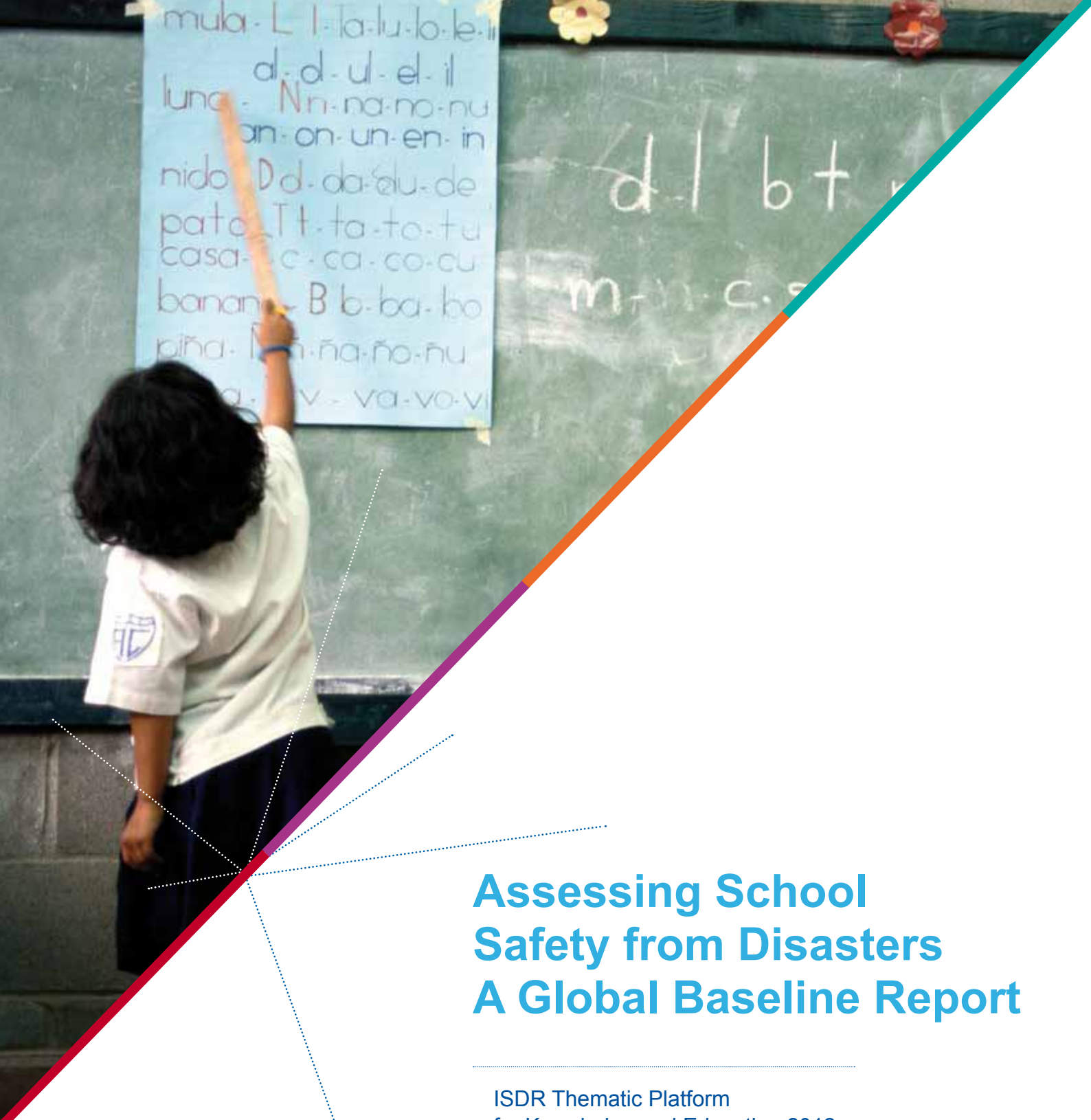
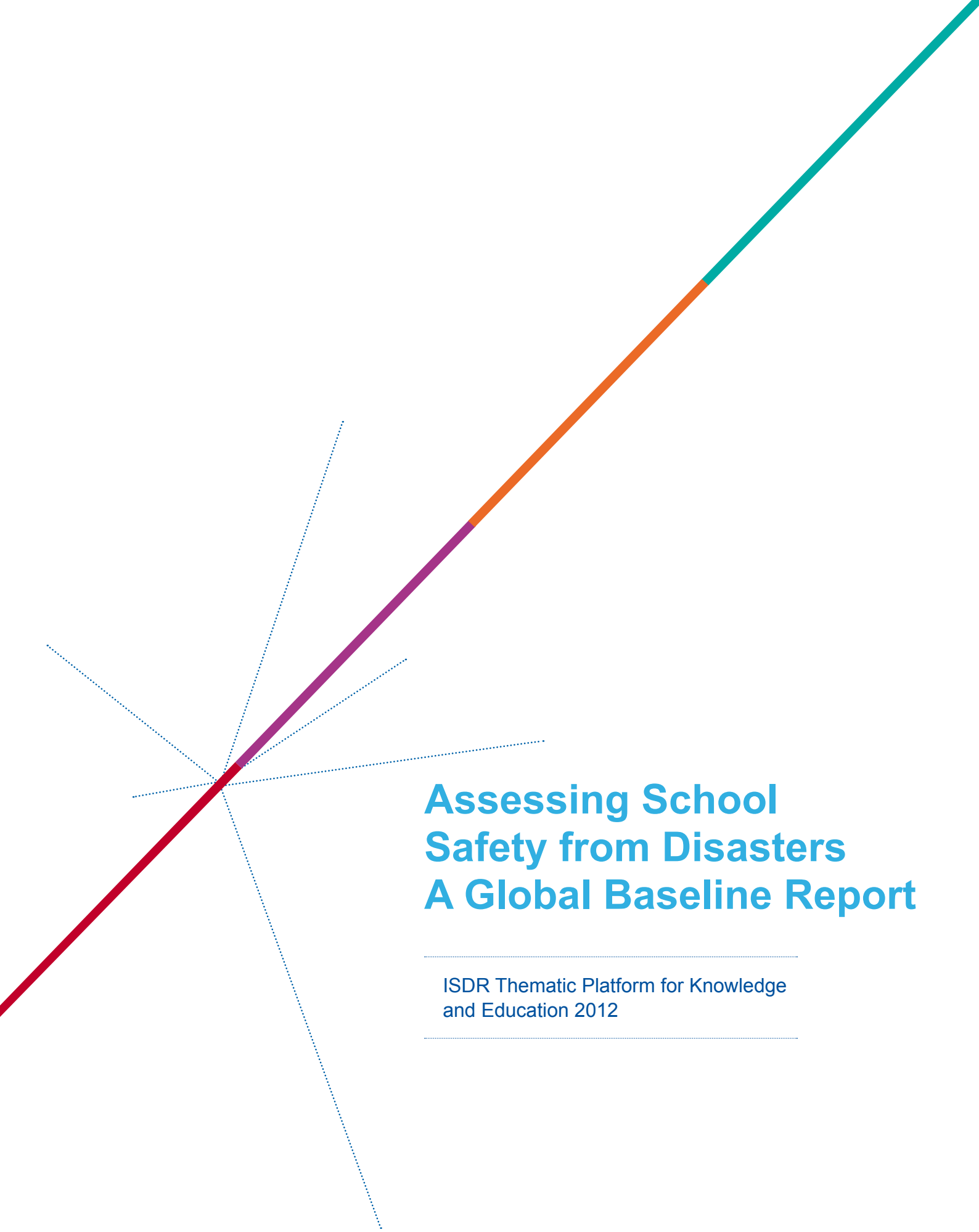


Assessing School Safety from Disasters
A Global Baseline Report

ISDR Thematic Platform
for Knowledge and Education 2012

International Strategy for
Disaster Reduction



Assessing School Safety from Disasters A Global Baseline Report

ISDR Thematic Platform for Knowledge and Education 2012

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The UN General Assembly adopted the International Strategy for Disaster Reduction in December 1999 (GA resolution 54/219) and established UNISDR, the secretariat to ensure its implementation. UNISDR, the UN office for disaster risk reduction, is also the focal point in the UN system for the coordination of disaster risk reduction and the implementation of the international blueprint for disaster risk reduction - the 'Hyogo Framework for Action 2005-2015: Building the resilience of nations and communities to disasters' (GA resolution 60/195).

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KEY CONCEPTS

Disaster risk reduction [1]	The practice of reducing the risk of disaster through systematic analysis and management of the causal factors of disasters. This includes reducing exposure to hazards, lessening the vulnerability of people and property, wise land and environmental management, and improved preparedness. For education it implies the systematic analysis of and attempt to reduce disaster-related risks to enable the education system to provide (and learners to continue, and out-of-school children to access) quality education for all, before, during, and after emergencies. Disaster risk reduction under the Hyogo Framework for Action1 does not include conflict, but risk reduction principles can also be applied to contexts involving conflict and civil unrest
Hazard [2]	A dangerous phenomenon or human activity that may damage, disrupt, or lead to loss of life, health, property, livelihoods, social, and economic services. Hazards arise from a variety of sources and sometimes act in combination. Technically, hazards can be described quantitatively as 'likelihood x frequency of occurrence x intensity of impact'. They can include conflict and natural disaster.
Risk [3]	The word 'risk' has two distinctive connotations. In popular usage the emphasis is on the concept of chance or possibility ('the risk of an accident'). In technical settings the emphasis is usually placed on consequences in terms of 'potential losses'. The relationship between vulnerability and the likelihood and severity of hazards can be represented using this equation: Risk = Hazard x Vulnerability/Capacity The worse the hazard, the greater the risk. Likewise, risk also increases when a community, system, or even a school is more vulnerable.
Retrofitting [4]	The reinforcement or upgrading of existing structures to become more resistant and resilient to the damaging effects of hazards
Resilience [5]	Resilience is the ability of an education system (at different levels) to minimize disaster and conflict risks, to maintain its functions during an emergency, and to recover from shocks. Resilience at the individual level is the ability to apply knowledge to minimize risks, to adapt to emergency situations, to withstand shocks, and to rapidly resume learning and other life-sustaining activities. Resilience can be strengthened when factors underlying vulnerability are addressed. Resilience is the opposite of vulnerability. Resilience is reinforced when the 'inherent' strengths – of individuals and systems – are identified and supported.
Vulnerability [6]	The characteristics and circumstances of a community, system, or asset that make it susceptible to the damaging effects of a hazard. There are many aspects of vulnerability, arising from various physical, social, economic, and environmental factors. At the education system level, vulnerability is the combination of exposure to conflict-related, natural, and human-made hazards, and the degree to which the education system at different levels is susceptible to collapse and disruption of function. At the learners' level, vulnerability is the combination of exposure to hazards and the degree to which learners are susceptible to interruption or complete loss of access to quality education opportunities.

1 From UNESCO IIEP; Integrating conflict and disaster risk reduction into education sector planning – draft, 2011. Adapted from Global Education Cluster, 2011.

2 *Ibid.*

3 *Ibid.*

4 From INEE, Guidance Notes for Safer School Construction

5 From UNESCO IIEP; Integrating conflict and disaster risk reduction into education sector planning – draft, 2011. Adapted from Global Education Cluster, 2011.

6 *Ibid.*

FOREWORD

Collapsing schools in large scale natural disasters have killed thousands of children over the past twenty years and wiped away billions of development investments in education facilities. In 2010, the Haiti Earthquake took the lives of approximately 4,000 students and 700 teachers and destroyed or damaged 80% of schools in Port-au-Prince and 60% of schools in the South and West Departments. The 2011 Great Eastern Japan Earthquake and Tsunami disaster alone reached an economic cost of approximately US$235 billion, making it the costliest natural disaster in world history according to the World Bank. The continued loss of human lives linked to avoidable infrastructural collapses and the escalating investment losses in school infrastructures have now become unacceptable.

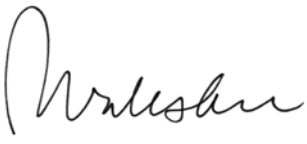
In this context, Governments have made of school safety a top priority as part of their national disaster risk reduction strategy and development agenda. At the 2009 and 2011 sessions of the Global Platform for Disaster Risk Reduction, Governments committed to assess vulnerable schools and develop national school safety programmes by 2015. Though major progress has been reported on that front over the past three national and local HFA reporting cycles – with sometimes impressive nation-wide school safety assessments undertaken like in the case of Uzbekistan – significant efforts and investments still remain to be made to ensure that all schools become safe knowledge heavens.

This publication is an illustration of successful and innovative school safety plans and methodologies implemented at national level across the globe. It is a collective effort by the ISDR Thematic Platform on Knowledge and Education that aims at providing Governments with relevant guidance to facilitate school safety implementation through a set of good practices, successful methodologies and concrete policy recommendations on school risk assessment and retrofitting to encourage further adaptation and replication globally.

School safety is no longer just a moral or ethical imperative. It has become a critical pre-condition to achieve sustainable development and reach the Millennium Development Goal of “Universal Education” and an equitable access for all children to safe Education and learning environments by 2015.

I trust and hope this document shall provide inspiration to all Governments and societies concerned with building the resilience and systematic protection of future generations and educational assets against disasters’ impact. This is my call that school safety becomes a major priority of a post 2015 framework on disaster risk reduction (HFA2) so that no child or teacher ever dies again under collapsing schools by 2030.

Photo: UNISDR



Margareta Wahlström,
Special Representative of the Secretary-General
for Disaster Risk Reduction

EXECUTIVE SUMMARY

In the course of implementation of the Hyogo Framework for Action 2005–2015, as countries made commitments to and progress towards five national priorities for action, concerns for the safety of school children and recognition of the importance of sustained education in achieving a new culture of safety for the future led to demands for concrete action to achieve comprehensive school safety, and to "refine the methods and indicators for measuring progress to cover a all aspects of safe schools."

This desk review revisits existing reports about all aspects of school safety, gathered from 81 countries, and refers to the key advocacy and guidance documents for school safety of the past 7 years to develop an analysis that reflects the best practices in achieving the goals of comprehensive school safety, and current concerns and recommendations of advocates and practitioners.

A basic and simple framework for understanding the scope of school safety recognizes three main pillars: safe school facilities, school disaster management, and disaster prevention and risk reduction education. Each of these requires separate tracking because the types of policies, decision-making authority, resources, expertise, and implementing actors are substantially different for each.

The Analysis section of this report draws from the wide range of reports and case studies and lessons learned from the practices of the past few years. It has afforded an opportunity to summarize many of the strengths and opportunities as well as the weaknesses and threats found in this literature. Illustrative examples and selected good practices are also provided to help in understanding the current state of the art.

Results of the analysis suggest that an initial flurry of activity to produce outputs, is now ready to yield to a more substantive focus on school safety outcomes. Starting from a children's rights perspective unequivocal commitment to two essential rights is assumed: the right to education, and the right to safety. As a result, school safety outcomes can be treated as standards to be achieved at three levels: Must / Should / May. By prioritizing the following key commitments, and aligning their indicators with those already familiar in the Hyogo Framework for Action, a key recommendation is to adapt and implement the HFA within the education sector more explicitly.

Key Commitments to Outcomes:

Assessment

1. Schools should be identified as part of an Education Management Information System, including their exposure to natural and human-caused hazards and structural vulnerabilities. This information must be understood by both education authorities, and school communities.
2. School facilities' vulnerability must be triaged to identify priorities for technical on-site assessment. The most vulnerable must be fully assessed for retrofit or replacement.
3. Schools should regularly reassess their vulnerability in relation to new information.

Safe School Facilities

1. Every new school must be a safe school
2. Legacy schools should be prioritized for replacement and retrofit
3. Lifeline infrastructure and non-structural safety should be assessed locally and measures taken
4. School furnishings and equipment should be designed and installed to minimize potential harm they might cause to school occupants.

School Disaster Management

1. Education authorities must make continuity plans to insure that school operations continue in case natural hazards disrupt the school year.
2. An ongoing school disaster management or safety committee must meet regularly to guide the school disaster management process at the school level
3. Responsibility for maintenance of school physical infrastructure and non-structural safety, must be established by school authorities with mechanisms for financing and execution.
4. Education authorities and schools should have and practices, policies and procedures for expected disasters and emergencies.
5. School personnel should have the opportunity to develop response skills for disasters and emergencies.
6. School disaster simulation drills should be held at least annually, for each expected hazard, to practice and improve skills and plans.
7. School should have a minimum of 3-7 days of provisions for emergencies and disasters.

Disaster Risk Reduction in School Curricula

1. Disaster risk reduction should be integrated, holistically and taught as part of school curricula from pre-school through secondary school.
2. Disaster risk reduction should be part of regular co-curricular school activities.
3. Consensus-based key messages for disaster risk reduction at household and family and organizational levels should be standardized, harmonized, and contextualized.
4. Education personnel should have opportunities for development of skills and competencies, and access to materials for teaching disaster risk reduction through formal and co-curricular methods.

Details are provided to explain each of the outcomes suggested.

The final section of this report details the following seven key recommendations to be addressed collectively by national education sector and disaster management policy-makers, education authorities at all levels, supporting INGOs[1], NGOs[2], donors, and school communities themselves:

1. Re-Focus on Outcomes, Standards and Core Commitments
2. Align education sector indicators with the Hyogo Framework for Action
3. Develop and monitor policies to safeguard development investments
4. Follow best practices to drive progress
5. Work with and support regional and sub-regional partnerships
6. Develop knowledge management tools for scaling-up
7. Support impact research for scaling-up.

1 International Non-Governmental Organizations (INGOs)
2 Non-Governmental Organizations (NGOs)

BACKGROUND

During the second session of the United Nations International Strategy for Disaster Reduction (UNISDR) Global Platform for Disaster Risk Reduction in June 2009 participating countries expressed commitment to "national assessments of the safety of existing education and health facilities should be undertaken by 2011". During the third session in 2011 the commitment was reiterated: "By 2015, concrete action plans for safer schools and hospitals should be developed and implemented in all disaster prone countries. Disaster risk reduction should be included in all school curricula by the same year".

A special session on Education and Safe Schools called for steps to:

- Accelerate investments in schools and recognize the manifold return in investing in safe schools.
- Recognize that a comprehensive safe schools initiative assists in the realization of other rights and reduces vulnerability of communities and countries.
- Refine the methodology and indicators for measuring progress to cover all aspects of safe schools.

The UNISDR Secretariat in Geneva in coordination with the ISDR Thematic Platform on Knowledge and Education (TPKE)[1], hosted two consultancies to undertake this study. In 2011, architect and schools' vulnerability reduction specialist, Pedro Bastidas, undertook research for a baseline study on the status of school safety worldwide based on a desk review of ten selected countries' national reports and other policy documents related to disaster risk reduction education and school safety (Hyogo Framework of Action, UNICEF, UNESCO, Plan International, etc.) In 2012, urban planner and school disaster reduction specialist Marla Petal, was contracted to review case study materials and reports and develop analysis and recommendations based on these.

What initially appeared as the relatively straight-forward task of developing a framework to assess "school safety" worldwide has emerged as multi-faceted and relatively complex undertaking, with several possible complementary approaches. The first task however was to understand "school safety from disasters" in a context that can be understood by both national disaster and emergency management authorities, and by education-sector decision-makers and actors, for whom the very concept of school safety is normally broad. It becomes incumbent upon both sectors to learn one another's language and terminology, and to develop measures and methods for the education sector that can be fully incorporated into their existing mandates and procedures, and not be viewed as an obstacle or burden.

In the absence of clear and shared definitions of school safety, and in the absence of systematic or even comparable data on various aspects of disaster resilience in the education sector, this work sets out to provide a baseline on school safety from disasters, by drawing upon reports of existing initiatives undertaken by governments, civil society, UN, donors and other major stakeholders that aim at assessing and improving school safety. Since the primary source of research was desk review of documents published in English, Spanish and French, this cannot in any way be considered comprehensive or exhaustive. It is, however, sufficiently broad to provide a strong sample of the approaches, methods and processes of works underway since 2005. It should be noted that there are many countries, many education authorities, and many IGOs and NGOs at work on improving school safety, whose efforts have not been recorded here.

This process is intended to strengthen a framework for understanding and 'unpacking' school safety from disasters in order to contribute to a systematic, comprehensive, and proactive approach to assessing and improving school safety, globally. The product is meant to be useful to all UNISDR

1 The ISDR Thematic Platform on Knowledge and Education is hosted by UNISDR and chaired by UNESCO. It includes key partners and practitioners from the civil society and United Nations system involved in Disaster Risk Reduction Education and school safety that include UNICEF, IFRC, World Bank, Save the Children, Plan International, WorldVision, SEEDS and ASB among many others.

system partners, national platforms for disaster risk reduction, ministries of education, education authorities, humanitarian and development actors in the education sector, and school safety advocates. It is expected that the review of experiences, from innovative pilot projects to comprehensive national programs, will support self-reflection, provide replicable approaches, and be used as a resource for strategic planning and advocacy for school safety. The case study materials are analysed in order to understand the range of methods, processes and tools used, the common elements and indicators of success, and gaps. Prospects for 'standardized school safety assessment methods' are also discussed. Finally, recommendations for promotion and assessment of school safety are provided for Ministries of Education, school authorities, and the agencies that seek to support them.

Disaster Impacts on Schools

Disasters have a major impact on children, youth and education systems. Studies of disaster trends and the likely consequences of climate change suggest that each year 175 million children are likely to be affected by natural hazard relateddisasters alone[2]. In January 2010, some 38,000 students and 1,300 teachers and education personnel[3] died in Haiti. The Ministry of Education offices were destroyed along with 4,000 schools – close to 80% of educational establishments in the Port-au-Prince area. During the Sichuan earthquake in May 2008, approximately 10,000 students were crushed in their classrooms and more than 7,000 school rooms collapsed. The table of recent impacts of intensive disasters on schools shown below, presents only a partial picture. The table fails to account for what are referred to as "extensive" disasters in which, for example, annually recurring floods cut-short the school year or frequent extreme weather close down schools because either the school's physical facilities, or the roads and transportation to access schools break down. And it fails to account for those extensive disasters due to food insecurity, conflict, and poverty that are somewhat addressed by the goal of "education for all" addressed as part of Millenium Development Goals.

21ST CENTURY IMPACTS OF INTENSIVE DISASTERS ON SCHOOLS
(deaths in schools shown in bold)

2012	Thailand	2,600 schools and 700,000 students and teachers were affected by Bangkok's floods. Damage to educational facilities est. $224m (Shaw, 2012)
2011	**N Japan**	733 school students/teachers died or missing, 193 schools were destroyed, 747 schools significantly damaged, 5,064 schools suffered minor damage. (Shaw & Takeuchi, East Japan Earthquake and Tsunami, Ch. 7)
2011	Joplin, MO, USA	Tornado destroyed Joplin High School. No one in school on Sunday. The storm hit shortly after graduation ceremonies held nearby. 700-800 students need trauma treatment.
2010	Philippines	Super Typhoon Megi damaged 28 schools 63 schools used as evacuation centers. (Shaw, 2012)
2010	Chile	Earthquake impacted 2 million people, but struck on a Saturday, outside of school hours. 80% of the 2 million students in the most affected areas resumed school just one week late. School damage estimated at $2.1 billion out of $30 billion infrastructure total
2010	Canterbury, New Zealand	No deaths or major injuries to students in schools due to 30-year effort to improve safety of school buildings. Significant damage to more than 100 of 179 state schools. School continuity was an issue impacting schools nationwide. (OECD)

2 This estimate is based on data from the International Federation of the Red Cross and Red Crescent Societies World Disasters Report 2006. "Legacy of disasters - The impact of climate change on children" Save the Children.

3 UNESCO HAITI, June 2010.

2010	Haiti	4,000 students and 700 teachers are estimated to have died in schools in the 7.0M earthquake. About 4,800 schools were damaged or destroyed (OECD) (USAID), including 1,300 schools and all three universities in Port-au-Prince. About half of the nation's 15,000 primary and 1,500 secondary schools were affected. The overall impact collapsed the school system. Two years later, 6000,000 children remained out of school.
2009	Sumatra, Indonesia	Earthquake struck after then end of the school day. It caused collapse of many schools. 1,100 schools (3,200 classrooms) damaged. (Shaw, 2012). Thirty-four were reconstructed with support from USAID and AUSAID.
2009	Philippines	Tropical Storm Ketsana damaged 78 schools. Est. damage $13m. 122 schools used as evacuation centers (Shaw, 2012)
2009	Taiwan	Typhoon Morakot destroyed 682 schools. Damage est. $6m (Shaw, 2012)
2008	Myanmar	2,460 schools completely destroyed in Cyclone Nargis. (50% of schools in the affected area). (Shaw, 2012) Another 750 schools were severely damaged.
2008	**Sichuan, China**	**An estimated 10,000+ children died in their schools.** An estimated 7,000 classrooms were destroyed.
2007	Pisco, Peru	Earthquake damaged schools not those built to new codes. New codes require combination frames and 3-foot shear walls every 15 feet. Infill walls have self-supporting frame and are separated by 1" elastic materials and no stucco over the joint. These performed very well. (EERI Special Earthquake report – Oct. 2007)
2007	Sumatra, Indonesia	Earthquakes destroyed 260 educational facilities and severely damaged 450 more. (UN OCHA in Guild Change, Observations of the 12 and 13 Sept. Earthquakes, 2007).
2007	Bangladesh	Cyclone Sidyr destroyed 496 school buildings and damaged 2,110 more
2007	India, Assam	150,000 evacuated to public school buildings due to flooding.
2006	Philippines	Super Typhoon Durian caused $20m USD damage to thousands of primary and secondary school buildings and day care centers, including 90-100% of school buildings in three cities and 50-60% of school buildings in two other cities. Schooling of hundreds of thousands of children was affected.
2006	Leyte Island, Philippines	245 children and their teachers died in a mudslide that buried the Guinsaugon Elementary School after 5 days of rain had ceased.
2006	**Uganda**	**13 children died in a school dormitory fire where children were using candles for lighting.**
2005	**Northern Pakistan, Kashmir**	**17,000 students and 900 teachers died at school, and 50,000 were seriously injured, many disabled. 10,000 school buildings destroyed. 300,000 children affected. In some districts 80% of schools were destroyed.**
2005	Gulf States, USA	Hurricane Katrina and subsequent floodiing destroyed 56 schools and 1,162 were damaged. 700 schools were closed and 372,000 children displaced. 73,000 college students displaced. $2.8billion was spent to educate displaced students for the first year.
2004	Indian Ocean	A tsunami destroyed 750 schools in Indonesia and damaged 2,135 more. 150,000 students without schools. 51 schools were destroyed in Sri Lanka, 44 in Maldives, and 30 in Thailand. Many deaths avoidable, with prior education and warning systems.
2000	Cambodia	Severe floods directly affected between 500,000 and 1m.students in 1,000 – 2,000 schools in 8 provinces.
2004	Bangladesh	1,259 school buildings were lost to floods and 24,236 were damaged.
2004	**Tamil Nadu, India**	**93 children died in a fire due to explosion of a cooking gas cylinder**

2003	**Bingol, Turkey**	**84 children and teachers die in collapsed school building in a moderate earthquake.** 4 schools collapsed. 90% of schools were impacted and education disrupted.
2003	Bam, Iran	67 of 131 schools collapsed, the remaining were heavily damaged. (10,000 school children and 1,200 teachers died and more than 32,000 students were adversely affected.)
2003	Xinjiang, China	900 classrooms in dozens of schools collapsed in earthquake 27 minutes before thousands of children returned to their classrooms. **Middle school collapsed killing at least 20 students.**
2003	Dominican Republic	18,000 students lost their classrooms.
2003	Boumerdes, Algeria	103 schools destroyed, 753 severely damaged. Cost of rehabilitation $79 million.
2002	AbGarm	16,500 students education disrupted when 8 schools collapsed and 137 were damaged.
2002	**Molise, Italy**	**26 children and 1 teacher died in a school earthquake collapse.**
2001	**Cariaco, Venezuela**	2 schools collapsed in an earthquake. **46 students died.**
2001	El Salvador	85 schools were damaged beyond repair. Replacement and repair cost $114m. 22 preschoolers and their teacher were killed in an aftershock a month later.
2001	Arequipa, Peru	98 school buildings seriously damaged by earthquake
2001	Taiwan	A three-story school collapsed in the middle of the night.
2001	**Bhuj, India**	**971 students and 31 teachers were killed by this earthquake, though most children were outside for Republic Day celebrations.** 1,884 schools collapsed, destroying 5,950 classrooms including 78% of public secondary schools. 11,761 school buildings suffered major damaged with 36,584 classrooms unusable.

