cyclone shelter in time. The cyclone destroyed many homes, but Lamia and her family survived and are now rebuilding their lives.²⁷

Research demonstrates children hold a pivotal position in climate change issues in many communities due to their growing access to information from school, media, technology and training workshops. They are often more conscious of the implications of wider scale processes than adults and can be empowered to communicate and interact with other members of the community about reducing climate and disaster risks.²⁸

2. Enhanced linkages with climate researchers. Educational authorities and school administrators, particularly at the national level, can establish links with climate research institutions to ground educational policy and actions in scientific knowledge and expertise. This can be mutually beneficial. For instance, education focused risk reduction programs usually involve hazard identification and risk analysis, but teachers and learners may not always have the information they need to predict hazards related to future effects of climate change. By linking with climate research institutions, this gap can be filled. Likewise, school-based learning about hazards and the impacts of climate change can complement the work of researchers and scientists on climate change risks to ensure that potential hazards and the best ways to mitigate them are effectively communicated in schools and throughout communities.

RECOMMENDATIONS FOR THE WAY FORWARD

Our world possesses the knowledge and the resources to achieve the MDGs... Our challenge today is to agree on an action agenda to achieve the MDGs. – U.N. Secretary-General Ban Ki-moon

Climate change is the greatest public policy issue of our time. If the international community is to respond to this challenge, education has a key role to play in empowering individuals to make informed choices and develop behaviors that reorient society toward enhancing resilience and sustainable practices. This work must be carried out in partnership with the education, climate change, risk reduction, sustainable development and environmental sustainability communities.

Recommendation 1: Expand the climate change agenda to include education as a tool in adaptation and mitigation strategies.

Climate change presents the international community with a historic opportunity to make development more sustainable through integrating adaptation and mitigation measures. Education, through enabling individuals and communities to gain new knowledge and skills, and to change their attitudes and behaviors, is a critical component of this process. An expanded climate change agenda that promotes education as a tool to enhance adaptive capacity and ensure that lifestyles and livelihoods are climate-friendly, reduce vulnerabilities and manage risk is one that will be more effective and sustainable.

Recommendation 2: Promote an Education for Sustainable Development agenda that incorporates disaster risk reduction, quality learning, and environmental and climate change education.

Policymakers from the ESD, EFA, risk reduction, environmental and climate change education, and quality learning agendas should come together in order to develop a common understanding of a coherent approach to leveraging education to combat climate change. This should promote and build upon the work that the ESD agenda has already begun and integrate the components from the other agendas to realize a truly integrated and holistic approach to combating climate change through education. An important consideration in the strategy of moving forward with this agenda will be its acceptance and promotion by the EFA community. UNESCO should continue to facilitate greater understanding about the synergies between the EFA and ESD agendas with regard to this issue. In particular, UNESCO should promote the idea that by linking EFA and ESD, a mutually beneficial situation can be achieved whereby the outcomes of both could be better addressed. In addition, the EFA Global Monitoring Report, which is produced annually to assess how well countries and regions are doing in reaching EFA goals, should commission and document relevant research and lessons learned on strategies and innovations to combat climate change through education.

Recommendation 3: Finance education to combat climate change.

An investment in education for sustainable development, including combating climate change, is an area where development aid can achieve multiple objectives at once. A focus on the education of young women is a “win-win” solution, as it will not only benefit the fight against climate change, but also ensure environmental sustainability, combat HIV/AIDS and other diseases, and improve child mortality, maternal mortality and related sustainable development outcomes, as previously shown through development research. Currently, an inadequate level of financial resources is impeding climate change education and outreach efforts. Funds urgently need be invested within the education sector in order to enable all people, particularly youth, to build green societies that reduce greenhouse gas emissions and the vulnerability of individuals and systems to the impacts of climate change.

Recommendation 4: Strengthen the knowledge base, information sharing and networking.

The ESD, EFA, risk reduction, sustainable development, climate change, environmental education, quality learning and humanitarian response communities need to work together to improve knowledge networks at international, regional and national levels through greater investment in generating, disseminating, and exchanging knowledge, good practices and lessons learned. An important component of this work will be to strengthen the evidence base on the most effective adaptation and mitigation measures through education and their impact at individual, school and society levels. Moreover, there is a need to develop communications materials to bridge the awareness gap in terms of education’s role in reducing the multiple risks of climate change, disasters, environmental degradation, poverty and conflict.

ENDNOTES

1. UN High Level Plenary meeting on the Millennium Development Goals, Draft outcome document, paragraph 22, 2010.
2. Intergovernmental Panel on Climate Change, *Climate Change 2007: Fourth Assessment Report*, 2007.
3. While policymakers are faced with the challenge of distinguishing the specific impacts of climate change from those of natural climate variability, an overriding objective should be a comprehensive, integrated approach to managing climate risks of all types, regardless of their cause.
4. United Nations General Assembly, *International Cooperation on Humanitarian Assistance in the Field of Natural Disasters*, Report of the UN Secretary General. Sixty-Fourth session, 27 August 2009, page 2. The report notes that this trend can be partly attributed to better reporting but that it also reflects changes in the patterns of climate-related hazards.
5. Mackinnon Webster, Justin Ginnetti, Peter Walker, Daniel Coppard, Randolph Kent, *The Humanitarian Costs Of Climate Change*, Feinstein International Center, 2009. Data acquired from the International Disaster Database, Centre for Research on the Epidemiology of Disasters (CRED), www.EMDAT.be.
6. *Climate Literacy: The Essential Principles of Climate Science*, US Global Change Research Program/ Climate Change Science Program, March 2009. See also: *Monitoring Disaster Displacement in the Context of Climate Change: Findings of a study by the United Nations Office for the Coordination of Humanitarian Affairs and the Internal Displacement Monitoring Center*, UNOCHA, Switzerland, 2009, page 15.
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