Thematic Platform for Knowledge and Education

The *Millennium Development Goals* (MDG) target "Achieve universal primary education," "to ensure that, by 2015, children everywhere, boys and girls alike, will be able to complete a full course of primary schooling." This goal is a foundation for most of the international agreements and initiatives on disaster reduction in the education sector in the context of the children rights, particularly the Hyogo Framework for Action (HFA) 2005–2015, the UNISDR World Disaster Reduction Campaign, *Disaster Risk Reduction Begins at School (2006-7)*, the United Nations (UNESCO) Decade of Education for Sustainable Development (2005–2014), and UNICEF Basic Commitments to Children in Emergency Situations, among others.

The Hyogo Framework for Action identifies 5 priorities. While these were formulated for the country-level, it is recommended that these be adapted and understood for application at the sub-national level. Similarly, it is helpful to consider the application of each one of these to the education sector.

Hyogo Framework for Action (HFA) Priorities

1. Ensure that disaster risk reduction is a national and a local priority with a strong institutional basis for implementation
2. Identify, assess and monitor disaster risks and enhance early warning
3. Use knowledge, innovation and education to build a culture of safety and resilience at all levels
4. Reduce the underlying risk factors
5. Strengthen disaster preparedness for effective response at all levels

Since the HFA was launched, as series of studies and reports, global and regional advocacy efforts, and country and local level disaster risk reduction work in the education sector have been set in motion. At the outset of the HFA, in 2006, UNISDR commissioned the seminal *Let Our Children Teach Us! A Review of the Role of Education and Knowledge in Disaster Risk Reduction*, by Ben Wisner. Regional and international meetings began to be organized.

In 2007, the Thematic Platform for Knowledge and Education (TPK&E) was organized by UNISDR system partners concerned with education and children. The efforts of this group and advocates worldwide in support of the 'Disaster Risk Reduction Begins at School Campaign' resulted in significant mobilization of awareness and school safety from disasters, the integration of disaster risk reduction into school curricula, and the recognition of non-formal education activities as a crucial contribution to awareness-raising, knowledge-building, and skills development for disaster risk reduction.

The publication of *Practices and Lessons Learned Towards a Culture of Prevention* in 2007 documented some of the important initiatives at this time.

While the initial focus of the Thematic Platform on Knowledge and Education was on strengthening work on HFA Priority 3, a closer look at the education sector and schools uncovered a range of weaknesses and gaps related to the full range of priorities.

In 2008, UNISDR shared *Disaster Prevention for Schools Guidance for Education Sector Decision-Makers*. This document differentiated the various physical, educational, economic and psychosocial impacts that disasters have on the education sector. It identified three goals of a comprehensive school disaster prevention programme:

1. **To save lives and prevent injuries**
2. **To prevent interruption of education due to recurring natural hazards**
3. **To develop a resilient citizenry able to reduce the social, economic and cultural impacts of recurring hazards.**

An additional goal that has been implicit in the discussion, and may be usefully added is:

4. **To safeguard investments in school infrastructure.**

This document aligned the concepts of school safety with the Inter-Agency Network for Education in Emergencies' (INEE) Minimum Standards for Education in Emergencies. It addressed: creating safe learning environments with safe construction and retrofit, maintaining safe learning environments with school disaster management, protecting access to education with educational continuity planning, teaching and learning disaster prevention and preparedness, and building a culture of access and safety.

In 2009, *Children and Disaster Risk Reduction: Taking Stock and Moving Forward* documented a number of significant case studies especially in child-led DRR efforts. Also in 2009, the INEE and World Bank Global Facility for Disaster Reduction and Recovery (GFDRR) involved dozens of experts in producing *Guidance Notes on Safer School Construction*, a cornerstone document to guide decision-makers to begin to tackle the physical vulnerability of school facilities to various natural hazard impacts.

In 2010, INEE's revised and updated *Minimum Standards for Education: Preparedness, Response, and Recovery* strengthened integration of disaster risk reduction (DRR) concepts. And in response to the Haiti and Sichuan, China earthquakes, a UNESCO-led – UNISDR Global Task Force on Building Codes – launched a simple web-site and invited experts to gather guidance materials on disaster-resilient construction. http://www.unesco-ipred.org/gtfbc/. That year, UNICEF and the Global Education Cluster commissioned *Disaster Risk Reduction in Education in the Emergency Context: A Guidance Note for Education Clusters and Sector Coordination Groups and a review of Disaster Risk Reduction Tools for Humanitarian Action and Development in the Education Sector* and related *Gap Analysis* to further promote the integration of disaster risk reduction in humanitarian education sector work.

Similarly, in 2011 UNESCO IIEP, the Global Education Cluster and UNICEF developed a draft of *'Guidance notes for educational planners on integrating conflict and disaster risk reduction into education sector planning'*. This document looks at integrating conflict and disaster risk reduction into an Education Sector diagnosis, developing policies and programmes for conflict and disaster risk reduction, monitoring and evaluation, and costing and financing conflict and disaster risk reduction. It provides specific guidance for a multi-faceted Education Sector Diagnosis which includes analyzing the context, the education system performance (i.e. how access, environment, educational materials, relevance, efficiency and equity are impacted by disasters and conflict), the resilience of the physical infrastructure (location of educational facilities, construction and safety), the resilience of human resources, the curriculum content, policy and management environment, and cost and financing framework.

UNESCO and UNICEF partnered to delve more deeply into specific guidance to support curriculum development for disaster risk reduction. The first step in this is Kagawa, F. & Selby, D. (2012). *Disaster Risk Reduction in School Curriculum: Cast Studies from Thirty Countries*. Geneva: UNICEF/UNESCO. The case studies in the report are described by an: Overview, Introduction, Curriculum Development/Integration, Pedagogy, Student Assessment, Learning Outcomes/Competencies, Teacher Professional Development/Guidance, Policy Development and Implementation Aspects and References. The report also lays the foundation for an upcoming *Technical Guidance Tool for Integrating Disaster Risk Reduction into the Curriculum*.

Milestones in Advocacy of School Safety from Disasters

A review of some of the major 21st century milestones in advocacy for school safety from disasters is show in the table below.

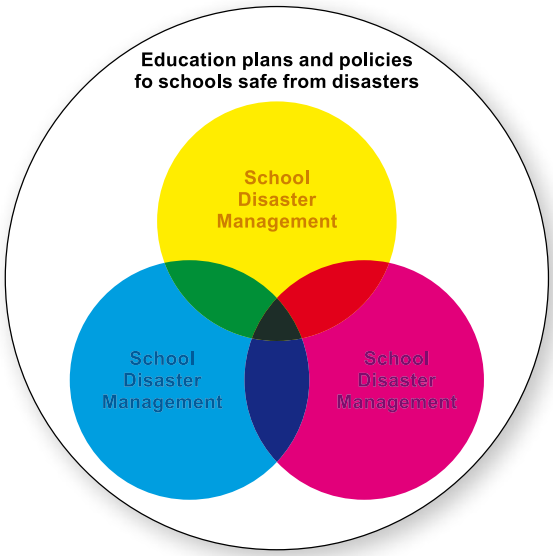
YEAR	KEY MEETINGS	KEY PUBLICATIONS
2012	• **Safe Schools National Conference, Philippines.**	• UNISDR launches *Thematic Platform for Knowledge and Education newsletter* • *Assessing School Safety from Disasters – A Baseline Report*, UNISDR/TPK&E • Kagawa, F. & Selby, D. *Disaster Risk Reduction in School Curriculum: Cast Studies from Thirty Countries. Geneva*, UNICEF/UNESCO. • *Technical Guidance Tool for Integrating Disaster Risk Reduction into the Curriculum*, UNESCO/UNICEF
2011	• **Conference on Disaster Risk Reduction in the Education Sector in Latin America and the Caribbean, Panama City.** • **UNISDR Global Platform for DRR.**	• Panama Declaration on Disaster Risk Reduction in the Education Sector in Latin America and the Caribbean. • *Disaster Risk Reduction in the School Curricula.* UNESCO/UNICEF • *Integrating conflict and disaster risk reduction into education sector planning*, UNESCO IIEP/UNICEF • Disaster Risk Reduction in Education in Emergencies: A Guidance Note for Education Clusters and Sector Coordination Groups, GEC
2010	• **Safe School National Conference, Indonesia** • **Education for Sustainable Development Conference**	• *Risk Reduction in Education in the Emergency Context: A Guidance Note for Education Clusters and Sector Coordination*, GEC • *Disaster Risk Reduction Tools for Humanitarian Action and Development in the Education Sector* and related *Gap Analysis*, GEC
2009	• **UNISDR Global Platform for DRR**	• *Guidance Notes on Safer School Construction.* INEE & GFDRR • *Children and Disaster Risk Reduction: Taking Stock and Moving Forward*
2008	• **48th session of the International Conference on Education** (ICE) Inclusive Education, Geneva. • **Education for Natural Disaster Preparedness in Asia-Pacific** Conference, Bangkok • **Islamabad International Conference on School Safety**	• *Disaster Prevention for Schools: Guidance for Education Sector Decision-Makers*, UNIDSR • *Islamabad Declaration on School Safety* adopted at the Islamabad International Conference on School Safety urges resilient schools as a matter of regional and national priority. • *Impact of Disasters on the Education Sector in Cambodia*, ADPC

2007	• **Second Asian Ministerial Conference on Disaster Risk Reduction** in New Delhi. • **Bangkok Asia-Pacific Regional Workshop on School Safety and Disaster Risk Reduction Education** • **Ahmedabad – International Conference on School Safety** • **Thematic Platform on Knowledge and Education** established at UNISDR Global Platform for DRR. • **Disaster Reduction Begins at School 2006–2007 World Disaster Reduction Campaign.**	• *Delhi Declaration on Disaster Risk Reduction in Asia 2007* adopted by 2nd Asian Ministerial Conference on DRR, New Delhi. • *Asia Regional Consultative Committee on Disaster Management* – Guideline 6.1. • *Practices and Lessons Learned Towards a Culture of Prevention: Disaster Risk Reduction Begins at School*, UNISDR • *Bangkok Action Agenda:* Outcome of the Asia – Pacific Regional Workshop on School Safety and Disaster Risk Reduction Education. • *Ahmedabad Action Agenda* adopted at the **International Conference on School Safety** • **Phuket** declaration on disaster education and communication with people with disabilities.
2006	• **Paphos: European And Mediterranean Major Hazards Agreement (EUR-OPA) Workshop on Disaster Reduction – Building Safer Schools Communities.**	• Wisner, Ben, *Let Our Children Teach Us! A Review of the Role of Education and Knowledge in Disaster Risk Reduction*, UNISDR
2005	• **Coalition for Global School Safety** establishes international network of advocates and activists. • **World Congress on Disaster Risk Reduction, Hyogo Framework for Action** adopted by 168 countries.	• *Hanoi SEA Ministers of Education Organisation – 40th Council* Conference resolution to support safe school reconstruction. • *Hanoi RCC 5 Statement* on "Mainstreaming Disaster Risk Reduction in Development (MDRD) and Enhancing Regional Cooperation (2005) adopted by 26 member countries.
2003	• **Biwako Millenium Framework (Biwako plus five) 2003–12, Strategy 23**	
2000	• **United Nations World Disaster Reduction Campaign "Disaster Reduction: Education and Youth"** aimed to continue and develop a culture of prevention through education.	

A Framework for Comprehensive School Safety from Disasters

In the course of the work of the past six years, a three-pillar approach to comprehensive school safety from disasters has emerged, reaffirmed in the course of TPK&E Meetings in 2010. The framework contains three overlapping areas of focus. Each of these involves a significantly different (though sometimes overlapping) set of decision-makers, developers, stakeholders and implementers as well as indicators, activities and actors responsible for implementation.

Enveloping these three pillars are education policies and plans at the government level, ideally undertaking systematic analysis of threats to school and system safety and developing policy and plans that address each of these three areas:



- **Safe School Facilities:** This includes:
  - Building codes and standards
  - Safe site selection
  - Hazards and vulnerability assessment
  - Standard disaster-resilient designs
  - Construction trades training and supervision for code compliance
  - Capacity development, funding and procedures for maintenance
  - Verification, inspection, certification
  - Retro-fitting of education infrastructure, both public or private
  - Procedures and safeguards for structural alterations, remodeling, conversion and repairs
  - Assuring safe access to facilities including road, bridge, transport conditions
  - Access for people with different functional needs
  - Safety from violent attack.

- **School Disaster Management:** This includes:
  - System, policies, guidelines and standard operating procedures
  - School-based safety committee
  - School based risk reduction and safety plans adapted from guidelines
  - School disaster drills
  - School continuity planning
  - Staff capacity development

- **Disaster Prevention and Risk Reduction Education in Schools:** This includes:
  - Holistic infusion of disaster prevention and risk reduction education into formal school curricula to develop both knowledge and practical experience
  - Expansion of regular extra-curricular disaster risk reduction activities to increase school and local community resilience
  - Capacity development of teaching staff and teacher training college faculty

In May 2010 Assessing World-Wide Progress on School Safety – A Scoping Study was undertaken as a joint UNICEF-UNISDR initiative in follow-up to the conclusions of the 2009 session of the UNISDR Global Platform. A multi-dimensional analytical framework and discussion of methodological issues was developed, based on desk research and interviews with key stakeholders. The results were discussed at the June 2010 meeting of the UNISDR TPK&E, and were used to guide the baseline analysis and recommendations. It was noted that data collection from the education sector has not been linked specifically to all of the HFA Priority Action

areas, and data for only one of these three areas has been addressed by the HFA review process (i.e. Priority 3, Indicator 2: disaster reduction education in the curriculum). The framework with 17 indicators, grouped under the four main dimensions is shown below.

1. Hazards and risks knowledge

1.1 All natural hazards posing a threat to schools have been identified.
1.2 Risks are reassessed regularly.
1.3 The school population and the local community are aware of the risks.

2. Structural and non structural safety

2.1 School buildings were designed to meet building code standards.
2.2 Building code provides guidance on hazard resilient design.
2.2 The site was assessed before the school was built.
2.3 The vulnerability of existing school buildings has been assessed with respect to local hazards.
2.4 Performance objectives (maximum level of damage or disruption that can be tolerated in the presence of a hazard of a certain magnitude and frequency) were determined.
2.4 The school construction (or retrofitting) was supervised by a qualified engineer.
2.5 The school was built (or retrofitted) to meet performance objectives.
2.6 School furnishings and equipment were designed and installed to minimize potential harm they might cause to school occupants.

3. Systems, procedures and skills

3.1 Somebody has the responsibility for managing the school maintenance program.
3.2 Mechanisms are in place to ensure that school maintenance is financed and executed.
3.3 A backup plan exists to ensure that school operations continue in case natural hazards create disruptions in the school calendar.
3.4 A safe location was identified in case the school must be evacuated.
3.5 Students, teachers, staff, and school administrators know what to do before, during, and after a hazard event
3.6 School drills are held regularly to practice and improve skills and plans.
3.7 A disaster management committee exists at school or in the local community.

4. Curricula

4.1 Disaster-risk reduction is taught as part of the regular school curricula

Observations were made that while there is emerging consensus on what constitutes a 'safe school.' there remains no comprehensive systemized methodology or process to assess school safety globally. The many possible purposes for such assessment have not been articulated. There was discussion that school safety assessment ultimately requires school-based assessment, as "each school exists in its own context, exposed to specific hazards and with specific vulnerabilities"[4]. As yet, there has been little discussion regarding how to link education authority policy, planning and oversight, with local implementation, and how to monitor such implementation at the sub-national level. Similarly, there has not yet been any differentiation of approaches to meet large-scale implementation challenges, and so far there has been no guidance for decision-making for prioritization of retrofit and replacement.

4 Assessing World-wide Progress on School Safety - A scoping study, Dr. Piero Calvi-Parisetti, June 2010

ANALYSIS

Analysis Methodology

The analysis work was conducted with a focus on case reports and case studies from the following sources, summarized in the Appendix to this document. In addition to these, in each section a number the key publications and policy and advocacy statements highlighted in the previous section, also informed this analysis.

1. Wisner, Ben (2006) *Let Our Children Teach Us! A Review of the Role of Education and Knowledge in Disaster Risk Reduction* http://www.preventionweb.net/go/3929
2. UNISDR (2007) *Practices and Lessons Learned Towards a Culture of Prevention: Disaster Risk Reduction Begins at School*
3. ADPC (2007) RCC Guideline 6.1 *– Integrating Disaster Risk Reduction into School Curriculum*
4. UNISDR (2008) *Disaster Prevention for Schools Guidance for Education Sector Decision-Makers* http://www.preventionweb.net/go/7344
5. Back, E., Cameron, C. & Tanner, T. (2009) *Children and Disaster Risk Reduction: Taking Stock and Moving Forward* http://www.preventionweb.net/go/12085
6. INEE / World Bank / UNISDR (2009) *Guidance Notes on Safer School Construction* http://www.preventionweb.net/go/10478
7. UNISDR (2011) *Compilation of National Progress Reports on the Implementation of the Hyogo Framework for Action* (20009-2011): HEA Priority 3, Indicator 3.2
8. Kagawa, F. & Selby, D. (2012). *Disaster Risk Reduction in School Curriculum: Cast Studies from Thirty Countries*. Geneva: UNICEF/ UNESCO
9. Global Education Cluster, UNESCO IIEP, UNICEF (2011) *Integrating conflict and disaster risk reduction into education sector planning* (draft). http://www.iiep.unesco.org/fileadmin/user_upload/News_And_Events/pdf/2011/IIEP_Guidancesnotes_EiE_en.pdf
10. Global Education Cluster (2011) *Disaster Risk Reduction in Education in Emergencies: A Guidance Note for Education Clusters and Sector Coordination Groups* http://preventionweb.net/go/20366
11. Seballos, F. et. al. (2011) *Children and Disasters: Understanding Impact and Enabling Agency* http://www.childreninachangingclimate.org/database/CCC/Publications/IMPACTS%20and%20AGENCY_FINAL.pdf
12. GFDRR / ISDR/ UNICEF (2011) *Children and Disasters: Building resilience through education* http://preventionweb.net/go/24583
13. Shaw et. al (2012) *School Recovery – Lessons from Asia* http://www.iedm.ges.kyoto-u.ac.jp/School%20recovery_low.pdf

(Additional resources can be found in: UNICEF/ EiE (2010) Disaster Risk Reduction Tools for Humanitarian Action and Development in the Education Sector.)

A 'Framework Analysis' commonly used in applied policy research, was used to develop the analysis section. In this process data is sifted, charted and sorted in accordance with key issues and themes. It involves a five-step "grounded" process, meaning that it is systematic and comprehensive in considering all of the available evidence, and it is dynamic and open to change throughout[1, 2]. The steps are:

1. Familiarization and immersion in all of the case study data, becoming aware of key ideas and recurrent themes.
2. Identifying a thematic framework. In this case the thematic issues had been previously identified, but were validated and enriched. The issues, concept and themes expressed in the data are used to filter and classify the data.

1 Denzin, N. K., & Lincoln, Y. S., 2000. Introduction. In N. K. Denzin, & Y. S. Lincoln (Eds.), Handbook of qualitative research, 2nd Edit. Thousand Oaks, CA: Sage Publications.

2 Strauss, A., & Corbin, J. 1998. Basics of qualitative research. Thousand Oaks, CA: Sage Publications

3. Indexing the materials. This means dividing and sorting it, according to the themes and concepts.
4. Charting is then used to re-organize the data in order to better understand it, in relation to the emerging framework.
5. Mapping and interpretation is the final step when they key issues are interpreted and defined, showing associations, providing explanations, and pointing towards strategies. In this way, it is intended that the strategy or recommendations made by the researcher echo the true attitudes, beliefs, and values of the participants[3].

General Observations

As has been understood and documented previously, it helps to break school safety down into three major components, each of which calls for separate tracking: Safe School Facilities, School Disaster Management, and Disaster Prevention Education. The main reasons for this breakdown are that the types of policies, decision-making authority, resources, expertise, and implementing actors are substantially different for each.

Up until the upcoming HFA Monitoring (final reports available April 2013), the only school safety indicator specifically tracked in country self-evaluations are those listed under Priority 3 Indicator 2, addressing disaster risk reduction in school curriculum. As the indicators undergo iterative review, the next round of critical infrastructure assessment and protection will include a look at school structural safety, specifically. This will represent a major step forward. Still missing however will be any indicators for School Disaster Management, which may be recommended for the next iteration.

In the meantime, in order to more faithfully document progress in school safety, the rich narrative reports associated with National Progress Reports currently logged (77 for 2009, 75 for 2010 and 35 for 2011) may all merit being reviewed for mention of school safety indicators. http://www.preventionweb.net/english/hyogo/progress/reports/?pid:222

In addition 2009–2011 Regional Reports for Caribbean Disaster Emergency Management Agency (CDEMA), Centro de Coordinacion para la Prevencion e los Desastres Naturales en America Central (CEPREDENAC), Organization of American States (OAS), Comité Andino para la Prevención y Atención de Desastres (CAPRADE) and several others deserve full review.

The current review of brief and partial case study reports, gathered and reviewed from 80 countries, covers all of the various aspects of school safety. While incomplete, it nonetheless, reveals some of the key indicators in practice. Many of these are 'naturally' reported in the course of case studies and lessons learned, and some, less well-documented are read between the lines or through dialogue among practitioners.

3 Ritchie, J. & Spencer, L. 1994. Qualitative data analysis for applied policy research" in A.Bryman and R. G. Burgess [eds.] "Analyzing qualitative data", 1994, pp.173–194.

SCHOOL SAFETY OUTCOME CATEGORIES *(those currently documented are shown in bold)*
Safe school facilities: **Assessment of school safety (hazards and vulnerabilities)** **Safety of new construction (codes, compliance, designs)** **Safety of legacy construction (retrofit prioritization, retrofit and replacement** **Safety of non-structural or environmental elements of school facilities** Safety of remodeling, conversions and repairs Safety of school-related lifeline infrastructure (ie roads, communication, water, power)
School disaster management: **School continuity planning** **Emergency and disaster systems, policies & procedures** **School disaster drills** to practice procedures and skills School facilities maintenance Risk reduction in the school environment Response skill development
Disaster prevention learning: **DRR in formal curriculum** DRR in co-curricular activities Staff capacity development

General observations found in the course of the comprehensive case studies, as well as in analysis of specific components follow. The strengths should be used as opportunities and built upon. The weaknesses should be anticipated and mitigated.

STRENGTHS & OPPORTUNITIES	
Leadership & commitment	• Leadership and political will are key requisites for success. A small handful of people, willing and able to follow-through continue to make a difference.
Partnerships under leadership of education authorities	• Partnership between lead education and disaster management authorities is of critical importance. Support provided by INGOs and NGOs can also be instrumental in success.
Regional initiatives	• Regional and sub-regional initiatives can provide impetus and efficiencies can provide impetus and efficiencies.
Scaling-up	• Scaling-up is most effective when it is thought through as part of the initial design, and plans to meet resource requirements are in place. This is known as the problem of “thinking through what you will do, in case you succeed!”
Appropriate to the context	• Solutions have to be tailored to existing context, expertise and available resources
Broad Involvement	• Broad stakeholder involvement and a mixture of expertise are produce the best results

Public & private sector schools	• Plans and programs need to address both public sector and private sector schools.
Participatory & interactive methods	• Participatory and interactive methods produce strongest understanding and long-term outcomes. • Child and youth participation provides inspiration and motivation.
Strengthen risk reduction within existing frameworks	• There is room for improvement to fully integrate risk reduction, and all three components of comprehensive school safety, into seminal guidance documents, policies and plans, eg.: – Guidebook on Planning Education in Emergencies – Child Friendly Schools Handbook – INEE Toolkit

WEAKNESSES & THREATS	
Focus on ouputs rather than outcomes	• Reports tend to catalogue a lengthy list of activities that demonstrate impressive effort, are almost absent any honest evaluation of progress towards long-term outcomes. The use of “risk reduction” terminology infuses a defeated starting point, in contrast to many other bolder “prevention” efforts that are clear about the goal.
Impact assessments missing denominator Data	• In order to evaluate impact and progress, all programs should report denominator data to demonstrate the magnitude of need in relation to the magnitude of impact. Total reach of programs paints a too-rosy picture that obscures the need for large-scale solutions.
Impact assessments missing behavioral change measures	• Knowledge and attitudes are frequently de-coupled from action, and poor measures of impact. It is very important that impact assessments measure specific behavior changes. Pre and post-tests of self-directed behavior need to become standard.
Educational impacts underestimated	• There is greater need to sensitize school authorities and citizens to the impacts that missed schooling due to intensive and extensive disasters has on long-term educational outcomes.
Schools as shelters Impacts underestimated	• The impact of using schools as shelters, on school budgets as well as on educational continuity has not been well-recognized. When planning for schools as shelters, educational continuity and resource management need to be fully planned for.
Commitment to safeguarding development & humanitarian investments is unmonitored	• Documentation from all donors is needed to demonstrate that “every new school is a safe school”. • Documentation is needed to demonstrate that humanitarian response and development projects are “disaster-proofed” and that resilience is built-in.
Implementation of HFA in the education sector has been largely unmonitored	• The HFA Monitoring process does not capture information on implementation of Priorities 1, 2, 4, 5 in the education sector. Next year, safe school infrastructure data will be requested for the first time.
Confusing response – preparedness with mitigation	• The frameworks of humanitarian frameworks and primary donor funding mechanisms remain focused on response-preparedness while physical and environmental risk reduction remain largely ignored, reinforcing a reactive rather than a proactive approach to risk reduction.
Lack of ongoing education sector collaboration & especially local participation	• The “cluster approach” in humanitarian response has been effective in mobilizing coordinated response to support education in emergencies and disasters. Similar ongoing organizing collaborative of education sector and development stakeholders is of importance to address wider disaster risk reduction issues.

Capacity development	• Lack of local capacity or expertise, especially in education sector applications of disaster risk reduction, is a major barrier in many projects. In some cases newly-developed capacity is siphoned off to the highest bidder.
Lack Of financial resources	• Lack of finances, especially for retrofitting of unsafe legacy school infrastructure is a frequent complaint. This should not be permitted to affect the commitment to “every new school a safe school”.
Re-organization & staff turnover	• Staff turnover, especially in the public sector, can slow down many projects. Reorganization of public sector agencies can significantly impede progress, requiring new expenses to establish new relationships. It is particularly important for INGOs and NGOs to maintain a consistent long-term presence for greatest impact.

Assessment of School Safety from Disasters

Approaches to assessment

In the context of the case studies, assessment of hazards, vulnerabilities and capacities aligns for the most part to HFA Priority 2 (to identify, assess and monitor disaster risks and enhance early warning), and extending to include the specific questions of school facilities (critical infrastructure) vulnerability. While there is ample evidence that many countries have assessed hazards at a general level, there is much less evidence that this has been translated to the education sector for an appraisal of educational facilities vulnerability overall, or to the individual school level. A close examination of school safety assessment overall shows its primary purpose is as a pre-requisite for planning Safe School Facilities (HFA Priority 4). However, it also spills over into ongoing School Disaster Management and post-disaster response preparedness (HFA Priority 5). There are no examples of a singular type of assessment that can capture the three major aspects of school safety. Most assessment focuses on hazards and vulnerabilities of school infrastructure. None have specifically addressed either school disaster management or disaster risk reduction in the curriculum. It is a matter of urgency that education authorities should be taking steps to systematically analyze all three of these issues in order to make well-informed decisions.

A full analysis of strengths, opportunities, weaknesses and threats was challenging to attempt due to both the many different actors involved in these disparate analysis efforts, and because thus far this has not been addressed through collective expert analysis. Abbreviated observations are as follows:

GOOD PRACTICES IN ASSESSMENT & PLANNING

Burkina Faso – In 2012 is undertaking an analysis of the vulnerability of its education system to risks of conflict and natural hazards.

Cambodia, Lao and Vietnam – Analyse the impacts in the education sector as a foundation for policy development: In 2008, ADPC, and UNDP with support from DiPECHO, worked with Ministries of Education and NDMO's to analyse institutional arrangements for disaster mitigation, physical, social and economic impacts of disasters on the education sector, were analyzed as a foundation for development of school construction guidelines and education in DRR.

Guatemala – Develop assessment or risk, vulnerability, hazards, and capabilities: A School Buildings Safety Indicator, forms and guidelines for assessment – preliminary version was created with public and private, individual and institutional stakeholders' participation. This practical instrument was built based on the work of the Risk Reduction Committee of the National Roundtable for Dialogue to Disaster Risk Reduction with the main objective of having the school buildings more safe, more resilient, and better prepared in case of adverse events.

Pakistan – Since 2009, National Education Policy has contained intentions with respect to safe school facilities, school disaster management, and disaster risk reduction in school curricula.

Tajikistan – Identify natural hazards posing threats to schools, site assessments before schools are built, and vulnerability assessment of existing school buildings with respect to local hazards: Four studies have been conducted to provide information on the identification of natural hazards posing threats to schools, regular reassessment of risks, and risk's awareness to the school population and the local community:

The inclusion of buildings with priority social significance of Dushanbe in the analysis of seismic vulnerability (Secondary schools, preschools (kindergartens), hospitals, clinics)

Status of Seismic Observations and Research in the Republic of Tajikistan

Analysis of the National Census of Schools Findings and Education Management Information System Data for 2008 – 2009, and TESI – Rapid Risk Assessment Data

China – Perform regular reassessment of risks: Regular reassessment of risks is planned; MOE and UNICEF are collaborating to develop school safety management manual including checklists in 2011-2012 for each school to regular reassessment of risks. In Sichuan annual risks assessment are planned to be conducted during the flood-season under guidance of local government, and in collaboration with concerned sectors, particularly on landslide, mudslide, flood, etc.

Based on a more complete assessment of case reports on assessment, the following strengths, opportunities, weaknesses and threats are noted:

STRENGTHS & OPPORTUNITIES	
Good examples of actionable assessments exist	• There are several countries that have taken pre-disaster measures to assess various aspects of school infrastructure safety. Such assessment evidence-based planning and decision-making.
Many different types of assessment	• While the many different types of assessment in use make for a complex picture, there is potential for these disparate sources of information to be used in synchrony for sound decision-making.

WEAKNESSES & THREATS	
Threats and vulnerabilities not well-understood	• In many countries the level of threat to schools, and the disaster resilience of school facilities has not been assessed, in general, nor have specific assessments been thorough enough to lead to specific decision-making for retrofit and replacement. • The impacts of extensive hazards (frequent, recurrent, or slow onset) is not as well understood as intensive (infrequent, rapid onset) hazards. • The expected impacts of climate change are not well-integrated into disaster risk reduction assessment and planning.
Assessment data is rarely designed to be interoperable	• Assessment data collected is rarely interoperable with either Education Management Information Systems for Disaster Management Information Systems. As a result there is tremendous duplication of effort and wasted effort that yields little in terms sustainable data collection and actionable information.

The analysis below aims to provide a typology of the various types of assessment currently in use, with a view to beginning to rationalize and interlink the data from these various types of assessment in the future. There are other types of assessments that do not concern disasters, and which are not included in the scope of this study, but which could be added for consistency and comprehensiveness (eg. health and violence threat assessments).

Typology of Assessments for Disaster Risks to Schools

	ASSESSMENT TYPE	PURPOSE	PARTICIPANTS	EXAMPLES
MACRO/ MESO	1. **Macro hazards assessment** at regional and local levels	Identification of hazards to communities, schools workplaces, and environment (i.e. esp. accessible to Education Management Information Systems)	Land use planning agencies, meteorological agencies, geotechnical agencies, public works departments, government records, Ministry of the interior, agriculture sector authorities health sector authorities, Ministry of Education, local fire department, universities, historical records. Structural engineers, architects, business and industry sector, NGOs and INGOs, insurance companies, consultancy firms.	Seismic, flood, tsunami, hazard maps. Hurricane/cyclone impact maps. Local hazard maps. Climatological impact assessments. It is important that school location information be interoperable and visible as a layer superimposed upon these maps. California provides good examples of this.
MACRO	2. **Education sector diagnosis:** policy context & stakeholder analysis	To understand the national and education sector context (historical and political background, geography and population, economy finance and employment, social and cultural), the policy and management, education system performance, and cost and financing) for intervention. To identify wide range of stakeholders and contributors to school safety outcomes. May include vulnerability mapping and review of education policies and curriculum content.	Ministry of education, sub-national and other education sector authorities, INGOs, NGOs, Education Cluster, teacher and staff unions, pedagogic institutes, Ministry of public works or planning and construction (i.e. whoever permits, builds or oversees school construction). Parent-teacher associations, etc.	ADPC, UNDP, DipECHO supported a series of studies with the Ministries of Education of Lao, Cambodia and Vietnam in 2008 to understand the impact of disasters on the education sector as a foundation for development of policies for safer school construction and integration of DRR into the curricula. For a comprehensive framework see UNESCO IIEP, UNICEF's Global Education Cluster's: *Integrating conflict and disaster risk reduction into education sector planning* (2011). This is being demonstrated currently in Chad.

	ASSESSMENT TYPE	PURPOSE	PARTICIPANTS	EXAMPLES
MESO/ MACRO	3. **Geo-spatial inventory of schools** location, occupancy, safety data (as prerequisite for planning, data collection and response)	Identification and collection of school-related data for all educational planning, disaster risk reduction and emergency response planning purposes. (i.e. esp. as part of Education Management Information Systems)	Ministry of Education, other education authorities. Crowd sourcing from school principals, teachers, INGOs, NGOs, youth groups, parents and others	Developed nations with fully functioning EMIS (often federated along with school authorities) usually have this in place. Innovative efforts include: UNICEF and USAID supported project in Krygyzstan which will map all schools into an EMIS. In Panama, UNICEF and UNOSAT are piloting collection of school infrastructure data from remote regions using local inputs and satellite data.
MESO/ MACRO	4. **National or sub-national assessment of vulnerability of school infrastructure and access**	Paper-review based triage process based on hazard exposure, building vulnerability based on construction type, age, and design records, to contribute to prioritization for school improvement, retrofit or replacement. Should also consider safe access.	Ministry of Education, other education authorities. Structural engineers, architects, academic/technical experts	China, Italy, Japan, New Zealand, California, Venezuela and Uzbekistan have all pioneered in school facilities safety assessments combining both hazard and structural vulnerability data. Some are linked directly to Assessment Type 6, below.
MICRO	5. **School-site non-technical "sidewalk" assessement for facility safety** also **school vulnerability & capacity assessment** or **child-friendly schools evaluation**	Local site-specific non-technical assessment can contribute to evaluation and selection for further technical assessment, if linked to feedback systems with education authorities. VCA and CFS evaluations have not focused on facility safety, but can be local learning tools as well as provide feed into post-disaster needs assessments to speed recovery. (See #7 below)	School principals, local education authorities, fire department, students, parent/ teacher organizations, INGOs, NGOs	Eg. Risk RED's School Facilities Safety Checklist, School Assessment Vietnam (UNICEF, Save the Children). Community-based vulnerability and capacity assessments (eg. IFRC). Child Friendly Schools (eg. UNICEF) checklists adapted for Angola and Rwanda include specific items in relation to disaster risk reduction (most others do not). See upcoming student assessment of school damage (UNICEF)

	ASSESSMENT TYPE	PURPOSE	PARTICIPANTS	EXAMPLES
MICRO	**6. School site technical risk assessment** or **damage assessment**	Technical assessment for prioritization about retrofit, replacement, or remodeling and for decision-making about occupancy and de-occupancy. Often this takes place post-disaster and only in relation to damaged schools.	Local education authorities, historical records, local fire department, universities, Structural engineers, architects, business and industry sector, NGOs and INGOs, insurance companies, consultancy firms	Bogotá (Colombia), California (USA), China, Guatemala, Iran, Istanbul (Turkey) Japan, New Zealand, Peru, Rwanda, Uzbekistan, Venezuela, Vancouver BC (Canada), have all selected high risk sites for full technical assessment and established prioritization for retrofit.
ALL	**7. Post-disaster non-technical needs assessment**	Global Education Cluster advocates rapid non-technical assessment of: access and learning environment, teaching and learning, teachers and personnel, and policy. See also #5. Additional technical assessments are needed for facility usability and repair cost, new population and site needs. Advance planning and linkages to other assessments speed recovery.	Ministry of Education, other education authorities, UN IASC Global Education Cluster, INGOs, NGOs, school administrators, personnel and students. Using technical rubrics, professional structural engineering organizations can provide training and support for implementation.	UN IASC (2010). The Short Guide to Rapid Joint Education Needs Assessment. Global Education Cluster. Applied Technology Council's Rapid Visual Screening Tools (eg. ATC 20 for earthquake, ATC 45 for windstorm and flood).
MACRO	**8. Cost-benefit analysis**	Cost benefit analyses have two primary purposes: to make the compelling argument for investment in strategic replacement of school infrastructure, and to facilitate decision-making about where to draw the line between retrofit vs. replacement of school facilities.		Kunreuther & Michek Kerjan (2012) Istanbul Seismic Risk Mitigation Project. Bogotá Seismic Risk Mitigation Project. Cost benefit analyses led to decisions to replace rather than retrofit, when the cost of retrofit exceeded approximately 30% of reconstruction costs.

1. Macro hazards assessment is typically the domain of the much broader national and sub-national concerns shared by all sectors, referred to in the process of monitoring of HFA Priority #1. They include meteorological, geophysical, hydrological and other assessments of natural and climatic processes as well as the vulnerability of human settlements and environment. Education sector authorities need to be educated consumers of this regional and local information, and partners in linking this specifically to both safety of school sites and facilities as well as the routes to access them.

2. Education sector diagnosis is recommended as a foundation for all humanitarian and development interventions in the education sector. This provides the essential background for understanding the system in place and for how to work effectively within it. Guidance Note for Educational Planners: Integrating conflict and disaster risk reduction into education sector planning from UNESCO IIEP/ UNICEF. It involved: context analysis (which should include hazards and vulnerability at the macro level), historical review of disasters and emergencies affecting the education sector, performance of the education system in relation to the risks and the management and policy environment.

3. Geo-spatial inventory of schools is comprehensive school-mapping, as the foundation for an Education Management Information Systems (EMIS). It is typically the most significant missing piece required for progressing to scale. Without it, school authorities are not able to process the data needed for rational planning, resource allocation and monitoring. To plan for mitigation and response, education authorities need to handle school data such as location, name, contact information, school type, school occupancy (all demographics), school calendar, and key school facilities and school disaster management data. Hazard exposure and vulnerability to conflict must also be recorded. In large jurisdictions with hundreds or thousands of schools Education Cluster partners find it next to impossible to consolidate data on damaged school infrastructure and therefore to thoroughly assess education sector needs. This in turn makes it impossible to progress from general to rational and specific plans for school reconstruction and implementation of educational continuity plans.

4. National or Sub-national Assessment of Vulnerability of School Infrastructure describes a top-down, low-cost, triage assessments to identify only the most vulnerable schools for the more labor-intensive on-site technical assessment. In those places where a program of school structural safety (retrofit and replacement) is currently underway, this strategy provides critical information to narrow the field of focus. It is conducted by education authorities and/or public works agencies at the national or sub-national level. To be meaningful, however, the schools must be identified and geo-located ideally with visualization through a geo-spatial database. Where central school construction records exists, this 'on paper' assessment can identify those buildings of a certain construction type, design, age and hazards exposure that therefore require closer (on-site) scrutiny.

5. Non-Technical School-Site "Sidewalk" Assessment is a "bottom-up" approach to low-cost triage. Ideally, it is used to supplement the information from the "top-down" approach described above. Where no such systematic data exists, this may be the primary source of triage assessment. This requires a simple approach that can be implemented by non-technical staff on site, or with support of easily identifiable local technical support. Risk RED's 1-page, Principal's School Building Safety Checklist on the next page, is an example of this.

School Vulnerability and Capacity Assessment are participatory assessment strategies typically promoted at the local community or school-site level. These have traditionally been designed primarily for local sensitization and local decision-making. There have been occasional efforts to expand these tools to guidance tools specifically to reduce disaster risks in school facilities are currently superficial in these tools. Most of these processes have typically not been linked to broader decision-making and support processes

by education authorities. UNICEF is also developing a broader-based child-led Child Friendly Schools Assessment. All of these can be valuable for Post-Disaster Needs Assessment (See type #7), however, not all collect sufficient data on school facilities safety.

6. School Site Technical Risk Assessment or Damage Assessment is a detailed school site technical assessment requiring professional inputs. When done prior to construction, for the purpose of site selection decisions may requires geotechnical and engineering expertise. When conducted on existing schools, it is the basis for definitively determining risks and then prioritizing schools for de-occupancy, and retrofit, or replacement. Since immediate school site assessment of every school is deemed impossible from a resource perspective, the prior 'triage' step, and the fifth type described below, become essential to narrow the focus. It is also important to note here that large schools typically have several buildings, constructed during different periods and with different levels of vulnerability. Retrofit and replacement are building-specific, not site-specific. Most authorities have found that resources will go much further if the problems with the highest probably consequences are addressed first, rather than tied to school-wide refurbishment. Rwanda's 30-page School Environment Assessment Tool, designed to be implemented in support of Child-Friendly Schools, is a good example of a relatively simple version tailored to be feasible with existing capacity. Guatemala's 80-page tool was considered too unwieldy, and is being revised by UNICEF regionally to be more user-friendly.

7. Post Disaster Needs Assessments are typically conducted in the first month following a sudden onset emergency. The UN Inter-Agency Standing Committee's Global Education Cluster guided by the Education Cluster Working Group (ECWG) is often the main actor facilitating collection and rapid dissemination of information to accurately define needs, map existing resources, and identify gaps and priorities for educational continuity. The main tool in use for this is the Join Education Needs Assessment Toolkit, introduced in 2009 and piloted in 2010. The purpose of these is to provide a snapshot of education-related needs. They are not baseline studies, do not provide background information, are not school surveys, and do not replace existing education data from sources such as EMIS. (The Short Guide to Rapid Join Education Needs Assessments http://oneresponse.info/GlobalClusters/Education/KM/Documents/Short%20Guide%20to%20Rapid%20Joint%20Education%20Needs%20Assessments.pdf and IASC Needs Assessment Task Force, helping to promote inter-Cluster coordination. recognizes that it must place greater emphasis on the documentation and sharing of knowledge, and is working on an Education Cluster Knowledge Management Strategy and tools, systems and guidance for data collection and sharing. (Education Cluster Annual Report 2009). This type of assessment typically leads to rapid recognition of the need for post-disaster damage assessment, and sometimes hybrid assessments are the result.

8. Cost-Benefit Analyses are traditional tools for economic decision-making. While under-utilized in the field of school safety, these may be of critical importance to ministries of finance and other economic decision-makers who must relied upon to allocate sufficient funds to implement school safety. In a recent study by Howard Kunreuther and Erwann Michel-Kerjan of the Wharton School, University of Pennsylvania the following important findings were made:

> "**It would cost about $300 billion to retrofit all the schools in the 35 most exposed countries**. Several highly populated countries would require a large investment to retrofit all schools, for instance, $32 billion in Mexico, $65 billion in India, and more than $100 billion in China.
>
> □ **Retrofitting the schools in all 35 countries studied here would save the lives of 250,000 individuals over the next 50 years**." (Kunreuther & Michel-Kerjan, 2012 p.35)

Example of School Facility Safety Checklist

Principal's School Facility Safety Checklist

(Source: Risk RED, localized for Turkey)

Identify any structural safety concerns that may require further investigation. You may need the support of a qualified engineer or architect to undertake this assessment with you. **If any of these conditions apply to your buildings, you will need to investigate further with professional engineering help**.

The structural safety of buildings may be at risk as a result of any of these conditions:

1. LOCATION AND SOIL

- ☐ Marshy soil
- ☐ On a steep slope
- ☐ In a flood plain or stream
- ☐ Site is exposed to coastal inundation or tsunami
- ☐ On top or next to fault line
- ☐ Below or on a landslide-prone slope
- ☐ Soil not compacted prior to construction

2. AGE OF BUILDING AND BUILDING CODES

- ☐ Constructed prior to implementation and enforcement of building codes
- ☐ Constructed without regard for, or compliance with building codes
- ☐ Building codes do not address the hazards that are faced

3. LOAD CARRYING SYSTEM

- ☐ Reinforced concrete building with discontinuous, uneven, or poorly connected moment frame
- ☐ Masonry, stone, and adobe without an earthquake tie beam
- ☐ Adobe with no horizontal or vertical reinforcement
- ☐ Masonry without regular cross-walls and small window and door openings

4. BUILDING HEIGHT

- ☐ 4+ storey poorly constructed reinforced concrete
- ☐ 2+ storey unreinforced masonry

5. DESIGN

- ☐ Different stories have same height, but have openings of different sizes and locations
- ☐ Different stories have different heights.
- ☐ Very long and narrow rectangular building (eg. "L"-shaped, "H"-shaped, "T"-shaped, or cross-shaped building without isolation joints)
- ☐ Flood water cannot flow easily through or around the building

6. CONSTRUCTION DETAILING

- ☐ Reinforced concrete construction:
- ☐ Insufficient or non-overlapping vertical steel in columns and beams
- ☐ Transverse steel not closed 135 degrees
- ☐ Uncleaned sand and aggregate mixed with concrete
- ☐ Concrete not vibrated to remove air bubbles
- ☐ Roof not securely fastened to structure

7. WATER DAMAGE

- ☐ Rainwater leaks from roof inside the building
- ☐ Interior dampness or smell

8. CRITICAL FACILITIES

- ☐ Water for hygiene and for drinking does not exist or is unsafe
- ☐ Toilet facilities are unhygenic or unused for any other reasons
- ☐ Other environmental hazards exist
- ☐ Access or evacuation roads or paths to/from school are unsafe for any reason

9. ENVIRONMENTAL HAZARDS

- ☐ Site is located near hazardous chemical, biological, nuclear or radiological materials production or storage
- ☐ School is exposed to threats of violence

10. ANY OTHER Please specify: _____

Safe School Facilities

The school safety assessments described above provide the starting point for the major tasks of assuring safe school facilities. The *Guidance Note on Safe School Construction* is the primary resource for this component. Additional project reports are referred to in the Appendix. An intensive expert consultative process yielded the following key steps identified in assuring safe school facilities. In many ways it is mirrored in this analysis:

1. Identify the key partners
2. Identify location of schools (and related management of geospatial data)
3. Identify hazards generally and specifically
4. Determine the risks to existing and prospective schools
5. Adopt building codes, retrofit, and remodeling guidelines
6. Triage based on: location & hazards, construction type, construction design, building age, specific buildings
7. Prepare new design
8. Prepare retrofit plans
9. Assure quality of work and maintenance.

Good practices in safe school facilities

China – Design school buildings to meet building code standards: Ministry of Education (MOE) and UNICEF are collaborating to develop construction standards for kindergartens and preschools. Also is in process; MOE, Ministry of Construction, and National Development and Reform Commission (NDRC) jointly released the Design Instructions for School Planning and Construction after the Sichuan Earthquake. MOE and UNICEF collaborated and prepared the draft of National Guidelines for Safe School Construction and Management, currently under revision. In Sichuan the investigation, design, construction, supervision, inspection and acceptance of school construction are conducted in line with relevant national construction standards.

Indonesia – Use building codes that provide guidance on hazard resilient design: The Center for Disaster Mitigation, Institute of Technology Bandung (CDM – ITB) and Save the Children International in 2009 published a handbook of typical school design and a manual on retrofitting of existing vulnerable school buildings. The handbook presents general practices of safe school construction and retrofitting through typical design and drawing of schools for Aceh and West Sumatra Earthquake Response programs.

China – Determine performance objectives/Assure safe installation of equipment and furnishings: As specified in the Design Instructions for School Planning and Construction after the Sichuan Earthquake (2008) the sites are assessed before the schools are built in accordance with national regulation, performance objectives are determinate by the country level government, schools are built or retrofit to meet performance objectives, and schools furnishings and equipment are designed and installed to minimize potential harm they might cause to school occupants. The quality-monitoring bureau leads monitoring on safety of equipment installation.

China – Supervise school constructions or retrofitting by qualified engineers: Supervision of school constructions (or retrofitting) by qualified engineers is in process. Since 2009, MOE launched the "School Construction Safety Programme" to build new schools or retrofit existing school buildings. A supervision team comprised of qualified engineers and other technicians are assigned to supervise the construction progress and quality.

China – Manage school maintenance program with mechanisms to ensure that schools maintenance are financed and executed: In Sichuan schools maintenance is implemented according to the plan. From year 2000 to 2005 the first and second session of school renovation and maintenance was conducted. From 2006 to the present, a long-term mechanism of school building maintenance is underway.

Through both the written record, and in communications and meetings of various advocacy bodies, the following observations emerge:

STRENGTHS & OPPORTUNITIES	
Shared values	• Citizens value and prioritize safety of children and school infrastructure
Institutional experience	• The World Bank, Global Facility for Disaster Risk Reduction has indicated their willingness and interest in taking a leadership role in researching the economic costs and benefits of school structural safety, and educational continuity, as well as illuminating the variety of emerging good practices in school safety assessment and prioritization and implementation of rolling retrofit and replacement plans. • The Child Friendly Schools framework provides an opportunity to develop and promote guidance for structural, non-structural, and infrastructural measures to assure school safety from disasters.
Social processes	• Social processes must precede carrying out structural interventions. Broad stakeholder involvement improves outcomes.
Multi-disciplinary expertise	• Involvement of multi-disciplinary expertise improves outcomes

WEAKNESSES & THREATS	
Failure to assure every new school is a safe school	• Neither donors, governments, nor NGO associations have unequivocally committed to, provided evidence or assurances, or submitted to monitoring to assure that every new school is a safe schools. Many small-scale donors are particularly unaccountable and are not reached.
Insufficient allocation of funds for replacement of unsafe schools	• With rare exceptions (China) neither governments nor donors have committed to replacement of unsafe schools with safe schools.
Multi-hazard awareness is often lacking	• In the construction of school facilities there are numerous examples of fulfilling resilience to one hazard, while failing to mitigate against others – sometimes resulting in schools being built but lying unused.
Child-friendly schools framework lacks rigorous standards for safety from disasters	• CFS framework requires a variety of more rigorous standards and measures in order to provide sufficient guidance to assure school facilities that are safe from disaster.
Impact of construction on education and family life not well-understood	• School remodeling, retrofit, and replacement all have an impact on existing school programs and families. Planning these projects to minimize adverse impacts continues to be a concern.
Opportunity for construction and retrofit as an educational experience is untapped	• School construction and retrofit provide ideal opportunities for students and communities to learn the many principles of disaster resilient construction to be applied throughout their communities. This opportunity is typically wasted as school sites are hidden from view and the experience is not used as a learning opportunity.
Lifeline infrastructure failures threaten school attendance	• Vulnerabilities in roads, bridges, and transportation systems must be prioritized when school attendance is threatened.
Failure to prioritize school re-opening jeopardizes community recovery	• Schools play a critical role disaster recovery and community resilience where adults cannot return to work

The components of safe school facilities again range from macro to micro, with many tasks required with overlapping groups of partners and stakeholders.

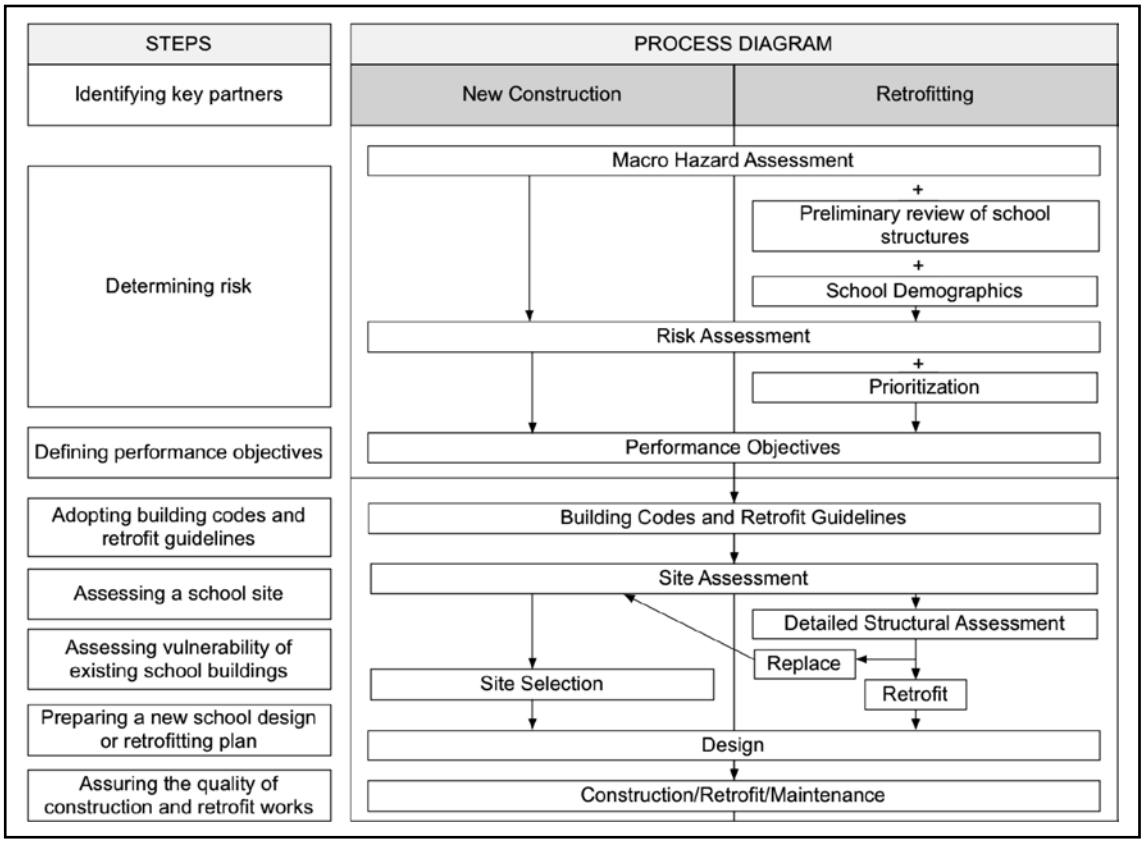
Components and key partnerships for safe school facilities:

	Component	Governmental Bodies	Non-governmental bodies
MACRO	**Land use planning**	Ministry/department of planning or urban and rural development. Town and Country Planning Department, Development Authority	Urban and rural planning organizations, Planning professional associations
	Financing	Ministry/department of education or finance, planning Commission, program coordination unit	Donor organizations, NGOs, INGOs, regional banks and other lenders
MESO/ MICRO	**Building code enactment**	National, state, or provincial ministry/ departments of public works, architecture and construction, municipal affairs and housing	Building industry entities, professional associations, building product manufacturers
MESO	**Building code enforcement**	National, regional, or local government	Independent code enforcement bodies, testing laboratories
	Design and construction of schools	Ministry/department of education, public works; regional or local government	Private school owners, Materials suppliers, construction companies, local builders, professional engineering, architecture, and building associations
	Provision or acquisition of school site	District or local government	Community
	Materials supply		Private sector businesses, NGOs, donor-organizations, communities
MICRO	**School administration**	Ministry/department of education, local school boards or school districts,	School administrators associations, local school management committees
	Maintenance	School district, schools	Community
	School – Community relations	Ministry or department of education, school boards or districts	Local schools, community-based organizations, NGOs, Parent/ Student/Teacher associations

(Adapted from: *Guidelines for Safer School Construction*)

Consistent with the typology of assessments offered in the previous section, the schematic diagram below sets out a typical process for assessing safety and constructing new or retrofitting existing school facilities to make them safer.

Example of Safe School Construction and Retrofit Process:



(Source: *Guidelines for Safer School Construction*)

The concept of setting performance objectives for school design and construction is referred to in various guidance materials. The highest standard, "continuous occupancy", is more expensive to achieve and is usually reserved for hospitals, emergency service centers and similar critical infrastructure that needs to remain continuously occupied. This is appropriate where schools are expected to function as post-disaster shelters or safe havens. In this case schools will serve as models of disaster-resilient construction. The more typical performance objective level for new schools is "moderate" or "infrastructure protection". The idea here is that the some damage is acceptable, as long as the investment is largely protected. And when it comes to low-cost minimum retrofit, where the main objective is to save lives, "life-safety" is often considered to be the acceptable performance standard. The difficult economic decision lies in setting an "acceptable cost criteria" to decide whether to replace unsafe schools with new schools, or to minimally retrofit them. In the case of major infrastructure upgrades such as in Istanbul and Bogotá when the cost of retrofit exceeds approximately 30%-35% of the cost of new construction, the decision to replace is made.

Performance Objectives for Safe School Facilities

Performance objective	Description of acceptable damage level
Highest: continuous occupancy (CO)	Damage should be minimal and allow for continuous occupancy of the premises during and after the hazard impact, without requiring repairs. Non-structural components should continue to function without alteration, both during and after the emergency.
Moderate: infrastructure protection (IP)	Damage to the structural system is acceptable as long as the specified assets are protected. It should be possible to repair any damage that occurs, at a reasonable expense and in a short period of time.
Minimum: life safety (LS)	Damage to the structural and nonstructural components is acceptable so long as it does not endanger human life. Repairs may be expensive and interfere severely with school operations in the medium and even long term

(Adapted from: *Guidelines for Safer School Construction*)

The expert review process that was part of the Guidelines for Safer School Construction yielded a rich identification of enabling factors associated with successful and sustained programs for school structural safety.

Enabling factors in successful and sustainable approaches to safe school facilities

Awareness	School communities understand their risk, and the extent to which a hazard resilient school can reduce that risk.
Community ownership	School communities play a major decision-making role throughout the various steps of the project.
Partnership and dialogue	Care is taken to foster an on-going dialog of mutual learning and understanding between project engineers and the school communities.
Assuring quality	Rigorous attention is paid to the technical requirements of the assessment, design, and construction/retrofitting supervision.
Appropriate technology	The final new school or retrofitting design is simple, builds on local building capacity and materials, and can be maintained inexpensively by the school community.
Integrated education	Education and awareness-raising are components of each and every activity.
Cultivating innovation	National and sub-national solutions require a thorough understanding of contexts and locally available resources. It requires acute multi-hazard awareness. Often innovative and traditional solutions
Encouraging leadership	Consistent solutions are not seen where decision-making authority has not been vested with a government authority able to make decisions and commit resources to implementation. It is often necessary and effective to involve school site administrators (school principles) fully in the process of oversight – provided they receive the technical assistance this requires.
Continuous assessement and evaluation	Ensuring safe school facilities in the face of aging school buildings, weather, and normal wear and tear requires an ongoing process of continuous assessment and evaluation in the form of ongoing school maintenance reports.

(Adapted from: *Guidance Notes on Safer School Construction*)

It is noted in several places throughout the case study literate that the standards for safe school facilities need to be fully integrated into the Child Friendly Schools (CFS) concept. Of particular note from Angola, for example, is that CFS should include the supervision of school constructions (or retrofitting) by qualified engineers, construction of schools (or retrofitting) to meet performance objectives, and the design and installation of school furnishings and equipment to minimize potential harm they might cause to school occupants. The management of the schools' maintenance program and implementation of mechanisms to ensure that schools' maintenance are being financed and executed should also be included. The example from Rwanda demonstrates that the approach need not be highly technical, and that guidelines and standards can be worded to distinguish between three levels of action: "must/should/may"

School Disaster Management

Overall, school disaster management is the component with the weakest documentation. There is considerable confusion in this area between response-preparedness and mitigation, and many donor-funded programs permit and encourage tokenism in this area.

The primary sources for analysis in this sphere are several key resources used in school disaster management guidance. Both implementation and evaluation of this component of school safety lags behind the others, nonetheless there is considerable consistency in the content of the guidance, where it is fully articulated.

Disaster and Emergency Preparedness Guidance for Schools, IFC – International Finance Corporation, World Bank, 2010. 63p. http://www.preventionweb.net/go/13989

Guidance Notes – School Emergency and Disaster Preparedness, UNISDR Asia and the Pacific, 2010. p.30

Guide for School Emergency Operations Plan – Maldives, Ministry of Education, Republic of Maldives, 2009. 92p. http://www.preventionweb.net/go/15317

National Guidelines for School Disaster Safety, Ministry of Education of Sri Lanka, 2008. 51p. http://www.preventionweb.net/go/7542

School Disaster and Emergency Management Handbook – National Ministry of Education, Turkey 2011.

School Disaster Reduction and Resilience Checklist – Risk RED, 2010. 2p. http://www.preventionweb.net/go/15316

Good practices in school disaster management

Angola – Create backup plans to ensure schools operations continuity in case natural hazards without disruptions in the school calendar: UNICEF developed its National Contingency Plan for the Education Sector to ensure minimum disruption of educational services for all students and teachers in areas affected by disasters by promoting access to quality primary education to all children with particular emphasis on girls. Planning assumptions relative to school continuity include that: The government will assume the leadership role in conducting rapid with affected or displaced communities. Temporary facilities must be created for learning.

There may be a shortage of trained teachers available. The location and number of students and teachers can change after an emergency (eg. due to displacement and resettlement). Coordination between groups is expected and will be facilitated. Emergency supplies may be pre-positioned at strategic locations. Logistical support required to transport and distribute tents, schools, and educational materials and recreation is planned in advance.

Tajikistan – Identify safe locations in case of evacuation of the schools: An assessment survey collected information on the availability of space for temporary accommodation in case of emergencies. Staff of the Emergency Situations and Civil Defense Institutions along with the Ministry of Education implement training programs for students in all schools in Dushanbe.

Indonesia – Provide preparedness information to students, teachers, staff, and school administrators regarding what to do before, during, and after a hazard event: The Indonesian Institute of Science (Lembaga Ilmu Pengetahuan Indonesia - LIPI) and UNESCO office Jakarta has developed a school-based disaster preparedness program (Sekolah Siaga Bencana - SSB). The SSB supports schools in building their capacity based on five parameters: knowledge and attitude; school policy and standard operating procedures; emergency planning; school early warning system; and school‘s resource mobilization capacity.

China – Execute regular school drills to practice and improve skills and plans: Emergency preparedness plans were developed in most schools in the Sichuan Earthquake affected counties. Information for students, teachers, and staff, to know what to do before, during and after a hazard event is being implemented in most schools. Regular school drills to practice and improve skills and plans are implemented at least annually in most schools in Sichuan Province.

Peru – Create disaster management committees in the schools or the local communities: The Ministry of Education created a Permanent Commission of Civil Defense to formulate a strategic plan ten years with the objective of inserting education sector disaster management the national, regional, and local levels. The policy includes guidelines and specific indicators to be reached in the year 2014. Also a promotional art competition was conducted on the topics: “Ensure the right to education even in emergencies” and “only using schools as shelter as a last resort”.

Guatemala – Include hazards, vulnerability and risk evaluation, alert systems and evacuation routes, as well as first-aid kits or disaster kits (e.g. earthquake survival kits) as part of the plans: The capabilities of the Ministry of Education are being improved through support and collaboration with DIPECHO partners‘ initiatives. National workshops on education in emergency have been conducted. They included topics like: —Escuela Protegida/Protected School, “Safe Schools in a Safe Territory,” Using Schools as a Shelter, Emergency Simulation Activities, Continuing Education in Emergency Situations, and Education Emergency Response Activities, among others.

Analysis of the various guidance documents, in relationship to available reports, leads to the following observations:

STRENGTHS & OPPORTUNITIES	
School communities are eager to participate	• Children and youth are especially keen to participate in all aspects of school disaster management. Teachers will also often voluntarily engage in learning to make their school environments safer.
Technical guidance for school disaster management is available	• There is a wide range of technical guidance materials available to support evidence-based activities for: reducing underlying risk factors, developing standard operating procedures and response skills for emergencies and disasters. These require analysis, adaptation and localization.
Education sector contingency planning efforts underway	• There are several countries where education sector contingency planning is under consideration at a national level. Most of these have taken a macro perspective and have not yet involved local school communities in the contingency planning process.
School principals are key actors	• School principals are often in a 'make or break' role in encouraging school disaster management. Luckily virtually every school has a person designated in this role.

Weaknesses & threats	
Many so-called "DRR" programs focus on response-prepareness and ignore primary risk reduction	• Programs that focus on what to do "in case of disasters" betray a reactive and fatalistic orientation, leading school communities to conclude that they are helpless when it comes to physically protecting themselves from risk. Instead a pro-active planning, risk mitigation and problem-solving orientation is needed to reduce structural, non-structural, infrastructure, environment, and social risks. Frequently absent from discussions of school disaster management are considerations such as: – identifying or creating two means of ingress and egress from school classrooms – fastening furnishings and equipment to prevent injury during earthquake – keeping exit pathways clear – maintaining buildings to maintain structural integrity – building and maintaining safe access routes to and from school – identifying and creating safe shelters from strong winds – identifying and creating high ground to escape flood or waters – using and developing effective early warning systems – implementing safe solid waste management systems – implementing rainwater harvesting for drought protection – implementing school gardens for food security – implementing environmental restoration programs
School disaster management plans are written for schools instead of by schools	• School disaster management plans must be lived documents that undergo regular review and revision. A plan written for a school is not the school's plan. While standards, templates and guidance are all important, the school disaster management plan should be owned by the school administration, the school disaster management committee and the school community.
Technical guidance lacking or under-utilized or not-localized	• Local knowledge and improvisation play important roles in disaster preparedness and response, disciplined and standardized operating procedures have logic and are based in evidence which should be well-understood before making reasoned deviations from these norms.

Child protection measures ignore in loco parentis shelter and nutrition needs and family reunification procedures	• To date, child protection concerns have looked at family reunification as a post-disaster function rather than a pre-disaster planning function that begins with schools and childcare providers providing temporary shelter and nutrition in loco parentis. In large urban areas where families may be separated for extended periods of time in a sudden-onset disaster, it is critical that parents designate emergency contacts to pick children up from school, and that schools supervise reunification.
Problem-avoidance and tokenism	• When external actors attempt to support school preparedness efforts, there is a frequent reluctance to face problems that only the community may be able to solve. For example, one limited-capacity cyclone shelter, with no distributed plan for use of all available shelters, does not confer safety for a school community.
School drills vary widely in efficacy	• School drills vary widely in efficacy because of lack of (evidence-based) standards, or failing to use the drill as a learning opportunity. There are numerous examples found in photo and videos widely available in 'DRR publications' that demonstrate misguided school evacuation and other procedures which may either useless, or put people in danger.
School teams are oriented to response only	• There are numerous references to "school disaster teams" and "rescue brigades" which pose school-based activities as exclusively focused on response-preparedness. There are a myriad of references and examples of school-based interventions that jump from risk awareness to response skill training, with only superficial school-based assessment, and no discussion whatsoever about the reduction of physical and environmental risks.
Gender needs and individual access and functional needs are frequently ignored.	• The needs of children who have functional differences in mobility, communication, vision or cognition are most often not considered in school disaster management planning. • The different needs of girls and women, and men and boys are often not considered in school disaster management planning.
Use of schools as emergency shelters threatens education continuity	• The use of schools as emergency shelters in times of disaster has been shown to both impede educational continuity, and to undermine safeguarding of infrastructure investment as schools are damaged in the process. Some schools are now being purposely built flexibility, with community shelter facilities incorporated into their design.
Reports lack specific and meaningful details	• A large proportion of reports use buzzwords to express generalities and insufficient detail to be meaningful (eg: "departments, are implementing a range of disaster risk reduction interventions aimed at policy, institutional and operational aspects. In particular, the programme aims to strengthen the national capacities and systems for disaster safety, especially targeting the selected schools…")
No lead agency	• There is no agency (INGO or NGO) advocating and guiding the documenting, guiding, and scaling-up good practices in school disaster management.

The following actors have been identified as having significant roles to play in school disaster management.

Stakeholders in school disaster management:

Local actors	Governmental bodies	Inter-governmental and non-governmental bodies
School principal Teaching staff Maintenance staff All other staff Students Parents	Ministry of National Education, sub-national education authorities for school disaster management templates. Individual public schools, esp. principals and school disaster and emergency management committee. Local fire department and other "first responders'	Private school bodies School site council, parent/teacher associations, and other school support bodies Teacher and other staff unions, Local businesses. Local community emergency response teams Global and local education cluster(s) or working groups

Example of School Disaster Management Checklist

School Disaster Management Checklist

1. **Ongoing school disaster management or safety committee guides the school disaster management process**
   - ☐ An existing or special group representative of all parts of the school community is tasked with leading school disaster management efforts on an ongoing basis.
   - ☐ School disaster management has the full support of school leadership.
   - ☐ School disaster management committee takes lead in ongoing planning for prevention, mitigation, response and recovery.
   - ☐ School disaster and emergency management plan is reviewed and updated at least annually.

2. **Assessment and planning for disaster mitigation takes place continuously**
   - ☐ Hazards, vulnerabilities, risks, capacities and resources are researched and assessed.
   - ☐ Mitigation measures are identified and prioritized for action.
   - ☐ Building evacuation routes and safe assembly areas are identified.
   - ☐ Area evacuation and safe havens for family reunification are identified, as needed.
   - ☐ Educational continuity plans are in place for recurring hazards and high impact hazards.

3. **Physical and environmental protection measures are taken to protect students and staff**
   - ☐ School buildings and grounds are maintained (eg. against moisture, termites, fungus) and repaired, for disaster resilience.
   - ☐ Fire prevention and fire suppression measures are maintained and checked regularly.
   - ☐ Safety measures related to building non-structural elements, furnishings and equipment are taken to protect students and staff from hazards within the building (especially due to earthquakes, severe weather etc.).
   - ☐ School infrastructure, including access routes, shelters and safe havens are developed as needed and maintained for safety.
   - ☐ Crime, vandalism, and bullying prevention measures are maintained and students and staff feel safe and secure on school premises.
   - ☐ Measures are taken to provide clean drinking water, food security, drought and hazardous materials protection (eg. rainwater harvesting, school gardens, solid waste management, erosion prevention).

4. School personnel have disaster and emergency response skills and school have emergency provisions
- ☐ School personnel are ready to organize disaster response using a standard emergency management system (eg. incident command systems).
- ☐ School personnel receive training in a range of response skills including, as necessary: building and area evacuation, first aid, light search and rescue, student supervision, shelter, nutrition and sanitation.
- ☐ School maintains first aid supplies and fire suppression equipment.
- ☐ School maintains emergency water, nutrition and shelter supplies to support staff and students for a minimum of 72 hours, and preferably one week.

5. Schools have and practice policies and procedures for disasters and emergencies
- ☐ Policies and standard operating procedures adopted to address each known hazards.
- ☐ Standard operating procedures include: building evacuation and assembly, shelter-in-place, lockdown, and family contact and reunification procedures.
- ☐ School personnel have and practice procedures to ensure safe student reunification with emergency contacts identified in advance by parents or guardians.
- ☐ School drills are held at least twice yearly to practice and improve upon disaster mitigation and preparedness skills and plans. One of these drills is a full scenario drill to practice response preparedness.

Source: Risk RED, 2012

Disaster Risk Reduction Education in Schools

Two primary resources provided most of the data for this section of the analysis:

1. HFA Mid-Term Review 2010-2011 and
2. Disaster Risk Reduction in the School Curricula, UNESCO, 2012

Additional project reports are referred to in the Appendix.

The first HFA Mid-Term Review notes that among the 27 countries that reported on implementation progress in 2007, a large number referenced school-based programs. However, not many reported progress in capturing and using local knowledge. In the second reporting cycle, ending in 2009 the average global progress was considered weak, especially in the development and application of research methods and tools for multi-risk assessments, and the inclusion of disaster risk reduction concepts and practices in school curricula. Data from the 2011 progress report indicates very little progress, with 24 out of 70 reporting substantial progress and 43 indicating weak or average progress. Just over half of reporting countries included disaster risk reduction in the national educational curriculum. Perhaps of most significant concern is that even when public awareness of hazards increases there is no clear evidence that enhanced awareness translates into concerted action (p.31)

STRENGTHS & OPPORTUNITIES	
Demand for guidance for DRR & CCA in curriculum is strong	• Countries are consistently asking for support
Local and indigenous knowledge can strengthen curricula	• Local and indigenous knowledge can often support and enrich DRR curriculum content. It remains important to make the space for this, and to learn more widely from it.

Progress on DRR in school curricula is monitored by HFA self-reporting	• Priority 3 Indicator 2 in the HFA Interim report asks about drr in the school curriculum for both primary and secondary school.
Many projects have demonstrated informal & co-curricular drr education	• There has been more work of an informal, local or pilot nature, and much less within the framework of strategic educational planning at the highest levels of curriculum planning. • Curricular integration work requires support over long-term multi-year curriculum adoption cycles.
Many projects have demonstrated child-centered and child-led DRR activities	• Young people respond with enthusiasm to the introduction of DRR into informal and co-curricular activities.
Leadership emerging for guidance on DRR & CCA in curriculum	• UNESCO IIEP/UNICEF, and UNISDR's Thematic Platform for Knowledge and Education are working together to address the gap with essential technical support and guidance materials.

WEAKNESSES & THREATS	
Full scope and sequence of DRR throughout the curriculum has not been articulated	• Governments are eager to incorporate disaster risk reduction into school curricula, but wonder what it is. There is no guidance that currently explains this across the scope and sequence of primary and secondary school curricula.
Curriculum content is weak in actual risk reduction measures and practical applications	• A great deal of curriculum content that calls itself 'DRR' is either about hazards or response. Very little is focused on the wide variety of measures available for reducing structural, non-structural, infrastructural, and environmental threats. This content needs primary focus.
Institutional and technical support for curriculum development is weak	• Both nationally and internationally, technical expertise in development of disaster risk reduction and climate change adaptation curriculum content is underdeveloped.
Political support not translated into practical strategies	• While political support sounds strong it often does not seem to be translated into practical and at least modestly funded strategies for implementation.
Incorporation of local and indigenous knowledge is weak	• Leadership and political will are key requisites for success. A small handful of people, willing and able to follow-through continue to make a difference.
Project funding cycles are too short to accomplish long-term goals	• Curriculum integration takes several years to accomplish. With short-term project funding cycles, local actors are reluctant to raise expectations when they may not be able to follow through.
Effectiveness measures of changes in behavior are not in place	• Country self-reports and project evaluations may overstate achievements. While knowledge and attitudes may demonstrably change, a linkage to behavior change has not been sought or demonstrated. Effectiveness measures must focus on behavior change for disaster risk reduction and climate change adaptation.
Gender needs and individual access and functional needs are frequently ignored	• The needs of children who have functional differences in mobility, communication, vision or cognition are most often not considered in DRR curriculum. • The different needs of girls and women, and men and boys are often not considered in DRR curriculum.

Some of the need for guidance in curriculum integration will be addressed with the publication of *Mapping of Global DRR Integration into Education Curricula*, UNESCO IIEP, in 2012. In this document the range of approaches and their advantages and disadvantages are fully outlined, and carrier subjects for introduction of disaster risk reduction in the curriculum are delineated as follows:

Approaches	Carrier Subjects
Holistic infusion	
Limited infusion (with carrier subjects)	Natural science cluster (basic sciences, earth and life sciences, biology, geology, physics)
Textbook driven	Social studies/social science cluster
Pilot project	Geography
Centralized competency-based approach	Language cluster
Centrally developed special subject approach	Health and Physical Education
Symbiosis (carried by other cross-curricular subjects) Special event	Life Skills/Civic Education and other subjects.

(Source: Disaster Risk Reduction in School Curriculum: Cast Studies from Thirty Countries. Geneva: UNICEF/UNESCO.)

Teaching modalities recommended for disaster risk reduction are those that revolve around interactive learning, the pedagogical manifestation of the participatory rights of children as laid down in the Convention on the Rights of the Child. The learner is both beneficiary and active agent with a voice in the learning process. There are many engaging learning approaches encompassed by this concept:

Appropriate Learning Modalities for Disaster Risk Reduction Education

- **Interactive Learning:** brainstorming, categorization, organization and evaluation of ideas; pair, small group and whole group discussion; interactive multi-media presentations
- **Affective learning:** feelings sharing about threats and disasters, empathetic activities to support those impacted by disasters
- **Inquiry Learning:** team case study research and analysis; Internet enquiry; project work
- **Surrogate Experiential Learning:** watching videos and films, board games, role-playing, dramatic arts, simulation gaming, assemblies
- **Field Experiential Learning:** field visits to disaster support services; hazard/vulnerability and capacity mapping in school and community; transect walks; reviewing and revising emergency plans; interviewing local community members on hazards and hazard/disaster memories
- **Action Learning:** developing, practicing and implementing standard operating procedures, student/community partnerships to raise hazard awareness, hazard and risk mapping and risk reduction planning; awareness campaigns; risk reduction campaigns (e.g. tree planting, rain water harvesting, evacuation route and safe haven development, solid waste management, gardening.)
- **Imaginal Learning:** Envisioning positive and negative futures, thinking through hazard impacts, rehearsing what to do in crisis circumstances, recognizing prevention measures. This may include guided visualization activities and circle storytelling, as well as developing personal safety scenarios.

(Source: Disaster Risk Reduction in School Curriculum: Cast Studies from Thirty Countries. Geneva: UNICEF/UNESCO.)

The most effective and sustainable approach is evaluated to be those based on holistic infusion. Kagawa and Selby (2011) also provide an outline for classification of learning outcomes for disaster reduction. A subsequent study will use this as a foundation on which to build a specific scope and sequence of learning outcomes for disaster risk reduction. This is the first articulation of how learning outcomes for disaster risk reduction can be classified, and is reproduced below.

Another contribution to this subject is a consultation draft of Key Messages for Disaster Risk Reduction, from the International Federation of Red Cross and Red Crescent Societies. This represents the broad base of knowledge of household and family disaster prevention and preparedness, which if acted upon by families at home, and thence to schools and workplaces, would substantially reduce disaster risks.

Example of Framework for Learning Outcomes for Disaster Risk Reduction

Outline for Classification of Learning Outcomes for Disaster Risk Reduction

Source: Kagawa, F. & Selby, D. 2012. Disaster Risk Reduction in School Curriculum: Case Studies from Thirty Countries. Geneva, UNICEF/UNESCO.)

Knowledge and Understanding
knowledge of self
knowledge of hazards and disasters
understanding of key disaster risk reduction concepts and practices
knowledge of basic safety measures
knowledge of disaster management mechanisms and practices
knowledge of the environment and of the environmental/human society interrelationship
knowledge of climate change
knowledge of differential and disproportionate impacts of hazards on people
knowledge of human rights/ child rights aspects of disaster

Skills
skills of information management
skills of discernment and critical thinking
skills of coping, self-protection and self-management
skills of communication and interpersonal interaction
skills of affect (responding to/ with emotion)
skills of action
systemic skills

Attitude/Dispositions
altruism/valuing
respect
compassion, care and empathy
confidence and caution
responsibility
commitment to fairness, justice and solidarity
harmony with the environment

IGO and NGO experiences in many countries have identified a number of enabling factors for success:

Enabling factors in successful and sustainable approaches to DRR in curricula	
Relationships with and support to education authorities	Developing long-term relationships with education authorities is the single most important factor in success. The role of IGOs and NGOs is to support capacity development rather than to substitute themselves.
Wholistic infusion most effective for sustained integration of DRR in the curriculum	While there are many variations in how to introduce DRR into curriculum, the preferred method for sustained impact is widely recognized to be wholistic infusion across all grades and a wide range of carrier subjects. Specific modules and courses for use as electives or requirements in secondary education may be very valuable for promoting disaster resilient construction, sustainable development, disaster management, first aid, swimming and other skills for risk and vulnerability reduction.

Behavioral outcomes measurable at household, school and community levels	DRR education can and should have clearly expressed behavioral outcomes that are practiced and lived. Skills in problem-solving, planning, action and reflection should all be visible as a result of successful DRR education.
Effective educational materials need to be identified, shared, adapted and localized	A single good teaching guide can be extremely effective in introducing disaster risk reduction consistently and universally. Due to varying levels of training and professionalism, simplicity is essential. Local culture needs to be understood to design or adapt appropriate materials. And teachers need to be able to fashion materials themselves, and should be encouraged to bring the curriculum to life at the school level
Strong political will	For the integration of disaster risk reduction into formal education a strong national political will, a systematic approach, and sustained action are necessary.
Co-curricular and extra-curricular activities, and school disaster management- bring DRR to life	Curricular approaches alone are often insufficient. When curriculum is book-learned and not practical or practiced, outcomes may be weak. Links to school and community improvement and disaster risk reduction projects, clubs, and regular school drills are all important
E-learning self-study and online curricular resources effective for scaling-up teacher training and student outreach	For education authorities where schools number in the thousands and staff in the tens of thousands, cascading models of instruction are prohibitive in terms of resource allocation and technical competency. Online instruction affords the ability to reach a large cadre of teachers (and students) with consistent foundational content, which can then be applied and enriched with local context.

Although not specifically part of the remit of this study, the case compilation has revealed the significant contribution and impressive gains achieved through regional and sub-regional collaborative initiatives. These initiatives have evolved through existing regional networks (eg. in Latin America and the Caribbean and in Southeast Asia), through INGO's own regional efforts (eg. UNICEF), and through donor-funded regional and sub-regional projects (eg. DiPECHO, USAID, and others).

Example of regional approach to support for DRR in the curriculum

In 2007, in the Asia region, the Regional Consultative Committee on Disaster Reduction led the way in outlining recommendations for key approaches to mainstreaming disaster risk reduction into school curricula. Based on emerging good practices, they suggested several steps for undertaking "priority implementation partnerships for mainstreaming DRR into the curriculum". Assessment of the outcomes of this project have not been reviewed. (ADPC, 2007)

Regional Consultative Committee on Disaster Reduction (ADPC)	
Key approaches	1. Plan in advance of the National Curriculum Development Cycle 2. Establish partnerships between the Ministry of Education and NDMO 3. Adopt a consultative process (including eg. Ministry of Finance, INGOs, NGOs) 4. Link with processes of the Education sector programs funded by multilateral and bilateral agencies; and the Education Sector Working Group led by the Ministry of Education
Initial steps for priority implementation partnerships	**Step1** Initiating Dialogue between NDMO and National Institute of Education and it's Curriculum Development Department, Ministry of Education **Step 2** Formation of Working Group and Advisory Group **Step 3** Priority Implementation Partnership (PIP) Kick off Meeting **Step 4** Develop and test the draft curriculum **Step 4a** Review existing curriculum **Step 4b** Develop new DRR subject/module **Step 4c** Training of teachers **Step 4d** Pilot test of the DRR subject/module **Step 5** Work with the curriculum developer and review committee **Step 6** Integration of the DRR subject/ module into the national Curriculum

RECOMMENDATIONS

Experts and practitioners in education and disaster risk reduction observe that whilst prodigious efforts have been made to produce quantifiable outputs in the area of school safety, evidence of systematic achievements remain insufficient. It is not at all clear whether school safety is worsening or improving.

The growth of urban risk continues with the intense pressures of population growth, economic challenges, unsafe land use, rapid and unregulated construction using modern materials without modern know-how. The evident impact of intensive (high and sudden) impact disasters as well as extensive (repeated or long-term) impact disasters and climate change, suggests that problems of the vulnerability of school children, staff and educational facilities is worsening, just as it was expected to be improving. In spite of the rapid expansion of school facilities to meet Millenium Development Goals, there has been no documentation that these new schools have been constructed so as to safeguard children's rights to safety as well as to education.

Many programs have aimed to sensitize target populations and to guide in the development of vulnerability and capacity assessments. Many assessments have been piloted, school plans written, drills conducted, and teacher and student training undertaken. These have been measured by 'numbers of schools', 'numbers of teachers', and 'numbers of students and community members' 'reached'. The goal of 'awareness' or 'sensitization' seems to have been accomplished both by major disasters and mass media as well as by the myriad of short-term pilot programs, but we remain unsure whether any behavioral impacts can be linked to this.

Now that disaster risk reduction and climate change adaptation are clearly on the global development and humanitarian response agenda the focus must now shift from "outputs" to "outcomes". The most basic milestone that disaster risk reduction and school safety must meet, is that more children are safer every day, rather than more children are at risk. National commitments, taxpayer and donor funds, professional and volunteer dedication, and the enthusiasm of school communities everywhere all deserve to be able to measure the fruits of their efforts by crossing beyond the threshold from a downward to an upward trajectory.

This transition can be made ***if*** we are able to verify that **every new school built is a safe school, and each has a method for ongoing school disaster management**, and ***if*** **every curriculum revision incorporates disaster risk reduction and climate change adaptation**.

The following seven recommendations are presented here, with details of relevance to national education sector and disaster management policy makers, education authorities at all levels, supporting INGOs, NGOs and donors, and school communities themselves.

1. Re-Focus on Outcomes, Standards, and Core Commitments

Recalling the three goals of school safety, it is recommended that **four outcomes and four minimum standards** form the foundation for the articulation of **core commitments** for school safety from disasters. The chief concern of this report is the question of how to assess school safety. This then is the starting point.

Following the example of Rwanda, minimum standards are suggested using plain language to explain a three-tiered approach with the following definitions:

Must – States the minimum requirement
Should – Gives guidance on quality that is encouraged in line with best practice
May – Gives good practice guidance recommended when resources permit.

Goals	Outcomes	Standards
Student and Staff Protection	1. Almost no children die or suffer serious injuries from natural or man-made hazard impacts as a result of attending school.	1. Schools must minimize student and staff injuries due to hazard impacts
	2. Almost all children are protected until they can be reunited with their families following a disaster.	2. Schools must protect learners with temporary shelter, sanitation and nutrition and safe family reunification in case of disaster
Educational Continuity	3. Almost all children have the right to participate in a full school year, with minimal disruption due to natural or man-made hazard impacts	3. Education authorities and schools must minimize educational disruption due to hazard impacts
Develop a Culture of Safety	4. Almost all children acquire and practice the skills and competencies at school, to practice collectively reducing disaster impacts.	4. Education programs must maximize learners collective resilience in the face of hazards.

The draft indicators referred to in the background section of the analysis have been re-written in the form of a set of key commitments to assure that children's rights to both safety and education are fulfilled.

Alignment of HFA Priorities and Core Indicators (as currently used in the HFA Monitoring Template 2011–2013 for national level assessments) is added to illustrate the feasibility of using a complementary set of indicators to be used by education authorities to monitor and report on their progress in school safety. (The letter "E" is added to denote that these are specific adaptions of the indicators for application to the "education sector"). This alignment will be explored further on. Specific recommendations for each of the focal areas is also spelled out below.

Core commitments to school safety from disasters		
Assessment & planning	1. ***Education authorities must take steps to develop and implement plans and policies addressing each of the three pillars of comprehensive school safety.*** 2. ***Schools should be identified as part of an Education Management Information System, including their exposure to natural and human-caused hazards and structural vulnerabilities.*** This information must be understood by both education authorities, and school communities. 3. ***School facilities' vulnerability must be triaged to identify priorities for technical on-site assessment.*** The most vulnerable must be fully assessed for retrofit or replacement. 4. ***Schools should regularly reassess their vulnerabilities and capacities in relation to new information.***	**Priority 2:** Core Indicators 1E / 2E / 3E / 4E
Safe school facilities	1. ***Every new school must be a safe school: This mean:*** a) school sites are selected for safety b) designed to meet at least "infrastructure protection" performance objectives to withstand known hazards c) constructed in compliance with building codes by construction workers educated in disaster resilient construction and non-structural mitigation skills and supervised by a qualified engineer and d) school construction is used as an opportunity for community education in disaster-resilient construction. 2. ***Legacy schools should be prioritized for replacement and retrofit:*** a) assessed by a triage process b) the most vulnerable given full technical assessment c) identified for implementation of retrofit or replacement to meet at least a "life-safety performance objectives" d) all remodeling efforts should incorporate disaster risk mitigation. 3. **Lifeline infrastructure and non-structural safety should be assessed locally and measures taken** to assure: safe access (roads and bridges), clean water for drinking and hygiene, and non-structural mitigation practices in anticipation of ground movement, wind and water hazards. 4. ***School furnishings and equipment should be designed and installed to minimize potential harm they might cause to school occupants.***	**Priority 4:** Core Indicators 1E / 2E / 3E / 4E / 5E / 6E

School disaster management	1. ***Education authorities must make continuity plans to insure that school operations continue in case natural or human-caused hazards disrupt the school year.*** This may include alternate calendar, sites, transport or shelter, delivery methods, mutual aid and surge capacity. 2. ***An ongoing school disaster management or safety committee must meet regularly to guide the school disaster management process at the school level,*** with responsibility for ongoing assessment of local risks and planning for disaster risk reduction to reduce deaths and injuries, support educational continuity and safeguard investment in school infrastructure. 3. ***Responsibility for maintenance of school physical infrastructure and non-structural safety must be established by school authorities with mechanisms for financing and execution.*** 4. ***Education authorities and schools should have and practices, policies and procedures for expected disasters and emergencies.*** These include standard operating procedures for fire and other fast and slow onset hazards, including a) drop and cover and drop, cover and hold positions b) building evacuation c) site evacuation to identified safe haven d) shelter-in-place e) lockdown, and f) safe family reunification. 5. **School personnel should have the opportunity to develop response skills for disasters and emergencies.** These include: a) response organization eg. incident command system or similar b) fire suppression c) light search and rescue d) first aid e) student supervision and family reunification f) logistics and g) psychosocial support. 6. **School disaster simulation drills should be held at least annually, for each expected hazard, to practice and improve skills and plans.** In primary schools, fire drills should be practiced four times per year. 7. **School should have a minimum of 3-7 days of provisions for emergencies and disasters.**	**Priority 1:** Core Indicators 1E/ 2E / 3E & **Priority 5:** Core Indicators 1E / 2E / 3E / 4E
Disaster risk reduction in school curricula	1. **Disaster risk reduction and climate change adaptation should be integrated, holistically and taught as part of school curricula from pre-school through secondary school.** 2. **Disaster risk reduction should be part of regular co-curricular school activities** 3. **Consensus-based key messages for disaster risk reduction at household and family and organizational levels should be standardized, harmonized, and contextualized** 4. **Education personnel should have opportunities for development of skills and competencies, and access to materials for teaching disaster risk reduction through formal and co-curricular methods.**	**Priority 3:** Core Indicators 1E / 2

a) Assessment

1. Education authorities must take steps to develop and implement plans and policies addressing each of the three pillars of comprehensive school safety.

By developing plans and policies for:

- ☐ Safe School Facilities
- ☐ School Disaster Management
- ☐ Disaster Risk Reduction and Climate Change Adaptation in School Curriculaeducation authorities will be able to successfully plan to reduce deaths and injuries to school children and staff, safeguard educational investments, and ensure educational continuity, in the face of hazard impacts.

2. Schools should be identified as part of an Education Management Information System, including their exposure to natural and human-caused hazards and structural vulnerabilities. This information must be understood by both education authorities, and school communities.

Education authorities in almost all countries are facing the challenge of mounting and effectively utilizing Education Management Information Systems (EMIS). Existing customizable tools such as Open

EMIS http://openemis.codeplex.com/ allow cascading levels of educational authorities to build and maintain data on location of educational institutions as well as data on buildings, rooms, equipment, staff, and student educational records. It will become increasingly important that school vulnerability data, retrofit and remodeling, and school disaster management data be integrated with these systems, as well as become interoperable with national disaster management systems and post-disaster needs assessment tools. An important resource for collaboration on inter-operability is the United Nations Center of Excellence for U.N. Spatial Data Infrastructure, under the Office for Coordination of Information Technology at the U.N. Secretariat[1].

INGOs, NGOs and Donors should give priority to supporting and promoting the development of comprehensive country or sub-national level geo-spatial inventories (using low cost open-source tools) as a foundation for both safe school planning and education sector planning of all kinds. This work should be integrated with general education sector planning to identify simple but essential data on school demographics and structural safety that will support facilities planning as well as be able to be integrated with other education sector oversight functions. Where there is a strongly centralize education authority and substantial data already exists at a national level, this can begin with a 'top-down' approach to data collection. Where education authorities do not have comprehensive information, a crowd-sourced 'bottom-up' approach can be taken. In both cases, it is essential that individual schools be able to provide and access data about their schools, on an ongoing basis.

3. School facilities' vulnerability must be triaged to identify priorities for technical on-site assessment. The most vulnerable must be fully assessed for retrofit or replacement.

Detailed assessments of large numbers of school are impossible from both a human and financial resource standpoint, and would be highly wasteful, a multi-level procedure is recommended, based on filters of increasing detail, reducing the number of schools at each step. Priorities and timescales can then be assigned based on vulnerability, hazard and building occupancy[2]. Digital media (including telephones) make this type of data collection and access, much more feasible for all but the most remote locations. Both centrally organized, and bounded crowd-sourcing (i.e. with data collected from each school) are important. Straight-forward transparent technically based and flexible guidance principles exist, and can be, and should be used to rationalize this process. INGOs and NGOs utilizing skilled knowledge management and school safety consultation can support government education and public works authorities in this process.

4. Schools should regularly reassess their vulnerabilities and capacities in relation to new information

Use of an EMIS as suggested above, will permit this to be accomplished on an annual basis.

b) Safe School Facilities

1. Every new school must be a safe school: This mean: a) school sites are selected for safety b) designed to meet at least "infrastructure protection" performance objectives to withstand known hazards c) constructed in compliance with building codes by construction workers educated in disaster resilient construction and non-structural mitigation skills and supervised by a qualified engineer and d) school construction is used as an opportunity for community education in disaster-resilient construction.

Most of the existing school buildings in the world today are less than 50 years old. Most of the school buildings that will be occupied 50 years from now, have not yet been built. As soon as any country can say that "every new school is a safe school",

1 Information on EMIS resources is available at http://www.infodev.org/en/Publication.151.html and www.infodev.org/en/Document.187.html.

2 Grant, Damian et. al. 'A Prioritization Scheme for Seismic Intervnetion in School Buildings in Italy', Earthquake Spectra, May 2007 V.23 N.2 p 291-314.

they will be on the road to achieving school safety within a single lifetime. This "simple" commitment, however requires the following:

School sites are selected for safety

- ☐ Site is away from unmitigated hazards (eg. landslide, flash flood, volcano, hazardous materials, major transit routes, forest fires)
- ☐ Site hazards are recognized and mitigated (eg. earthquake, flood)

School buildings are designed to meet at least "infrastructure protection" performance objectives to withstand known hazards

- ☐ Buildings are designed to meet 'performance standards' minimally for life-safety and where possible, asset protection and operational continuity.

School buildings constructed in compliance with building codes by construction workers educated in disaster resilient construction and non-structural mitigation skills and supervised by a qualified engineer.

- ☐ Adherence to Building Codes or International Building Code (published by the International Code Council) whichever is the higher standard.
- ☐ Guidelines for multi-hazard resistant construction are easily understood and widely disseminated
- ☐ Construction workers are trained in the 'whys' and 'hows' of disaster resilient construction
- ☐ Construction is supervised, monitored and inspected for quality control and enforcement of standards

School construction is used as an opportunity for community education in disaster-resilient construction

- ☐ Utilize school construction as an opportunity for community-education about disaster-resilient construction and mobilize community participation to support monitoring.

2. Legacy schools should be prioritized for replacement and retrofit: a) assessed by a triage process b) the most vulnerable given full technical assessment c) identified for implementation of retrofit or replacement to meet at least a "life-safety performance objectives" d) all remodeling efforts should incorporate disaster risk mitigation.

There is still much work to be done in strengthening accountability mechanisms for the creation of national and sub-national programs for school safety. In order to move from good intentions to action, transparent and flexible triage assessments should be utilized to identify the most vulnerable buildings that require full technical assessment. The first stage in this filtering may be regarded as a "safety audit". Based on vulnerability, hazard exposure, and occupancy those schools requiring replacement or retrofit should be placed on a schedule for needed work to be accomplished. Unsafe schools should not be occupied.

In general the goal of "minimum retrofit" is "life-safety" performance. However, in cases where schools are important post-disaster shelters or emergency operations centers, this standard is not high enough. Typically the decision to replace, rather than retrofit a school, is made when the cost of retrofit exceeds 30-35% of new construction.

3. Lifeline infrastructure and non-structural safety should be assessed locally and measures taken to assure: safe access (roads and bridges), clean water for drinking and hygiene, and non-structural mitigation practices in anticipation of ground movement, wind and water hazards.

To ensure access to school throughout the school year, and to facilitate return to school, post-disaster, it is a high priority that government authorities responsible for lifeline infrastructure repair and maintenance, prioritize school access to lifeline infrastructure, ensuring that:

- ☐ Schools are accessible by safe roads, bridges and paths.
- ☐ Schools have access to clean water for drinking and sanitation and sanitary toilet facilities.

4. School furnishings and equipment should be designed and installed to minimize potential harm they might cause to school occupants

In the case of seismic and other risks, school furnishings and equipment, heating and cooling systems, lighting, storage containers and other building non-structural elements and contents can be hazardous to occupants.

- ☐ Guidance for school non-strucutral mitigation is made easily accessible to involve all actors in school construction, outfitting, and remodelling, including school equipment providers, in non-structural mitigation.
- ☐ Schools non-structural mitigation measures are taken in the course of school construction, retrofit and remodelling.
- ☐ Ongoing non-structural risk reduction is facilitated at the school level, in the course of ongoing school maintenance.
- ☐ Structural and non-structural measures for usability of facilities in extreme weather

c) School Disaster Management

1. Education authorities must make continuity plans to insure that school operations continue in case natural hazards disrupt the school year. This may include alternate calendar, sites, transport or shelter, delivery methods, mutual aid and surge capacity.

School continuity and contingency planning involves consideration of the many possible factors that could impede educational continuity, including: school facilities not being usable, or accessible, school populations displaced to new (and possibly temporary) locations, usable schools being impacted by large numbers of incoming students, and sufficient school personnel not being available, where they are needed. School records may be damaged, and school exam schedules disrupted. Coping with all of these contingencies requires foresight, planning, and flexibility.

In addition to the responsibilities of education authorities, planning and finance and disaster management authorities must also regard schools and teachers as essential services to be prioritized in the recovery process.

Considerations in school continuity planning include:

- ☐ Mutual aid plans with surrounding schools
- ☐ Temporary school closure and holiday rescheduling, alternate calendars and timetables
- ☐ Alternate school sites
- ☐ Facilitation of transportation
- ☐ Alternate means of instruction, such as independent study, visiting teachers, and radio- or television delivery of lessons
- ☐ Temporary fee subsidy programs
- ☐ Enrollment and educational records secured and with secondary off-site storage
- ☐ Alternate sources of power and water
- ☐ Availability of clinical health services via schools
- ☐ Link work of Education Sector Cluster or Working Group to other post-disaster cluster responses (shelter, water and sanitation, health, protection).

2. An ongoing school disaster management or safety committee must meet regularly to guide the school disaster management process at the school level, with responsibility for ongoing assessment of local risks and planning for disaster risk reduction to reduce deaths and injuries, support educational continuity and safeguard investment in school infrastructure.

Key elements of successful school disaster management include:

- ☐ School disaster management has the full support of school leadership.
- ☐ Standards and templates are provided to guide school disaster management.
- ☐ An existing or special group representative of all parts of the school community is mobilized and tasked with leading school disaster management efforts on an ongoing basis.
- ☐ School disaster management includes administration, faculty, staff, students, parents as well as other actors in the local community

- ☐ School disaster management committee takes lead in ongoing planning for prevention, mitigation, response and recovery.
- ☐ School disaster and emergency management plan is reviewed and updated at least annually.

3. Responsibility for maintenance of school physical infrastructure and non-structural safety, must be established by school authorities with mechanisms for financing and execution.

School authorities must enable and fund ongoing maintenance at the school level, and typically, school principals or directors are responsible for oversight of this function. These responsibilities include:

- ☐ School buildings and grounds are maintained for disaster resilience.
- ☐ Fire prevention and fire suppression measures are maintained and checked regularly.
- ☐ Safety measures related to building non-structural elements, furnishings and equipment are taken to protect students and staff from hazards within the building (especially due to earthquakes, severe weather etc.)

4. Education authorities and schools should have and practices, policies and procedures for expected disasters and emergencies. *These include standard operating procedures for fire and other fast and slow onset hazards, including a) drop and cover and drop, cover and hold positions, b) building evacuation c) site evacuation to identified safe haven d) shelter-in-place e) lockdown, and f) safe family reunification.*

Education authorities may use internationally available materials to adapt standard procedures developed based on safety research. This should then be understood and interpreted based on the unique considerations at each school site. Minimally:

- ☐ Policies and standard operating procedures are adopted to address all known hazards.
- ☐ Standard operating procedures include: building evacuation and assembly, shelter-in-place, lockdown, and family reunification procedures.
- ☐ Additional procedures in response to specific hazards an in relation to the specific school site (eg. Earthquake, flooding, tsunami, storm surge, lahar flow, debris flow, landslide, wind storm etc.)
- ☐ School personnel have and practice procedures to ensure safe student reunification with emergency contacts identified in advance by parents or guardians.

Many of these skills could be efficiently conveyed using well-constructed video materials, and should not require on-site instruction at every school.

5. School personnel should have the opportunity to develop response skills for disasters and emergencies. *These include: a) response organization eg. incident command system or similar b) fire suppression c) light search and rescue d) first aid e) student supervision and family reunification f) logistics and g) psychosocial support.*

Development of response skills among school personnel, older students, parents and community volunteers is a potentially labor-intensive undertaking. Well-constructed educational materials can make this process more efficient. These skills can also be taught in the course of military conscript training to young people, as well as to scouting and other youth organizations. Online learning, video instruction and other means of mass skill training should be considered. In remote or isolated areas where little access to assistance is forseen, the level and quality of first aid and search and rescue skills needed will be highest.

- ☐ School personnel are ready to organize disaster response using a standard emergency management system (eg. incident command systems).
- ☐ School personnel receive training in a range of response skills including, as necessary: building and area evacuation, first aid, light search and rescue, student supervision, shelter, nutrition and sanitation, psychosocial support and referral for acute psychological needs.

6. School disaster simulation drills should be held at least annually, for each expected hazard, to practice and improve skills and plans. In primary schools, fire drills should be practiced four times per year.

Specific types of drills may be held for various hazards. These can be grouped according to whether they require: building evacuation, vertical evacuation, site evacuation, shelter-in-place, or lockdown, as well as specific measures for earthquakes, floods, etc. Practicing drills will require that various measures are thought through (eg. area evacuation and safe havens for family reunification are identified) and that all members of the school community can be depended upon to behave safely, according to these procedures.

The purpose of school drills is:

- ☐ To provide the opportunity to imagine and plan safe scenarios.
- ☐ To practice disciplined collective behavior that does not come naturally in order to make it rote.
- ☐ To practice, reflect upon and improve upon disaster mitigation and preparedness skills and plans.
- ☐ To promote dialogue between schools and local leaders, emergency responders, and parents.
- ☐ To check that schools are integrated into available early warning systems.

The best drills are those that simulate real conditions, eg. by being unannounced, by having injections of simulated conditions along the way. Ideally full response simulation drills, including family reunification should be conducted annually.

7. School should have a minimum of 3-7 days of provisions for emergencies and disasters

Response provisions include:

- ☐ fire suppression equipment
- ☐ drinking water
- ☐ sanitation water
- ☐ food,
- ☐ shelter supplies
- ☐ first aid supplies, and
- ☐ sanitation supplies.

Schools must realistically appraise how long they may be responsible for sheltering students, staff, and even staff families. They must consider whether they may also be sheltering students from other schools who cannot return home, out-of-school children and youth, preschool children and community members. Adjustments will be required for each of these scenarios.

d) DRR in School Curricula

1. Disaster risk reduction and climate change adaptation should be integrated, holistically and taught as part of school curricula from pre-school through secondary school.

A wide variety of approaches to DRR in school curricula have been piloted over the course of the past few years. Assessment reports suggest that while students readily take interest in the subject in both formal and informal curriculum, for sustainability over the long-term, integration is the most reliable. Rather than a stand-alone subject which curriculum demands cannot support, the infusion of disaster risk reduction into a variety of 'carrier' subjects allows for integration of this material without creating an additional burden for teachers.

Further recommendations are expected in 2012 from the forthcoming:

UNICEF/UNESCO Disaster Risk Reduction in the School Curriculum, and from the UNIEF Child-Friendly Education: Climate Change Resource Pack for Educators.

2. Disaster risk reduction should be part of regular co-curricular school activities.

Disaster risk reduction, confined to the formal curriculum, runs the risk of being taught in a dry, didactic manner, separate from the lived reality of students' lives. It should therefore have a privileged place within the scope of regular co-curricular activities as well. Informal and co-curricular activities have the advantage of being able to be child-led, as well as child-centered. And these activities can be used to reach beyond students themselves to their families, to children and youth not in school, and to the local community.

Examples are:

- ☐ Disaster prevention is taught informally through school disaster drills, assemblies, presentations, competitions, exhibitions, cultural and performing arts and other community-based activities.
- ☐ The school construction process is used a community learning experience.
- ☐ The principle concepts for hazard-resilient design and construction are taught in the school curriculum
- ☐ School personnel, students, and families are encouraged to develop and update their own Family Disaster Plan on a regular basis.

3. Consensus-based key messages for disaster risk reduction at household and family and organizational levels should be standardized, harmonized, and contextualized.

In order to guide public awareness messaging and curriculum content for actionable risk reduction at household and family levels and at organizational levels, the need for consensus-based key messages has taken on greater urgency. The International Federation of Red Cross and Red Crescent Societies will publish Validation Project Version of Public Education and Public Awareness: Key Messages for Disaster in 2012, as a contribution to this objective. The expectation is that a standard template will provide a starting point for NDMO's and local partners to come to agreement on messages harmonized for communication from multiple sources.

4. Education personnel should have opportunities for development of skills and competencies, and access to materials for teaching disaster risk reduction through formal and co-curricular methods.

Neither formal nor informal channels for disaster risk reduction education can be successful without support to teaching staff and youth. Both require that there are large-scale strategies to ensure that:

- ☐ New teachers are trained to teach disaster prevention in the course of their teacher training.
- ☐ Current teachers are trained through in-service and continuing education mechanisms to support these objectives.
- ☐ Support for peer-to-peer education is accessible.

Support for curricular and co-curricular activities through quality educational materials is addressed in Recommendation #6 below.

2. Align Education Sector Indicators with Hyogo Framework for Action

In order to monitor, assess and support the implementation of disaster risk reduction measures in the education sector it is recommended that in each country, education sector disaster risk reduction goals be tracked in alignment with the Hyogo Framework for Action, and that complementary strategic goals and indicators be established and measured for the education sector. In each with a National Platform on Disaster Risk Reduction or similar mechanism for oversight of disaster risk reduction, an Education Sector Committee for DRR be established with broad stakeholder participation, in order to advocate for, support and monitor progress towards these objectives.

In the table below, modeled on the *HFA Monitor Template 2011–2013*, Strategic Goals, Priorities for Action, and Indicators are proposed as they relate to the education sector. Progress towards these indicators can and should be measured through processes initiated and supported by governments, National Platforms, NDMOs and Ministries of Education in collaboration, Regional partnerships, INGOs and NGOs and donors. Similarly, planning for post-HFA education sector strategy alignment should begin now.

Strategic Goals for the Education Sector
1. Integrate disaster risk reduction into sustainable development policies and practices **in the education sector**.
2. Develop and strengthen institutions, mechanisms and capacities to build resilience to hazards **in the education sector**.
3. Systematically incorporate risk reduction approaches into the implementation of emergency preparedness, response and recovery programmes **in the education sector**.

Priorities for Action for the Education Sector	Indicators for the Education Sector
1. Ensure that disaster risk reduction is a priority with a strong institutional basis with education authorities nationwide	1. Policy and legal framework for disaster risk reduction exists with decentralized responsibilities and capacities in the education sector at all levels. 2. Dedicated and adequate resources are available to implement disaster risk reduction plans and activities at all administrative levels. 3. Community participation and decentralization are ensured through the delegation of authority and resources to education authorities at the local level. 4. A national multi-stakeholder platform for disaster risk reduction is functioning in the education sector
2. Identify, assess and monitor disaster risks to schools and enhance early warning for all learning environments.	1. National and local risk assessments based on hazard data and vulnerability information are available to education authorities and schools. 2. Systems are in place to monitor, archive and disseminate changing data on school structural, infrastructural and environmental vulnerabilities. 3. Early warning systems for major and local hazards reach schools, and schools have the opportunity to participate in early warning systems.

3. Use knowledge, innovation and education to build a culture of safety and resilience through curricular and co-curricular activities in schools.	1. Educational materials on disaster risk reduction and climate change adaptation are shared internationally, and available for localization and contextualization. 2. School curricula is holistically-infused to include disaster risk reduction and recovery concepts and practices. 3. Research methods and tools for multi-risk assessments and cost-benefit analysis are developed and strengthened for the education sector. 4. Countrywide public awareness strategy to stimulate a culture of disaster resilience, with outreach to urban and rural communities, includes child-centered and child-led elements.
4. Reduce the underlying risk factors.	1. Disaster risk reduction is an integral objective of site selection, design, construction, and maintenance of schools. 2. School disaster management policies and plans are implemented to reduce the vulnerability of children in and out of school. 3. Educational continuity plans are in place to reduce disruption of the school year, and protect individual attainment of educational goals. 4. Planning and management of schools facilities incorporates disaster risk reduction elements including enforcement of building codes. 5. Disaster risk reduction measures are integrated into post-disaster recovery and rehabilitation processes in the education sector. 6. Procedures are in place to assure that every new school is a safe school.
5. Strengthen disaster preparedness for effective response in learning environments.	1. Strong policy, technical and institutional capacities and mechanisms for disaster risk management, with a disaster risk reduction perspective are in place in the education sector. 2. Disaster and emergency plans are in place at all administrative levels in the education sector and regular training drills and rehearsals are held to test and develop disaster response capacity at all levels. 3. Insurance and contingency mechanisms are in place to support effective response and recovery when required. 4. Procedures are in place to exchange relevant information about impacts on schools, during hazard events and disasters, and to undertake post-event reviews.

3. Develop and Monitor Policies to Safeguard Development Investments

The work of integrating conflict and disaster risk reduction into education sector planning, and promoting those practices that safeguard investments in education, and help to achieve sustainable development requires as a first step, that a careful analysis is done in partnership with the highest education authorities. This analysis provides the foundation for sound policy formulation. Such analysis includes:

- how disaster and conflict have impacted the education system in the past, organizationally,
- nstitutionally, in terms of delivery capacity, outputs and outcomes.
- how the education delivery system was able to respond to these
- how the management and policy environment have addressed these issues in the past, the lessons learned and strengths and capacities that exist within the system
- the cost and financing available as part of the overall budget framework to prepare for, mitigate or respond to conflict and disaster.

The planning and policy framework needs to address the three familiar pillars:

- Requiring **Safe School Facilities**: that every new school be constructed to be safe from all expected hazards
  - on a site selected for safety
  - designed and constructed according to international building standards to a standard of “infrastructure protection”
  - construction supervised

  - liability established, insured
  - with non-structural safety measures incorporated
- Providing standard operating procedures and guidance for **School Disaster Management** and
- Incorporating **Disaster Reduction Education** into the ongoing curriculum adoption cycle.

4. Follow Best Practices to Drive Progress

The following issues are considered important drivers of progress in all areas of school safety:

1. Taking a multi-hazard integrated approach to disaster risk reduction
2. Developing capacity of education authorities and support school principles as leaders
3. Using child-centered, child-led, and participatory and interactive approaches incorporated into all aspects of risk reduction.
4. Integrating child protection, social equity, gender, and access and functional needs approaches into disaster risk reduction and recovery activities.
5. Engaging and partnering with non-governmental actors, including especially school staff, parents, and community organizations is fostered at all levels.

Guidance in each of these areas is plentiful, and most of these principles are well understood and practiced by leading INGOs, NGOs, NGO standards organizations and bilateral and multi-lateral donors. However, lead actors in the education sector and in support and advocacy, bear constant reminding that they not the only stakeholders, and must reach out to mobilize the wide range of governmental and nongovernmental stakeholders, in order to succeed. Moreover, these multi-stakeholder partnerships are vital at the local, sub-national, national, regional and global levels. Although they require significant time and effort expended in outreach and communications, and in discussions revisited, and although they are tempting to skip over, they are, indeed, vital to success.

5. Work with and Support Regional and Sub-Regional Partnerships

Regional and sub-regional partnerships have proven especially effective in spurring progress in school safety. In the Caribbean, the Andes, Central America, and in Southeast Asia “south-south” mutual aid and partnerships have been well positioned to make significant impacts by developing a much deeper sense of ownership by Ministries of Education and National Disaster Management Organizations than is otherwise built. Regional program make possible:

- Identifying, mobilizing and working with highest-possible-level official focal points within Ministries of Education and other education authorities. (A dramatic example of this is the Ministry of Education in Panama inviting and attracting high level participants from 18 countries to a regional conference to discuss collaboration on school safety.)
- Focus on developing approaches, methods, and guidance materials to support:
  - safe school construction
  - programs of school retrofit and replacement
  - school disaster management
  - integration of disaster risk reduction into curriculum
  - development and dissemination of educational materials
  - development of guidance and tools for school administrators, educators and staff

- Supporting the development and strengthening of school-based disaster management or safety committees, emergency brigades and non-structural mitigation, etc.
- Providing relevant information, guidance and tools to teachers, school staff and disaster management officials to undertake disaster preparedness and risk reduction measures.
- Collection and dissemination of good practices and success stories related to disaster risk reduction in education.

For INGOs, NGOs, and donors as well, regional projects help to achieve coherence, synergy, efficiencies, and to have impacts at a larger scale than would otherwise be possible.

Regional and sub-regional partnerships can also meaningfully support international campaigns and follow up to successful efforts such as “Disaster Resilience Begins in Schools” “Safe Schools and Hospitals” and “Disaster Resilient Cities”.

6. Develop Knowledge Management Tools for Scaling-Up

Following at least five or six years of extensive piloting of projects in diverse settings all over the world, the time has come to rigorously evaluate the impact of these interventions, and to scale-up to meet the massive scale of needs. Strategies for scaling up require, reducing labor-time involved in developing, producing, disseminating, implementing, and monitoring all of the various solutions. It requires both working at a policy level, and working at the level of middle management, teachers, and even students, to share and re-use and re-purpose resources.

Disaster Risk Reduction Education and School Safety Materials Database: This has begun in some important ways, eg. UNISDR Prevention Web hosts an Educational Materials Collection with more than 2,000 published materials for disaster risk reduction education. This archive is maintained by user submissions. If INGOs, NGOs, and donors all required the products of their efforts for the last five years to be included in this archive, it would, no doubt, grow even larger.

When the archive was conceived, experts and practitioners recommended that it be fully searchable, that it include the ability for users to rate and comment on the materials, and that data about dissemination be able to be collected. In addition any individual or corporate user may tag catalogue entries and be provided with the html code required for them to display a their chosen subset of resources, dynamically updated, on their own web-pages. An additional feature could enable countries to link their school safety and drr educational guidance materials to the HFA monitoring process.

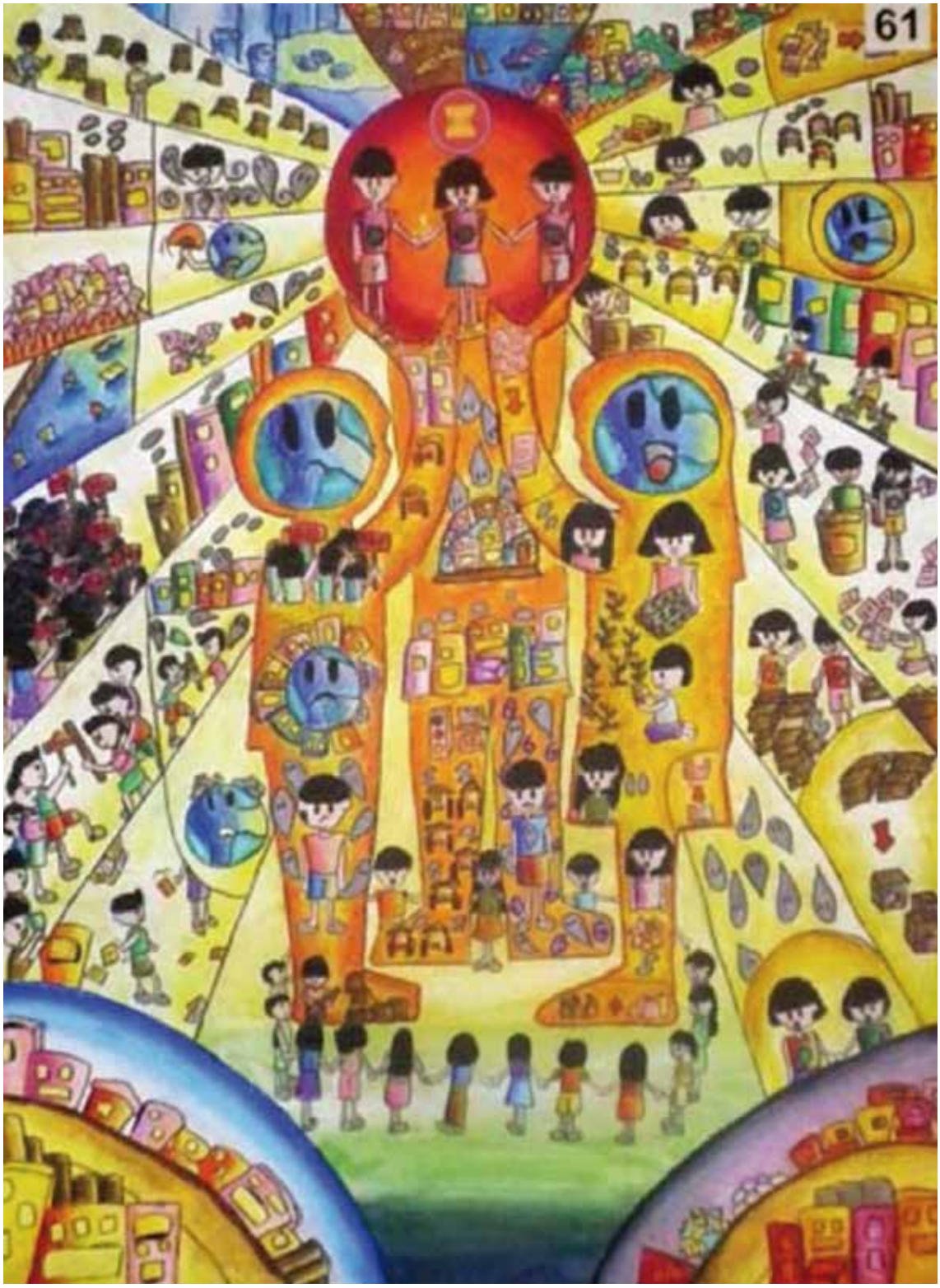
These important features require priority implementation by UNISDR, in order to make the collection truly usable. An international launch of this facility, once it is fully functioning, would attract the attention it deserves in order to maximize its usefulness.

DRR Educational Materials Learning Objects Repository and Collaborative Authoring System: Most of the educational materials produced globally with taxpayer and donor dollars do not fall within the scope of traditional ‘copyright’. They are instead, more suited to ‘copyleft’ or “Creative Commons licensing” which permits them to be used for non-commercial purposes, giving credit where it is due. Digital technology now permits reasonably priced solutions to allow creation of a DRR Learning Objects Repository for the archiving, rights management, versioning, and re-use of graphics, video, audio, text, slides, courseware etc. ie all of the (multi-lingual and translingual) component parts of education and training materials. A multi-donor, multi-partner investment of this kind would allow for many potential partners to participate in translation, adaptation, localization, re-use and repurposing of guidance materials and tools for assessment, safe school facilities, school disaster management and curriculum and teacher support materials.

Develop well-articulated scope and sequence for DRR education and consensus-based key messages for DRR: The "scope and sequence" of disaster risk reduction education is currently being undertaken in the course of a consultancy for UNICEF/UNESCO which will be completed in 2012. This document will be a significant resource for curriculum developers in implementing a common foundation for disaster risk reduction education. Similarly IFRC is publishing Key Messages for Disaster Risk Reduction in 2012, to be validated through regional and local adaptations. Together it is expected that this will begin to provide an answer to the frequently asked question "What is disaster risk reduction?"

7. Support Impact Research for Scaling-Up

Comparative research on high-impact and long-term behavioral impacts In spite of the many approaches and efforts to promote each of the foundations of school safety, there remains insufficient and in-depth comparative assessment and research on impacts. The research required should be largely focus on each of three areas of school facilities safety, school disaster management, and disaster risk reduction in the curriculum separately, seeking both best practices with a focus on highest impacts, and on measuring and comparing long-term behavioral impacts. It is beyond the scope of this document to set out such a research agenda, and it is recommended that such an undertaking be the result of an interactive process that brings together research professionals and field practitioners to set out a collaborative approach to a research agenda for the medium term.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SUMMARY OF CASE REPORTS

- Overview
- Safe School Facilities: Assessment Experiences
- Safe School Facilities: New School Construction Experiences
- Safe School Facilities: School Retrofitting Experiences
- Safe School Facilities: School Non-Structural Safety Experiences
- School Disaster Management: School Continuity Planning
- School Disaster Management: Drills and Skills
- DRR in School Curricula

Overview

In the absence of a comprehensive school safety assessment framework, that would look at the context of:

- National Policy Commitments
- Safe School Facilities
- School Disaster Management
- Disaster Reduction in the Curriculum

our sources for this current baseline assessment and analysis are the findings from recent key publications that report on progress in school safety since 2005.

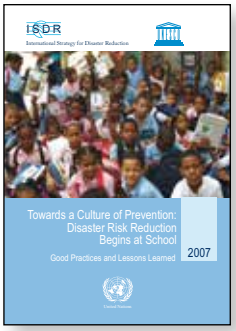
The reviews are organized into the component of school safety that they best illustrate: Safe School Facilities, School Disaster Management. In the overview tables below the sources are referred to by number.

SOURCES (in chronological order)

#1

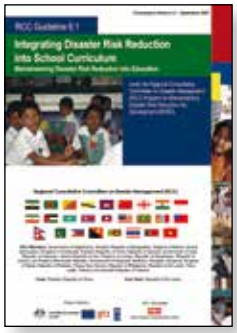
1. Wisner, Ben (2006) **Let Our Children Teach Us! A Review of the Role of Education and Knowledge in Disaster Risk Reduction** http://www.preventionweb.net/go/3929

#2



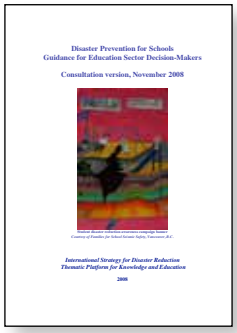
2. UNISDR (2007) **Practices and Lessons Learned Towards a Culture of Prevention: Disaster Risk Reduction Begins at School** http://www.preventionweb.net/go/3920

#3



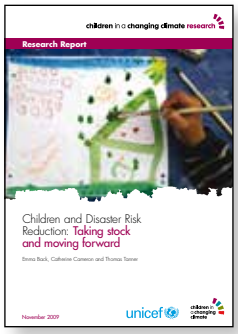
3. ADPC (2007) RCC Guideline 6.1 – **Integrating Disaster Risk Reduction into School Curriculum**

#4



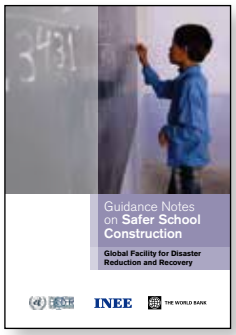
4. UNISDR (2008) **Disaster Prevention for Schools Guidance for Education Sector Decision-Makers** http://www.preventionweb.net/go/7344

#5



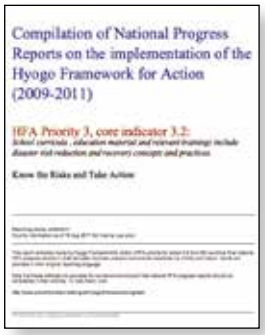
5. Back, E., Cameron, C. & Tanner, T. (2009) **Children and Disaster Risk Reduction: Taking Stock and Moving Forward** http://www.preventionweb.net/go/12085

#6



6. INEE / World Bank / UNISDR (2009) **Guidance Notes on Safer School Construction** http://www.preventionweb.net/go/10478

#7

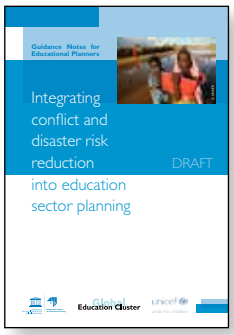


7. UNISDR (2011) **Compilation of National Progress Reports on the Implementation of the Hyogo Framework for Action (20009-2011):** HEA Priority 3, Indicator 3.2

#8

8. Kagawa, F. & Selby, D. (2012). **Disaster Risk Reduction in School Curriculum: Cast Studies from Thirty Countries.** Geneva: UNICEF/UNESCO. http://preventionweb.net/go/26470

#9

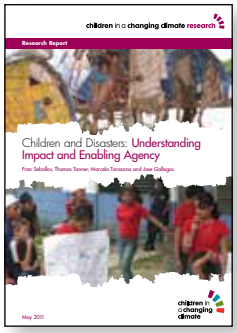


9. Global Education Cluster, UNESCO IIEP, UNICEF (2011) **Integrating conflict and disaster risk reduction into education sector planning (draft)**. http://www.iiep.unesco.org/fileadmin/user_upload/News_And_Events/pdf/2011/IIEP_Guidancesnotes_EiE_en.pdf

#10

10. Global Education Cluster (2011) **Disaster Risk Reduction in Education in Emergencies: A Guidance Note for Education Clusters and Sector Coordination Groups** http://preventionweb.net/go/20366

#11



11. Seballos, F. et. al. (2011) **Children and Disasters: Understanding Impact and Enabling Agency** http://www.childreninachangingclimate.org/database/CCC/Publications/IMPACTS%20and%20AGENCY_FINAL.pdf

#12

12. GFDRR / ISDR/ UNICEF (2011) **Children and Disasters: Building resilience through education** http://preventionweb.net/go/24583

#13

13. Shaw et. al (2012) **School Recovery – Lessons from Asia** http://www.iedm.ges.kyoto-u.ac.jp/School%20recovery_low.pdf

14. Research conducted for this report.

Assessing Reports of School Safety from Disasters: Indicators and Ratings

The assignment of stars in the overview below was done solely on the basis of case report data easily available and listed in this appendix. It should be considered only as indicative of available information, and not in any way definitive. It is quite conceivable that if more data were to be available to UN agencies or in English, Spanish, or French, the ratings would go up in more cases than down.

Stars	Achievement level	Indicators
*	**Achievements are minor and there are few signs of planning or forward action to improve the situation.**	Eg. Assessment has been discussed but not tackled strategically. It is not clear whether new school construction in safe. There is little planning or implementation of retrofit or replacement of unsafe schools. Environmental or non-structural safety measures are being discussed or piloted. Some school disaster management efforts have begun. School drills are held occasionally by some, DRR has been introduced only voluntarily and not systematically.
**	**Achievements have been made but are relatively small or incomplete, and while improvements are planned, the commitment and capacities are limited.**	Eg. School safety assessment tools have been piloted. Some new school is constructed according to building codes and construction is monitored and safe. Non-structural and/or environmental safety measures have been modeled. School disaster drills are held in a few schools. Some schools have a school disaster management plan and committees. Disaster prevention education is offered in some places informally, or widely on a voluntary basis, some support materials and training have begun on a small scale.
***	**There is some commitment and capacities to achieving disaster risk reduction, but progress is not substantial**	Eg. School safety assessments have been piloted. Some new school is constructed according to building codes and construction is monitored and safe. Some retrofit and replacement has begun. Non-structural and/or environmental safety measures are taken a few schools. School disaster drills are held in a few schools. Some schools have a school disaster management plan and committees, disaster prevention education is offered in some places informally, or widely on a voluntary basis. Some support materials and training have begun on a small scale.
****	**Substantial achievement has been attained, but with some recognized deficiencies in commitment, financial resources or operational capacities**	Eg. School safety assessments are partial, or implemented only in some parts of the country. Most new school is constructed according to building codes and construction is monitored and safe. A significant retrofit and replacement plan has been developed. Non-structural and/or environmental safety measures are taken in many schools. School disaster drills are held in many areas, at least twice a year. Many schools have a school disaster management plan and a committee that updates this annually. Disaster prevention education being introduced into regular curriculum. Some support materials and training has begun on a wide-scale.
*****	**Comprehensive achievement attained with commitment and capacities to sustain efforts at all levels.**	Eg. Comprehensive school safety assessment is done regularly. Nationwide, every new school is constructed according to building codes and construction is monitored and safe. A comprehensive retrofit and replacement program is underway. Non-structural and/or environmental safety measures are taken in most or all schools. School disaster drills are held in all schools, at least twice a year. Almost all schools have a school disaster management plan and a committee that updates this annually. Disaster prevention education is holistically integrated with action-based learning throughout primary and secondary education.

OVERVIEW of REPORTS OF SCHOOL SAFETY FROM DISASTERS				
Safe school facilities				
REGION	Assessment	New construction	Retrofit	Non-structural, infrastructural & environmental safety
	AFRICA (reports from 19 countries)			
	ASIA & PACIFIC (reports from 20 countries)			
	AMERICAS & CARIBBEAN (reports from 19 countries)			
	EUROPE & CENTRAL ASIA (reports from 18 countries)			
	MIDDLE EAST & NORTH AFRICA (reports from 4 countries)			
TOTALS (81 countries)	31	17	19	9

OVERVIEW of REPORTS OF SCHOOL SAFETY FROM DISASTERS			
	School disaster management		DRR education
REGION	Risk reduction and continuity planning	Response drills and skills	DRR in curricular and co-curricular activities
	AFRICA (reports from 19 countries)		
	8	2	11
	ASIA & PACIFIC (reports from 20 countries)		
	11	6	17
	AMERICAS & CARIBBEAN (reports from 19 countries)		
	11	10	11
	EUROPE & CENTRAL ASIA (reports from 18 countries)		
	4	2	15
	MIDDLE EAST & NORTH AFRICA (reports from 4 countries)		
	1	2	2
TOTALS (81 countries)	35	22	56

BY REGION	SAFE SCHOOL FACILITIES			
Country Name (Sources #s in parentheses)	Assessment	New construction	Retrofit	Non-structural, infrastructural & environmental safety
AFRICA (reports from 19 countries)				
	6	2	2	2
Angola	** #14	** #14	** #14	** #14
Benin				
Burkina Faso	*** #14			
Chad	*** #9			
Ethiopia				
Ghana				
Kenya				
Lesotho				
Madagascar	** #10			
Malawi				
Mali				
Mozambique	** #14			
Nigeria				
Rwanda	** #14	**** #14	*** #14	*** #14
Seychelles				
Sierra Leone				
Tanzania				
Uganda	** #9			
Zimbabwe				

BY REGION	SCHOOL DISASTER MANAGEMENT		DRR EDUCATION
Country Name (Sources #s in parentheses)	Risk reduction and Continuity planning	Response drills and skills	DRR in curricular and co-curricular activities
AFRICA (reports from 19 countries)			
	8	2	11
Angola	** #14		** #14 #8
Benin			* #8
Burkina Faso			
Chad			
Ethiopia	*** #14		
Ghana	** #4		
Kenya	** #4		
Lesotho			** #8
Madagascar	** #10		** #8, #10
Malawi	** #4		* #8
Mali	** #9	** #9	
Mozambique	* #10 #14	* #14	** #8 #10 #14
Nigeria			** #8
Rwanda			
Seychelles			** #4
Sierra Leone			** #4
Tanzania			** #4
Uganda			
Zimbabwe			** #4

BY REGION	SAFE SCHOOL FACILITIES			
Country Name (sources # in parentheses)	Assessment	New construction	Retrofit	Non-structural, infrastructural & environmental safety
ASIA & PACIFIC (reports from 20 countries)				
	11	8	8	3
Bangladesh				
Cambodia	*** #6 #14			
China	**** #14	**** #14	*** #14	
Fiji				
India	* #2	*** #4	* #4	* #4
Indonesia	** #14	** #14	*** #14	** #14
Japan	**** #4	***** #4	**** #4	
Lao	*** #14			
Maldives				
Malaysia				
Mongolia				
Myanmar	** #6, #10	* #10	* #10	
Nepal	*** #4		*** #4	
New Zealand		***** #14		
Pakistan	*** #14	*** #14	* #14	* #14
Philippines	** #4	*** #6 #10	*** #6	
Singapore				
Sri Lanka				
Solomon Islds				
Vanuatu				
Vietnam	*** #14			

BY REGION	SCHOOL DISASTER MANAGEMENT		DRR EDUCATION
Country Name (sources # in parentheses)	Risk reduction and continuity planning	Response drills and skills	DRR in curricular and co-curricular activities
ASIA & PACIFIC (reports from 20 countries)			
	10	5	17
Bangladesh	** #4		*** #4, #8
Cambodia	*** #3	** #3	*** #3, #4
China	*** #14	*** #14	*** #14
Fiji			*** #8
India	* #4		** #4 #10
Indonesia	*** #14	*** #14	** #3, #14, #8
Japan			** #8
Lao			*** #4, #8
Maldives		** #14	** #3, #8
Malaysia			** #3
Mongolia			* #3
Myanmar	* #10		** #8, #10
Nepal	** #4 #10		** #8
New Zealand			** #8
Pakistan	*** #14		*** #14
Philippines	* #11	* #11	** #4, #8
Singapore			**** #14
Sri Lanka	** #14	** #14	**** #3
Solomon Islds			* #8
Vanuatu	** #10		*** #14
Vietnam	** #10	** #8, #10	*** #8, #10

BY REGION	SAFE SCHOOL FACILITIES			
Country Name (sources are indicated by number in parentheses)	Assessment	New construction	Retrofit	Non-structural, infrastructural & environmental safety
AMERICAS & CARIBBEAN (reports from 19 countries)				
	10	5	5	2
Barbados				
Bolivia				
Brazil	* #14			
British Virgin Islands				
Canada	*** #4	*** #4		
Chile				
Colombia	*** #4	*** #4	*** #4	
Costa Rica				
Cuba				
El Salvador	*** #9			
Guatemala	** #14		** #14	
Haiti		*** #14		
Honduras	** #14			
Jamaica				
Nicaragua				
Panama	* #14			
Peru	*** #14 #4	**** #14	** #14	** #14
USA	*** #14	***** #14	*** #4	*** #4
Venezuela	***** #4		* #4	

BY REGION	SCHOOL DISASTER MANAGEMENT		DRR EDUCATION
Country Name (sources are indicated by number in parentheses)	Risk reduction and continuity planning	Response drills and skills	DRR in curricular and co-curricular activities
AMERICAS & CARIBBEAN (reports from 19 countries)			
	11	10	11
Barbados			** #14
Bolivia	**** #5	**** #5	
Brazil			* #14
British Virgin Islands			* #8
Canada			
Chile			* #8 #4
Colombia	*** #5, #14	*** #5	** #4
Costa Rica	•• #14	*** #2	** #8
Cuba			*** #1
El Salvador	** #10, #14	* #14	
Guatemala	*** #14	* #4, #10	*** #14
Haiti	** #4	* #14	
Honduras			
Jamaica	** #4, #14	*** #14	
Nicaragua	** #14	** #14	*** #8
Panama	*** #14	** #14	
Peru	** #14	**** #14, #4	*** #14
USA	**** #14, #4	**** #14, #4	*** #14, #4
Venezuela			

BY REGION	SAFE SCHOOL FACILITIES			
Country Name (sources are indicated by number in parentheses)	Assessment	New construction	Retrofit	Non-structural, infrastructural & environmental safety
EUROPE & CENTRAL ASIA (reports from 18 countries)				
	4	3	4	2
Armenia				
Bosnia Herzogovina				
Bulgaria				
Croatia				
France				
Georgia				
Italy	••• #14			
Kazakhstan				
Kosovo				
Kyrgyzstan				
Macedonia				
Portugal			*** #14	
Russian Federation				
Serbia				
Slovenia				
Tajikistan	*** #14	** #14	** #14	** #14
Turkey	*** #4	**** #4	*** #4	** #14
Turkmenistan				
Uzbekistan	**** #4	**** #4	** #4	

BY REGION	SCHOOL DISASTER MANAGEMENT		DRR EDUCATION
Country Name (sources are indicated by number in parentheses)	Risk reduction and continuity planning	Response drills and skills	DRR in curricular and co-curricular activities
EUROPE & CENTRAL ASIA (reports from 18 countries)			
	4	2	15
Armenia			*** #8
Bosnia Herzogovina			** #12
Bulgaria			** #12
Croatia			** #12
France	**** #2		***** #8
Georgia			***** #8, #12
Italy			
Kazakhstan			** #8
Kosovo			* #12
Kyrgyzstan	* #5		
Macedonia			** #12
Portugal			
Russian Federation			***** #8
Serbia			* #12
Slovenia			* #12
Tajikistan	** #14	*** #14	*** #14
Turkey	*** #4	** #4	**** #4
Turkmenistan			* #12
Uzbekistan	** #12, 12	* #12	

BY REGION	SAFE SCHOOL FACILITIES			
Country Name (sources are indicated by number in parentheses)	Assessment	New construction	Retrofit	Non-structural, infrastructural & environmental safety
MIDDLE EAST & NORTH AFRICA (reports from 4 countries)				
Algeria				
Egypt				
Iran				
Syria				

BY REGION	SCHOOL DISASTER MANAGEMENT		DRR EDUCATION
Country Name (sources are indicated by number in parentheses)	Risk reduction and continuity planning	Response drills and skills	DRR in curricular and co-curricular activities
MIDDLE EAST & NORTH AFRICA (reports from 4 countries)			
	1	2	2
Algeria		* #5	
Egypt			* #4
Iran	**** #4	***** #4	***** #4
Syria			

Safe School Facilities: Assessment Experiences

Angola: The Child Friendly School framework was used to develop a school self-evaluation instrument. National master CFS trainers, including 11 Ministry of Education officials from six different departments, conducted trainings in 6 provinces for 180 members of 46 schools that serve almost 10,000 children. Training will be expanded to 6 more provinces in 2012. Participant teachers, directors and other members of each school have formed CFS committees, and are involving members of the full school community, including student leaders, in conducting participatory self-evaluations of their schools. The needs identified in the self-evaluations will be the basis for School-Improvement Plans and projects. The self-evaluation tool and CFS tools will be validated for use at the national level. The First National CFS Conference was attended by representatives from all provinces. The 'safe health and protective environments' standards address structural soundness, environmental risks, as well as schools as safe havens in the face of floods, fires, mines, etc. (Seballos et. al. 2011)

Brazil: "Regulations have been proposed to establish regulations in the Statute of the City with the goal of assessing the school buildings that do not comply with its social housing or temporary shelters for disaster victims." HFA 2009-2011 interim report[1] (UNISDR TPK&E, 2012)

Cambodia: In 2008 the Ministry of Education, Youth and Sports, the National Committee for Disaster Management and ADPC conducted a sector-wide hazard impact study, "Impact of Disasters on the Education Sector in Cambodia", focused on socio-economic and physical impacts, review of current practices in school construction, and solution oriented recommendations for risk reduction. (INEE, World Bank, UNISDR 2009)

Canada, British Colombia: Responding to advocacy efforts of the local "Families for School Seismic Safety", in 2004 the provincial government committed $1.5 billion Canadian to ensure that BC Schools meet acceptable seismic life safety standards by 2019. (UNISDR, 2008)

Chad: The Ministry of Education began work on a diagnostic study to map out the education sector's vulnerability to conflict and disaster. This important data will form part of the analysis for the forthcoming Ten-year Education and Literacy Development Plan for the sector, and its Interim Strategy for Education and Literacy 2011–2013. (Source # 7)

Colombia, Bogotá: In 1997 seismic micro-zonation studies paved the way for seismic-resistant building codes in 1998. In 2000 the Directorate of Prevention and Attention of Emergencies in Bogotå, Colombia commissioned a study that found 434 of 710 schools vulnerable to earthquake damage, 3 in flood areas and 20 in landslide-prone areas. Two hundred and one schools were prioritized for retrofit or replacement. Following two World Bank initiatives for public-sector vulnerability reduction, between 2004-2008 an investment of $460m USD for school replacement, retrofit, and risk management promotion has provided structural reinforcement of 172 schools, "non-structural" risk reduction in 326 schools, and the construction of 50 new mega-schools, compliant with earthquake-resistance requirements. Three hundred thousand children have are safer as a result of these measures. (Coca, 2007;Cardona, 2008). (UNISDR, 2007; UNISDR, 2008)

El Salvador: The Ministry of Education in El Salvador is working to integrate disaster risk reduction into its "School Protection Plan". Vulnerability mapping provided by the Ministry's Infrastructure Office identifies landslide and flood areas throughout the country and highlights maps that show which schools are at risk. (Kagawa, F. & Selby, D., 2012)

Guatemala/Honduras: Multi-stakeholder efforts are underway to develop a unified methodology and tools to assess the location, structural safety, non-structural conditions and functions of schools. Assessment results would be used to generate policies and action plans for vulnerability reduction. (UNISDR TPK&E, 2012, UNICEF-TACRO)

1 National report on the implementation of the Hyogo Framework for Action: Priority 3, core indicator 3.2: School curriculum, education material and relevant trainings include disaster risk reduction and recovery concepts and practices. Know the Risks and Take Action. National progress report (2009–2011) – interim

Haiti: Some donors (eg. UNICEF) have certified that the schools that they are supporting to be rebuilt are being constructed to be earthquake, hurricane, and flood-resilient.

Italy: In Italy where a seismic rehabilitation is being implemented to address the vulnerability of a large portion of building stock a risk management framework was developed to assign priorities for the rehabilitation and replacement of schools. Grant, Damian et. al. 'A Prioritization Scheme for Seismic Intervnetion in School Buildings in Italy', Earthquake Spectra, May 2007 V.23 N.2 p 291-314.

Madagascar: When the 2009 cyclone hit, the Education Cluster prepared field personnel to conduct rapid assessments and coordinate emergency response for schools. Education cluster participation in a Joint Damage, Loss and Needs Assessment (JDLNA) conducted by 12 ministries, government agencies and UN agencies assured collection and centralization of data, establishment of response plan, and due reference to education sector contingency planning. (Global Education Cluster, 2011)

Myanmar: Following Cyclone Nargis in 2008 the Education cluster helped get schools in 27 affected townships ready to resume school in June. (Global Education Cluster, 2011)

Nepal, Bhaktapur, Syangja & Chitwan: The Nepali Red Crescent Society has worked in more than 450 communities prone to earthquakes, floods and landslides. School students are involved in hazard mapping and vulnerability and capacity assessments in their communities. Using peer learning sessions, competitions and Junior RC Circles, students have raised funds for awareness and mitigation work. (UNISDR, 2008)

Nepal, Kathmandu: The 1988 6.6 M earthquake in Udayapur destroyed 6000 schools. Throughout Nepal today more than 6 million children and 14,000 teachers are at risk. (Alam, K., 2007) For Kathmandu Valley in a scenario earthquake and in the absence of prior intervention expected losses include more than 29,000 school children dead or injured and more than 77% school buildings lost (est USD $7 million.) With intervention 24,000 lives can be saved and the buildings protected. (Bothara, J. et. al. 2002). (UNISDR, 2008)

Philippines: *A Disaster Preparedness through Multimedia Program* incorporates a school disaster mapping exercise as well as an assessment of School Building Structural Integrity and Stability; a School Water and Electrical Facilities Assessment; (Global Education Cluster, 2011)

Philippines, Banaba: A regional NGO, the Center for Disaster Preparedness, and local environmental coalition Buklod Tao (People Bonded Together) pioneered in the development of Child Oriented Participatory Risk Assessment and Planning Tools. Children and parents are engaged in participatory hazards, vulnerability and capacity assessment. (UNISDR, 2008)

Philippines, Sta. Paz Sur: In the barangays (villages) of San Francisco municipality, school children learned in 2006 that their high school was located in a landslide risk area. Students debated whether and how to relocate the school. The headmaster opened the decision to a community-wide referendum. The students were in favor of relocation, though parents were concerned about the extra travel time and local businesses worried about loss of lunch trade. Student organizations in the high school developed an education campaign and their proposal won the vote by 101 to 49 (Plan International, 2007). They dug ditches around their temporary school site and put up tents with their parents. Students now bicycle to their new permanent school that incorporates earthquake mitigation measures and preparation for use as an emergency shelter. (UNISDR, 2008 & Back et. al., 2009)

Peru: Existing risk maps for 115 towns are being used and a pool of trained consultants based in universities throughout the country are now available to advise Regional Education Offices on safe school site selection. (UNISDR, 2008)

Uganda: Vulnerability maps to identify schools at risk of drought, floods or landslides are being developed. (Kagawa & Selby, 2012)

Uzbekistan: An assessment of 1,000 school buildings revealed that 51% require demolition and replacement with earthquake resilient buildings. Twenty-six percent of the buildings require capital repair and reinforcement, 27% are life-safe and require no intervention. Eleven design institutes participated in building codes revision for school building construction. Typical designs were created for new schools with different capacities. A database of typical construction and technical decisions for anti-seismic reinforcement were developed. UNCRD provided financial and technical support for demonstration projects on reinforced concrete frame, masonry and frame panel buildings. The incremental cost of seismic reinforcement was shown to be between 3-14% depending on intensity zone, type of construction, number of floors, capacity and ground conditions. (UNISDR, 2008).

Vietnam: *Save the Children developed and piloted Disaster Risk Self-Assessment Tool for Schools* consistent with VCA work by RC and others.

Safe School Facilities: New School Construction Experiences

Angola: UNICEF is working with Ministry of Education and Ministry of Statistics and Planning in Education (GEPE), in the development of new school construction standards, expected to be completed in 2011. While a generic school model exists it is not widely applied, is overly generic, out-of-date and doesn't account for regional differences in geography and climate. On the other hand, with a process of decentralization underway, planning and oversight of school construction increasingly rests at the local level, so the lack of guidance and standards raises concerns for safety. The development of a comprehensive set Child Friendly Schools design and construction standards will address key issues and guidelines to make all aspects of the school environment safe.

India, Uttar Pradesh: There are 23.5 million children attending school in this moderate to severe seismic risk zone. 21,000 new school buildings (30 per day) have been completed in the past two years. In 2006-7 the Elementary Education Department proposed to integrate earthquake resilient design into all new school buildings. To prepare for this, one design of primary school buildings, two upper primary and three additional classroom designs were prepared with detailed construction manuals. The disaster-resilient measures added 8% to the construction costs. To cope with massive scale of the project a cascading approach prepared 4 master trainers for each of 70 districts. These individuals in turn conducted trainings for 1,100 fellow Junior Engineers and Education Officers. 10,000 masons were also trained. This programme means that every new school will be a safe school. Within a relatively short period, most children will be attending safe schools. However, the pre-existing stock of 125,000 school buildings remains unsafe and in need of retrofit (Bhatia, 2006). (UNISDR, 2008)

Madagascar: With 38 natural hazard events internationally recognized as disasters over 35 years, Madagascar began efforts to make school buildings cyclone resilient. (UNISDR TPK&E, 2012) After the 2008-9 cyclones hit, UNICEF's regular school construction program adapted to ensure that all new school buildings can resist cyclones and are equipped with latrines and water points in line with the Child Friendly Schools approach. Construction teams assess disaster risks at construction sites and train community members in maintenance and repair techniques. The Education cluster also advocated for the use of local materials to reduce transportation costs while maintaining quality and sustainability. They also advocated for use of more environmentally-friendly pressed, rather than traditional burned bricks for construction. (Global Education Cluster, 2011)

Myanmar: Since January 2009, UNICEF's Child Friendly Schools Model helped to ensure disaster resilient construction of 50 new schools following Cyclone Nargis damage in 2008. (Global Education Cluster, 2011)

Philippines: Ninety-nine disaster-resilient schools and 26 day-care centres were constructed with support of the Department of Education engineers, school principles and community members. The new buildings, with water and sanitation facilities,

can also serve as evacuation centres with flexibility to accommodate large numbers of people for emergency shelter. Global Education Cluster, 2011)

Safe School Facilities: School Retrofitting Experiences

Central America: The Organization of American States began its commitment to school safety in 1992. A coordinated regional action plan was developed to benefit Costa Rica, El Salvador, Guatemala, Honduras, Nicaragua and Panama. Contributions from development assistance donors and local organizations contributed to strategies and capacity to carry out retrofitting of educational facilities. School infrastructure experts from each country received training. (UNISDR, 2008) A follow-up project in 2006 supported capacity development for retrofitting of educational facilities in the region.

China, Sichuan: Prior to the 2008 Sichuan earthquake, school principal Ye Zhiping pestered local authorities until they consented to retrofit the buildings of Sangzao Middle School to improve their safety. He also initiated regular evacuation drills. The result of his efforts was that during the devastating earthquake, this school provided life safety for all of it's students and staff.

India, Shimla: Structural assessment of school buildings was carried out using a filtering method: The first step was low-cost mass scale Rapid Visual Assessment Survey of school buildings for potential seismic hazards. Based on these surveys a smaller number were selected for Simplified Vulnerability Assessment using limited engineering analysis. The highest risk buildings were identified for Detailed Vulnerability Analysis. Retrofitting designs were drawn up for 20 schools and implementation of retrofit carried out in 10 schools. Guidelines developed for retrofit and training of local masons and engineers, and delivery of skill-training. "Non-structural mitigation plans" were carried out in 20 schools. An awareness campaign was designed to reach all 750 schools in the region including nearly 100,000 students, 7,500 teachers and local builders, engineers and officials. (SEEDS, 2006). (UNISDR, 2007)

Japan: 78,000 (62% of 127,000) public elementary and junior high school buildings were constructed before 1981, when the current anti-seismic code was enforced. 30,000 are considered safe, but 48,000 of these older school buildings were found needing assessment or retrofitting. 10,000 of these were found to be at high risk of collapse in expected earthquakes. The Ministry of Education, Culture, Sports, Science and Technology (MEXT) of the Japanese government raised subsidies for vulnerable school buildings from 50% to 67% in June 2008. In FY2008 229 billion JPY was allocated to meet the new goal of retrofit of all highest risk school buildings within 4 years. Two publications available in English are MEXT's school seismic retrofit handbook (http://www.nier.go.jp/shisetsu/pdf/e-taishinjirei.pdf) and school non-structural reference book (http://www.nier.go.jp/shisetsu/pdf/e-jirei.pdf). (UNISDR, 2008)

Madagascar: After the 2008-9 cyclones hit, damaged schools were retrofit to be cyclone resistant. (Global Education Cluster, 2011).

Myanmar: A joint Save the Children UK/ Development Workshop France Safer School Project focused on a cluster of villages. A public 2-day participatory workshop identified causes of cyclone damage to buildings and demonstrated ten techniques to strengthen them. Applications to schools are discussed, including students. Under supervision of trained engineers, and an architect, local builders apply these techniques to school buildings. Risk and resource mapping helps students and communities to identify their resources. The school has become a resource for safe construction practices, a safe learning environment, and a refuge. (INEE, World Bank, UNISDR 2009; Global Education Cluster, 2011)

Nepal: Nepal's schools are highly vulnerable to earthquakes, as evidenced by the 1988 Udayapur earthquake that destroyed 6,000 schools and disrupted the education of 300,000 children for several months. The National Society for Earthquake Technology (NSET) implemented a School Earthquake Safety Program that began with a vulnerability assessment of 1,100 buildings in 643 public schools in the Kathmandu valley. This revealed an alarming 60% of buildings are highly

vulnerable even under normal conditions. A rolling demonstration project undertakes retrofit of a school while simultaneously training local builders in techniques of disaster-resilient construction and training teachers, students and parents the basics of risk mitigation and preparedness. “Protection of Educational Buildings against Earthquakes: A Manual for Designers and Builders” documents the rich experiences gained during implementation. Extensive public participation through a district level advisory committee, school management committee, school earthquake safety committee and student club, created a replicable model. Resources must be identified for comprehensive implementation. (UNISDR, UNESCO, 2007). (UNISDR, 2008) Lessons learned are documented in “Protection of Educational Buildings Against Earthquakes: A Manual for Designers and Builders” (UNISDR, 2007) The National Society for Earthquake Technology (NSET) has pioneered in partnering with local authorities and in conducting large-scale trainings for masons, carpenters, bar benders and construction supervisors in earthquake safety techniques. Their skills are often demonstrated in construction of school buildings. Nepali masons provided mentoring for similar reconstruction programs in Gujarat, Afghanistan, and elsewhere in the region.

Pakistan: In 2008, the Aga Khan Planning and Building Services Habitat Risk Management Program in Northern Pakistan used retrofitting of 4 schools to demonstrate structural and non-structural seismic retrofitting, to train builders, and to train female village youth in mapping, land-use planning and disaster management. (INEE, World Bank, UNISDR 2009) USAID launched the Pakistan Reconstruction and Recovery Program in 2006, supporting construction of 61 schools in the Bagh district in Azad Jammu and Kashmir, to international earthquake safety and disability access standards (36 had been completed by Spring of 2012). (UNISDR TPK&E, 2012, Business Recorder). The National Education Policy 2009, section 5.5 addresses Education in Emergencies with several policy actions including requirements for school construction according to international standards. (UNISDR TPK&E, 2012)

Panama: Promotion of a technical guide for planning, design, construction and maintenance of safe school buildings is underway. Guidance tools are available to support those responsible for school maintenance at the local level. This tool led to recognition of the need for standards for school construction as well. This tool led to recognition of the need for standards for school construction as well. (UNISDR TPK&E, 2012, UNICEF-TACRO)

Philippines: By 2007, the Philippines Department of Education had adopted the Principal-Led School Building Program approach where principals or school heads take charge of the implementation of management of the repair and/or construction. Assessment, design and inspection functions are provided by Department of Education engineers who assist the principal during the procurement process. The Parent Teacher and Community Association and other community stakeholders are responsible for auditing procurements. With support from AusAid, 40 classrooms were retrofit to resist typhoons, and complementary school disaster management and risk reduction training was provided for teachers, students and staff. (INEE, World Bank, UNISDR 2009) UNICEF’s “Building a Safe Learning Environment for Children” complemented government work to build back school infrastructure after devastating typhoons of 2006 impacted 72 government primary and secondary schools and 127 school/day care centres. New construction incorporated hazard-resistant features, especially against typhoons, and planned for schools as evacuation centers.

Peru: One particular structural weakness, “short columns” are a common design fault that compromise the safety of many school buildings. A retrofit solution was developed to partially mitigate this potentially devastating structural defect (UNISDR, UNESCO, 2007). (UNISDR, 2008)

Portugal: Portugal has pioneered in incorporating school retrofit into its school modernization program for secondary schools. http://www.parque-escolar.pt/en/program/international-programme-assessment.aspx (UNISDR TPK&E, 2012)

Syria: UNDP supporting earthquake school safety program addressing 5 pillars: confirm appropriate building codes, encouraging community participation, determining tolerable levels of risk for schools, reviewed training courses and designing training courses for technicians, engineers, public-sector decision makers, long-term policy commitments are being incorporated into 5-year plan and institutions for disaster risk reduction are being consolidated. (UNISDR TPK&E, 2012)

Turkey, Istanbul: Following the 1999 Kocaeli earthquake, schools 60km away in Istanbul were assessed: 820 of 1,651 schools had sustained some damage. Thirteen were identified for replacement. When retrofit proved too costly 22 more were added. Fifty-nine schools were strengthened, and 59 repaired (Wisner, 2006). The Istanbul Seismic Risk Mitigation and Emergency Preparedness Project (ISMEP) Project (with loans from World Bank and EIB) retrofitted 250 schools and reconstructed 36 schools in 2007-8 with 600 more undergoing assessment and feasibility studies. In 2009 an additional 450 schools are slated for retrofitting. (UNISDR, 2008)

USA, Kansas: After several schools were damaged by tornadoes in 1999, the Wichita Public School District began a school shelter initiative to retrofit or construct tornado shelters, which spurred a broader effort across both public and private schools in Kansas. Many of the tornado shelters are used as libraries or gyms when not needed as shelters. The effort was considered successful because of the focus on educating and engaging: local legislature and school boards, planning officials, private sector architects and engineers, school staff and school children who learn about the hazards, and how to use and maintain their shelters. (Back et. al., 2009)

Venezuela: After 4 reinforced concrete schools were damaged beyond repair in the 1997 Cariaco earthquake, engineering research found that Old-type schools (50 years old) need retrofitting in moderate and above seismic zones and Box-type schools (20-30 years old) only required retrofit in higher risk zones. Practical retrofitting techniques were developed. 28,000 existing schools are now being surveyed in a national programme for school building safety. (Lopez et. al., 2007) (UNISDR, 2008)

Safe School Facilities: Non-Structural Safety Experiences

India, Delhi: NGO partners SEEDS and GeoHazards International (GHI), working with the Government of Delhi, have demonstrated non-structural risk reduction in a public school. The school welfare committee comprised of faculty, staff and local community members learned to identify the non-structural building elements and building contents that could fall, slide or collide during a likely Delhi earthquake, as well as fire and evacuation hazards. They were exposed to simple low-costs techniques for reducing these risks (moving some items, fastening others) and came up with innovative solutions of their own. The logic of regular fire and earthquake drills became readily apparent to these new stakeholders. A handbook for schools on Non-Structural Risk Reduction developed by the NGO partners, published by the Government of Delhi provides a new resource for generalizing these lessons (UNISDR, UNESCO 2007). (UNISDR, 2008)

USA, California: The 1994 Northridge earthquake happened at night when no children were in school, but the damage caused by fallen cabinets, bookcases, equipment, lighting fixtures and broken glass made it clear that during a school day, children, teachers and staff would have been injured and killed by falling, sliding and colliding objects. The Los Angeles Unified School District amongst others, embarked on a project of non-structural mitigation of school classrooms, fastening furnishings to prevent both injuries and to preserve school assets. This effort continues today and is the responsibility of each school and school maintenance personnel. (UNISDR, 2008)

School Disaster Management: School Continuity Planning Experiences

Angola: A National Contingency Plan for the Education Sector, published by UNICEF, has the objective of ensuring minimum disruption of educational services for all students and teachers in areas affected by disasters, and by promoting access to quality primary education to all children with particular emphasis on girls. The specific objectives are to ensure a coordinated quick assessment of affected facilities and children, that the needs of all children are met through coordinated response, that attendance can be monitored, that school can resume as soon as possible, and that humanitarian activities protect vulnerable children from abuse and exploitation. Partners in school continuity planning are the Ministry of Education, Civil Protection, National Institute for Research and Education Development (INIDE), UNICEF, Save the Children, Angola Red Cross (CVA) among others.

Bolivia: After impact of landslides, hailstorms, frosts and flash floods, the Bolivian Ministry of Education and UNICEF have worked to assure school continuity in the immediate aftermath of hazard impact. The components of the plan, developed in 2008, include undertaking school mapping, developing emergency preparedness and response plans at national and community levels, training school communities on Minimum Standards for Education in Emergencies and providing and promoting safe school transportation during and after emergencies. In the longer-term, developing Child Friendly Schools architectural standards, and integrating disaster risk management into curriculum and extra-curricular activities are planned. (Back et. al., 2009)

Colombia: UNICEF and the Education Cluster are working to promote educational continuity planning in case of emergencies.

Costa Rica/Honduras: An inter-institutional and multi-disciplinary project to develop a National Education Plan for Risk and Disaster Reduction was put into motion in 1986. It addresses comprehensive efforts to address organization, curriculum physical infrastructure and sustainability. It uses a four-phase approach implemented in each region. (UNISDR, 2007)

El Salvador: A project known as "Youth Participate in Disaster Prevention" reached more than 5,000 school centers where school-based emergency committees were organized and capacitated. Disaster prevention has been introduced into the national school agenda. (UNISDR, 2008)

India, Assam: Since 2007 Action Aid and local NGO GVM have been promoting disaster risk reduction through school-based participatory vulnerability assessment., promoting formation of school disaster management committees, leading to school development of multi-hazard disaster risk reduction plans. (Global Education Cluster, 2011)

Iran: The Ministry of Education and UNICEF have worked together to transform a disaster response programme into a school-continuity and resumption-planning programme. One project builds capacity of officials and experts at provincial and district levels to provide psycho-social support before and during emergencies at school. A second project has developed new safety standards for prefabricated school structures that can be built quickly, are adequate for different climates, and using locally produced materials. These designs originally developed for early recovery may serve as models for permanent rural schools (UNISDR, UNESCO, 2008). (UNISDR, 2008)

Jamaica: UNICEF is supporting the development of plans for disaster preparedness and response in schools. (UNISDR TPK&E, 2012, UNICEF – TACRO)

Kazakhstan, Almaty; Tajikistan, Dushanbe; Uzbekistan, Tashkent: In 2005, GeoHazards International, Focus Humanitarian Assistance and local partners worked with Ministry of Education representatives from all three countries to produce a model School Disaster and Emergency Preparedness Handbook in Russian, to serve as a guidance document for Ministries of Education to

explore and establish new policies in school disaster management, beyond those developed during the Cold War Era. (UNISDR TPK&E, 2012)

Kyrgyzstan: In 2006, Christian Aid and local NGO, Shoola, worked to form school disaster teams of about 25 school children in five villages. They were engaged in risk mapping, planning escape routes and preparing contingency plans, and facilitating structural mitigation in the local environment, as well as reaching out to neighboring villages, and training a younger cohort to replace them. (Back et. al., 2009)

Madagascar: The national contingency plan, supported by the UN emergency response cluster system, includes actions at the sub-national level that are reviewed after each cyclone season. Trainers in the education sector have sensitized school administrators and teachers to disaster risk reduction, early warning, and child protection measures. The regional education authority in high-risk areas is fully involved in preparedness and risk reduction measures and keep school districts informed. Students have been mobilized as key communicators with the home. (Global Education Cluster, 2011)

Mozambique: During a lull in 2009, between intensive impacts of cyclones and floods, the Education Cluster made risk reduction, mitigation, early warning and disaster preparedness the primary focus of its work. Government counterparts were the Ministries of Education and Culture, Women and Social Actions, and Interior as well as the National Disaster Management Institute. (Global Education Cluster, 2011)

Nepal: The Education Cluster in Nepal spearheaded a national level contingency planning workshop to improve preparedness and take account of gaps in previous plans. The Ministry of education is now active in planning for education in emergencies and has integrated educational continuity planning for both natural hazard and conflict impacts into their Governance and Accountability Action Plan. (Global Education Cluster, 2011)

Pakistan: The National Education Policy 2009, section 5.5 addresses Education in Emergencies with several policy actions to include Standard Operating Procedures provided by the National Disaster Mangaement Authority. (UNISDR TPK&E, 2012)

Panama: Policy planning is underway at the national level for development of a comprehensive approach to disaster risk reduction and climate change adaptation in the education sector. (UNISDR TPK&E, 2012 UNICEF-TACRO)

Turkey: The Ministry of Education calls for evacuation drills to be held in all schools. Provincial or district civil defense officer(s) provide support. A Family Disaster Plan is distributed to students to take home and share with family members. Students are encouraged to convey risk awareness and preparedness information to their family members as homework (Turkmen, 2007). (UNISDR, 2008)

Turkey: The Ministry of Education with support from Risk RED and the American Red Cross has recently made two online self-study courses available on a voluntary basis: Individual and Family Disaster Preparedness and School Disaster Management. Within the first 3 months of their release, in 2011, more than 23,000 teachers had completed 330,000 online lessons. More than 10,000 teachers had completed each course of 9 or 10 lessons, on a voluntary basis. A new School Disaster and Emergency Management Handbook conveys similar content to guide school disaster management committees in their planning work, to provide standard operating procedures for emergencies and disasters, and includes a Comprehensive School Safety checklist for school level implementation. (UNISDR TPK&E, 2012)

USA, California: If a major earthquake occurs during the school day, parent's first instincts are to call and run to their children at school, jamming roads and telephone lines needed for emergency response. In the San Francisco Bay Area emergency transportation planning begins at schools where parents annually provide a list of people authorized to pick up their children in case of emergency. Families send each child with a bag with change of clothing, bottle of water, long-life snack, small comfort item and family photo, which are

usually returned unused at the end of the school year. Parents learn that their children will be safe and well-cared for at school, even if it takes days for them to arrive. Adults can therefore plan to help those immediately around them, leaving roads and telephones free for emergency response.(UNISDR, 2008)

USA, Los Angeles: School continuity plans include options for extending the school year to make up for lost instructional days, alternate school sites, half-day schedules, development of take-home self-study packets, online learning tools, and remote back-up of educational records. (UNISDR, 2008)

Vanuatu: Recognizing the continuous impact of volcanoes, cyclones, earthquakes, droughts, floods and landslides, the Ministry of Education with support from UNICEF developed the Disaster Risk Reduction, Disaster Management & Emergency Preparedness Plan for the education sector to fit into the wider framework of the Vanuatu Disaster Risk Reduction and Disaster Management National Action Plan (2006–2016) and the Vanuatu Education Sector Strategy (2007–2016). (Global Education Cluster, 2011)

School Disaster Management: Drills and Skills Experiences

Algeria: With disaster response training, the Scouts Musulman Algeriens were able to mobilize 1,000 scouts and other volunteers to assist in flood and mudslide disaster response and clean-up. (UNISDR, 2008)

Colombia, Bogotá: A simultaneous earthquake simulation drill is held on International Disaster Reduction Day, promoting risk management planning in the city's 400 schools. A teacher's guide explains fundamental concepts, risk scenario construction and risk management tools. School Committees includes principal, teachers, students, and staff and organize and train a recommended 10% of the school community in brigades focusing on response skill development. (UNISDR, 2007; UNISDR, 2008)

El Salvador: Several communities along the Huiza River, affected by flooding in 2007, were supported in developing new early warning system and response skills by a Plan International program. Following the 2009 flooding, children, youth and community together were able to respond effectively and provide mutual assistance to help everyone to evacuate to higher ground before the flooding. (UNISDR, 2008; Global Education Cluster, 2011)

France: Following a law requiring every student to benefit from sensitization to risk prevention, rescue services and training in first aid, by 2007, 40% of primary schools had developed risk reduction plans within the first year of implementation. (UNISDR, 2007)

Ghana, Kenya, Malawi, Bangladesh, Nepal, Haiti: International NGO Action Aid embarked on a 5-year project to reduce vulnerability to natural disasters by making schools in high-risk places safer. In the first year of the project in Bangladesh, local NGO Sustainable Development Resource Center worked with ten local non-governmental schools to train students and teachers who participated in school risk reduction, contingency planning and testing of learning materials. (UNISDR, 2008)

India: The Global Open Learning Forum on Risk Reduction has created an Online Certificate Course in Disaster Management for school-teachers based on case-studies, email discussion and contact workshop at the end of the course. More than 200 teachers had completed training by mid-2008. (UNISDR, 2008)

Iran: A pilot effort in 2 schools was initiated in 1996 by the Public Education Department of International Institute of Earthquake and Engineering (IIEES) By 2008, the 10th National Earthquake and Safety Drill reached more than 14 million students in over 124,000 schools the country. The Ministry of Education, Ministry of Interior (National Committee for Natural Disaster Reduction), IIEES, Iranian Red Crescent Society, and Iran National Television and Radio Broadcast cooperate to support the drill. An Earthquake Safety Alarm is broadcast on national and local radio. Voluntary School Earthquake

Safety Councils involve teachers and parents in risk reduction and preparedness efforts at school sites. (UNISDR, 2008)

Jamaica: 150 professionals and PTA representatives from an initial 30 target schools have knowledge and skills to develop comprehensive school emergency preparedness and response plans and sensitize community members on how to use a hazard map, community vulnerability assessment, basic disaster management, shelter management and basic first aid. This small-scale programme highlights longer-term needs and priorities. (UNISDR, 2008) The Office of Disaster Preparedness and Emergency Management has sponsored an excellent set of music and instructional videos promoting appropriate school earthquake drills http://www.youtube.com/user/ODPEMTV (UNISDR TPK&E, 2012).

Mali: "The Malian Directorate of Civil Defence and the Ministry of Education have a strategy to build a culture of prevention. Mali, which is vulnerable to droughts, locusts, and floods is integrating disaster, is increasing public awareness, educating children about disaster risk reduction and disaster response, conducting national drills annually, and introducing disaster management into higher education." (Kagawa & Selby, 2012)

Mozambique: Plan International is implementing a child centered Disaster Risk Reduction (DRR) project focus is community resilience. The project has created and strengthened 10 Disaster Management committees and 6 children and youth groups in equal number of schools where they are supporting the government to introduce DRR issues in the local curriculum. In flood and cyclone-prone Mozambique, the Education Cluster's focus during 2009 was on emergency preparedness working with government counterparts throughout the year to monitor the emergency situation. Ongoing efforts included: development of a global and sectoral rapid assessment tool, which helped the government and the cluster to identify the type and scale of interventions required in the Education sector. Several partners in collaboration with Ministry of Education and Culture pre-positioned education materials in the event of a sudden-onset emergency in order to minimize potential disruption to activities. Education and protection in emergencies training workshops were held with the aim of improving capacities of relevant authorities to prepare for and respond to emergencies and will continue to be rolled out during 2010. (UNISDR TPK&E, 2012)

Peru, La Libertad Provincia de Trujillo: The Centro de Capacitatión y Prevención para el Manejo de Emergencias y MedioAmbiente S.O.S. Vidas Perú developed a training programme to increase the effectiveness of building evacuation in response to many hazards. (UNISDR, 2008)

Philippines, Banaba: The Center for Disaster Preparedness and local environmental coalition Buklod Tao engaged children and parents in participatory action planning. The action led to mothers producing life vests for children, and flood evacuation drills with children using life vests in local swimming pool were initiated. Disaster preparedness education messages are conveyed through banners in each of 7 neighborhoods (Luneta, 2007). (UNISDR, 2008) åFollowing the 2006 typhoons, response programs and education authorities collaborated to train 66,000 students and 1,000 staff from 72 schools in disaster reduction and emergency preparedness skills. (Global Education Cluster, 2011)

USA, California: In California, schools are expected to conduct a full emergency simulation drill annually. Teachers are trained in a flexible "incident command system" with a variety of skills in light search and rescue, fire suppression, first aid, and safety measures for child-family reunion. (See school disaster drill model and templates http://www.riskred.org/schools.html). (UNISDR, 2008)

Disaster Risk Reduction in School Curricula Experiences

Since countries have self-reported on their progress towards HFA, many of the case reports below include these ratings, applied to Priority 3 (use knowledge, innovation and education to build a culture of safety and resilience at all levels), Indicator 2: "School curricula, education material and relevant trainings include risk reduction and recovery concepts and practices."

Level	Generic description of achievement	Examples of an assessment of the indicator "A strategy for data provision for disaster risk reduction is in place"
5	Comprehensive achievement has been attained, with the commitment and capacities to sustain efforts at all levels.	"Systematic, properly resourced processes for data collection and dissemination are in place, with evaluation, analysis and improvements being routinely undertaken. Plans and commitments are publicised and the work is well integrated into other programmes."
4	Substantial achievement has been attained, but with some recognised deficiencies in commitment, financial resources or operational capacities.	*"Processes for data collection and dissemination are in place for all hazards and most vulnerability factors, but there are shortcomings in dissemination and analysis that are being addressed."*
3	There is some commitment and capacities to achieving DRR but progress is not substantial.	*"There is a systematic commitment to collecting and archiving hazard data, but little awareness of data needs for determining vulnerability factors, and a lack of systematic planning and operational skills".*
2	Achievements have been made but are relatively small or incomplete, and while improvements are planned, the commitment and capacities are limited.	*"Some data collection and analysis has been done in the past, but in an ad hoc way. There are plans to improve data activities, but resources and capacities are very limited."*
1	Achievements are minor and there are few signs of planning or forward action to improve the situation.	*"There is little awareness of the need to systematically collect and analyse data related to disaster events and climatic risks."*

Source: Indicators of Progress: Guidance on Measuring the Reduction of Disaster Risks and the Implementation of the Hyogo Framework for Action.

Angola: "Angola offers an example of the development of pedagogical and curriculum materials in DRR by local experts with the help of international agencies in a small scale pilot but with a low level of involvement and ownership from the government, so the transition to scale and question of location of DRR within the national curriculum are in a limbo until new funds arrive." (Kagawa & Selby, 2012)

Armenia: "Armenia offers an example of noteworthy pedagogical and curriculum materials development in DRR through the vehicle of a relatively small-scale pilot project. The translation to scale and question of location of DRR within the national curriculum are issues to be addressed following the determination of the place of education within the still gestating national DRR strategy." (Kagawa, F. & Selby, D., 2012), (GFDRR / ISDR/ UNICEF, 2011)

Bangladesh: "Bangladesh offers an example of highly centralized textbook driven integration of DRR into formal school curricula, but where pedagogical innovation and teacher capacity building have so far fallen behind." (Kagawa & Selby, 2012) Since 1997 children from grades 6-8 read a chapter on Disaster Management. (UNISDR, 2008)

Barbados: UNICEF is working with education authorities to promote the inclusion of disaster risk reduction in the curriculum – in Barbados, and throughout the region. (UNICEF – TACRO)

Benin: "Benin offers a handbook-led project approach to DRR within selected subjects at lower secondary level using climate change education as the vehicle. Production of guides for teachers and students spearheaded curriculum development. An initial project has just been completed. Consolidation and dissemination of the achievements of the project are highly dependent on further funding availability." (Kagawa & Selby, 2012)

Brazil: "Implementation of educational and preventive activities with participation of the National Civil Defense to interact with schools and raise awareness and sensitize the population on the risks they are exposed and how to proceed in an emergency… Encourage the training of junior schools and communities to implement civil defense activities geared to children, adolescents, and youth, and to encourage projects of scientific and technological nature of civil defense in institutions of higher education… There is the intention to implement a culture of prevention and awareness of risks, including the core curriculum according to current educational legislation, including the subject of "civilian defense" as a multidisciplinary and transversal axis with emphasis on prevention, enabling all staff involved in teaching and learning.
* No: Primary school curriculum
* No: Secondary school curriculum" (UNISDR TPK&E, 2012)

British Virgin Islands: "The British Virgin Islands offers an example of nascent disaster risk reduction curricular response that calls for joined-up thinking and action by governmental bodies if school students are to receive a thoroughgoing disaster-related education." (Kagawa & Selby, 2012)

Bulgaria: Disaster and Emergency Management law requires that natural hazards risk awareness and preparedness education be provided within the school curriculum (UNISDR TPK&E, 2012)

Cambodia, Lao PDR and Philippines: These three countries have "priority implementation partnerships" to mainstream disaster risk reduction in the education sector by integrating relevant modules into their secondary educational curriculum. This collaborative project brings together National Disaster Management Organizations, Ministries of Education, Asian Disaster Preparedness Center, UNDP and other government and non-governmental stakeholders drafting curriculum and teacher training manual. (ADPC, 2007) (UNISDR, 2008)

Cambodia: "Cambodia offers an example of curriculum development according to a strategic ministerial decision that integration of DRR topics into subjects already taught would be more effective than creating a new subject (ADPC, 2010). It also offers an example of lower secondary level curriculum development focused on the physical science subjects that, in turn, is providing a springboard for development of DRR-related curricula in another secondary grade and one primary grade." (Kagawa & Selby, 2012) The core curriculum of 1996 was upgraded between 2005-2009 with a plan to review it every 5 years.

Chile: "Chile offers an example of a country with a lot of natural hazards that has relied on a transversal approach to infusing DRR in the curriculum. The strategy is based solely on the input provided by a ministry document sent to schools; however, there has not been capacity building or monitoring." (Kagawa & Selby, 2012)

Colombia, Bogota: The Educational Secretariat reviewed and redesigned the curriculum guide on risk and disasters according to national standards, providing both theoretical and practical pedagogic guidance. Four basic steps cover: natural phenomena (event knowledge), identification of the human actions that convert hazards to risks and the necessity for avoidance, reduction and mitigation, self-protection and response-preparedness. More than 1,000 teachers have been trained in the curriculum and in implementation of school risk management plans. A complementary communication campaign aimed at all school children uses posters, video clips, risk calendar, stories and games to support teachers in their cultural work on the topic. Tens

of thousands of children are engaged in complementary project activities. (Coca, 2007) (UNISDR, 2008)

Costa Rica: "Costa Rica is an example of inclusion of DRR in a limited number of subjects with DRR being further reinforced in that it is carried within the "transversal theme" of environmental education." (Kagawa & Selby, 2012)

Croatia: The National Protection and Rescue Department has developed an education program recommended for implementation n kindergartens and primary schools, by the Agency for Education and Development and the Ministry for Science, Education and Sports. The program, with both theoretical and practical components has been developed for 95,000 in 871 primary schools and for pre-school children in 623 kindergartens). The focus is on response-preparedness and includes an evacuation drill. Further mainstreaming is planned through the establishment of a Curriculum Revision Working Group. (GFDRR / ISDR/ UNICEF, 2011)

Egypt: "In Egypt, in general, DRR is well taken into consideration in the mainstream, at the strategic and policy level (Prime Minister Decree for National Committee70, National Strategic Plan71 approved, National Communication Plan 72 developed, and Capacity Building project 4 implemented as a pilot in 3 governorates). But DRR in education is not explicitly handled. It is included mainly under environmental sciences. The National Reform Plan5 for pre-university education foresees empowering students with the knowledge, attitudes and skills to deal with emergencies in local circumstances, such as earthquakes (after the 1992 earthquake), floods (after the 1994 event in Upper Egypt) and fire." (Kagawa & Selby, 2012)

Fiji: "Fiji is notable for the development of a range of highly innovative student centered approaches to DRR that seek to integrate students' own experiences into the learning (although the ideas developed have not been taken to scale). It also offers an example of DRR curriculum development complemented by a "special event" approach. It may become noteworthy, too, through the conscious efforts currently being made to salvage and revive indigenous knowledge and practices with regard to hazard and embed them in learning." (Kagawa & Selby, 2012)

France: "France offers an example of systematic preparatory provision of risk-related education in the primary school, with in-depth treatment at collège (secondary school, ages 11-14) and lycée (high school, ages 15-18). Consideration of risk features as a component of both citizenship education and education for sustainable development." (Kagawa & Selby, 2012)

Georgia: Georgia offers an example of the systematic enrichment and vivification of DRR treatment in existing core curriculum through the introduction of two special initiatives: the addition of DRR themes to a new, mandatory Civil Protection and Safety course for grades 4 and 8, and the introduction of DRR learning into the mandatory Head of Class Hour program for grades 5 to 9. (Kagawa, F. & Selby, D., 2012) (GFDRR / ISDR/ UNICEF, 2011)

India: Central Board for Secondary Education. Disaster management has been introduced as a frontline curriculum for Standard VIII (2003-4) (focus on preparedness measures), IX (2004-5) (focus on mitigation) and X (2006-7) (focus on government policy, science and technology and voluntarism). Activities included module development, textbooks, and teacher manuals, circular on school safety, awareness generation with painting competitions, exhibitions, debates and essay competitions. (http://www.cbse.nic.in) (UNISDR, 2008) (ADPC, 2007)

India, Assam: Following the work of Action Aid and local NGO GVM disaster risk reduction has been introduced into the 5, 6, 7th grade curricula through stand alone text books. For lower primary grades drills are practiced. Disaster response skills and improvised rescue are conveyed. (Global Education Cluster, 2011)

Indonesia: "Indonesia offers an example of infusing DRR into formal curricula using a "local content curriculum" (LCC) space together with infusing DRR related themes and topics into existing subjects. Its decentralized curriculum framework allows locally driven DRR curriculum developments that are

sensitive to the specific local needs and contexts in the world's largest archipelago. There is great potential to mobilize the LCC space." (Kagawa & Selby, 2012) Education authorities, along with GTZ developed materials and taught 33,000 school children about disaster risk reduction. In the May 2006 Yogjarkarta earthquake this education saved lives. (ADPC, 2007)

Iran: Earthquake awareness and preparedness is taught directly all levels of education in Iran. In primary school the emphasis is on the natural hazards and decisions and activities for safety during and after an event. In secondary and high school students learn response skills. Formal methods include a series of textbooks and films. Textbook materials on earthquakes are found in science books for 4th, 5th, 8th, and 12th grades and in geography books for 8th and 10th grades (Izadkhah and Hosseini 2005). An "Earthquake Preparedness" book is provided for 8th and 9th grades and Technology and Careers book for 8th grade. Technical and engineering aspects of safe building are included for construction majors in technical high schools. (UNISDR, 2008)\

Japan: "Japan offers an example of DRR infusion into formal school curricula through two main avenues: existing school subjects and "a period of integrated study". There are a number of boards of education, schools, individual teachers that have taken an advantage of the latter avenue and have developed teaching and learning support materials and special programs based on the experiences of and lessons learnt from recent natural disasters. The systematic development and implementation of DRR curricula in schools throughout the country has yet to be realized." (Kagawa & Selby, 2012)

Kazakhstan: "Kazakhstan is an example of a materials-led and training-led approach to integrating DRR within the formal school curriculum that seeks to capitalize upon existing windows of opportunity for integration without systematically opening up further opportunities or developing a thoroughgoing whole curriculum approach. The peer-to-peer learning and assessment approaches are noteworthy. The Ministry of Education does not appear to be offering proactive leadership in DRR curriculum development and wider integration." (Kagawa & Selby, 2012)

Lao PDR: "Lao PDR offers an example of DRR curriculum integration into selected subjects at one secondary grade level (i.e. grade 6). It is an example of pilot project with a strong emphasis on child-led/child-focused pedagogical approaches, and illuminates their positive influence on developing students' broader DRR competencies. It is also an example of centralized curriculum development that creates space for localized DRR, which could be further mobilized." (Kagawa & Selby, 2012) The 2001–2003 Disaster Reduction Program implemented with the Ministry of Education, NDMO, and education sector partners, with support from ADPC and DANIDA developed school curricula for grades 3, 4, 5, with textbooks in local languages and English piloted. (ADPC, 2007)

Lesotho: "Lesotho offers a noteworthy example of the fertile potential for DRR that is released when a national curriculum is reconfigured away from a primarily academic model to a model primarily based on skills and dispositions development. Curriculum developers have opened exciting new possibilities for the integration of DRR, more directly addressing values, attitudes and skills, once freed from the culture, expectations and constraints of traditional curricular organization. The implementation and impact of the new curriculum, with its weft and warp of DRR themes, will be worth monitoring." (Kagawa & Selby, 2012)

Madagascar: Madagascar offers an example of an infusionist approach to DRR across a range of curriculum subjects very much influenced by the precepts, principles and concerns of environmental education. Climate change education figures quite predominantly, a trend discernible in DRR developments in a number of African countries. (Kagawa & Selby, 2012) DRR materials were developed and taught to 130,000 students, and 20,000 guides for primary school teachers have been produced for 9 regions. Disaster Risk Management practice manuals (including also cyclone and flood early warning) have been integrated in school curricula and in teacher training in 4 subjects – life science,

Malagasy, French and mathematics. (Global Education Cluster, 2011) Madagascar has now successfully mainstreamed disaster risk reduction into school curricula with a students' manual and teachers' guide. (UNISDR, 2008) In collaboration with the Ministry of Education and the United Nations, the National Bureau of Risk Management and Disaster (Bureau National de Gestion des Risques et des Catastrophes – BNGRC) developed a textbook for students and a guide for teachers on Risk Management and Disaster. These manuals are available in all school districts in the country. In addition, teachers of the second cycle of primary education receive pedagogical training on DRR. "DRR deserves to be included in the curriculum. The process is pending. The textbooks, designed for students of second cycle of primary will also be extended to other primary and secondary cycles." HFA report 2007-2009[2]
* Yes: Primary School Programs
* No: Secondary School Programs

Malawi: "Malawi has not yet employed disaster risk reduction as a guiding concept for curriculum development, but addressing vulnerabilities is already prominent in a curriculum uniquely informed by „seven main categories of skills". Among a number of windows of opportunity for integrating DRR and climate change themes in the curriculum, Life Skills Education, which emphasizes "psycho-social skills", seems to offer fertile ground. Malawi is already employing continuous assessment and the Child Friendly Schools model at primary level, thus further preparing the ground for effective DRR education implementation." (Kagawa & Selby, 2012)

Maldives: "Maldives gives an example of DRR integration into school curricula through a pilot project on developing teacher and student support materials, backed up by training of key education stakeholders. The initiative is currently at the second phase of the project implementation, with consolidation and dissemination of the initial stage of the project underway." (Kagawa & Selby, 2012)

2 National report on the implementation of the Hyogo Framework for Action: Priority 3, core indicator 3.2: School curriculum, education material and relevant trainings include disaster risk reduction and recovery concepts and practices. Know the Risks and Take Action. Reporting period: 2007-2009 and 2009-2011 – interim

Mozambique: The Mozambique Red Cross Society took the lead in training 99 teachers in 76 schools, to mainstream DRR into school curricula from primary grades through high school (Seballos et. al. 2011) Plan International's project on curriculum development has supported the government in drafting a manual and its pilot introduction in few schools. Plan is supporting the initiative in 6 schools through its child-centered DRR project. This manual is being revised with inputs from teachers who have been using the manual. Plan is seeking to include issues related to child protection and education in emergency in the manual. Experience from other Plan countries is very useful in this project, and the manual is being contextualized to Mozambique situation. (UNISDR TPK&E, 2012) Save the Children working in the Zambezi River area are supported in developing skills for coping with floods through a school magazine, brochures, radio programs, theatre workshop and "River Game'. The 20% of curriculum allocated by the Ministry of Education to "locally relevant subjects" was used to promote this interactive and recreational material. The program was expanded from two district to five provinces. (INEE, World Bank, UNISDR 2009)

Myanmar: "Myanmar offers an example of using the life skills curriculum as the primary carrier of DRR curriculum." (Kagawa & Selby, 2012)

Nepal: "The Nepal experience highlights the question of whether primarily textbook-driven curriculum development can meet the skills and dispositional learning outcome ambitions of DRR education. It also raises important questions about centrally driven DRR curriculum development in a national context composed of diverse and proudly local communities often facing their own particular mix of natural hazards." (Kagawa & Selby, 2012)

New Zealand: The Ministry of Education contracted with an educational consultancy to work with both teachers and Civil Defence Officers in planning, developing and testing a teacher and child-friendly curriculum. "What's the Plan, Stan?" features Stan the dog and 5 children who model what to do before, during and after 6 types of disasters. It can be used to incorporate disaster risk reduction and content across all areas of the curriculum for students aged

8-12. Components include teacher's handbook with unit plans, activities, simulations and information for school planning, CD-ROM for teachers and students including stories, interactive games, hazard map, research material, tips and resources. There is also a storybook and accompanying audio-CD, poster, and website with information and interactive activities and templates. www.whatstheplanstan.govt.nz Workshops introduced this resource to teachers. (UNISDR, 2008) "New Zealand offers a national multi-media (print form and electronic) approach to DRR for primary and intermediate schools (students aged 7 to 12). The resource is an initiative of the Ministry of Civil Defence and Emergency Management that is embraced by, but not proactively reinforced by the Ministry of Education. It is of considerable interest in its multi-hazard approach, the comprehensive nature of the program developed, and its use of diverse learning and teaching approaches. It also opens up some important insights into what is necessary to reinforce and, so, systematize delivery of DRR through a national curriculum." (Kagawa & Selby, 2012)

Nicaragua: "Nicaragua offers an example of DRR as cross cutting theme with some structured infusion into a limited number of subjects." (Kagawa & Selby, 2012)

Nigeria: "Nigeria is currently undertaking a formal curriculum review with a view to integrating climate change adaptation, disaster risk reduction and gender issues at all levels of curricula. Its emphasis on linking gender issues with DRR and climate change adaptation will be worth monitoring, especially given that DRR and climate change are but rarely approached through a gender lens in school." (Kagawa & Selby, 2012)

Pakistan: The National Education Policy 2009, section 5.5 addresses Education in Emergencies with several policy actions to include disaster risk reduction in the curriculum as well as other provisions. (UNISDR TPK&E, 2012)

Philippines: "The Philippines offers an example of DRR curriculum mainstreaming initially at secondary level through a centralized and competency based approach predicated upon strong governmental commitment to and priority in advancing DRR practices in the education system. After targeted integration of DRR into Natural Science and Social Studies subjects in one secondary grade level (i.e. grade 7, first year high school), further integration of DRR into other grade levels is currently ongoing." (Kagawa & Selby, 2012)

Philippines: "School children participate in earthquake drills in February and July. All public elementary schools are required to participate in disaster risk reduction activities (eg. tree planting). In one S. Leyte school, affected by the 2011 landslide tragedy, students are involved in fruit and vegetable gardening with training support from the Department of Natural and Environmental Resources. Local government has also stimulated school-based solid-waste management activities. However, as of 2011, teachers have had no training in disaster risk reduction and innovative teaching is hampered by lack of audio-visual equipment, and school attendance is impacted by poverty". (Kagawa & Selby, 2012) Disaster are part of social studies and science curricula and value integration in primary and secondary public school curricula (Source: UNISDR – Asia Pacific)

Russian Federation: "Russia offers an example of the systematic inclusion and enhancement of DRR at full scale in the core curriculum through a carrying subject and also through infusion in all other subjects. Russia also features strong regional adaptation strategies. Basics of Life Security is the main carrying subject matter, with cooperation between the Ministry of Education and the Ministry of Emergencies to define curriculum content. Clear cross-curricular DRR knowledge, skills and attitudes learning outcomes are also included in other subject matters." (Kagawa & Selby, 2012)

Sierra Leone, Seychelles and Tanzania, disaster risk reduction education and teacher training have been piloted as a prelude to integration into the curriculum. (UNISDR, 2008)

Singapore: School curricula, educational material and relevant trainings include drr and recovery concepts and practices, nationwide. (Source: UNISDR Asia Pacific)

Solomon Islands: The Red Cross has trained youth in the nations capital to be peer educators in schools and communities on issues related to climate change. (Back et. al., 2009)

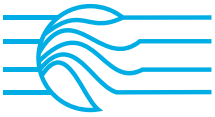
Sri Lanka: "Under the Asian Urban Disaster Management Program, the Institute of Education in Sri Lanka integrated disaster management in the subject of geography for secondary schools. Fikkiwub the 2004 tsunami, GTZ engaged in long-term support to the Ministry of Education to develop a program for School Based Disaster Risk management." (ADPC, 2007)

Turkey: Basic disaster awareness is included in the national education curriculum of primary school: from 1st grade to 12th grade. Its goal is to help students to identify the many small steps that can be taken to reduce disaster risks, to assist families in risk reduction and preparedness, and to help ourselves and those around us following a disaster. It covers: Hazard and Risk Awareness, Before a Disaster, During and After a Disaster, and Next Steps. (Turkmen,2007) http://www.ahep.org (UNISDR, 2008) "Turkey offers a singularly well-developed example of a structured interdisciplinary approach to primary-level DRR curriculum. It is also remarkable in its thorough and systematic approach to teacher training that preceded it by two years, and so helped pave the way for the launch of a reformed primary curriculum with a crosscutting DRR dimension." (Kagawa & Selby, 2012)

United States: School curricula in the US is highly decentralized. However, curriculum materials development has been underway for more than 20 years with contributions from the National Science Teachers Association, the Federal Emergency Management Agency, the US Geological Survey, and the American Red Cross. FEMA's teacher pack-ages include Seismic Sleuths (Grades 7-12) and Tremor Troops (Grades 1-6). http://www.fema.gov/kids/ fematce.html The American Red Cross "Masters of Disaster" curriculum materials addressing all major disasters in the US in a package for teachers of children ages 5-14. The programme was piloted in 43 school districts with 380 local Red Cross chapters providing volunteers to help reach more than 5 million school children over 6 years, on a voluntary basis, and has been adopted by many school authorities. The content has been aligned to Strands, Standards and Benchmarks found in the National Curriculum Standards, allowing teachers to integrate disaster safety into regular core subjects such as math, science and social studies. www.redcross.org/disaster/masters/intro.html. (UNISDR, 2008) The package helps teachers to integrate disaster risk reduction education into core subjects. Some materials are downloadable. (Back et. al., 2009) The US Department of Homeland Security has developed the Ready Kids campaign for integration into school curriculum. http://www.ready.gov/kids/home.html

Vietnam: The Red Cross Society has developed curriculum materials and trained trainers reaching more than 15,000 teachers and 500,000 children in 30 communes. Training to teachers and children continues in 8 coastal provinces. The programme has led to successful massive typhoon evacuations and decrease in loss of life. By 2010, The Ministry of Education fulfilled its mandate to include disaster preparedness education in the primary school curriculum. (UNISDR, 2008, Global Education Cluster, 2011)

Zimbabwe: With almost 100,000 cases of cholera and more then 4,000 deaths in 2009, UNICEF and two international NGOs developed a Disaster Management Guide to supplement the School Health Manual, setting out practical steps to reduce risk and prepare for emergencies. In addition, hygiene kits and IEC materials for schools made it possible for schools to implement cholera prevention measures. (Back et. al., 2009)



International Strategy for
Disaster Reduction